



# COMMERCIAL LOW-SLOPE ROOFING MATERIALS GUIDE

The information source on low-slope membrane, insulation board, roof coatings and cements, roof fastener products and membrane warranties for the commercial roof designer, specifier, installer, manufacturer and user





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# Low-Slope Roofing Materials Guide

## Introduction

The 1999 *Low-Slope Roofing Materials Guide* is a comprehensive report on commercial, industrial, and institutional low-slope roof membrane, insulation board, and fastener products currently on the market, as well as the warranties offered for most membrane roof systems. It also provides pertinent information on the manufacturers and suppliers of these products.

The *Guide* is published by the National Roofing Contractors Association (NRCA) as a service to the roofing industry. Its objective is to provide information on listed products that will be helpful to users in determining which generic and specific products will serve their particular needs. It is of special value to those associated with the design, specification, application, and use of low-slope roof systems.

The first edition of this publication was published in 1983. From its inception until 1992 it was named simply the *Roofing Materials Guide*. The 1993 edition of this publication was the first one to bear the title *Commercial Low-Slope Roofing Materials Guide*. The words *commercial low-slope* distinguished it from a companion publication “the *Residential Steep-Slope Roofing Materials Guide*” the first edition of which was published by NRCA in November 1992. The *Residential Steep-Slope Guide* provided product information on asphalt shingles, shingle warranties, fiber-cement roof components, clay and cement tile, metal roof components, slate, and synthetic roof components.

When applied to the roofing market, the terms *commercial low-slope* and *residential steep-slope* are by no means definitive. Low-slope roofing materials are commonly used on non-residential buildings (e.g., commercial, industrial, and institutional buildings) and are sometimes used on residential buildings (e.g., single family homes, townhouses). Conversely, steep-slope roofing materials are commonly used on residential buildings and are sometimes used on non-residential buildings.

Beginning in 1999, the titles of the *Guides* have changed to the *Low-Slope Roofing Materials Guide* and the *Steep-Slope Roofing Materials Guide*. The reason for this division of product categories, as well as the titles, is for consistency with NRCA’s other publications, including *The NRCA Roofing and Waterproofing Manual*.

*Low-slope* roofing materials are defined as those primarily intended for roofs with slopes of 3:12 (25%) or less. Built-up, polymer modified bitumen, single-ply, sprayed polyurethane foam-based, and some metal

panel roof systems fit this category.

*Steep-slope* roofing materials are defined as those primarily intended for roofs with slopes greater than 3:12 (25%). Asphalt shingle, fiber-cement, clay and concrete tile, wood shake and shingle, slate and some metal panel roof systems fit this category.

In publishing the *Low-Slope Roofing Materials Guide*, NRCA maintains a policy of total objectivity in its reporting of data. Nothing is required from listing manufacturers or suppliers other than adherence to a prescribed reporting format. Any manufacturer or supplier of products included in the *Guide* can participate by submitting information on their company and products in accordance with procedures developed for this purpose. Companies involved only in the distribution of other companies’ brand-name roofing products are not included in this publication. For further information, write: National Roofing Contractors Association, Attention: Roofing Materials Guide, 10255 W. Higgins Road, Suite 600, Rosemont, Illinois 60018-5607.

NRCA exercises due care in accurately reporting the data as supplied by manufacturers and suppliers but does not audit test procedures used to arrive at the reported data, nor does NRCA assume responsibility for the accuracy or completeness of the data submitted. The presence or absence of a listing of a product, manufacturer, or supplier in the *Guide* does not imply NRCA approval or disapproval of the product or company, nor does NRCA recommend that any specific materials be used or not.

NRCA does not develop standards but instead works toward and supports the improvement of existing standards and the development of new ones by those organizations responsible for standards development. The fact that materials listed in the *Guide* do or do not meet all of the values of the reference standards, documents, recommendations, or criteria does not necessarily imply that they will or will not produce acceptable roof systems. For listing purposes, it is not mandatory that test results be provided for each of the test methods specified in the reference standard; however, manufacturers and suppliers are encouraged to furnish complete test results so that the *Guide* users have access to this information.

## How the *Guide* is Organized

The *Low-Slope roofing Materials Guide* is divided into five major sections:

- Roof membranes
- Roof cements and coatings
- Roof membrane warranties
- Roof board insulation
- Roof fasteners.

There is an index for each section, except the one for the membrane section also serves as an index to the roof cements and coatings section and the membrane warranties section. There is also an introduction to product information for each section. The membrane section introduction encompasses built-up roofing, modified bitumen and single-ply products, sprayed polyurethane foam-based roof systems, and metal roof panels. The roof cements and coatings section and the warranties sections have their own introductions, as do the insulation and fastener sections. Finally, there is a separate appendix for the membrane, roof cements and coatings, insulation, and fasteners sections.

The purpose of the appendixes is to provide for manufacturer-supplied information that expands on or is in addition to data listed in the category section itself. Appendix information can be found for a product when an X appears in the space at the end of the listing entitled "See Appendix if Checked." In reviewing the data in the *Guide*, the user should keep in mind that the format is designed to facilitate the side-by-side comparison of products. For this reason, listing companies can only respond to existing items of requested information; they cannot add their own. Nor is footnoting permitted in *Guide* listings; companies instead may expand on or clarify an item of information by providing copy for the appendix.

Roof membrane product information is presented in up to three parts, depending on its category. Part 2 is generally reserved for technical information, although, for spray-applied polyurethane foam roof systems, Part 2 contains data on a second component of the system the insulation. There are three parts for modified bitumens, the third containing information on specifications.

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## Technical Information in the *Guide*

There are two categories of technical information for which data is requested in the *Low-Slope Roofing Materials Guide*: (1) fire and wind ratings, according to Underwriters Laboratories (UL) and/or Factory Mutual (FM) test methods; (2) ASTM performance-related standard specifications and/or standard test methods. In the insulation and fastener sections, there are provisions for information on UL design numbers and code approvals; see the introductions to these sections for details.

Although information is requested concerning wind uplift or fire ratings in the sections on metal roof panels and sprayed polyurethane foam-based roof systems, space limitations do not permit the listing of specific roof assembly components and attachment methods that have been used to secure UL and FM fire and/or wind uplift ratings. Therefore, such data is not included for any roof membrane. Readers should refer to UL's *Fire Resistance Directory* and *Building Materials & Systems Directory* and FM's *Approval Guide* to determine ratings that have been granted for these roofing materials. In the majority of cases, the technical data requested is for specific ratings or standards that are generally regarded in the industry as appropriate to the particular product category to which they apply. In a few cases for example in the other prefabricated sheet-applied membranes section manufacturers may provide test results according to whatever methods are deemed appropriate for the product being listed. This is because the category encompasses a variety of disparate products that are not generally measured according to the same criteria.

It should be pointed out that the development of standard specifications and test methods is a continuous process; many are under consideration by standard-setting bodies, such as ASTM, at any given point in time. The fact that a draft standard is being evaluated or exists in a proposed form does not make it useable by the *Guide*. Proposed standards or proposed revisions of existing standards are just that proposed and their use as a reference is often contrary to the policy of standard-setting bodies. For this reason, only standards that have undergone all formal approval procedures by the organizations identified with them are used in this publication.

The reader should note that the abbreviation *NA* is used throughout the *Guide* to indicate "not applicable." The use of *NA* is limited to those cases in which a standard does not, by its nature, apply to the particular product. For example, it would be appropriate for a manufacturer of a reinforced PVC membrane sheet to enter *NA* next to ASTM D 4434-95 "Elongation at Break, Type I, Type II, Grade 1,"



because the value in this test only applies to unreinforced PVC membrane sheets (Type III). It is inappropriate for a Listing company to indicate *NA* for any other reason, e.g., the manufacturer doesn't believe that a test method is valid and therefore shouldn't apply to his product. In such cases, the editors of the *Guide* will delete the *NA*, and no response will appear. Although the reader cannot know whether the space was left blank by the Listing company or was rendered blank editorially, the net effect is the same.

### Fire and Wind Ratings

The reference standards or tests for fire and wind ratings in the *Guide* are:

- ANSI/UL Standard 790 *Tests for Fire Resistance of Roof Covering Materials*
- UL Standard 580 *Tests for Uplift Resistance of Roof Assemblies*
- UL Standard 1897 *Uplift Tests for Roof Covering Systems*
- FM Approval Standard 4450 *Class I Insulated Steel Deck Roofs*
- FM Approval Standard 4470 *Class I Roof Covers*
- FM Approval Standard 4471 *Class I Panel Roofs*

**UL Standards:** The performance criteria for roof covering materials and ratings of individual products are published in UL's *Roofing Materials and Systems Directory*. The ratings are based upon tests performed by UL on products provided for this purpose. The fire-resistance ratings are Class A, B, or C based on tests conducted under UL 790 and, additionally, Class 15, 30, 60, or 90 under the wind-resistance tests found in UL 580. Class-A products are defined as those "roof coverings...effective against severe fire exposures...[that] under such exposures are not readily flammable...; offer a fairly high degree of fire protection to the roof deck; do not slip from position; possess no flying brand hazard; and do not require frequent repairs to maintain...fire-resistance properties." Under UL 580 the classification "15, 30, 60, or 90" depends on an evaluation of the comparative resistance to negative and positive pressures simulating the effects of varying wind velocities.

**FM Standards:** FM standards recommend design criteria for consideration by the building owner's architect or engineer. To confirm that a product or building assembly will perform satisfactorily under

actual fire, wind, or other conditions, Factory Mutual develops performance standards that test the product under simulated field conditions. FM standards for building products are written for a specific end-use in mind. They involve the owner and the installer, both of whom rely on a product's behavior under a variety of use conditions. The FM performance ratings are published in the *FM Approval Guide* and its three supplements, which are prepared at four-month intervals before the subsequent annual edition of the *Approval Guide* is printed.

Roof Cover Standard 4470 contains requirements that test products, as follows:

- Fire spread below the roof deck A Class-I fire rating means that the building owner is not required to install automatic sprinklers below the deck for its protection because the heat-release rate of the roof system is within allowable FM limits. The Class-I fire rating involves the most severe testing for any building assembly.
- Fire spread across the roof cover The FM rating for fire spread across the cover and insulation can be IA, IB, or IC depending on the length of spread under ASTM E 108 fire testing. The insulation beneath the cover is a part of the rating, both as it pertains to fire resistance and wind blow-off.

Windstorm rating (1-60, 1-75, 1-90, 1-105) The "1" in the windstorm rating refers to the Class I fire rating possessed by the roof assembly; the number 60, 75, 90, or 105 refers to the wind uplift classification as follows:

<u>Wind Uplift Classification</u>	<u>Max. Velocity Pressure in field of roof (PSF)</u>
1-60	# 30
1-75	30 # 37.5
1-90	37.5 # 45
1-105	45 # 52.5

Hail, leakage, weathering, and corrosion FM 4470 incorporates performance tests for each of the potential problems listed above, but the tests are made on the entire system, not individual components.

## Performance-Related and Test Method Standards

The following performance-related and test method standards are referenced in the *Low-Slope Roofing Materials Guide* as a basis for reporting technical data.

### Product Category

1. Built-up roofing specifications
2. Unreinforced and fabric-reinforced EPDM sheets
3. Unreinforced and fabric-reinforced Neoprene (Polychloroprene) sheets
4. Modified bitumen prefabricated sheets

### Reference Document

National Bureau of Standards, Building Science Series #55 *Preliminary Criteria for Bituminous Membrane Roofing*, 1974

ASTM D 4637-96 *Specification for Vulcanized Rubber Sheet Used in Single-Ply Roof Membrane*

ASTM D 4637-96 *Specification for Vulcanized Rubber Sheet Used in Single-Ply Roof Membrane*

ASTM D 5147-97 *Test Methods for Sampling and Testing Modified Bituminous Sheet Material*

ASTM D 6162-97 *Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements*

ASTM D 6163-97 *Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements*

ASTM D 6164-97 *Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements*

ASTM D 6222-98 *Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements*

ASTM D 6223-98 *Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements*

5. PVC (polyvinyl chloride) prefabricated sheets

ASTM D 4434-96 *Specification for Poly(Vinyl Chloride) Sheet Roofing*

6. Fiber- or fabric-reinforced CSPE (Hypalon) prefabricated sheets

ASTM D 5019-96 *Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane*

### Product Category

7. Fiber- or fabric-reinforced PIB prefabricated sheets

### Reference Document

ASTM D 5019-96 *Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane*

8. Fiber- or fabric-reinforced CPE prefabricated sheets	ASTM D 5019-96 <i>Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane</i>
9. Other single-ply prefabricated sheets	A list of eighteen optional tests are offered for the products, for which standards are not available
10. Sprayed polyurethane foam-based roof systems	ASTM D 412-97 <i>Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers</i> —Tension  ASTM D 570-95 <i>Test Method for Water Absorption of Plastics</i>  ASTM D 573-88 (1994) <i>Test Method for Rubber</i> —Deterioration in an Air Oven  ASTM D 822-96 <i>Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus</i>  ASTM D 1621-94 <i>Test Method for Compressive Properties of Rigid Cellular Plastics</i>  ASTM D 1622-93 <i>Test Method for Apparent Density of Rigid Cellular Plastics</i>  ASTM D 2794-93 <i>Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)</i>  ASTM D 2856-94 <i>Test Method for Open Cell Content of Rigid Cellular Plastics by the Air Pycnometer</i>
11. Metal roof panels	ASTM E 283-91 <i>Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen</i>  ASTM E 331-96 <i>Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference</i>
12. Roofing cements and coatings	ASTM D 41-94 <i>Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing</i>

## Reference Document

## Reference Document

12. Roofing cements and coatings (cont'd)	ASTM D 43-94 <i>Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing</i>  ASTM D 1187-97 <i>Specification for Asphalt-Base</i>
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*Emulsions for Use as Protective Coatings for Metal*

*ASTM D 1227-95 Specification for Emulsified Asphalt Used as a Protective Coating for Roofing*

*ASTM D 2822-91 (1997) Specification for Asphalt Roof Cement*

*ASTM D 2823-90 (1997) Specification for Asphalt Roof Coatings*

*ASTM D 2824-94 Specification for Aluminum-Pigmented Asphalt Roof Coatings, Non-Fibered, Asbestos Fibered, and Fibered without Asbestos*

*ASTM D 3019-94 Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos Fibered, and Non-Asbestos Fibered*

*ASTM D 3409-93 Test Method for Adhesion of Asphalt Roof Cement to Damp, Wet, or Underwater Surfaces*

*ASTM D 3468-90 Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing*

*ASTM D 3747-79 (1995) Specification for Emulsified Asphalt Adhesive for Adhering Roof Insulation*

*ASTM 4022-94 Specification for Coal Tar Roof Cement, Asbestos Containing*

*ASTM D 4479-93 Specification for Asphalt Roof Coatings/Asbestos-Free*

*ASTM D 4586-93 Specification for Asphalt Roof Cement, Asbestos Free*

13. Insulation: extruded polystyrene, glass/mineral fiber, cellular glass, phenolic, fiberboard, perlite

*ASTM C 203-92 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation*

<b>Product Category</b>	<b>Reference Document</b>
Insulation: fiberboard	ASTM C 209-92 <i>Test Methods for Cellulosic Fiber Insulating Board</i>
Insulation: extruded polystyrene, glass/ mineral fiber, cellular glass, phenolic, perlite	ASTM C 272-91 (1996) <i>Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions</i>
Insulation: polyisocyanurate	ASTM C 1289-95 <i>Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board</i>
Insulation: expanded polystyrene, extruded polystyrene	ASTM C 303-96 <i>Test Method for Density of Pre-formed Block-Type Thermal Insulation</i>
Insulation: extruded polystyrene, glass/ mineral fiber, cellular glass, phenolic, perlite	ASTM D 1621-94 <i>Test Method for Compressive Properties of Rigid Cellular Plastics</i>

## *Section 1*

# *Roof Membranes*



# Information on Commercial Low-Slope Roof Membranes

## Built-up Roofing Membranes

### General Information

The traditional hot built-up roofing membrane consists of alternating layers of felts, fabrics, or mats saturated with bitumen during manufacture, assembled in place, and adhered with applied layers of hot bitumen. The felts are commonly either organic, or "rag" felts, or glass fiber mats. Layers of felts sealed with bitumen are called plies; they are solid-mopped together and applied shingle-fashion. The number of plies in a cross-section is the number of plies on the roof: four plies equals a four-ply roof. Sometimes a base sheet, used as a first ply, is mechanically fastened.

Surfacing for the hot built-up roof can be aggregate embedded in hot asphalt; mineral-surface cap sheets; or smooth-surface application, which consists of hot asphalt mopped over the entire surface or cold-applied asphalt emulsions, cut-backs, and other coatings sprayed, rolled, or brushed on.

The bitumen used for interply moppings is either asphalt or cold tar. Asphalt is a petroleum product refined from crude oil; coal tar is derived from the destructive distillation of coal. A variant of the asphalt normally used in hot built-up roofing is modified asphalt, a material that is usually associated with modified bitumen membrane products. It is so named because it is created by modifying asphalt through heating and the addition of rubbers or plastics, which makes it more elastic and gives it a higher softening point than normal built-up roofing bitumen.

The cold-applied built-up roof, applied at ambient temperature, involves the use of asphalt cutbacks or elastomeric adhesives and, usually, either asphalt-coated felts or synthetics, such as those made of polyester. The most popular surfacing is mineral granules, although some cold-applied roofs are smooth surfaced with cut-backs or emulsions.

### Notes on the Built-up Roofing Section

**Item 7 Felts Data** The response to this item is a list of felts, mats, or other built-up roofing products that are used in each specification. The enumeration of products should include both the name and, parenthetically, both the applicable ASTM descriptive standard under which the product can be classified and the applicable classification number. If the product is metric, this should be noted as well.

Among the more commonly referenced ASTM descrip-

tive standards are the following:

D 173-95 *Standard Specification for Bitumen-Saturated Cotton Fabrics Used in Roofing and Waterproofing*

D 226-95 *Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing*

D 227-95 *Standard Specification for Coal Tar-Saturated Organic Felt Used in Roofing and Waterproofing*

D 249-89 *Standard Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules*

D 1668-95 *Standard Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing*

D 2178-96 *Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing*

D 2626-95 *Standard Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing*

D 3909-95a *Standard Specification for Asphalt Roll Roofing (Glass Mat) Surfaced with Mineral Granules*

D 4601-95 *Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing*

D 4897-95 *Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing*

D 4990-95 *Standard Specification for Coal Tar Glass Felt Used in Roofing and Waterproofing*

Parenthetical references by manufacturers to standards in this list do not include the date.

Other ASTM descriptive standards may be cited, depending on the nature of the product under consideration.

**Item 8 Specification Number** This is where the manufacturer is to provide the number and/or name of the built-up roofing specification; each specification indicates a distinct combination, quantity, and configuration of felts, interply adhesive, and/or surfacings.

**Item 11 Slope Requirements** In this space, the lister indicates the minimum and maximum slope approved for the specification, in inches per foot.

**Item 12 Number of Plies** The total number of plies, item

12A, is the sum of the number of plies indicated in items 12B, 12C, and 12D. If interplies are the only plies used in a specification, 12C and 12A will be the same number. Although cap sheets (12D) are really surfacing rather than plies, they are included here for clarity; see item 15 Other for a reference to cap sheets as surfacing.

**Item 17 Restricted Regions** If a specification is restricted to a particular region of the country, manufacturers will indicate this with a code—for example, *N* for northern region. Readers need to refer to the manufacturer's literature for an interpretation of the codes and their geographical significance. Absent regional restrictions, manufacturers simply enter *None*.

## Modified Bitumens

### General Information

Polymer modified bitumen membranes were developed in Europe in the mid-1960s and have been in use in the United States since 1975. They are composed of one or more premanufactured sheets consisting of asphalt, reinforcing layers, and, in some cases, surfacing. During manufacture, plastic or rubber (APP, or atactic polypropylene, and SBS, or styrene butadiene styrene, are the most common) is added to the bitumen while heating, which "modifies," or changes, its properties, giving it a higher softening point and greater elasticity. There is at least one sheet made of either polyethylene, polyester, or fiberglass sandwiched between the bitumen layers. Factory-installed surfacings include metal, mineral granules, and synthetic coatings. In many instances, modified bitumen membrane specifications may incorporate non-modified bitumen organic or fiberglass felts or mats, generally as a base sheet.

Modified bitumen membrane sheets generally are torch applied (APP and SBS modifieds), mopped in with hot asphalt (SBS modifieds), installed in cold adhesive, or self-adhered. Sometimes a combination of these application methods will be used in one system installation.

There are generally three major types of installation systems, sometimes associated with modified bitumen but more often with single-ply membranes: (1) loose-laid and ballasted, which involves attaching the membrane at the perimeters, terminations, and penetrations only and holding it in place everywhere else with ballast; (2) partially adhered, which involves mechanically attaching the membrane or spot adhering it with an adhesive; and (3) fully adhered systems, in which the membrane is fully bonded to the substrate with field-applied adhesive. There is also a configuration known as the protected roof membrane assembly, or inverted roof system. Here, the membrane is applied to the deck or existing roof, roof board insulation is loosely laid on top of the membrane,

and the system is weighted down with ballast. See item 7 under each kind of membrane product for data pertaining to these installation systems.

## Notes on the Modified Bitumen Section

### Part 1: General Information

**Item 3 Product Description** Item 3A provides for the name of the material used to modify the asphalt during the manufacture of the membrane; see the general information section on modified bitumens for further details. Item 3B asks for the total thickness of the modified membrane sheet in mils (thousandths of an inch). Item 3F requests the weight per square foot of the membrane as it would be installed on the roof, minus any surfacing ballast that might be added.

**Item 7 Types of Roof Systems** For item 7A, the information requested is the weight of the ballast per square foot that is recommended for application in the loose-laid/ballasted system. Absent a weight, it can be assumed that there is no loose-laid/ballasted specification for the listed product. For items 7B and 7C, the data requested is the method by which a product is partially or fully adhered, not simply whether a partially adhered or fully adhered specification exists. Any response besides a method will be blank. For item 7D, an *X* indicates whether there is a protected roof membrane assembly for the product; a blank indicates that none is available.

**Item 9 Acceptable Substrates** Item 7A through 7M are insulation board and decks over which membranes are normally applied. The manufacturer can respond with an *O*, an *X*, or both. An *O* means that the membrane can be installed over the substrate but that some kind of overlayment (e.g., a base sheet, insulation) is required in at least some circumstances; an *X* means that application is permitted directly to the substrate. Item 7N refers to application over an existing built-up membrane, to which the *O* and *X* responses are also applicable. Readers will need to refer to the manufacturer's specification manual for details concerning these requirements.

**Item 10 Restricted Regions** If a use of a membrane is restricted to a particular region of the country, manufacturers will indicate this with a code—for example, *N* for northern region. Readers need to refer to the manufacturer's literature for an interpretation of the codes and their geographical significance. Absent regional restrictions, manufacturers simply enter *None*.

**Item 11 Workable Temperature Range** This is the range of ambient temperatures in degrees Fahrenheit within which the manufacturer recommends application of the

membrane material.

**Item 12 Flashing Material** This item provides for information concerning the material used with the membrane product for flashing terminations and perimeters. It can be the same as the membrane product (generally indicated by the response *same material*), another of the manufacturer's membrane products (indicated by a trade name), or another of the manufacturer's types of products (e.g., any of the mineral-granule products offered by the manufacturer).

**Item 13 Flashing Method** The method for attaching the flashings may be the same as the field lap joint method indicated in item 6, or it may be different. It is not uncommon for the field sheet to be mopped and the flashings torched, for example.

**Item 20 Licensed Applicator Agreement** The manufacturer indicates here whether it has a licensed applicator program involving agreements with specific contractors approved to install the company's membrane products.

## Part 2: APP Modified Bitumens Test Results

Unlike the ASTM standard used for many of part 2 sections for roof membranes, ASTM D 5147-95 is a collection of test methods without pass/fail criteria. For this reason, there are no minimum or maximum values in parentheses. For further information on many of the tests included here, see the physical properties section of the general introduction to single-ply membranes.

## Part 2: SBS Modified Bitumens Test Results

In this section, manufacturers provide results according to tests in ASTM D 6162-97 *Standard Specification for Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements*, ASTM D 6163-97 *Standard Specification for Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements*, or ASTM D 6164-97 *Standard Specification for Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements*, depending on the nature of the product. The figures and/or test result information (e.g., *no failures*) to the right of the test categories are the minimum or maximum values or the required outcome necessary for the material. In cases where *MD* and *XMD* are called for, the *MD* response precedes the *XMD* response in the column.

## Part 3: Specifications

The purpose of Part 3 is to enumerate the specifications

and the various configurations for the modified bitumen sheets described in Part 1. As can be seen, modified bitumen membranes are often installed in multi-ply configurations, not unlike built-up roofing. In column 1, the specification numbers are listed under the categories used to classify them. These categories refer to the kind of roof installation involved: (1) new construction or replacement (*replacement* meaning that the old roof was torn off and replaced), (2) recover (meaning that a new membrane is being installed over an existing roof), and (3) recover, insulation added (meaning that the new membrane is being installed over an existing roof but one to which new insulation has been applied). There are subcategories of roofs within the category of new/replacement that describe the substrate: insulated, nailable, or nonnailable.

The second column enumerates the total number of plies in the membrane assembly; this should equal the number of sheets named in the subsequent four columns.

The third column lists the base sheet required in the membrane assembly, but **only** if it is not a modified bitumen sheet. Sometimes a trade name will appear in this column; often simply a generic description, such as *fiberglass*, will be given, indicating that a fiberglass base sheet is required. Modified bitumen base sheets will appear in the next column, entitled first sheet.

The next three columns are for listing the modified bitumen sheets used in the specification. The first sheet should be the modified sheet on the bottom of the membrane assembly; the last sheet listed, whether second or third, should be the sheet on top of the assembly.

## Single-Ply Roof Membranes

### General Information

There are three types of single-ply, or elastoplastic, products in use today that are defined by the chemical properties they possess. These are: (1) cured (or vulcanized) elastomers, (2) uncured elastomers, and (3) plastomers. Cured elastomers, sometimes referred to as *thermosets*, are synthetic rubbers that have undergone the vulcanization, or curing, process. Distinguishing features are that the membrane material exhibits the "rubber-like" quality of returning to its original shape after being stretched. In addition, membrane material can only be bonded to itself with adhesives, not heat.

Uncured elastomers are installed in a manner similar to thermoplastics in that they can be heat or solvent welded. The material cures over time once exposed to the elements, however, and then exhibits the same qualities of vulcanized elastomers.

Plastomers, or thermoplastics, can be heat or solvent welded and develop strength in the welds at least equal to the original membrane material. Plastomers do not cure

on the roof.

## Single-Ply Product Types

The single-ply product types, categorized according to chemical classification, are as listed below. (The following information is excerpted from *Single-Ply Roofing: A Professional's Guide to Specifications*, courtesy of SPRI.)

### Vulcanized Elastomers

**EPDM** is an elastomeric compound synthesized from ethylene, propylene, and a small amount of diene monomer. It is generally used for roofing as a vulcanized material, although it is also possible to formulate EPDM membranes that are nonvulcanized. Used as a roofing material in the United States since the early 1960s, EPDM sheets range in thickness from 30 to 60 mils and are usually black or white in color. EPDM membranes exhibit a high degree of ozone, ultraviolet, weathering, and abrasion resistance and good low-temperature flexibility. EPDM's properties of resilience, tensile strength, elongation, and hardness are largely retained in aging tests at elevated temperatures. Resistance is excellent to acids, alkalis, animal and vegetable oils, and oxygenated solvents, such as ketones, esters, and alcohols. On the other hand, exposure to aromatic, halogenated, and aliphatic solvents should be avoided to prevent swelling and distortion of the membrane.

**Neoprene**, or chloroprene rubber, was the first commercially available synthetic rubber product. Neoprene is formulated from polymers of chloroprene that were initially developed by E.I. DuPont de Nemours and Company, which has been manufacturing neoprene products since 1931. Neoprene may be used in a variety of elastomeric applications. It can be molded or extruded into hose, belts, heels, soles, tires, gaskets, coated fabrics, or wire and cable insulation. Neoprenes are also used to make quick-setting and high-strength adhesives. Neoprenes may be calendered into sheets that vary in thickness from 30 to 120 mils, and it is in this form that neoprene is used for roofing membranes. Chloroprene synthetic rubber sheets have been used as a single-ply roofing membrane since 1957. Sheets are available plain or with a reinforcing fabric. Neoprene roof membranes have excellent resistance to weather, heat, oils, solvents, and abrasion. The characteristics of neoprene adhesives allow fabrication of field splices that achieve high seam strength to provide a reliable continuous weatherproofing membrane. Some formulations are available that will receive a coating of liquid Hypalon synthetic rubber when a stable uniform color is desired for the roof membrane. These special nonstaining neoprene products require such a coating for weather protection.

### Nonvulcanized Elastomers

**CSPE** Chlorosulfonated polyethylene, a synthetic rubber manufactured by DuPont, was introduced in 1951 under the trade name Hypalon. It is a self-curing nonvulcanized elastomer and is available as a liquid coating or in sheet form for single-ply membrane application. CSPE sheet roofing membranes have been in use since 1966. They may be reinforced with polyester scrim or laminated to felt backing materials, and have a finished thickness of 30 to 60 mils. CSPE is a non-vulcanized product that exhibits thermoplastic qualities during processing and field installation. During roof exposure, curing or cross-linking occurs. CSPE exhibits strong resistance to weathering and a broad range of chemicals and pollutants, as well as being inherently ozone resistant. It may be produced in many colors and offers design versatility because of its adaptability to a variety of roof shapes and substrates.

**CPE** Chlorinated polyethylene was first introduced to the single-ply membrane roofing market in 1964. The raw materials used are manufactured by the Dow Chemical Co. CPE may be formulated for use as roofing membranes as both cured and uncured elastomers. They may be nonreinforced or reinforced with scrim and range in thickness from 40 to 48 mils. They are inherently flexible and do not require the addition of plasticizers in their formulations. CPE exhibits strong resistance to oils and chemicals, excellent weatherability, and ozone resistance. They are also resistant to bitumen and can therefore be installed directly over existing asphalt or coal tar pitch roofs. Although usually produced in white or light gray for reflectivity and energy efficiency, CPE can also be pigmented to a variety of colors.

**PIB** (polyisobutylene) is an elastomeric compound, made of isobutylene and other polymers, which was first used as a roofing membrane in Europe in the 1960s. It has been available domestically in the form used today since the mid-1970s. The 60-mil PIB membrane is laminated to a 40-mil non-woven synthetic fleece backing with an unbacked prefabricated sealing edge for the side laps. PIB exhibits good resistance to weathering, ultraviolet light, and radiant heat. It is compatible with asphalt, but is not resistant to petroleum distillates, organic oil and fats, or substances containing tar.

**NBP** NBP nitrile alloy membranes are compounded from butadiene-acrylonitril copolymers with other proprietary ingredients. They are typically reinforced with polyester and range in thickness from 30 to 45 mils. First developed in the mid-1960s, nitrile alloys have been used in engineering applications in the aircraft, automotive, and geomembrane industries. Used extensively for weather

and waterproofing applications since the mid-1960s, NBP reinforced single-ply membranes exhibit excellent tear and puncture resistance, good weatherability, remain flexible at low temperatures, and have a low water vapor permeability. They are resistant to most chemicals but are sensitive to aromatic hydrocarbons.

### Thermoplastics

**PVC** (polyvinyl chloride) polymers, originally produced in Germany almost thirty years ago, are among the most versatile of thermoplastics for industrial and commercial applications. They are produced by the polymerization of vinyl chloride monomer, a gaseous substance resulting from the reaction of ethylene with oxygen and hydrochloric acid. In its most basic form, the resin is a relatively hard material that requires the addition of other compounds, commonly plasticizers and stabilizers, as well as certain other ingredients, to produce the desired physical properties for end use. PVC membranes may be produced by calendaring, extruding, or spread-coating, and they may be nonreinforced or reinforced with glass fibers or polyester fabric. They are usually 40 to 48 mils thick. PVC membranes are available that have provided up to twenty years of service life as exposed roofing. They are resistant to bacterial growth, industrial chemical atmospheres, roof penetration, and extreme weather conditions. PVC membranes properly formulated have shown excellent fire resistance and seaming capabilities. PVC membranes are chemically incompatible with bituminous materials.

**EIP** EIP are thermoplastic compounds consisting of ethylene interpolymers, stabilizers, pigments, anti-oxidants, and modifying polymers. EIP membranes are generally reinforced with polyester fabric and are usually 32 mils thick. They possess good resistance to fire, chemicals, and oils and have high tear strength. Many formulations utilizing combinations of ethylene polymers with other basic ingredients can be produced.

### Physical Properties

Although it is difficult to directly correlate physical property data with actual performance or life expectancy, the following list of twelve basic material properties has been identified by SPRI's Technical Committee as being pertinent to all roofing membranes, regardless of chemical composition.

1. Thickness
2. Tensile strength
3. Ultimate elongation
4. Modulus
5. Tear resistance

6. Water vapor transmission rate
7. Water absorption
8. Dimensional stability
9. Factory seam strength
10. Low-temperature resistance
11. Results after heat aging
12. Results after accelerated weathering

### Test Procedures for Evaluation of Materials

The test methods used to evaluate each of these properties vary depending upon the chemical composition and construction of the finished membrane. Different test methods are used for different generic types of material, as well as for reinforced and nonreinforced membranes.

To understand the results reported by manufacturers, it is important to know the test methods from which the data are derived. Frequently, attempts are made to compare the test results of different products to try to draw conclusions about their relative performance capabilities. Often the conclusions drawn are invalid because the comparison is of data obtained using different test methods. Sometimes a particular test method is preferred for a particular generic membrane type. In other cases, there are multiple tests that are equally applicable; the selection of which to use is made by individual manufacturers based on such factors as availability of necessary testing equipment or apparatus. Some testing may be performed by independent laboratories, while other tests are routinely performed by the manufacturer in-house.

In most cases, standard test methods are available. These are established by (ASTM). There are also other agencies worldwide that define testing methods for single-ply membranes that may be similar to, but not exactly the same as, the ASTM methods.

### Significance of the Reported Physical Properties of Membrane Materials

**1. Thickness** The distance between opposite surfaces of a material. Units of measure are mils, fractions of an inch, or millimeters.

The relationship of thickness to actual performance is not entirely clear, and membranes are available in thickness ranging from 30 mils to as many as 160 mils. This rather significant variance may be accounted for by such factors as the polymer type and formulation, method of manufacture, physical construction of the finished sheet (e.g., surfacing, reinforcements, etc.), as well as the intended method of application. Thickness is related to quality control procedures in that the manufacturer must verify that a uniform thickness is maintained. The performance-related factors usually associated with membrane thickness are its resistance to mechanical damage, hail, traffic, and surface wear, although there are certainly other factors, such as compressibility of the

substrate, that also contribute to all of these. In other words, the susceptibility of a membrane to damage does not in any way rely solely on the thickness of the material.

**2. Tensile strength** The maximum force of stress required to break a membrane sample. For nonreinforced membranes, strength is reported as a stress (pounds per square inch, or "psi"); for reinforced membranes, strength is reported as a force (pounds, or "lbf").

This physical property relates to the ability of a membrane to withstand stresses that might be imposed by such things as building movement, wind uplift, and thermal loading. The presence of reinforcing material and the type of material used as reinforcement may also affect tensile strength.

**3. Ultimate elongation** The amount a membrane sample stretches during tensile testing before it ruptures, usually expressed as a percentage of the original length.

The elongation of a membrane may contribute to its ability to accommodate movement in the substrate or structure without rupturing. There is a broad range of elongation values exhibited by products that are appropriate for use as single-ply roofing membranes. The variance from product to product depends on chemical composition and sometimes on the presence of reinforcing materials. In some cases, a reinforcing material may break internally at a low strain level without affecting the integrity of the sheet, thereby allowing the membrane itself to stretch and achieve its elongation property. In other cases, the reinforcement has a high resistance to elongation and imparts this characteristic to the finished sheet, producing a membrane with a low elongation property. The selection is made by the manufacturer and is based largely on the manner in which the material will be installed.

**4. Modulus** is a measure of the stiffness of a polymeric sheet. Since polymeric materials do not exhibit traditional elastic behavior over their entire range of elongation, the modulus is not a constant; rather it is reported as the tensile stress required to produce a prescribed elongation. When the modulus at 50 percent elongation is reported for a number of products, it allows for a comparison of their relative stiffness. This is expressed as psi at a given percent elongation.

The presence of reinforcement affects the modulus of a material by significantly increasing its stiffness; it may also affect the elongation properties in the direction of the reinforcing medium. Like elongation, this property is an indicator of the suitability of the formulation for use as a roofing membrane, but it is not a direct predictor of its performance once installed. However, modulus, in combination with other factors, such as coefficient of

thermal expansion and dimensional stability, may have an effect on the manner of attachment of the membrane at terminations.

**5. Tear resistance** The load required to tear a material when the stress is concentrated on a small area of the specimen by the introduction of a prescribed flaw, expressed in psi or pounds-force.

This property indicates a membrane's ability to resist initiation and/or propagation of a tear. Recognizing that occasionally mechanical damage occurs that results in a tear or puncture, it is important that during installation—or membrane expansion and contraction due to structural or substrate movement or wind uplift pressures—the membrane be able to resist further tearing. Resistance to tear is also of importance in mechanically attached membrane systems in which the membrane is penetrated by fasteners, and wherever penetration of the membrane occurs at terminations. Different test methods are used to test the tear resistance of reinforced and nonreinforced membranes.

**6. Water vapor transmission** A measure of the rate of transmission of water vapor through the membrane material under controlled laboratory conditions of temperature and humidity, expressed as grains/hour/square/foot or grams/24 hours/square meter.

This property, which is measured under prescribed testing procedures, determines the rate at which vapor passes through the membrane. The actual vapor transmission rate of a specific membrane is important in the design of a total roofing assembly with regard to the inclusion or exclusion of a vapor retarder.

**7. Water absorption** The amount of water absorbed by a material after immersion for a prescribed period of time, expressed as a percentage of the original weight of the material.

The membrane must be resistant to water absorption from continuous submersion in water due to ponding, whether because of poor drainage or snow and ice build-up. A significant loss or gain of weight during immersion would indicate that the membrane may not perform satisfactorily over a long period of time. This water absorption may indicate that the membrane may affect dimensional stability and membrane thickness, and may cause internal stress that could lead to cracking.

**8. Dimensional stability** The change in length and/or width of a material that results from exposure to elevated temperatures over time, expressed as a percent.

Dimensional change that occurs after installation of the membrane may affect its watertight integrity and build up forces within the roof system. Such changes in sheet dimension can occur for a number of reasons: (a) stress

induced on the membrane during some manufacturing processes, (b) stress introduced during the windup operation phase of some post-manufacturing processes, and (c) the extraction of certain components of the compound due to contact with incompatible materials or through volatility of the compound.

The effect of all of the above conditions can often be accelerated by testing at elevated temperatures.

**9. Factory seam strength** The force required to cause failure (in peel or shear) of a seam that has been created by the material supplier, expressed in psi or as a percentage of the strength of the sheet itself.

Not all manufacturers supply membranes containing factory seams. However, this property is considered to be as significant to the overall performance as are field seams. The most disruptive forces to which a membrane will be subjected occur during installation. The factory seam must resist unfolding, stretching, pulling, and fluttering by the installers during placement and final positioning of the sheet.

**10. Low-temperature resistance** The lowest temperature at which the material does not fracture or crack under prescribed impact and flexing conditions, expressed in F or C.

It is important for the membrane to be able to accommodate, without cracking, the combination of low temperatures and mechanical impact during application, structural movement, or rooftop traffic that occurs in cold climates. However, there may be a strong correlation between low-temperature flexibility as tested in the laboratory and the actual temperature service range of the membrane on the roof.

**11. Heat aging** This test procedure is an attempt to accelerate the effect that solar heating will have on the properties of the installed roof membrane. The change(s) in physical properties (such as tensile properties) that result from exposure are then compared to those of the original unexposed material.

The results may provide some insight into, but no direct correlation with, the actual changes in physical properties that may occur during natural aging. It is particularly difficult to relate the exposure time during testing to real time during the life of the exposed membrane.

**12. Accelerated weathering** The process in which materials are exposed to a controlled environment where various phenomena, such as heat, water, condensation, and light, are altered to magnify their effects, thereby accelerating the weathering process. The physical properties that result from this exposure are then measured and compared to those of the original unexposed material.

These tests are an attempt to provide insight into the long-term performance of the membrane under exposure to the climatic variables of sunlight and precipitation. Again, there is no clear correlation between the test results and actual performance, and the relationship between test exposure time and real time is difficult to determine.

## Notes on the PVC Section

### Part 1: General Information

**Item 3 Product Description** Item 3A provides for information on the material used to reinforce the PVC sheet; fiberglass and polyester are the most common reinforcements. Absent a reinforcement, the entry will state None. Item 3C requests the weight per square foot of the membrane as it would be installed on the roof, minus any surfacing ballast that might be added.

**Item 7 Types of Roof Systems** For item 7A, the information requested is the weight of the ballast per square foot that is recommended for application in the loose-laid/ballasted system. Absent a weight, it can be assumed that there is no loose-laid/ballasted specification for the listed product. For items 7B and 7C, the data requested is the method by which a product is partially or fully adhered, not simply whether a partially adhered or fully adhered specification exists. Any response besides a method will be blank. For item 7D, an X indicates whether there is a protected roof membrane assembly for the product; a blank indicates that none is available.

**Item 9 Acceptable Substrates** Item 7A through 7M are insulation board and decks over which membranes are normally applied. The manufacturer can respond with an O, an S, or an X, or any two or all three. An O means that the membrane can be installed over the substrate but that some kind of overlayment (e.g., a base sheet, insulation) is required in at least some circumstances; an S means that a sheet of material is required to separate the membrane from the substrate; and an X means that application is permitted directly to the substrate. Item 7N refers to application over an existing built-up membrane, to which the O and X responses are also applicable. Readers will need to refer to the manufacturer's specification manual for details concerning these requirements.

**Item 10 Restricted Regions** If a use of a membrane is restricted to a particular region of the country, manufacturers will indicate this with a code—for example, N for northern region. Readers need to refer to the manufacturer's literature for an interpretation of the codes and their geographical significance. Absent regional restrictions, manufacturers simply enter None.



**Item 11 *Workable Temperature Range*** This is the range of ambient temperatures in degrees Fahrenheit within which the manufacturer recommends application of the membrane material.

**Item 12 *Flashing Material*** This item provides for information concerning the material used with the membrane product for flashing terminations and perimeters. It can be the same as the membrane product (generally indicated by the response *same material*), another of the manufacturer's membrane products (indicated by a trade name), or another of the manufacturer's types of products (e.g., any PVC-clad metal).

**Item 13 *Flashing Method*** The method for attaching the flashings may be the same as the field lap joint method indicated in item 6, or it may be different. For example, in some cases the membrane is seamed with hot air but the flashing adhered with solvent.

**Item 20 *Licensed Applicator Agreement*** The manufacturer indicates here whether it has a licensed applicator program involving agreements with specific contractors approved to install the company's membrane products.

## Part 2: Test Results

In this section, manufacturers provide results according to tests in ASTM D 4434-95. The figures and/or test result information (e.g., *negligible*) to the right of the test categories are the minimum or maximum values or the required outcome necessary for the material to pass the test in that category.

## Notes on the EPDM and Neoprene Sections

(Note: No manufacturer listed a Neoprene product in the 1998 edition of the *Guide*; therefore, the section was not produced.)

## Part 1: General Information

**Item 3 *Product Description*** Item 3A provides for information on the material used to reinforce the EPDM or Neoprene sheet. Absent a reinforcement, the entry will state *None*. Item 3C requests the weight per square foot of the membrane as it would be installed on the roof, minus any surfacing ballast that might be added.

**Item 7 *Types of Roof Systems*** For item 7A, the information requested is the weight of the ballast per square foot that is recommended for application in the loose-laid/ballasted system. Absent a weight, it can be assumed that there is no loose-laid/ballasted specification for the listed product. For items 7B and 7C, the data requested

is the **method** by which a product is partially or fully adhered, not simply whether a partially adhered or fully adhered specification exists. Any response besides a method will be blank. For item 7D, an *X* indicates whether there is a protected roof membrane assembly for the product; a blank indicates that none is available.

**Item 9 *Acceptable Substrates*** Item 7A through 7M are insulation board and decks over which membranes are normally applied. The manufacturer can respond with an *O*, an *S*, or an *X*, or any two or all three. An *O* means that the membrane can be installed over the substrate but that some kind of overlayment (e.g., a base sheet, insulation) is required in at least some circumstances; an *S* means that a sheet of material is required to separate the membrane from the substrate; and an *X* means that application is permitted directly to the substrate. Item 7N refers to application over an existing built-up membrane, to which the *O* and *X* responses are also applicable. Readers will need to refer to the manufacturer's specification manual for details concerning these requirements.

**Item 10 *Restricted Regions*** If a use of a membrane is restricted to a particular region of the country, manufacturers will indicate this with a code—for example, *N* for northern region. Readers need to refer to the manufacturer's literature for an interpretation of the codes and their geographical significance. Absent regional restrictions, manufacturers simply enter *None*.

**Item 11 *Workable Temperature Range*** This is the range of ambient temperatures in degrees Fahrenheit within which the manufacturer recommends application of the membrane material.

**Item 12 *Flashing Material*** This item provides for information concerning the material used with the membrane product for flashing terminations and perimeters. It can be the same as the membrane product (generally indicated by the response *same material*), another of the manufacturer's membrane products (indicated by a trade name), or another of the manufacturer's types of products (e.g., uncured neoprene).

**Item 13 *Flashing Method*** In the case of EPDM membranes, the method for attaching the flashings will be essentially the same as the field lap joint method indicated in item 6, because only contact adhesive can be used on cured elastomers. The indication that sealant is used in addition to contact adhesive refers to sealant applied to ensure secure bonding of the laps and/or flashing material.

**Item 20 *Licensed Applicator Agreement*** The manufac-

turer indicates here whether it has a licensed applicator program involving agreements with specific contractors approved to install the company's membrane products.

## Part 2: Test Results

In this section, manufacturers provide results according to tests in ASTM D 4637-96. The figures and/or test result information (e.g., *no cracks*) to the right of the test categories are the minimum or maximum values or the required outcome necessary for the material to pass the test in that category.

## Notes on the CSPE, PIB, CPE, and Other Prefabricated Sheet-applied Membrane Sections

(Note: No manufacturer listed a CPE product in the 1998 edition of the *Guide*; therefore, the section was not produced.)

## Part 1: General Information

**Item 3 Product Description** Item 3A provides for information on the material used to reinforce the sheet. Absent a reinforcement, the entry will state *None*. Item 3C requests the weight per square foot of the membrane as it would be installed on the roof, minus any surfacing ballast that might be added.

**Item 7 Types of Roof Systems** For item 7A, the information requested is the weight of the ballast per square foot that is recommended for application in the loose-laid/ballasted system. Absent a weight, it can be assumed that there is no loose-laid/ballasted specification for the listed product. For items 7B and 7C, the data requested is the **method** by which a product is partially or fully adhered, not simply whether a partially adhered or fully adhered specification exists. Any response besides a method will be blank. For item 7D, an *X* indicates whether there is a protected roof membrane assembly for the product; a blank indicates that none is available.

**Item 9 Acceptable Substrates** Item 7A through 7M are insulation board and decks over which membranes are normally applied. The manufacturer can respond with an *O*, an *S*, or an *X*, or any two or all three. An *O* means that the membrane can be installed over the substrate but that some kind of overlayment (e.g., a base sheet, insulation) is required in at least some circumstances; an *S* means that a sheet of material is required to separate the membrane from the substrate; and an *X* means that application is permitted directly to the substrate. Item 7N refers to application over an existing built-up membrane, to which the *O* and *X* responses are also applicable. Readers will need to refer to the manufacturer's specification manual for details concerning these requirements.

**Item 10 Restricted Regions** If a use of a membrane is restricted to a particular region of the country, manufacturers will indicate this with a code—for example, *N* for northern region. Readers need to refer to the manufacturer's literature for an interpretation of the codes and their geographical significance. Absent regional restrictions, manufacturers simply enter *None*.

**Item 11 Workable Temperature Range** This is the range of ambient temperatures in degrees Fahrenheit within which the manufacturer recommends application of the membrane material.

**Item 12 Flashing Material** This item provides for information concerning the material used with the membrane product for flashing terminations and perimeters. It can be the same as the membrane product (generally indicated by the response *same material*), another of the manufacturer's membrane products (indicated by a trade name), or another of the manufacturer's types of products (e.g., reinforced Hypalon).

**Item 13 Flashing Method** The method for attaching the flashings may be the same as the field lap joint method indicated in item 6, or it may be different. For example, in some cases the membrane is seamed with hot air but the flashing adhered with solvent.

**Item 20 Licensed Applicator Agreement** The manufacturer indicates here whether it has a licensed applicator program involving agreements with specific contractors approved to install the company's membrane products.

## Part 2: Test Results

In the Part 2 sections for CSPE, PIB, and CPE, manufacturers provide results according to tests in ASTM D 5019-96. The figures and/or test result information (e.g., *pass*) to the right of the test categories are the minimum or maximum values or the required outcome necessary for the material to pass the test in that category.

In the Part 2 section for Other Prefabricated Sheet-applied Single-Ply Membranes, there are 18 categories of material properties that manufacturers may report test results on. They may use any test method they wish, and need only enter the method used and the results indicated. Obviously there are no pass/fail criterion for the results in the Part 2 section.

## Spray-applied Polyurethane Foam Roof Systems

This portion of the Roof Membrane Section of the *Commercial Roofing Materials Guide* provides information on spray-applied polyurethane foam roof systems. It is

divided into two parts, representing the two separate systems components: Part 1: Protective Coatings and Part 2: Insulation.

## General Information

The first component of the polyurethane foam roof system is the rigid, closed-cell sprayed-in-place polyurethane foam insulation. The foam comprises two components: isocyanate and polyol; transfer pumps are used to get the components to a proportioning unit, which properly meters the two at a one-to-one ratio and heats and pumps them through dual hoses. They are mixed at the spray gun, which is used to apply them to the substrate.

The second component, the protective coating, is normally sprayed on as well, although hand and power rollers can be used. The purpose of the coatings is to protect the foam from ultraviolet exposure and moisture. The generic types of coatings include acrylic, butyl, Hypalon, neoprene, silicone, urethane, vinyl, and modified asphalts.

The spray-applied polyurethane foam roof system is often characterized as "self-flashing." The foam is applied so that it forms a transition from the vertical to the horizontal, which in many cases precludes the need for pipe flashings, lead boots, and other metal components. Pitch pans and equipment supports are generally encapsulated in the foam and then coated. The polyurethane foam is tapered around drains to prevent ponding.

### Part 1: Protective Coatings

**Item 3 Vapor Retarder** A coating is considered a vapor retarder if it has a moisture transmission rating (MVT) of one U.S. perm or less as defined by ASTM E 96. A vapor retarder is usually required when there are extreme temperature differentials; it is advisable when spray-applied polyurethane is applied to a roof over a high-humidity interior.

**Item 4 Name of Product:** If a coating is used as both the base and top coating, it will be so listed in a single-column format. Products that are "paired" in a specification are listed together in two columns without a line separating them; in these cases, data is provided separately, where appropriate, for the base and top coating.

**Item 16 Physical Properties of the Coating** Responses of *NA* were not permitted in this section. When *NA* was entered, the response was left blank; no differentiation can therefore be made between a response omitted by a manufacturer and one in which the response was *NA*.

**Item 17 UL 790 Flammability Class A Rating in Any**

**System** For information on UL 790, see the general introduction to the *Guide*. It should be noted that the question is whether a Class A rating is available for any specification (combination of insulation and coating). The exact specification is not requested; therefore readers should refer to the appropriate UL directory for details concerning such the rating.

**Item 18 Foam Insulation Requirements** These are the requirements that the coating manufacturer has for the insulation on which the specified coating will be used is in polyurethane foam roof system.

**Item 19 Foam Available from Manufacturer** In many instances, the coating manufacturer neither manufacture nor markets the foam insulation. See Item 4 in Part 2 for a cross-reference to insulation manufacturers that market systems coatings as well as insulation.

### Part 2: Insulation

**Item 6 Physical Properties of the Foam** Responses of *NA* were not permitted in this section. When *NA* was entered, the response was left blank; no differentiation can therefore be made between a response omitted by a manufacturer and one in which the response was *NA*.

**Item 7 UL 790 Flammability Class A Rating in Any System** For information on UL 790, see the general introduction to the *Guide*. It should be noted that the question is whether a Class A rating is available for any specification (combination of insulation and coating). The exact specification is not requested; therefore readers should refer to the appropriate UL directory for details concerning such the rating.

## Metal Roof Panels

### General Information

Metal roofing systems are traditionally divided into two categories, architectural and structural. The architectural system is likened to the traditional steep shingled roof, in that it is considered a water shedder. Structural systems can be compared to and compete with traditional low-slope roofs because they are designed to better resist moisture on low-slope applications. Architectural panels are usually seamed by a double-interlock method, which performs well on a slope of at least 3 in 12 inches. They require solid decking, and a felt underlayment is usually recommended. Structural metal systems are designed to resist the passage of water under hydrostatic pressure. They have the structural capability of spanning joists without being supported by a solid deck and do not

require an underlayment.

## Panel Types

Following is a brief description of panel types that appear in the *Commercial Guide*.

**Corrugated** The corrugated seam panel has a ribbed profile and exposed fasteners. It can be described as a lap-and-fasten system, in which panels are lapped at the edges and a fastener is used to secure the joint.

**Flat Seam** The flat seam is created with individual panels applied in shingled application. One panel edge is folded back on top of itself; the other panel is folded under, and the two panels are hooked together.

**Standing Seam** The term standing seam is often used as a generic description for a class of metal roof seams. More properly, the term refers to one of two kinds of profiles, or seam types: (1) the vertical leg/flat pan and (2) the trapezoidal seam. The name standing seam derives from the fact that the seams are joined together above the panel flats. The trapezoidal standing seam is more commonly associated with structural panels.

**Batten Seam** The original batten seam consisted of vertical leg panels placed between wood batten strips and covered with a cap. Many batten seam panels today are constructed entirely of metal.

**Standing Seam Systems** Because architectural standing seam roof systems are installed on steep slopes with short panel lengths, they are designed to shed water at a rapid rate and, therefore, they may or may not have sealant in the seam. The use of short panel lengths also limits the amount of thermal movement that can occur. For this reason, the panels are attached to the decking with a clip, consisting often of a single piece without designed allowance for movement, although two-piece clips are available. The panels slide back and forth on the clips.

Structural standing seam roof systems typically have a factory-applied sealant in seams to ensure watertightness. The systems commonly employ either glass fiber insulation rolls or rigid-board insulation. Because the insulation can become compressed at the structural members, spacer blocks are often placed over the member to prevent thermal bridging.

Allowance for thermal movement of the roof panel is provided by the concealed clips that are formed into the standing seams during the seaming operation. These clips are typically of two-piece design and are attached to secondary structures. The amount of thermal movement is a factor of the length of the panel run, the temperature changes that the panel will undergo, and the type of material that makes up the panels.

The seaming process varies. For both the vertical leg/flat pan and trapezoidal profiles, each panel typically has a male and female profile. There are a variety of seaming, or panel interlock, methods. Some are formed by mechanical seamers or by hand, such as the crimped (45 degrees), roll formed (180 degrees), double roll formed (two 180 degrees), and roll and lock. Other seam systems do not require mechanical seaming, such as the snap-on cap and snap-together methods.

## Notes on the Metal Roof Panel Section

**Item 6 Panel Profile** This item provides for information concerning the profile of the listed panel. Although only one category may be designated by a manufacturer for a given product, the inference should not be made that this designation excludes description of a profile in another category as well (e.g., batten and vertical leg). The intent of this category is simply to provide information concerning what the panel profile looks like, not necessarily its total configuration.

**Items 11, 12 ASTM E331 and E283** Actual test results are to be recorded; the only other response permitted was *NONE*.

**Item 13 FM-UL Wind Uplift Ratings** This item provides for information concerning the availability of any specification in the manufacturer's product line with an FM or UL wind uplift rating. As indicated in the general introduction, implicit reference is made to the FM rating of I-60, I-90 in Roof Cover Standard 4470 and to Class 15, 30, 60, or 90 under the wind-resistance tests found in UL 580.

The exact specification(s) with such ratings are not requested. Therefore readers should refer to the appropriate UL or FM guides and directories for details concerning such ratings.

# Index to Listed Membranes and Cements and Coatings

	BUILT-UP ROOFING	MODIFIED BITUMEN	PVC	EPDM	CSPE/PIB	OTHER PRE-FABRICATED	POLYURETHANE FOAM	SYSTEMS	METAL ROOF PANELS	ROOFING CEMENTS AND	COATINGS	WARRANTIES
<b>ACRYMAX TECHNOLOGIES, INC.</b> 221 Brooke St. Media, PA 19063 610/566-7470 FAX 610/891-0834 E-mail: Web:												
<b>AEP-SPAN</b> P O BOX 150449 Dallas, TX 75315 214/827-1746 FAX 214/828-1394 E-mail: Web:												
<b>ALCO-NVC, INC.</b> P.O. Box 14001 Detroit, MI 48214 800/323-0029 FAX 313/331-4726 E-mail: Web:												
<b>ALDO PRODUCTS CO., INC.</b> 1604 N. Main St. Kannapolis, NC 28081 704/932-3054 FAX 704/932-3041 E-mail: aldocoat@aol.com Web:												
<b>AL-KOAT, INC.</b> P.O. Box 260584 Plano, TX 75026-0584 972/758-1362 FAX 972/596-5310 E-mail: Web:												
<b>ALLIEDSIGNAL COMMERCIAL ROOFING SYSTEMS</b> 2000 Regency Parkway, Suite 255 Cary, NC 27511-8507 919/461-4701 (NC) 800/221-6490 FAX 919/461-4720 E-mail: frank.moore@alliedsignal.com Web:												
<b>ALUMINUM COATING MANUFACTURERS</b> 7301 Bessemer Avenue Cleveland, OH 44127 800/556-8030 FAX 216/341-5833 E-mail: sales@alum.com Web:												
<b>AMERICAN BUILDINGS ROOFING &amp; ARCHITECTURAL PRODUCTS</b> P.O. Box 800 Eufaula, AL 36072 334/687-2032 FAX 334/687-0298 E-mail: Web:												
<b>AMERICAN LUBRICANTS CO.</b> 1227 Deeds Avenue Dayton, OH 45401 937/222-2851 937/461-7729 E-mail: Web:												
<b>AMERICAN STEEL BUILDING CO. INC.</b> P.O. Box 14244 Houston, TX 77221 713/433-5661 FAX 713/433-0847 E-mail: Web:												
<b>AMERICAN TAR COMPANY</b> A Division of Fields Corporation 2240 Taylor Way Tacoma, WA 98421 253/627-4098 FAX 253/627-3859 E-mail: Web:												
<b>ANDEK CORP.</b> P.O. Box 392 850 Glen Ave Moorestown, NJ 08057 888/88ANDEK FAX 888/44ANDEK E-mail: Web:												
<b>ARS INDUSTRIES</b> 9606 Parkway East, Suite E Birmingham AL 35215 205/836-6777 FAX 205/836-4090 E-mail: Web:												
<b>ATAS INTERNATIONAL, INC.</b> Iron Run Industrial Park 6612 Snowdrift Rd. Allentown, PA 18106 610/395-8445 FAX 610/395-9342 E-mail: Web:												
<b>AVARD PRODUCTS</b> 10461 Margarita Ave. Fountain Valley, CA 92708 714/839-4494 FAX 714/775-8415 E-mail: Web:												
<b>BARRETT COMPANY</b> 3422 Old Capitol Trail Wilmington, DE 19808 800/647-0100 FAX E-mail: Web:												
<b>BERRIDGE MANUFACTURING CO.</b> Roof Division Houston, TX 77026 713/223-4971 FAX 713/236-9422 E-mail: sales@berridge.com Web: www.berridge.com												
<b>BHP STEEL BUILDING PROD. USA</b> 2110 Enterprise Boulevard West Sacramento, CA 95691 916/372-6851 FAX 916/372-5442 E-mail: Web:												

# Index to Listed Membranes and Cements and Coatings

	BUILT-UP ROOFING	MODIFIED BITUMEN	PVC	EPDM	CSPE/PIB	OTHER PRE-FABRICATED	POLYURETHANE FOAM	SYSTEMS	METAL ROOF PANELS	ROOFING CEMENTS AND	COATINGS	WARRANTIES	
<b>BITEC INC.</b> #2 Industrial Park Dr. Morritlon, AR 72110 800/535-8597 FAX 501/354-3019 E-mail: dga@bitec.com Web:													
<b>BONDCOTE ROOFING SYSTEMS</b> 984 Southford Road Middlebury, CT 06762 800/368-2160 FAX E-mail: Web:													
<b>THE BREWER COMPANY</b> 30060 Lakeland Blvd. Wickliffe, OH 44090 216/944-3800 FAX 216/944-1492 E-mail: Web:													
<b>BURKE INDUSTRIES</b> 2250 South 10th St. San Jose, Ca 95112 408/297-3500 800/297-7010 FAX 408/280-0938 E-mail: Web:													
<b>BUTLER MANUFACTURING CO.</b> BMA Tower Penn Valley Park Kansas City, MO 64141 816/968-2370 FAX 816/968-2371 E-mail: Web:													
<b>CARLISLE SYNTEC INCORPORATED</b> P.O. Box 7000 Carlisle, PA 17013 717/245-7000 FAX 717/245-7245 E-mail: Web:													
<b>CELOTEX CORP.</b> 4010 Boy Scout Blvd. Tampa, FL 33607 813/873-1700 FAX: 813/873-4080 E-mail: aharrington@celotex.com Web:													
<b>CONKLIN CO.</b> P.O. Box 155 Shakopee, MN 55379-0155 800/888-8838 FAX 612/496-4285 E-mail: marketing@conklin.com Web Site: www.conklin.com													
<b>CONSOLIDATED COATINGS CORP.</b> 2614 Pearl Rd., P.O. Box 10 Brunswick, OH 44212-0010 800/321-7886 FAX 330/220-6761 E-mail: Web:													

	BUILT-UP ROOFING	MODIFIED BITUMEN	PVC	EPDM	CSPE/PIB	OTHER PRE-FABRICATED	POLYURETHANE FOAM	SYSTEMS	METAL ROOF PANELS	ROOFING CEMENTS AND	COATINGS	WARRANTIES	
<b>COOLEY ENGINEERED MEMBRANE INC.</b> 50 Esten Avenue Box 939 Pawtucket, RI 02862-0939 401/724-0490 FAX: E-mail: Web:													
<b>DANOSA CARIBBEAN INC.</b> Box 13757, Santurce Station San Juan, PR 00908 809/785-4545 FAX 809/787-3902 E-mail: Web:													
<b>DERMABIT, WATERPROOFING INDUSTRIES INC.</b> P. O Box 273 Alexandria, VA 22313-0273 703/739-2801 FAX 703/739-2802 E-mail: Web:													
<b>DEWITT PRODUCTS CO.</b> 5860 Plumer Detroit, MI 48209 313/554-0575 800/962-8599 FAX 313/554-2171 E-mail: Web: www.dewitt@globalbiz.com													
<b>DIBITEN</b> P.O. Box 5108 Denver, CO 80217-5108 800/342-4836 FAX 303/978-3904 E-mail: Web:													
<b>DOW CORNING CORPORATION</b> P.O. Box 994 Midland, MI 48686-0994 517/496-6000 FAX 517/496-8026 E-mail: Web:													
<b>DURO-LAST INC.</b> 525 Morley Drive Saginaw, MI 48601 800/248-0280 (All U.S.) FAX 800/432-9331 E-mail: Web:													
<b>ENGLERT INC.</b> 1200 Amboy Ave. Perth Amboy, NJ 08862 732/826-8614 FAX 732/826-8865 E-mail: Web:													
<b>ENSURCO/DURADEK U.S. LTD.</b> 404 East 13th Avenue North Kansas City, MO 64116 800/338-3568 FAX 816/421-2924 E-mail: Web:													

## Index to Listed Membranes and Cements and Coatings

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<b>ERSYSTEMS</b> Elastomeric Roofing Systems, Inc. 50 Medina Street Loretto, MN 55357-0056 612/479-6690 800/403-7747 FAX 612/479-6691 E-mail: ersu@ersystems.com Web Site: www.ersystems.com									
<b>FABRAL</b> 3449 Hempland Road Lancaster, PA 17601 717/397-2741 FAX 717/397-1040 E-mail: Web:									
<b>FIELDS CORPORATION</b> 2240 Taylor Way Tacoma, WA 98421 253/627-4098 FAX 253/383-2181 E-mail: Web:									
<b>FIRESTONE BUILDING PRODUCTS CO.</b> 525 Congressional Blvd. Carmel, IN 46032 800/428-4442 FAX: E-mail: firestonebp.com Web:									
<b>FLEX MEMBRANE INTERNATIONAL, INC.</b> Bethlehem Drive Morgantown, PA 19543 610/286-7788 FAX 610/286-7786 E-mail flexroof@compuserve.com Web:									
<b>FOAM ENTERPRISES, INC.</b> 13630 Watertower Circle Minneapolis, MN 55441 800/888-3342 FAX 612/559-0945 E-mail: Web:									
<b>FOLLANSBEE STEEL</b> P.O. Box 610 Follansbee, WV 26037 800/624-6906 FAX 304/527-1269 E-mail: folrfgllbcorp.com Web:									
<b>FUTURA COATINGS, INC.</b> 9200 Latty Avenue Hazelwood, MO 63042 314/521-4100 FAX 314/521-7255 E-mail: Web:									
<b>GAF MATERIALS CORP.</b> 1361 Alps Road Wayne, NJ 07470 973/628-3000 FAX: E-mail: Web:									
<b>GACO WESTERN, INC.</b> P.O. Box 88698 Seattle, WA 98138-2698 800/456-4226 FAX 206/575-0587 E-mail: Web:									
<b>GALVAMET, INC.</b> 2267 Via Burton Street Anaheim, CA 92806 714/758-4848 FAX 714/758-4855 E-mail: jgeortner@galvamet.com Web:									
<b>GARDNER ASPHALT CORP./APOC DIVISION</b> P.O. Box 5449 Tampa, FL 33675-5449 FAX 813/248-6768 E-mail: Web:									
<b>GARLAND COMPANY INC.</b> 3800 E. 91st Street Cleveland, OH 44105 216/641-7500 FAX 216/641-0633 E-mail: Web:									
<b>GCS COATINGS, INC.</b> 1999 Beaver Avenue Monaca, PA 15061 412/774-6232 FAX 412/774-0818 E-mail: Web:									
<b>G. E. SILICONES division of GENERAL ELECTRIC</b> 260 Hudson River Rd. Bldg. 25-73 Waterford, NY 12188 518/237-3330 FAX 518/233-3931 E-mail: Web:									
<b>GENFLEX ROOFING SYSTEMS</b> (Division of GenCorp Inc.) 1722 Indian Wood Circle Maumee, OH 43537 FAX: E-mail: Web:									
<b>GMX, INC.</b> 9105 Way Ave. Cleveland, OH 44105 216/641-7502 FAX 216/641-0633 E-mail: Web:									
<b>GRACE &amp; CO., W.R.</b> 62 Whittemore Avenue Cambridge, MA 02140 617/876-1400 FAX: E-mail: Web:									



## Index to Listed Membranes and Cements and Coatings

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<b>SOPREMA, INC.</b> 310 Quadral Drive Wadsworth, OH 44281 330/334-0066 800/356-3521 FAX 330/334-4289 E-mail Web																			
<b>SOUTHWESTERN PETROLEUM CORPORATION (SWEPCO)</b> 534 No. Main St. P.O. Box 961005 Fort Worth, TX 76161-0005 817/332-2336 800/877-9372 FAX 817/877-4047 E-mail Web																			
<b>SPM THERMO-SHIELD INC.</b> Rt. 2, Box 208A Custer, SD 57730 605/673-3201 FAX 605/673-3200 E-mail: spm@thermoshield.com Web																			
<b>STEELOX ROOF SYSTEMS</b> P.O. Box 8181 Mason, OH 45040-8181 513/573-5200 FAX 513/573-5511 E-mail Web																			
<b>STEVENS ROOFING SYSTEMS</b> J.P.S. Elastomerics Corp. 9 Sullivan Road Holyoke, MA 01040-2800 800/621-ROOF FAX 413/552-1198 E-mail: sbeverett@jpscorp.com Web																			
<b>SUNGUARD MARKETING CORP.</b> 4432 N.E. Davis Portland, OR 97213 503/235-9206 FAX 503/235-9206 E-mail Web																			
<b>SWD URETHANE COMPANY</b> 222 South Date St. Mesa, AZ 85210 602/969-8413 800/828-1394 FAX 602/461-6926 E-mail Web																			
<b>TAMKO ROOFING PRODUCTS, INC.</b> 220 West 4th Street PO Box 1404 Joplin, MO 64802 417/624-6644 FAX 417/624-8935 E-mail Web: www.tamko.com																			
<b>TEXAS REFINERY CORP.</b> One Refinery Place P.O. Box 711 Ft. Worth, TX 76101 817/332-1161 FAX 817/332-2340 E-mail Web																			
<b>TEXSA, S.A.</b> Poligono Can Pelegri San Andreu de la Barca, Spain 34-3-6820770 FAX 34-3-6820752 E-mail Web																			
<b>TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORP.</b> 24 Industrial Road Walpole, MA 02081-1305 800/323-0009 FAX 508/660-2471 E-mail Web																			
<b>TREMCO INC.</b> 3735 Green Rd. P.O. Box 228069 Beachwood, OH 44122-8069 216/292-5000 FAX E-mail Web																			
<b>TRI-PLY</b> P.O. Box 2685 Port Arthur, TX 77643 800/331-3007 FAX 409/727-0771 E-mail Web																			
<b>UCSC, LTD.</b> 1208 N. Grand Roswell, NM 88201 505/623-9726 FAX 505/623-1908 E-mail: ucscurethane.com Web																			
<b>UNIFLEX, INDUSTRIAL DIV. OF KOOL SEAL, INC.</b> 1499 Enterprise Parkway Twinsburg, OH 44087 216/425-4717 FAX 216/425-9778 E-mail Web																			
<b>UNIROOF CORPORATION</b> P.O. Box 160133 Altamonte Springs, FL 32716-0133 407/869-5110 FAX E-mail Web																			
<b>UNITED COATINGS</b> 19011 E Cataldo Greenacres, WA 99016 509/926-7143 FAX 509/928-1116 E-mail Web																			
<b>UNITED STEEL DECK INC.</b> 475 Springfield Avenue P.O. Box 662 Summit, NJ 07902-0662 908/277-1617 FAX 908/277-1619 E-mail: heagler@ix.netcom.com Web																			

Index to Listed Membranes and Cements and Coatings

	BUILT-UP ROOFING	MODIFIED BITUMEN	PVC	EPDM	CSPE/PIB	OTHER PRE-FABRICATED	POLYURETHANE FOAM	SYSTEMS	METAL ROOF PANELS	ROOFING CEMENTS AND	COATINGS	WARRANTIES
U.S. INTEC INC. P.O. Box 2845 Port Arthur, TX 77643 800/624-6832 (Tech Hotline) 800/231-4631 (US) 800/392-4216 (TX) E-mail Web												

	BUILT-UP ROOFING	MODIFIED BITUMEN	PVC	EPDM	CSPE/PIB	OTHER PRE-FABRICATED	POLYURETHANE FOAM	SYSTEMS	METAL ROOF PANELS	ROOFING CEMENTS AND	COATINGS	WARRANTIES
VERSICO INCORPORATED 3485 Fortuna Drive Akron, OH 44312 216/644-6700 800/992-7663 FAX 216/644-2613 E-mail Web												
VINCENT METAL GOODS P.O. Box 360 Minneapolis, MN 55440 612/717-9000 FAX 612/717-7122 E-mail Web												

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

1. NUMBER OF REGIONAL SERVICE LOCATIONS: 2. LICENSED APPLICATOR AGREEMENT (yes/no): 3. DISTRIBUTION METHOD (distributors and/or direct): 4. PREFORMED ACCESSORIES AVAILABLE (yes/no): 5. LIMITATIONS/RESTRICTIONS: 6. FOR SALES/TECHNICAL INFORMATION: 7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	ALLIEDSIGNAL  6 YES DISTRIBUTORS, DIRECT YES SEE ALLIEDSIGNAL COMM. ROOFING SYSTEMS MANUAL 800/221-6490 BLACK ARMOR TARRED FELT (D 227) BLACK ARMOR GLASS FIBER FELT (D 2178, TYPE IV) BLACK ARMOR PREM. GLASS FIBER FELT (D 2178, TYPE VI) BLACK ARMOR COAL TAR COATED GLASS FIBER (D 4990) BLACK ARMOR PREMIUM COAL TAR COATED GLASS FIBER FELT POLYMOP MODIFIED ASPHALT POLYMOP GLASS FIBER BASE SHEET POLYMOP GLASS FIBER FELT											
8. SPECIFICATION NUMBER	RP-40	RP-41	RP-40-5	RP-41-5	RP-60	RP-61	RP-60-5	RP-61-5	RP-50-TC	RP-51-TC	PM-50	PM-51
9. HOT AND/OR COLD APPLIED	HOT	HOT							HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE	X		X		X		X		X		X	
B. INSULATED		X		X		X		X		X		X
C. NONNAILABLE		X		X		X		X		X		X
11. SLOPE REQUIREMENTS (range in inches)	0 – 1/2	0 – 1/2	0 – 1/2	0 – 1/2	0 – 1/8	0 – 1/8	0 – 1/8	0 – 1/8	1/4	1/4	1/4 - 3	1/4 - 3
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	4	5	5	4	4	5	5	4	4	4	4
B. BASE SHEET	1		1		1		1		1		1	
C. INTERPLY(IES)	3	4	4	5	3	4	4	5	3	4	3	4
D. CAP SHEET												
13. TYPES OF FELT												
A. GLASS FIBER					X	X	X	X	X	X	X	X
B. ORGANIC	X	X	X	X	X	X	X	X				
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT												
B. MODIFIED ASPHALT												
C. COAL TAR	X	X	X	X	X	X	X	X	X	X		
D. ELASTOMERIC ADHESIVE												
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )	4	4	4	4	4	4	4	4	4	4	4	4
B. SLAG (lbs./ft <sup>2</sup> )	3	3	3	3	3	3	3	3	3	3	3	3
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET												
K. OTHER	X	X	X	X	X	X	X	X				
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE	6.0	6.0	6.5	6.5	6.0	6.0	6.5	6.5	6.0	6.0	6.0	6.0
B. SMOOTH												
C. CAP SHEET												
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE							NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1987	1987	1987	1987	1991	1991	1991	1991			1998	1998
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X		

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## BARRETT COMPANY, THE

3  
YES  
DISTRIBUTORS, DIRECT  
YES  
SEE BARRETT MANUAL  
SALES OFFICE  
POLY-FELT 165 VP POLYEST ASTM D-5665-97A, TYPE II, (metric)  
POLY-FELT 265 VP POLYEST ASTM D-5665-97A, TYPE II, (metric)  
RAM-GLASSPLY IV (D 2178, TYPE IV)  
RAM-GLASS VI (D 2178, TYPE VI)  
RAM BASE PLY NO. 32 GLASS (D 4601, TYPE II)  
RAM-BASE PLY NO. 30 POLYESTER ASTM D-5665-97-A, TYPE IV (metric)  
RAM-FLASH 327HDR NEOPRENE (NONE)  
RAM HYPALON FLASHING (NONE)  
RAM 306, RAM 309 (D 5147)

PM-50 PM	PM-51 PM	PM-50 PM-5	PM-51 PM-5
HOT	HOT	HOT	HOT
X		X	
	X		X
	X		X
1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3
3	4	5	5
1		1	
4	4	4	5
X	X	X	X
X	X	X	X
4	4	4	4
3	3	3	3
6.0	6.0	6.5	6.5
NONE	NONE	NONE	NONE
1998	1998	1998	1998

KLB 100-1PG	KLB 100-2PG	KLB 100-3PG	KLB 100-4PG	KLB 100-1P	KLB 100-2P	KLB 100-3P	KLB 100-4P	KLB 100-2F	KLB 100-3F	KLB 100-4F	KLB 100-2M	KLB 100-3M	KLB 100-4M
HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
0-3	0-3	0-6	0-6	0-6	0-3	0-6	0-6	0-3	0-6	0-6	0-3	0-3	0-3
1	2	3	4	1	2	3	4	2	3	4	2	3	4
1	2	3	4	1	2	3	4	2	3	4	2	3	4
X	X	X	X					X	X	X	X	X	X
X	X	X	X	X	X	X	X				X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4	4	4		4	4	4	4	4	4	4	4	4
	3	3	3		3	3	3	3	3	3	3	3	3
	10	10	10		10	10	10	10	10	10	10	10	10
X	X	X	X		X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4.0	4.25	4.50		4.0	4.25	4.50	4.15	4.50	4.85	4.10	4.45	4.80
0.70	1.0	1.25	1.50	0.75	1.0	1.25	1.50	1.15	1.50	1.85	1.10	1.45	1.80
1.40	1.85	2.10	2.35	1.60	1.85	2.10	2.35	2.0	2.35	2.70	1.95	2.30	2.65
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
1984	1984	1984	1985	1985	1984	1984	1982	1982	1983	1983	1984	1984	1984
		> 200	> 200			> 200	> 200		> 200	> 200		> 200	> 200
		> 200	> 200			> 200	> 200		> 200	> 200		> 200	> 200
X	X	X	X	X	X	X	X	X	X	X	X	X	X



# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

<b>BARRETT COMPANY, THE</b>												
1. NUMBER OF REGIONAL SERVICE LOCATIONS: 2. LICENSED APPLICATOR AGREEMENT (yes/no): 3. DISTRIBUTION METHOD (distributors and/or direct): 4. PREFORMED ACCESSORIES AVAILABLE (yes/no): 5. LIMITATIONS/RESTRICTIONS: 6. FOR SALES/TECHNICAL INFORMATION: 7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	3 YES DISTRIBUTORS, DIRECT YES SEE BARRETT MANUAL SALES OFFICE POLY-FELT 165 VP POLYEST ASTM D 5665-97A, TYPE II (metric) POLY-FELT 265 VP POLYEST ASTM D 5665-97A, TYPE II (metric) RAM-GLASSPLY IV (D 2178, TYPE IV) RAM-GLASS VI (D 2178, TYPE VI) RAM BASE PLY NO. 32 GLASS (D 4601, TYPE II) RAM-BASE PLY NO. 30 POLYESTER ASTM D 5665-97A, TYPE IV, (metric) RAM-FLASH 327HDR NEOPRENE (NONE) RAM HYPALON FLASHING (NONE) RAM 306, RAM 309 (D 5147)											
8. SPECIFICATION NUMBER	K312 2F	K312 3F	K312 4F	K312 2P	K312 3P	K312 4P	T-3. 1P	T-3. 2P	T-3. 3P	T-3. 4P	CP-50 3P	CP-50 2P
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	COLD	COLD
10. DECK TYPE												
A. NAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0-3	0-6	0-6	0-6	0-6	0-6	1-6	1/8-6	1/8-6	1/8-6	1/8-6	1/8-6
12. NUMBER OF PLIES												
A. TOTAL PLIES	2	3	4	2	3	4	1	2	3	4	3	2
B. BASE SHEET												
C. INTERPLY(IES)	2	3	4	2	3	4	1	2	3	4	3	2
D. CAP SHEET												
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X									
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER				X	X	X	X	X	X	X	X	X
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT							X	X	X	X	X	X
B. MODIFIED ASPHALT												
C. COAL TAR												
D. ELASTOMERIC ADHESIVE	X	X	X	X	X	X						
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )	4	4	4	4	4	4		4	4	4	4	4
B. SLAG (lbs./ft <sup>2</sup> )	3	3	3	3	3	3		3	3	3	3	3
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )	10	10	10	10	10	10		10	10	10	10	10
SMOOTH												
D. ASPHALT							X	X	X	X		
E. COAL TAR												
F. EMULSION/CUTBACK	X	X	X	X	X	X	X	X	X	X	X	X
G. ALUMINUM COATING	X	X	X	X	X	X	X	X	X	X	X	X
H. VINYL/VINYL COATING	X	X	X	X	X	X	X	X	X	X	X	X
OTHER												
I. MINERAL GRANULES	X	X	X	X	X	X	X	X	X	X	X	X
J. CAP SHEET	X	X	X	X	X	X	X	X	X	X	X	X
K. OTHER	X	X	X	X	X	X	X	X	X	X	X	X
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE	4.15	4.50	4.90	4.0	4.25	4.50		4.25	4.50	4.50	4.50	4.15
B. SMOOTH	1.15	1.50	1.90	1.0	1.25	1.50	0.75	1.25	1.50	1.50	1.50	1.15
C. CAP SHEET	2.0	2.35	2.75	1.85	2.10	2.35	1.60	2.10	2.35	2.35	2.35	2.00
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1985	1985	1985	1985	1985	1985	1985	1983	1985	1983	1978	1978
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD		> 200	> 200		> 200	> 200			> 200	> 200	> 200	
-XD		> 200	> 200		> 200	> 200			> 200	> 200	> 200	
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD												
-XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD												
-XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## CELOTEX CORP.

7  
YES  
DISTRIBUTORS, DIRECT  
YES  
SEE CELOTEX BUR & MB RFG SYS MANUAL  
REGIONAL OFFICES, SALES/A. HARRINGTON, TECH.  
CELO-GLASS IV (D 2178, TYPE IV)  
CELO-GLASS AGS (D 2178, TYPE VI)  
VAPORBAR GB (D 4601, TYPE II)  
CHANNEL VENT GB (D 4897, TYPE II)  
VAPORBAR BASE SHEET (D 2626)  
HYDRO-STOP VAPOR BARRIER/VENTING BASE SHEET (NONE)

CP-80 2P	CP-80 3P	CP-80 3 G.BS
COLD	COLD	COLD
X	X	X
X	X	X
X	X	X
1/8-6	1/8-6	1/8-6
2	3	3
2	3	3
		X
X	X	
X	X	X
4 3 10	4 3 10	4 3 10
X	X	X
X	X	X
X	X	X
4.15 1.15 2.00	4.50 1.50 2.35	6.0 2.0 2.85
NONE 1985	NONE 1985	NONE 1978
	> 200 > 200	> 200 > 200
X	X	X

G/A-4- W-G	AGS-4- W-G	G/A-4- F-G	AGS-4- F-G	G/A-3- W-G	G/A-3- C-G	G/A-4- W-S	AGS-4- W-S	G/A-4- F-S	AGS-4- F-S	G/A-4- C-S	AGS-4- C-S	G/A-4- C-G	AGS-4- C-G	G/A-3- W-S
HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
X	X			X		X	X							X
		X	X		X			X	X	X	X	X	X	
0-3	0-3	0-3	0-3	0-3	0-3	0-9	0-9	0-9	0-9	0-9	0-9	0-3	0-3	0-9
4	4	4	4	3	3	4	4	4	4	4	4	4	4	3
1	1	1	1	1		1	1	1	1					1
3	3	3	3	2	3	3	3	3	3	4	4	4	4	2
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4 3	4 3	4 3	4 3	4 3	4 3							4 3	4 3	4 3
						X	X	X	X	X	X			X
						X	X	X	X	X	X			X
						X	X	X	X	X	X			X
5.80	5.80	5.60	5.60	5.60	5.60	1.50	1.50	1.60	1.60	1.70	1.70	5.80	5.80	1.70
NONE 1980	NONE 1980	NONE 1980	NONE 1980	NONE 1980	NONE 1962	NONE 1980	NONE 1980	NONE 1980	NONE 1980	NONE 1962	NONE 1962	NONE 1983	NONE 1983	W 1980
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X		X				X		X		X		X	

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

CELOTEX CORP.												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	7											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS, DIRECT											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	YES											
5. LIMITATIONS/RESTRICTIONS:	SEE CELOTEX BUR & MB RFG SYS MANUAL											
6. FOR SALES/TECHNICAL INFORMATION:	REGIONAL OFFICES, SALES/A. HARRINGTON, TECH.											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	CELO-GLASS IV (D 2178, TYPE IV) CELO-GLASS AGS (D 2178, TYPE VI) VAPORBAR GB (D 4601, TYPE II) CHANNEL VENT GB (D 4897, TYPE II) VAPORBAR BASE SHEET (D 2626) HYDRO-STOP VAPOR BARRIER/VENTING BASE SHEET (NONE)											
8. SPECIFICATION NUMBER	G/A-3- W-M	G/A-4- W-M	AGS-4- W-M	G/A-4- F-M	AGS-4- F-M	G/A-4- C-M	AGS-4- C-M	G/A-H+ 3-W-G	AGS-H+ 3-W-G	AGS-H+ 4-W-M	G/A-H+ 4-W-M	AGS-H+ 3-W-M
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE	X	X	X					X	X	X	X	X
B. INSULATED				X	X	X	X					
C. NONNAILABLE				X	X	X	X					
11. SLOPE REQUIREMENTS (range in inches)	0-9	0-9	0-9	0-9	0-9	0-9	0-9	0-3	0-3	0-9	0-9	0-9
12. NUMBER OF PLIES												
A. TOTAL PLIES	3	4	4	4	4	4	4	4	4	5	5	4
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	1	2	2	2	2	2	2	2	2	3	3	2
D. CAP SHEET	1	1	1	1	1	1	1	1	1	1	1	1
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER								X	X	X	X	X
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT												
C. COAL TAR												
D. ELASTOMERIC ADHESIVE												
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )	4	4	4					4	4			
B. SLAG (lbs./ft <sup>2</sup> )	3	3	3					3	3			
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK				X				X	X			
G. ALUMINUM COATING				X								
H. VINYL/VINYL COATING				X				X	X			
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X	X	X	X	X	X	X	X	X	X
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE												
B. SMOOTH				1.70								
C. CAP SHEET	0.90	1.30	1.30	1.20	1.20	1.30	1.30	1.20	1.20			
17. RESTRICTED REGIONS (refer to manufacturer's literature)	W	W	W	W	W	W	W	NONE	NONE			
18. YEAR OF FIRST COMMERCIAL USE	1983	1980	1980	1980								
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD	X	X	X	X	X	X	X	X	X			
-XD	X	X	X	X	X	X	X	X	X			
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD												
-XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD												
-XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X		X		X		X		X			

General information with test description and suggested values as specified in NBS BSS #55/1974

## 15

YES

## DISTRIBUTORS

NO

SEE FIELDS BUR MANUAL

T. VANDERLINDA/J. SCARLETT 800/627-4098

FIELDS F50 POLYSHIELD (D 4601, D 2178)

FIELDS F52 GLASBASE 2 (D 4601)

FIELD5 F54 GLASPLY4 (D 2178, TYPE IV)

**FIELDS F55 POLYSHIELD 2 (D 4601, D 2178)**

FIELD5 F56 GLASPLY6 (D 2178, TYPE VI)

FIELD5 F58 GLASCAP (D 3609)

FIELDS M60 RUBRPOLY (D 4601, D 2178)

FIELDS M62 RUBRGLAS (D4601, D 2178)

FIELDS M64 RUBRPOLY2 (D 4601, D 2178

FIELDS M66 RUBRGLAS2 (D 4601, D 2178

FIELDS M68 RUBRCAP (D 5147)

FIELDS P70 POLYWEB

FIELDS P72 POLYWEB

FIELDS P74 POLYROOF

FIELDS P75 POLYROOF

FIELDS P76 POLYTEX

FIELDS P77 POLYSOFT

FIELDS P78 POLYTEX2

FIELDS G360 GLASWEB

FIELDS G362 GLASWEB

FIELDS G60 GLASWEB

FIELDS G62 GLASWEB

FIELDS G64 GLASWEB

[illegible]

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

FIELDS CORPORATION												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	15											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	NO											
5. LIMITATIONS/RESTRICTIONS:	SEE FIELDS BUR MANUAL											
6. FOR SALES/TECHNICAL INFORMATION:	T. VANDERLINDA/J. SCARLETT 800/627-4098											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	<div style="display: flex; justify-content: space-between;"> <div> FIELDS F50 POLYSHIELD (D 4601, D 2178)  FIELDS F52 GLASBASE 2 (D 4601)  FIELDS F54 GLASPLY4 (D 2178, TYPE IV)  FIELDS F55 POLYSHIELD 2 (D 4601, D 2178)  FIELDS F56 GLASPLY6 (D 2178, TYPE VI)  FIELDS F58 GLASCAP (D 3609)  FIELDS M60 RUBRPOLY (D 4601, D 2178)  FIELDS M62 RUBRGLAS (D4601, D 2178)  FIELDS M64 RUBRPOLY2 (D 4601, D 2178)  FIELDS M66 RUBRGLAS2 (D 4601, D 2178)  FIELDS M68 RUBRCAP (D 5147)  FIELDS P70 POLYWEB </div> <div> FIELDS P72 POLYWEB  FIELDS P74 POLYROOF  FIELDS P75 POLYROOF  FIELDS P76 POLYTEX  FIELDS P77 POLYSOFT  FIELDS P78 POLYTEX2  FIELDS G360 GLASWEB  FIELDS G362 GLASWEB  FIELDS G60 GLASWEB  FIELDS G62 GLASWEB  FIELDS G64 GLASWEB </div> </div>											
8. SPECIFICATION NUMBER	HAI-315-MS	HAI-325-MS	HAI-335-MS	HAW-325-RM	HAW-335-RM	HAW-345-RM	HAC-325-RM	HAC-335-RM	HAC-345-RM	HAI-X35-RM	HAI-X45-RM	HAI-325-RM
	HAI-317-MS	HAI-327-MS	HAI-337-MS	HAW-327-RM	HAW-337-RM	HAW-347-RM	HAC-327-RM	HAC-337-RM	HAC-347-RM	HAI-X37-RM	HAI-X47-RM	HAI-327-RM
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE				X	X	X						
B. INSULATED	X	X	X							X	X	X
C. NONNAILABLE							X	X	X			
11. SLOPE REQUIREMENTS (range in inches)	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3
12. NUMBER OF PLIES												
A. TOTAL PLIES	3	4	5	3	4	5	3	4	5	3	4	3
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	1	2	3	2	3	4	2	3	4	3	4	2
D. CAP SHEET	1	1	1									
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT												
C. COAL TAR												
D. ELASTOMERIC ADHESIVE												
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )												
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X									
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE				5.6	5.9	6.3	5.5	5.8	6.2	5.05	6.05	5.85
B. SMOOTH												
C. CAP SHEET	1.45	1.85	2.20									
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED												

General information with test description and suggested values as specified in NBS BSS #55/1974

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# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

FIELDS CORPORATION													
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	15												
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES												
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS												
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	NO												
5. LIMITATIONS/RESTRICTIONS:	SEE FIELD'S BUR MANUAL												
6. FOR SALES/TECHNICAL INFORMATION:	T. VANDERLINDA/J. SCARLETT 800/627-4098												
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	FIELDS F50 POLYSHIELD (D 4601, D 2178)						FIELDS P72 POLYWEB						
	FIELDS F52 GLASBASE 2 (D 4601)						FIELDS P74 POLYROOF						
	FIELDS F54 GLASPLY4 (D 2178, TYPE IV)						FIELDS P75 POLYROOF						
	FIELDS F55 POLYSHIELD 2 (D 4601, D 2178)						FIELDS P76 POLYTEX						
	FIELDS F56 GLASPLY6 (D 2178, TYPE VI)						FIELDS P77 POLYSOFT						
	FIELDS F58 GLASCAP (D 3609)						FIELDS P78 POLYTEX2						
	FIELDS M60 RUBRPOLY (D 4601, D 2178)						FIELDS G360 GLASWEB						
	FIELDS M62 RUBRGLAS (D4601, D 2178)						FIELDS G362 GLASWEB						
	FIELDS M64 RUBRPOLY2 (D 4601, D 2178)						FIELDS G60 GLASWEB						
	FIELDS M66 RUBRGLAS2 (D 4601, D 2178)						FIELDS G62 GLASWEB						
	FIELDS M68 RUBRCAP (D 5147)						FIELDS G64 GLASWEB						
	FIELDS P70 POLYWEB												
8. SPECIFICATION NUMBER	AAI-325-RC	AAI-335-RC	AAI-315-MS	AAI-X43-RC	AAI-335-RC	AAI-335-RC	AAI-315-MS	AAC-X33-RC	AAC-325-RC	AAC-329-RC	AAC-315-MS	AAC-X43-RC	
9. HOT AND/OR COLD APPLIED	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD
10. DECK TYPE													
A. NAILABLE	X	X							X	X	X		
B. INSULATED			X	X	X	X	X						X
C. NONNAILABLE								X					
11. SLOPE REQUIREMENTS (range in inches)	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3	1/4 - 3
12. NUMBER OF PLIES													
A. TOTAL PLIES	3	3	3	4	4	4	4	4	4	4	4	4	3
B. BASE SHEET	1	2	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	2	1	1	3	3	3	2	3	3	3	2	2	
D. CAP SHEET			1				1				1		
13. TYPES OF FELT													
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC													
C. ASBESTOS													
D. POLYESTER													
E. OTHER													
14. INTERPLY ADHESIVE													
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT													
C. COAL TAR													
D. ELASTOMERIC ADHESIVE													
15. SURFACING													
AGGREGATE													
A. GRAVEL (lbs./ft <sup>2</sup> )													
B. SLAG (lbs./ft <sup>2</sup> )													
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )													
SMOOTH													
D. ASPHALT													
E. COAL TAR													
F. EMULSION/CUTBACK	X	X		X	X	X		X	X	X		X	
G. ALUMINUM COATING	X	X		X	X	X		X	X	X		X	
H. VINYL/VINYL COATING													
OTHER													
I. MINERAL GRANULES													
J. CAP SHEET			X				X		X		X		
K. OTHER													
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )													
A. AGGREGATE													
B. SMOOTH	1.3	1.55		1.95	2.05	1.6		2.25	1.4	1.55			1.6
C. CAP SHEET			1.25				1.75				2.05		
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
19. TEST RESULTS PER NBS BSS #55													
MD = MACHINE DIRECTION XD = CROSS DIRECTION													
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD													
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD													
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD													
20. SEE MEMBRANE APPENDIX IF CHECKED													



# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## GAF MATERIALS CORPORATION

5  
YES  
DISTRIBUTORS  
YES  
SEE GAFMC GAFGLAS SPEC MANUAL  
REGIONAL OFFICE, TECHNICAL SERVICE OFFICE  
GAFGLAS PLY 4 (D 2178, TYPE IV)  
GAFGLAS PLY 6 (D 2178, TYPE VI & IV)  
GAFGLAS MINERAL SURFACED CAP SHEET (D 3909)  
GAFGLAS#75 BASE SHEET (D 4601, TYPE II)  
GAFGLAS STRATAVENT PERFORATED BASE SHEET (D 4897)  
GAFGLAS STRATAVENT NAILABLE BASE SHEET (D 4897)  
GAFGLAS FLEXPPLY6 (D 2178, TYPE VI & IV)  
GAFGLAS #80 ULTIMA BASE SHEET (D 4601, TYPE II)

AAC-335-RC	AAC-325-RC
COLD	COLD
X	X
1/4 - 3	1/4 - 3
3	3
1	1
2	2
X	X
X	X
X	X
X	X
1.3	1.55
NONE	NONE
1980	1980

NN-0-4-G	I-0-4-G	NN-0-4-C	I-0-4-C	NN-B-4-G	I-B-4-G	NN-B-4-C	I-B-4-C	NN-0-3-G	I-0-3-G	NN-B-3-G	I-B-3-G	NN-0-3-C	I-0-3-C	NN-B-3-C	I-B-3-C
HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
0-3	0-3	0-6	0-6	0-3	0-3	0-6	0-6	0-3	0-3	0-3	0-3	0-6	0-6	0-6	0-6
4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3
4	4	4	4	1	1	1	1	3	3	2	2	3	3	2	2
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	4			4	4			4	4	4	4				
3	3			3	3			3	3	3	3				
4	4			4	4			4	4	4	4				
		X	X			X	X					X	X	X	X
		X	X			X	X					X	X	X	X
		X	X			X	X					X	X	X	X
6.0	6.0			6.0	6.0			6.0	6.0	6.0	6.0				
		2.0	2.0			2.0	2.0					2.0	2.0	2.0	2.0
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	N	N	N	N
1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

GAF MATERIALS CORPORATION												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	5											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	YES											
5. LIMITATIONS/RESTRICTIONS:	SEE GAFMC GAFGLAS SPEC MANUAL											
6. FOR SALES/TECHNICAL INFORMATION:	REGIONAL OFFICE, TECHNICAL SERVICE OFFICE											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	GAFGLAS PLY 4 (D 2178, TYPE IV) GAFGLAS PLY 6 (D 2178, TYPE VI & IV) GAFGLAS MINERAL SURFACED CAP SHEET (D 3909) GAFGLAS#75 BASE SHEET (D 4601, TYPE II) GAFGLAS STRATAVENT PERFORATED BASE SHEET (D 4897) GAFGLAS STRATAVENT NAILABLE BASE SHEET (D 4897) GAFGLAS FLEXPPLY6 (D 2178, TYPE VI & IV) GAFGLAS #80 ULTIMA BASE SHEET (D 4601, TYPE II)											
8. SPECIFICATION NUMBER	NN-0-4-M	I-0-4-M	NN-B-4-M	I-B-4-M	NN-0-3-M	I-0-3-M	N-B-4-G	N-B-4-C	N-B-3-G	N-B-3-C	N-B-4-M	N-B-3-M
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE							X	X	X	X	X	X
B. INSULATED		X		X		X						
C. NONNAILABLE	X		X		X							
11. SLOPE REQUIREMENTS (range in inches)	0-6	0-6	0-6	0-6	0-6	0-6	0-3	0-6	0-3	0-6	0-6	0-6
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	4	4	4	3	3	4	4	3	3	4	3
B. BASE SHEET			1	1			1	1	1	1	1	1
C. INTERPLY(IES)	3	3	2	2	2	2	3	3	2	2	2	1
D. CAP SHEET	1	1	1	1	1	1					1	1
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
C. COAL TAR												
D. ELASTOMERIC ADHESIVE												
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )							4		4			
B. SLAG (lbs./ft <sup>2</sup> )							3		3			
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )							4		4			
SMOOTH												
D. ASPHALT								X		X		
E. COAL TAR												
F. EMULSION/CUTBACK								X		X		
G. ALUMINUM COATING								X		X		
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X	X	X	X					X	X
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE							6.0		6.0			
B. SMOOTH								2.0		2.0		
C. CAP SHEET	2.0	2.0	2.0	2.0	2.0	2.0					2.0	2.0
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	N	N	NONE	NONE	NONE	N	NONE	N & S
18. YEAR OF FIRST COMMERCIAL USE	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION												
XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD												
-XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD												
-XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD												
-XD												
20. SEE MEMBRANE APPENDIX IF CHECKED												

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## GS ROOFING PRODUCTS COMPANY INC.

2  
YES  
DISTRIBUTORS  
NO  
SEE COMMERCIAL ROOFING SYSTEMS MANUAL  
COMMERCIAL ROOFING DEPT/REGION OFFICE  
FLINTGLAS MS CAP SHEET (D 3909)  
GLASBASE BASE SHEET (D 4601, TYPE I)  
FLINTGLAS PLY SHEET TYPE VI (D 2178, TYPE VI)  
FLINTGLAS PLY SHEET TYPE IV (D 2178, TYPE IV)  
YOSEMITE MS BUFFER SHEET (D 249)  
ALL WEATHER EMPIRE BASE SHEET (D 2626)  
NO.15 PERFORATED FELT (D 226, TYPE I)  
FLEXIGLAS PREMIUM CAP 960 (D 3909)  
FLEXIGLAS BASE SHEET (D 4601, TYPE II)

I-B-5-M	NN-B-5-M	N-B-5-G	N-B-5-C	N-B-5-M	I-O-5-M	NN-O-5-M
HOT	HOT	HOT	HOT	HOT	HOT	HOT
		X	X	X		
X	X				X	X
0-6	0-6	0-3	0-6	0-6	0-6	0-6
5	5	5	5	5	5	5
1	1	1	1	1	4	4
3	3	4	4	3	1	1
1	1					
X	X	X	X	X	X	X
X	X	X	X	X	X	X
X	X	X	X	X	X	X
		4				
		3				
		4				
			X			
			X			
			X			
X	X			X	X	X
		6.0				
3.0	3.0		2.0	3.0	3.0	3.0
NONE	NONE	NONE	NONE	NONE	NONE	NONE
1974	1974	1974	1974	1974	1974	1974

G-C-04	G-N-04	G-C-B4	G-N-B4	G-C-P4	G-C-B3	G-N-B3	G-C-P3	M-C-04	M-N-04	M-C-B4
HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT/CA
	X		X			X			X	
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-6	0-6	0-6
4	4	4	4	4	3	3	3	4	4	4
1	1	1	1	1	1	1	1	1	1	1
3	3	3	3	4	2	2	3	2	2	2
								1	1	1
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
										X
4	4	4	4	4	4	4	4			
3	3	3	3	3	3	3	3			
								X	X	X
6.0	6.0	6.0	6.0	6.0	5.70	5.50	5.60			
								2.40	2.30	2.30
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## GS ROOFING PRODUCTS COMPANY INC.

1. NUMBER OF REGIONAL SERVICE LOCATIONS:
2. LICENSED APPLICATOR AGREEMENT (yes/no):
3. DISTRIBUTION METHOD (distributors and/or direct):
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):
5. LIMITATIONS/RESTRICTIONS:
6. FOR SALES/TECHNICAL INFORMATION:
7. FELTS DATA: TRADE NAME (applicable ASTM standard),  
(metric [39 5/8-in. wide])

2  
YES  
DISTRIBUTORS  
NO  
SEE COMMERCIAL ROOFING SYSTEMS MANUAL  
COMMERCIAL ROOFING DEPT/REGION OFFICE  
FLINTGLAS MS CAP SHEET (D 3909)  
GLASBASE BASE SHEET (D 4601, TYPE I)  
FLINTGLAS PLY SHEET TYPE VI (D 2178, TYPE VI)  
FLINTGLAS PLY SHEET TYPE IV (D 2178, TYPE IV)  
YOSEMITE MS BUFFER SHEET (D 249)  
ALL WEATHER EMPIRE BASE SHEET (D 2626)  
NO.15 PERFORATED FELT (D 226, TYPE I)  
FLEXIGLAS PREMIUM CAP 960 (D 3909)  
FLEXIGLAS BASE SHEET (D 4601, TYPE II)

8. SPECIFICATION NUMBER	M-N-B4	M-C-B3	M-N-B3	M-C-B5	M-N-B5	SR-C-B3	SR-N-B3	S-C-B4	S-N-B4	S-C-B3	S-N-B3
9. HOT AND/OR COLD APPLIED	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA
10. DECK TYPE											
A. NAILABLE	X		X		X		X		X		X
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE		X		X		X		X		X	
11. SLOPE REQUIREMENTS (range in inches)	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6
12. NUMBER OF PLIES											
A. TOTAL PLIES	4	3	3	5	5	3	3	4	4	3	3
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	2	1	1	3	3	2	2	3	3	2	2
D. CAP SHEET	1	1	1	1	1						
13. TYPES OF FELT											
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC						X					
C. ASBESTOS											
D. POLYESTER											
E. OTHER											
14. INTERPLY ADHESIVE											
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT											
C. COAL TAR											
D. ELASTOMERIC ADHESIVE	X	X	X	X	X	X	X	X	X	X	X
15. SURFACING											
AGGREGATE											
A. GRAVEL (lbs./ft <sup>2</sup> )											
B. SLAG (lbs./ft <sup>2</sup> )											
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )											
SMOOTH											
D. ASPHALT											
E. COAL TAR											
F. EMULSION/CUTBACK						X	X	X	X	X	X
G. ALUMINUM COATING											
H. VINYL/VINYL COATING											
OTHER											
I. MINERAL GRANULES											
J. CAP SHEET	X	X	X	X	X						
K. OTHER											
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )											
A. AGGREGATE											
B. SMOOTH											
C. CAP SHEET	2.10	1.80	1.70	2.40	2.21	1.90	1.70	1.80	1.60	1.50	1.30
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	1	1	NONE	NONE	1&2	1&2	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE											
19. TEST RESULTS PER NBS BSS #55											
MD = MACHINE DIRECTION XD = CROSS DIRECTION											
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD											
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD											
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD											
20. SEE MEMBRANE APPENDIX IF CHECKED											

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## HENRY COMPANY

6  
YES  
DISTRIBUTORS  
NO  
CONTACT MANUFACTURER  
JIM HAY/KEN JACOBS  
HENRY 604 (D 4601, TYPE II)  
HENRY 605 TYPE G3 (ASTM D 3909)  
HENRY 607 (D 4601, TYPE II)  
HENRY 184 RUFON E3N POLYESTER  
HENRY 195 TIETEX T272 POLYESTER  
HENRY 196 TIETEX T326 POLYESTER  
HENRY 600 RUFTAC

HM107W	HM107-1C	HM107C	HM107-IC	HM107S	HM107LWC	HM106W	HM106IW	HCA 107W	HPC 203W	HCG 203W	HCG 403W	HCG 307W	HCG 403I
HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	HOT/CA	COLD	COLD	COLD	COLD	COLD	COLD	COLD	COLD
X	X				X	X	X	X	X	X	X	X	X
	X		X	X			X				X		X
		X	X	X									X
0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6
3	3	3	3	3	3	3	3	3	3	3	3	3	3
1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2
X	X	X	X	X	X	X	X	X	X	X	X	X	X
						X	X		X				
X	X	X	X	X	X	X							
X	X	X	X	X	X	X	X	X	X	X	X	X	X
										3	4		4
X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X				
X	X	X	X	X	X	X	X	X	X				
										X		X	
200	253	205	245	215	200	175	2.28	1.24	.84	4.10	5.54	2.70	5.35
X	X	X	X	X	X	X							

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

HICKMAN												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	5											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DIRECT											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	YES											
5. LIMITATIONS/RESTRICTIONS:	SEE HICKMAN REP											
6. FOR SALES/TECHNICAL INFORMATION:	R. GALLION / K BRZOZOWSKI/ C FITZGERALD											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	MULTI-PLY GLASS(D 4601, TYPE II) MULTI-PLY GLASS C/L(NONE) PERFORMANCE PLY(NONE) WEATHER PLY (NONE) POLYESTER PLY(NONE) PREMIUM PLY (ASTM D 2178, TYPE VI) PIKA PLY CAP SHEET HICKMAN PREMIUM CAP HK TARRED FELT (D 227)											
8. SPECIFICATION NUMBER	BUR PLUS GLASS/POLY- ESTER	BUR PLUS GLASS/POLY- ESTER	BUR PLUS PIKA PLY CAP SHEET	BUR PLUS 505	TAR PLUS	PERFORM- ANCE PLY MS + MS/FR	WEATHER PLY MA+MA/FR	PIKA PLY CAP SHEET	BUR PLUS GLASS	BUR PLUS GLASS	BUR PLUS POLY- ESTER	BUR PLUS POLY- ESTER
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	COLD	COLD	COLD	HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	1/8 - 3	1/8 - 3	1/8 - 3	0 - 1/2	0 - 1/2	1/8 - 4	1/8 - 4	1/8 - 4	1/8 - 3	1/8 - 3	1/8 - 3	1/8 - 3
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	4	3	4	4	3	3	3	3	3	3	3
B. BASE SHEET	1	1		1								
C. INTERPLY(IES)	3	3	2	3	4	2	2	2	3	3	3	3
D. CAP SHEET			1			1	1	1				
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X		
B. ORGANIC				X	X							
C. ASBESTOS												
D. POLYESTER	X	X	X	X	X	X	X	X			X	X
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X					X	X	X	X
B. MODIFIED ASPHALT	X	X	X						X	X	X	X
C. COAL TAR				X	X							
D. ELASTOMERIC ADHESIVE						X	X	X				
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )		4		4	4					4		4
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK	X								X		X	
G. ALUMINUM COATING	X								X		X	
H. VINYL/VINYL COATING	X								X		X	
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET			X	X		X	X	X				
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE		5.25		6.0	6.0					5.25		5.25
B. SMOOTH	1.90								1.85		1.80	
C. CAP SHEET			1.85			2.25	2.25	2.50				
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1985	1985	1985	1994	1985	1985	1995	1985	1985	1985	1985	1985
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD									260 245	260 245	275 255	275 255
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED												

General information with test description and suggested values as specified in NBS BSS #55/1974

6  
YES  
DISTRIBUTORS  
YES  
SEE BUILT-UP ROOFING SYSTEMS MANUAL  
800/624-6832  
COMBINATION BASE (D 4601, TYPE I)  
ULTRA BASE (D 4601, TYPE I/II)  
TOUGH PLY IV (D 2178, TYPE IV)  
ULTRA PLY VI (D 2178, TYPE VI)  
ULTRA CAP (D 3909)  
PERMAVENT (D 4897, TYPE II)  
FLEX BASE 30 (D 4601, TYPE II)

[illegible]

## Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

[illegible]



# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## KARNAK CORPORATION

7  
NO  
DISTRIBUTORS  
NO  
SEE KARNAK SPECIFICATIONS  
800/526-4236  
POLY-MAT REMAY INC  
RESAT-MAT  
43-LB. BASE CHOICE OF MANUFACTURERS  
NO. 31 GLASS MEMBRANE (D1668)

4GIC	4GNC	3GIC	3GNC	5GLG	4GLG	3GLG
HOT	HOT	HOT	HOT	HOT	HOT	HOT
	X		X	X	X	X
X		X				
X		X				
1/4-6	1/4-6	1/4-6	1/4-6	0-3	0-3	0-3
4	4	3	3	5	4	3
1	1		1	1	1	1
3	2	2	1	4	3	2
1	1	1	1			
X	X	X	X	X	X	X
X	X	X	X	X	X	X
					X	X
				4	4	4
				3	3	3
X	X	X	X			
				6.9	6.3	6
2.0	2.20	2.0	1.80			
	2.3	3	3			2.3
1978	1978	1978	1980	1978	1978	1978

P-21	P-22	P-23	P-24	AR SYSTEM	RC-W SYSTEM
COLD	COLD	COLD	COLD	COLD	COLD
X	X	X	X	X	X
X	X	X	X	X	X
X	X	X	X	X	X
0-6	0-6	0-6	0-6	0-6	0-6
1	2	3	4	1	1
1	2	1	1	1	1
		2	3		
X	X	X	X	X	X
X	X	X	X		
X	X	X	X	X	X
4	4	4	4		
3	3	3	3		
X	X	X	X	X	
X	X	X	X		X
X	X	X	X	X	
X	X	X	X	X	
1.13	1.32	1.53	1.75	1.11	1.13
0.63	0.72	0.93	1.15	0.61	0.63
NONE	NONE	NONE	NONE	NONE	NONE
1965	1965	1965	1965	1972	1975

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

KOPPERS INDUSTRIES, INC.												
1. NUMBER OF REGIONAL SERVICE LOCATIONS: 2. LICENSED APPLICATOR AGREEMENT (yes/no): 3. DISTRIBUTION METHOD (distributors and/or direct): 4. PREFORMED ACCESSORIES AVAILABLE (yes/no): 5. LIMITATIONS/RESTRICTIONS: 6. FOR SALES/TECHNICAL INFORMATION: 7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	32 YES DISTRIBUTORS, DIRECT NO MAX. SLOPE REQUIREMENTS (SEE BELOW) 800/558-2706 NO.-15 TARRED FELT (D 227) ASPHALT GLASS FELT (D 2178, TYPE IV) TAR GLASS FELT (D 4990 I) PREMIUM TAR-GLASS FELT (D 4990 II)											
8. SPECIFICATION NUMBER	220-4	210-4	420-4	410-4	495-4	490-4	IR-264	IR-274	IR-464	IR-474	220-3	420-3
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE		X		X		X	X		X		X	
B. INSULATED	X		X		X		X	X		X	X	X
C. NONNAILABLE	X		X		X			X		X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0 - 1/2	0 - 1/2	0 - 1/4	0 - 1/4	0 - 1/4	0 - 1/4	0 - 1/4	0 - 1/4	0 - 1/4	0 - 1/4	0 - 1/2	0 - 1/4
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	4	4	4	4	4	5	4	5	4	3	3
B. BASE SHEET		1		1		1	1		1		1	
C. INTERPLY(IES)	4	3	4	3	4	3	4	4	4	4	3	3
D. CAP SHEET												
13. TYPES OF FELT												
A. GLASS FIBER			X	X	X	X			X	X		X
B. ORGANIC	X	X					X	X			X	
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT												
B. MODIFIED ASPHALT												
C. COAL TAR	X	X	X	X	X	X	X	X	X	X	X	X
D. ELASTOMERIC ADHESIVE												
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )	4	4	4	4	4	4					4	4
B. SLAG (lbs./ft <sup>2</sup> )	3	3	3	3	3	3					3	3
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )							10	10	10	10		
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET												
K. OTHER							X	X	X	X		
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE	6.0	6.0	6.0	6.0	6.0	6.0	12	12	12	12	5.50	5.50
B. SMOOTH												
C. CAP SHEET												
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1928	1928	1986	1986	1990	1990	1991	1991	1991	1991	1928	1986
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## MALARKEY ROOFING CO.

15

YES

DISTRIBUTORS

NO

SEE MALARKEY SPEC MANUAL

J. DECHANDT AND M. MALARKEY

#515 STANDARD BASE (D 4601)

#501 PREMIUM 1 SBS BASE (D 4601)

#508 PREMIUM SBS VENTED BASE (D 4897)

#601 HP POLYGLASS SBS MINERAL (D 5147)

#602 ARCTIC SHIELD SBS BASE (D 4601)

#603 SUPER BASE SBS (D 4601)

#605 PANOPLY SBS BASE (D 4601)

#1000 ESHAVENT THERMAL SBS (D 4897)

#500 PREMIUM PLY (D 2178)

#350 PREMIUM SBS MINERAL (D 5147)

#502 PREMIUM MINERAL (D 3909)

#506 SUPER 6 PLY TYPE VI (D 2178)

#625 PARAGON SBS MINERAL (D 5147)

#650 PANOPLY SBS MINERAL (D 5147)

#917 POLYGLASS SBS MINERAL (D 5147)

#919 POLYGLASS SBS SMOOTH (D 5147)

#159 APP SMOOTH (D 5147)

#160 APP SMOOTH (D 5147)

#161 APP MINERAL (D 5147)

#162 APP MINERAL (D 5147)

#916 SBS WALK BOARD

495-3	IR-263	IR-273	IR-463	IR-473
HOT	HOT	HOT	HOT	HOT
	X		X	
X		X		X
X		X		X
0-1/4	0-1/4	0-1/4	0-1/4	0-1/4
3	4	3	4	3
	1		1	
3	3	3	3	3
X			X	X
	X	X		
X	X	X	X	X
4				
3	10.0	10.0	10.0	10.0
	X	X	X	X
5.50	11.50	11.50	11.50	11.50
NONE	NONE	NONE	NONE	NONE
1990	1991	1991	1991	1991
X	X	X	X	X

M3-XHA M3-XIA	M3-AHA M3-AIA	M3-BHA M3-BIA	M4-XHA M4-XIA	M4-BHA M4-BIA	M4-EHA M4-EIA	M5-BHA M5-BIA	M5-EHA M5-EIA	S3-XHX S3-XIX	S3-XBX	S3-BBX	S3-XEX	S3-BEX
HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD
	X	X		X	X	X	X			X		X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6	0-6
3	3	3	4	4	4	5	5	3	3	3	3	3
	1	1		1	1	1	1			1		1
2	1	1	3	2	2	3	3	3	3	2	3	2
1	1	1	1	1	1	1	1					
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
									X	X	X	X
X	X	X	X	X	X	X	X					
1.75	1.67	1.69	2.01	2.05	2.25	2.41	2.61	1.32	1.89	1.64	2.49	2.04
2,3	2,3	2,3	NONE	NONE	NONE	NONE	NONE	2,3	2,3	2,3	2,3	2,3
X	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

MALARKEY ROOFING CO.												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	15											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	NO											
5. LIMITATIONS/RESTRICTIONS:	SEE MALARKEY SPEC MANUAL											
6. FOR SALES/TECHNICAL INFORMATION:	J. DECHANDT AND M. MALARKEY											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	<div> <div> #515 STANDARD BASE (D 4601)  #501 PREMIUM 1 SBS BASE (D 4601)  #508 PREMIUM SBS VENTED BASE (D 4897)  #601 HP POLYGLASS SBS MINERAL (D 5147)  #602 ARCTIC SHIELD SBS BASE (D 4601)  #603 SUPER BASE SBS (D 4601)  #605 PANOPLY SBS BASE (D 4601)  #1000 ESHAVENT THERMAL SBS (D 4897)  #500 PREMIUM PLY (D 2178)  #350 PREMIUM SBS MINERAL (D 5147)  #502 PREMIUM MINERAL (D 3909)  #506 SUPER 6 PLY TYPE VI (D 2178) </div> <div> #625 PARAGON SBS MINERAL (D 5147)  #650 PANOPLY SBS MINERAL (D 5147)  #917 POLYGLASS SBS MINERAL (D 5147)  #919 POLYGLASS SBS SMOOTH (D 5147)  #159 APP SMOOTH (D 5147)  #160 APP SMOOTH (D 5147)  #161 APP MINERAL (D 5147)  #162 APP MINERAL (D 5147)  #916 SBS WALK BOARD </div> </div>											
8. SPECIFICATION NUMBER	S4-BBX	G3-XHX G3-XIX	G4-XHX G4-XIX	G3-BHX G3-BIX	G4-BHX G4-BIX	S2-BXF	S2-CXF	S2-DXF	S4-BEX	S4-EEX	S4-AHX S4-AIX	S4-BHX S4-BIX
9. HOT AND/OR COLD APPLIED	HOT/CLD	HOT	HOT	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT/CLD
10. DECK TYPE												
A. NAILABLE	X			X	X	X	X	X	X	X		X
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0-6	0-3	0-3	0-3	0-3	3-0	3-0	3-0	0-6	0-6	0-6	0-6
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	3	4	3	4	2	2	2	4	4	4	4
B. BASE SHEET	1			1	1	1	1	1	1	1		1
C. INTERPLY(IES)	3	3	4	2	3				3	3	4	3
D. CAP SHEET						1	1	1				
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
C. COAL TAR												
D. ELASTOMERIC ADHESIVE	X					X	X	X	X	X		
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )		4	4	4	4							
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK	X					X	X	X	X	X	X	X
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET						X	X	X				
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE		5.68	6.04	5.62	5.98							
B. SMOOTH	2.19					2.19	2.36	2.64	2.79	2.99	1.60	1.62
C. CAP SHEET												
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	2,3	2,3
18. YEAR OF FIRST COMMERCIAL USE												
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

G3-BBX	G3-EEX	G4-BBX	S2-EXF	S3-BBF	S3-EBF	S3-EEF	S3-FHF S3-FIF	S3-FBF	S3-FEF	S4-BBF	S4-EBF	A2-BXF	A2-CXF	A2-DXF	A2-EXF	A3-BBF	A3-EBF
HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD
X	X	X	X	X	X	X				X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
3	3	4	2	3	3	3	3	3	3	4	4	2	2	2	2	3	3
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	3		1	1	1	1	1	1	2	2					1	1
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X				X	X	X	X	X	X	X	X
4	4	4															
			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.00	6.60	6.55															
2.3	NONE	NONE	2.39	2.74	2.94	3.14	2.63	2.82	3.02	3.29	3.03	2.13	2.32	2.58	2.33	2.68	2.88
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

<div> <div> 1. NUMBER OF REGIONAL SERVICE LOCATIONS:  2. LICENSED APPLICATOR AGREEMENT (yes/no):  3. DISTRIBUTION METHOD (distributors and/or direct):  4. PREFORMED ACCESSORIES AVAILABLE (yes/no):  5. LIMITATIONS/RESTRICTIONS:  6. FOR SALES/TECHNICAL INFORMATION:  7. FELTS DATA: TRADE NAME (applicable ASTM standard),  (metric [39 5/8-in. wide]) </div> <div> <b>MALARKEY ROOFING CO.</b>   15  YES  DISTRIBUTORS  NO  SEE MALARKEY SPEC MANUAL  J. DECHANDT AND M. MALARKEY  #515 STANDARD BASE (D 4601)  #501 PREMIUM 1 SBS BASE (D 4601)  #508 PREMIUM SBS VENTED BASE (D 4897)  #601 HP POLYGLASS SBS MINERAL (D 5147)  #602 ARCTIC SHIELD SBS BASE (D 4601)  #603 SUPER BASE SBS (D 4601)  #605 PANOPLY SBS BASE (D 4601)  #1000 ESHAVENT THERMAL SBS (D 4897)  #500 PREMIUM PLY (D 2178)  #350 PREMIUM SBS MINERAL (D 5147)  #502 PREMIUM MINERAL (D 3909)  #506 SUPER 6 PLY TYPE VI (D 2178)   #625 PARAGON SBS MINERAL (D 5147)  #650 PANOPLY SBS MINERAL (D 5147)  #917 POLYGLASS SBS MINERAL (D 5147)  #919 POLYGLASS SBS SMOOTH (D 5147)  #159 APP SMOOTH (D 5147)  #160 APP SMOOTH (D 5147)  #161 APP MINERAL (D 5147)  #162 APP MINERAL (D 5147)  #916 SBS WALK BOARD </div> </div>												
8. SPECIFICATION NUMBER	A4-BBF	A4-EBF	M2-CXB	M2-DXB	M2-EXB	M3-BHB M3-BIB	M3-BBB	M3-BCB	M3-BDB	M3-EHB M3-EIB	M3-EBB	M3-EEB
9. HOT AND/OR COLD APPLIED	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT/CLD	HOT/CLD
10. DECK TYPE												
A. NAILABLE	X	X				X	X	X	X	X	X	X
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	4	2	2	2	3	3	3	3	3	3	3
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY (IES)	2	2				1	1	1	1	1	1	1
D. CAP SHEET	1	1	1	1	1	1	1	1	1	1	1	1
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
C. COAL TAR												
D. ELASTOMERIC ADHESIVE	X	X	X	X	X		X	X	X		X	X
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )												
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING	X	X										
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X	X	X	X	X	X	X	X	X	X
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE												
B. SMOOTH												
C. CAP SHEET	3.23	3.43	1.99	2.27	2.02	1.93	2.12	2.29	2.57	2.12	2.32	2.52
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE												
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

M3-FHB M3-FIB	M3-FBB	M3-FEB	M4-BHB M4-BIB	M4-BBB	M4-EBB	M4-FHB M4-FIB	M4-FBB	M4-FEB	M5-BHB M5-BIB	M5-EHB M5-EIB	M2-CXC	M2-DXC	M2-EXC	M3-BHC M3-BIC	M3-BBC	M3-EHC M3-EIC	M3-EBC	M3-EEC
HOT	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT	HOT	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT/CLD	HOT	HOT/CLD	HOT/CLD
			X	X	X				X	X				X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
3	3	3	4	4	4	4	4	4	5	5	2	2	2	3	3	3	3	3
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	2	2	2	2	2	2	3	3				1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
			X	X	X						X	X	X		X		X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.01	2.45	2.40	2.29	2.67	2.87	2.37	2.75	3.15	2.61	2.85	1.99	2.27	2.02	1.91	2.12	2.13	2.32	2.52
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

MALARKEY ROOFING CO.												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	15											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	NO											
5. LIMITATIONS/RESTRICTIONS:	SEE MALARKEY SPEC MANUAL											
6. FOR SALES/TECHNICAL INFORMATION:	J. DECHANDT AND M. MALARKEY											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	<div> <div> #515 STANDARD BASE (D 4601)  #501 PREMIUM 1 SBS BASE (D 4601)  #508 PREMIUM SBS VENTED BASE (D 4897)  #601 HP POLYGLASS SBS MINERAL (D 5147)  #602 ARCTIC SHIELD SBS BASE (D 4601)  #603 SUPER BASE SBS (D 4601)  #605 PANOPLY SBS BASE (D 4601)  #1000 ESHAVENT THERMAL SBS (D 4897)  #500 PREMIUM PLY (D 2178)  #350 PREMIUM SBS MINERAL (D 5147)  #502 PREMIUM MINERAL (D 3909)  #506 SUPER 6 PLY TYPE VI (D 2178) </div> <div> #625 PARAGON SBS MINERAL (D 5147)  #650 PANOPLY SBS MINERAL (D 5147)  #917 POLYGLASS SBS MINERAL (D 5147)  #919 POLYGLASS SBS SMOOTH (D 5147)  #159 APP SMOOTH (D 5147)  #160 APP SMOOTH (D 5147)  #161 APP MINERAL (D 5147)  #162 APP MINERAL (D 5147)  #916 SBS WALK BOARD </div> </div>											
8. SPECIFICATION NUMBER	M3-FHC M3-FIC	M3-FBC	M3-FCC	M3-FDC	M3-FEC	M4-BHC M4-BIC	M4-BBC	M4-EHC M4-EIC	M4-EBC	M4-FHC M4-FIC	M4-FBC	M4-FEC
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT/CLD	HOT	HOT/CLD	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE						X	X	X	X			
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
12. NUMBER OF PLIES												
A. TOTAL PLIES	3	3	3	3	3	4	4	4	4	4	4	4
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	1	1	1	1	1	2	2	2	2	2	2	2
D. CAP SHEET	1	1	1	1	1	1	1	1	1	1	1	1
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
C. COAL TAR												
D. ELASTOMERIC ADHESIVE							X		X			
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )												
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X	X	X	X	X	X	X	X	X	X
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE												
B. SMOOTH												
C. CAP SHEET	2.01	2.20	2.37	2.65	2.40	2.04	2.67	2.49	2.87	2.37	2.75	3.15
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE												
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X



General information with test description and suggested values as specified in NBS BSS #55/1974

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# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

MALARKEY ROOFING CO.												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:	15											
2. LICENSED APPLICATOR AGREEMENT (yes/no):	YES											
3. DISTRIBUTION METHOD (distributors and/or direct):	DISTRIBUTORS											
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):	NO											
5. LIMITATIONS/RESTRICTIONS:	SEE MALARKEY SPEC MANUAL											
6. FOR SALES/TECHNICAL INFORMATION:	J. DECHANDT AND M. MALARKEY											
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	<div> <div> #515 STANDARD BASE (D 4601)  #501 PREMIUM 1 SBS BASE (D 4601)  #508 PREMIUM SBS VENTED BASE (D 4897)  #601 HP POLYGLASS SBS MINERAL (D 5147)  #602 ARCTIC SHIELD SBS BASE (D 4601)  #603 SUPER BASE SBS (D 4601)  #605 PANOPLY SBS BASE (D 4601)  #1000 ESHAVENT THERMAL SBS (D 4897)  #500 PREMIUM PLY (D 2178)  #350 PREMIUM SBS MINERAL (D 5147)  #502 PREMIUM MINERAL (D 3909)  #506 SUPER 6 PLY TYPE VI (D 2178) </div> <div> #625 PARAGON SBS MINERAL (D 5147)  #650 PANOPLY SBS MINERAL (D 5147)  #917 POLYGLASS SBS MINERAL (D 5147)  #919 POLYGLASS SBS SMOOTH (D 5147)  #159 APP SMOOTH (D 5147)  #160 APP SMOOTH (D 5147)  #161 APP MINERAL (D 5147)  #162 APP MINERAL (D 5147)  #916 SBS WALK BOARD </div> </div>											
8. SPECIFICATION NUMBER	M4-EBD	M4-FHD M4-FID	M4-FBD	M4-FED	M5-EHD M5-EID	M5-EBD	M5-FHD M5-FID	M5-FBD	M2-BXE	M2-CXE	M2-DXE	M2-EXE
9. HOT AND/OR COLD APPLIED	HOT/CLD	HOT	HOT	HOT	HOT	HOT/CLD	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD
10. DECK TYPE												
A. NAILABLE	X					X						
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
12. NUMBER OF PLIES												
A. TOTAL PLIES	4	4	4	4	5	5	5	5	2	2	2	2
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	2	2	2	2	3	3	3	2				
D. CAP SHEET	1	1	1	1	1	1	1	1	1	1	1	1
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
C. COAL TAR												
D. ELASTOMERIC ADHESIVE	X					X			X	X	X	X
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )												
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X	X	X	X	X	X	X	X	X	X
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE												
B. SMOOTH												
C. CAP SHEET	3.05	2.55	2.93	3.33	3.03	3.60	2.91	3.48	2.15	2.32	2.60	2.35
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE												
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

M3-BBE	M3-EBE	M3-EEE	M4-BHD M4-BID	M4-BBD	M4-EHD M4-EID	M4-EBD	M4-FHD M4-FID	M4-FBD	M4-FED	M5-EHD M5-EID	M5-EBD	M5-FHD M5-FID	M5-FBD	M2-BXE	M2-CXE	M2-DXE	M2-EXE	M3-BBE
HOT/CLD	HOT/CLD	HOT/CLD	HOT	HOT/CLD	HOT	HOT/CLD	HOT	HOT	HOT	HOT	HOT/CLD	HOT	HOT	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD	HOT/CLD
X	X	X	X	X	X	X					X							X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
3	3	3	4	4	4	4	4	4	4	5	5	5	5	2	2	2	2	3
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	2	2	2	2	2	2	2	3	3	3	2					1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X		X		X					X			X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2.70	2.90	3.10	2.47	2.85	2.67	3.05	2.55	2.93	3.33	3.03	3.60	2.91	3.48	2.15	2.32	2.60	2.35	2.70
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

<b>MALARKEY ROOFING CO.</b> 15 YES DISTRIBUTORS NO SEE MALARKEY SPEC MANUAL J. DECHANDT AND M. MALARKEY #515 STANDARD BASE (D 4601) #501 PREMIUM 1 SBS BASE (D 4601) #508 PREMIUM SBS VENTED BASE (D 4897) #601 HP POLYGLASS SBS MINERAL (D 5147) #602 ARCTIC SHIELD SBS BASE (D 4601) #603 SUPER BASE SBS (D 4601) #605 PANOPLY SBS BASE (D 4601) #1000 ESHAVENT THERMAL SBS (D 4897) #500 PREMIUM PLY (D 2178) #350 PREMIUM SBS MINERAL (D 5147) #502 PREMIUM MINERAL (D 3909) #506 SUPER 6 PLY TYPE VI (D 2178) #625 PARAGON SBS MINERAL (D 5147) #650 PANOPLY SBS MINERAL (D 5147) #917 POLYGLASS SBS MINERAL (D 5147) #919 POLYGLASS SBS SMOOTH (D 5147) #159 APP SMOOTH (D 5147) #160 APP SMOOTH (D 5147) #161 APP MINERAL (D 5147) #162 APP MINERAL (D 5147) #916 SBS WALK BOARD												
1. NUMBER OF REGIONAL SERVICE LOCATIONS:												
2. LICENSED APPLICATOR AGREEMENT (yes/no):												
3. DISTRIBUTION METHOD (distributors and/or direct):												
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):												
5. LIMITATIONS/RESTRICTIONS:												
6. FOR SALES/TECHNICAL INFORMATION:												
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])												
8. SPECIFICATION NUMBER	M3-EBE	M3-EEE	M3-FHE M3-FIE	M3-FBE	M3-FEE	M4-BBE	M4-EBE	F2-BXG	F2-EXG	F3-BHG F3-BIG	F3-BBG	F3-EHG F3-EIG
9. HOT AND/OR COLD APPLIED	HOT/CLD	HOT/CLD	HOT	HOT	HOT	HOT/CLD	HOT/CLD	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE												
A. NAILABLE	X	X				X	X			X	X	X
B. INSULATED	X	X	X	X	X	X	X	X	X	X	X	X
C. NONNAILABLE	X	X	X	X	X	X	X	X	X	X	X	X
11. SLOPE REQUIREMENTS (range in inches)	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	NONE	NONE	NONE	NONE
12. NUMBER OF PLIES												
A. TOTAL PLIES	3	3	3	3	3	4	4	2	2	3	3	3
B. BASE SHEET	1	1	1	1	1	1	1	1	1	1	1	1
C. INTERPLY(IES)	1	1	1	1	1	2	2			1	1	1
D. CAP SHEET	1	1	1	1	1	1	1	1	1	1	1	1
13. TYPES OF FELT												
A. GLASS FIBER	X	X	X	X	X	X	X	X	X	X	X	X
B. ORGANIC												
C. ASBESTOS												
D. POLYESTER												
E. OTHER												
14. INTERPLY ADHESIVE												
A. ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT	X	X	X	X	X	X	X	X	X	X	X	X
C. COAL TAR												
D. ELASTOMERIC ADHESIVE	X	X				X	X					
15. SURFACING												
AGGREGATE												
A. GRAVEL (lbs./ft <sup>2</sup> )												
B. SLAG (lbs./ft <sup>2</sup> )												
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )												
SMOOTH												
D. ASPHALT												
E. COAL TAR												
F. EMULSION/CUTBACK												
G. ALUMINUM COATING												
H. VINYL/VINYL COATING												
OTHER												
I. MINERAL GRANULES												
J. CAP SHEET	X	X	X	X	X	X	X	X	X	X	X	X
K. OTHER												
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )												
A. AGGREGATE												
B. SMOOTH												
C. CAP SHEET	2.90	3.10	2.59	2.78	2.98	3.25	3.45	1.55	1.75	1.91	2.10	2.11
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE												
19. TEST RESULTS PER NBS BSS #55												
MD = MACHINE DIRECTION												
XD = CROSS DIRECTION												
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD												
-XD												
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD												
-XD												
C. THERMAL BASE SHOCK (not < 100°F) -MD												
-XD												
20. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X	X	X	X	X	X

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## MFM BUILDING PRODUCTS CORP.

YES

NO

STEVE FOSTER/WES SIMPSON  
DURAPLY IV (D 3178, TYPE IV)  
DURABASE (NONE)  
POLYPPLY (NONE)

43- GAW	43- GSW	43- GAC	44- GSC	52- PAW	52- PSW	52- PSC	52- PAC
HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
X	X			X	X		
		X	X			X	X
		X	X			X	X
1/2 - 3	1/2 - 6	1/2 - 3	1/2 - 6	1/2 - 3	1/2 - 3	1/2 - 3	1/2 - 3
4	4	3	4	3	3	2	2
1	1			1			
3	3	3	4	2	2	2	2
X	X	X	X				
				X	X	X	X
X	X	X	X	X	X	X	X
4		4		4			4
	X		X				
	X		X		X	X	
6.0	2.0	6.0	2.0	5.0	2.0	2.0	6.0
1976	1976	1976	1976	1982	1982	1982	1982
343	343	293	382				
257	257	241	333				
23.5	23.5	18.8	21.7				
27.9	27.9	16.8	21.3				
687	687	840	866				
523	523	840	883				
X	X	X	X	X	X	X	X

## SOUTHWESTERN PETROLEUM CORPORATION

NO

DIRECT

NO

SEE COLD PROCESS BUR SYSTEM 301 APPLICATION GUIDE  
R. KLEINTOP  
ASPHALT ROLL ROOFING (D 2626)

COLD PRO-  
CESS BUR  
301 SYSTEM

COLD
X
X
X
1/4 & UP
3
3
X
X
4-6
X
X
X
X
6.7
1.5
NONE
1971

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

		TAMKO ROOFING PRODUCTS INC.									
1. NUMBER OF REGIONAL SERVICE LOCATIONS:		27									
2. LICENSED APPLICATOR AGREEMENT (yes/no):		YES									
3. DISTRIBUTION METHOD (distributors and/or direct):		DISTRIBUTORS									
4. PREFORMED ACCESSORIES AVAILABLE (yes/no):		NO									
5. LIMITATIONS/RESTRICTIONS:		SEE TAMKO COMMERCIAL ROOFING MANUAL									
6. FOR SALES/TECHNICAL INFORMATION:		DISTRICT OFFICE/TECHNICAL SERVICE									
7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])		TYPE 43 BASE (D 2626) TAM CAP (3909), TAM-PLY IV (D 2178 TYPE IV) VAPOR CHAN (D 4897 TYPE II) GLASS-BASE (D 4601 TYPE II) TAM-GLASS PREMIUM (D 2178, TYPE VI) TAM-PLY IV (D 2178 TYPE IV) BASE-N-PLY (D4601 TYPE II)									
8. SPECIFICATION NUMBER		501 601	502 602	503 603	504 604	505 605	507 607	512 612	514 614	515 615	516 616
9. HOT AND/OR COLD APPLIED		HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE											
A. NAILABLE								X	X	X	X
B. INSULATED		X	X	X	X	X	X				
C. NONNAILABLE											
11. SLOPE REQUIREMENTS (range in inches)		0-3	0-3	0-3	0-3	0-3	0-3	0-1 1/2	0-3	0-3	0-1
12. NUMBER OF PLIES											
A. TOTAL PLIES		3	4	4	3	4	5	4	4	4	4
B. BASE SHEET								1	1	1	1
C. INTERPLY(IES)		3	3	4	3	4	4	2	3	3	3
D. CAP SHEET			1				1	1			
13. TYPES OF FELT											
A. GLASS FIBER		X	X	X	X	X	X	X	X	X	X
B. ORGANIC								X	X		X
C. ASBESTOS											
D. POLYESTER											
E. OTHER											
14. INTERPLY ADHESIVE											
A. ASPHALT		X	X	X	X	X	X	X	X	X	X
B. MODIFIED ASPHALT											
C. COAL TAR											
D. ELASTOMERIC ADHESIVE											
15. SURFACING											
AGGREGATE											
A. GRAVEL (lbs./ft <sup>2</sup> )		4		4					4	4	
B. SLAG (lbs./ft <sup>2</sup> )		3		3					3	3	
C. CRUSHED ROCK (lbs./ft <sup>2</sup> )											
SMOOTH											
D. ASPHALT					X	X					X
E. COAL TAR											
F. EMULSION/CUTBACK					X	X					X
G. ALUMINUM COATING					X	X					X
H. VINYL/VINYL COATING											
OTHER											
I. MINERAL GRANULES											
J. CAP SHEET			X				X	X			
K. OTHER											
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> )											
A. AGGREGATE		6.0		6.0					6.0	7.0	
B. SMOOTH					1.50	1.50					1.50
C. CAP SHEET			2.0			2.1	2.0				
17. RESTRICTED REGIONS (refer to manufacturer's literature)		NONE	NONE	NONE	YES	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE											
19. TEST RESULTS PER NBS BSS #55											
MD = MACHINE DIRECTION											
XD = CROSS DIRECTION											
A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD											
-XD											
B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD											
-XD											
C. THERMAL BASE SHOCK (not < 100°F) -MD											
-XD											
20. SEE MEMBRANE APPENDIX IF CHECKED											

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

## TREMCO, INC.

18  
YES  
DIRECT  
YES  
SEE TREMCO REP  
SALES OFFICE/TECHNICAL DEPT.  
BURMASTIC COMPOSITE PLY SHEET (NONE)  
BURMASTIC GLASS PLY SHEET(D 4601, TYPE II)  
THERMGLASS ROOFING PLY (D 2178, TYPE VI)  
POLYTHERM PLY SHEET (NONE)

BURMAS- TIC 100	BURMAS- TIC 100	BURMAS- TIC 200	BURMAS- TIC 200	THERM 100	BURMAS- TIC 100	BURMAS- TIC 100	BURMAS- TIC 200	BURMAS- TIC 200	THERM 100	THERM 100	THERM 200	THERM 200
COLD	COLD	COLD	COLD	HOT	COLD	COLD	COLD	COLD	HOT	HOT	HOT	HOT
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X
1/8 - 4	1/8 - 4	1/8 - 4	1/8 - 4	1/8 - 3	1/8 - 4	1/8 - 4	1/8 - 4	1/8 - 4	1/8 - 3	1/8 - 3	1/8 - 3	1/8 - 3
3	3	3	3	3	3	3	3	3	3	3	3	3
X	X			X	X	X			X	X		
		X	X				X	X			X	X
X	X	X	X		X	X	X	X				
				X					X	X	X	X
	4.0		4.0			4.0		4.0		4.0		4.0
X		X		X	X		X		X		X	
X		X		X	X		X		X		X	
X		X		X	X		X		X		X	
X		X		X	X		X		X		X	
X		X		X	X		X		X		X	
2.30	5.70	2.30	5.70	1.80	2.30	5.70	2.30	5.70	1.80	5.20	1.60	5.0
NONE 1978	NONE 1978	NONE 1986	NONE 1986	NONE 1982	NONE 1978	NONE 1978	NONE 1986	NONE 1986	NONE 1982	NONE 1982	NONE 1983	NONE 1983
330 295	330 295	390 400	390 400	255 240	330 295	330 295	390 400	390 400	255 240	255 240	265 225	265 225

# Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

TRI-PLY												
1. NUMBER OF REGIONAL SERVICE LOCATIONS: 2. LICENSED APPLICATOR AGREEMENT (yes/no): 3. DISTRIBUTION METHOD (distributors and/or direct): 4. PREFORMED ACCESSORIES AVAILABLE (yes/no): 5. LIMITATIONS/RESTRICTIONS: 6. FOR SALES/TECHNICAL INFORMATION: 7. FELTS DATA: TRADE NAME (applicable ASTM standard), (metric [39 5/8-in. wide])	5 YES DISTRIBUTORS YES SEE TRI-PLY DOMINIC MORAN/ROBERT WHITE EAGLE BASE ULTRA TYPE I/II EAGLE BONDABLE 28 TYPE I/II EAGLE SUPER GLASS TYPE III EAGLE TOUGH GLASS TYPE IV EAGLE ULTRA GLASS TYPE VI EAGLE CAP (3909)											
8. SPECIFICATION NUMBER	I-5-4P-M	I-4-4P-G	I-4-4P-S	I-4-3P	I-3-3P-G	I-3-3P-S	I-3-2P-M	N-3-B2P-G	N-3-B2P-S	N-3-BP-M	N-4-B3P-G	N-4-B3P-S
9. HOT AND/OR COLD APPLIED	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT	HOT
10. DECK TYPE A. NAILABLE B. INSULATED C. NONNAILABLE	X	X	X	X		X	X	X				
11. SLOPE REQUIREMENTS (range in inches)	0-6	0-3	0-6	0-6	0-3	0-6	0-6	0-3	0-6	0-6	0-3	0-6
12. NUMBER OF PLIES A. TOTAL PLIES B. BASE SHEET C. INTERPLY(IES) D. CAP SHEET	5 4 1	4 4	4 4	4 3 1	3 3	3 3	3 2 1	3 1 2	3 1 2	3 1 1	4 1 3	4 1 3
13. TYPES OF FELT A. GLASS FIBER B. ORGANIC C. ASBESTOS D. POLYESTER E. OTHER	X	X	X	X	X	X	X	X	X	X	X	X
14. INTERPLY ADHESIVE A. ASPHALT B. MODIFIED ASPHALT C. COAL TAR D. ELASTOMERIC ADHESIVE	X	X	X	X	X	X	X	X	X	X	X	X
15. SURFACING AGGREGATE A. GRAVEL (lbs./ft <sup>2</sup> ) B. SLAG (lbs./ft <sup>2</sup> ) C. CRUSHED ROCK (lbs./ft <sup>2</sup> ) SMOOTH D. ASPHALT E. COAL TAR F. EMULSION/CUTBACK G. ALUMINUM COATING H. VINYL/VINYL COATING OTHER I. MINERAL GRANULES J. CAP SHEET K. OTHER		4 3			4 3			4 3			4 3	
16. WEIGHT, INCLUDING PLIES (approx. lbs./ft <sup>2</sup> ) A. AGGREGATE B. SMOOTH C. CAP SHEET												
17. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
18. YEAR OF FIRST COMMERCIAL USE	1985	1985	1985	1985	1985	1985	1985	1985	1985	1985	1985	1985
19. TEST RESULTS PER NBS BSS #55 MD = MACHINE DIRECTION XD = CROSS DIRECTION A. TENSILE STRENGTH (>200 lb/in @ 0°F) -MD -XD B. THERMAL EXPANSION (not > 40x10 <sup>-6</sup> /°F @ 0°F to -30°F) -MD -XD C. THERMAL BASE SHOCK (not < 100°F) -MD -XD												
20. SEE MEMBRANE APPENDIX IF CHECKED												



## Built-up Roofing

General information with test description and suggested values as specified in NBS BSS #55/1974

N-4- B2P-M	NN-3 B2P-G	NN-3 B2P-S	NN-3 BP-M	N-5 B3P-M	NN-5-B 3P-M	NN-4 B3P-G	NN-4 B3P-S	NN-4 B2P-M
HOT	HOT	HOT	HOT		HOT	HOT	HOT	HOT
X				X				
	X	X	X		X	X	X	X
0-6	0-3	0-6	0-6	0-6	0-6	0-3	0-6	0-6
4	3	3	3	5	5	4	4	4
1	1	1	1	1	1	1	1	1
2	2	2	1	3	3	3	3	2
1			1	1	1			1
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X
		4 3				4 3		
			X				X	
			X				X	
			X				X	
X			X	X	X			X
NONE 1985	NONE 1985	NONE 1985	NONE 1985	NONE 1985	NONE 1985	NONE 1985	NONE 1985	NONE 1985

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	AL-KOAT INC.	AL-KOAT INC.	AL-KOAT INC.	AL-KOAT INC.	AL-KOAT INC.	AL-KOAT INC.	AL-KOAT INC.
2. PRODUCT NAME	AL-FLEX, G	AL-FLEX, S	AL-KOAT, PG-40	AL-KOAT, PA-30	AL-KOAT, VG-30	AL-KOAT, VA-20	AL-KOAT, PG-45T
3. PRODUCT DESCRIPTION A. TYPE OF MODIFIER B. THICKNESS (mils) C. TOP SURFACE  D. REINFORCING MATERIAL  E. COLOR(S)  F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	APP 160 GRANULES  NON-WOVEN POLYESTER  BLACK/WHITE/ BUFF/RED/ BROWN/GREEN 1.02	APP 160 SMOOTH  NON-WOVEN POLYESTER   0.97	SBS 160 GRANULE  NON-WOVEN POLYESTER  BLACK/WHITE 1.02	SBS 120 SMOOTH  NON-WOVEN POLYESTER   0.79	SBS 120 GRANULES  NON-WOVEN GLASS  BLACK/WHITE 0.84	SBS 80 SMOOTH  NON-WOVEN GLASS   0.75	SBS 170 GRANULES  NON-WOVEN POLYESTER  BLACK/WHITE 1.14
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	GRANULAR SHEET	NONE	GRANULAR SHEET	NONE
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X	X X	X X	X X	X X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	TORCH
7. TYPES OF ROOF SYSTEMS: A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	  TORCH  X	  TORCH  X	  MOP/TORCH/ADH.  X	  MOP/TORCH/ADH.  X	  MOP/TORCH/ADH.  X	  MOP/TORCH/ADH.  X	  TORCH  X
8. MINIMUM SLOPE REQUIRE	POS. DRAIN	POS. DRAIN	POS. DRAIN	POS. DRAIN	POS. DRAIN	POS. DRAIN	POS. DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X O	X O	X O	X O	X O	X O	X O
B. MINERAL FIBER	O O	O O	O O	O O	O O	O O	O O
C. POLYSTYRENE	O O	O O	O O	O O	O O	O O	O O
D. CELLULAR GLASS	O O	O O	O O	O O	O O	O O	O O
E. PHENOLIC	O O	O O	O O	O O	O O	O O	O O
F. FIBERBOARD	X O	X O	X O	X O	X O	X O	X O
G. PERLITE	X O	X O	X O	X O	X O	X O	X O
H. POLYISOCYANURATE	O O	O O	O O	O O	O O	O O	O O
I. POLYURETHANE	O O	O O	O O	O O	O O	O O	O O
J. GYPSUM	X O	X O	X O	X O	X O	X O	X O
K. CONCRETE	X O	X O	X O	X O	X O	X O	X O
L. WOOD PLANK	O O	O O	O O	O O	O O	O O	O O
M. PLYWOOD	O O	O O	O O	O O	O O	O O	O O
N. EXISTING BUILT-UP MEMBRANE	O O	O O	O O	O O	O O	O O	O O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS
11. WORKABLE TEMPERATURE RANGE (degrees F)	20 – 115	20 – 115	20 – 115	20 – 115	20 – 115	20 – 115	20 – 115
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	GRANULAR SHEET	SAME MATERIAL	GRANULAR SHEET	SAME MATERIAL
13. FLASHING METHOD	TORCH	TORCH	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	MEXICO MEXICO	MEXICO MEXICO	MEXICO MEXICO	MEXICO MEXICO	MEXICO MEXICO	MEXICO MEXICO	MEXICO MEXICO
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	1982 1992	1982 1992	1982 1992	1982 1992	1982 1992	1982 1992	1982 1992
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA	MILLIONS MILLIONS	MILLIONS MILLIONS	MILLIONS MILLIONS	MILLIONS MILLIONS	MILLIONS MILLIONS	MILLIONS MILLIONS	MILLIONS MILLIONS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	1	1	1	1	1	1	1
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/3AL-KOAT	800/3AL-KOAT	800/3AL-KOAT	800/3AL-KOAT	800/3AL-KOAT	800/3AL-KOAT	800/3AL-KOAT
22. FOR TECHNICAL INFORMATION, CONTACT:	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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AL-KOAT INC.	AL-KOAT INC.	AL-KOAT INC.	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.
AL-KOAT, PA-40T	AL-KOAT, VG-35T	AL-KOAT, VA-30T	INFINITEE 30 BMC FR	INFINITEE 20 SM	INFINITEE 30 GMC	INFINITEE ST	INFINITEE GTC	INFINITEE GTC-FR	MILLENNIUM BASE SHEET
SBS 160 SMOOTH	SBS 130 GRANULES	SBS 120 SMOOTH	SBS 160 GRANULES	SBS 82 SMOOTH	SBS 160 GRANULES	APP 160 SMOOTH	APP 160 GRANULES	APP 160 GRANULES	TARDYNE 80 SMOOTH
NON-WOVEN POLYESTER	NON-WOVEN GLASS	NON-WOVEN GLASS	POLYESTER	FIBERGLASS	POLYESTER	POLYESTER	POLYESTER	POLYESTER	FIBERGLASS
1.01	0.92	0.79	1.05	0.65	0.90	0.80	1.05	1.05	0.53
GRANULAR SHEET	NONE	GRANULAR SHEET	NONE	CAP SHEET	NONE	NONE	NONE	NONE	CAP SHEET
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
TORCH	TORCH	TORCH	HOT MOP OR COLD	HOT MOP OR COLD	HOT MOP OR COLD	TORCH	TORCH	TORCH	HOT MOP, HEAT WELD, COLD
TORCH	TORCH	TORCH	HOT MOP HOT MOP/COLD	HOT MOP HOT MOP/COLD	HOT MOP HOT MOP/COLD	TORCH TORCH	TORCH TORCH	TORCH TORCH	HOT MOP/COLD
X	X	X	X	X	X	X	X	X	X
POS. DRAIN	POS. DRAIN	POS. DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	NONE
X O O O O	X O O O O	X O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	X O O O
X O X O O O	X O X O O O	X O X O O O	O O O O	X X O O	O O O O	O O O O	O O O O	O O O O	X X O O
X O X O O O	X O X O O O	X O X O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O
X O X O O O	X O X O O O	X O X O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	X O O O
SEE SPECS 20 – 115	SEE SPECS 20 – 115	SEE SPECS 20 – 115	30 - 100	30 - 100	30 - 100	40 - 100	40 - 100	40 -1 00	30 - 100
GRANULAR SHEET	SAME MATERIAL	GRANULAR SHEET	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
TORCH	TORCH	TORCH	HOT MOP OR MOD BIT FLASH-ING CEMENT	HOT MOP OR MOD BIT FLASH-ING CEMENT	HOT MOP OR MOD BIT FLASH-ING CEMENT	TORCH	TORCH	TORCH	MOD BIT FLASHING CEMENT
NO	NO	NO	YES	YES	YES	YES	YES	YES	YES
MEXICO MEXICO	MEXICO MEXICO	MEXICO MEXICO	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
1982 1992	1982 1992	1982 1992	1989	1992	1986	1985	1986	1986	1994
MILLIONS MILLIONS	MILLIONS MILLIONS	MILLIONS MILLIONS							
DISTRIBUTORS 1 YES	DISTRIBUTORS 1 YES	DISTRIBUTORS 1 YES	DISTRS.DIRECT 6 YES	DISTRS. DIRECT 6 YES	DISTRS. DIRECT 6 YES	DISTRS. DIRECT 6 YES	DISTRS. DIRECT 6 YES	DISTRS. DIRECT 6 YES	DISTRS. DIRECT 6 YES
800/3AL-KOAT	800/3AL-KOAT	800/3AL-KOAT	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHINCAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHINCAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES
C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT	C. HICKEY 800/3AL-KOAT							

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	ALLIED SIGNAL, INC.	ALLIED SIGNAL, INC.	AMERICAN LUBRICANTS CO. INC.	ANDEK CORP.	BARRETT CO.	BARRETT CO.	BARRETT CO.
2. PRODUCT NAME	MILLENNIUM SMOOTH MOP	MILLENNIUM GRANULATED MOP CAP	TIFFANY	FLASHBAND-28	RAM-TOUGH 400-PS	RAM 306	RAM 306 FR
3. PRODUCT DESCRIPTION A. TYPE OF MODIFIER B. THICKNESS (mils) C. TOP SURFACE  D. REINFORCING MATERIAL  E. COLOR(S)  F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	TARDYNE 120 SMOOTH  FIBERGLASS  BLACK	TARDYNE 150 SMOOTH FIBERGLASS GRAY/BLACK	APP 157 MODIFIED BITUMEN NONWOVEN POLYESTER FABRIC BLACK	APE 52 ALUMINUM  NONE  SILVER	SBS  POLY-PROPYLENE POLYESTER  BLACK/WHITE	SBS  GRANULAR POLYESTER  VARIOUS	SBS  GRANULAR POLYESTER  VARIOUS
4. KINDS OF FIELD SURFACING REQUIRED	CAP SHEET	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X	X X	X X	X X	X X
6. FIELD LAP JOINT METHOD	HOT MOP, HEAT WELD, COLD	HOT MOP, HEAT WELD, COLD	TORCH	PRESSURE BOND	SELF-ADHERING	HOT MOP	HOT MOP
7. TYPES OF ROOF SYSTEMS: A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	   HOT MOP/COLD X	   HOT MOP/COLD X	   TORCH	   SELF-ADHERING X	   SELF-ADHERED X	   HOT MOP X	   HOT MOP X
8. MINIMUM SLOPE REQUIREC	NONE	NONE	POS DRAIN	NONE	TO DRAIN	TO DRAIN	TO DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	O	X		X	X
B. MINERAL FIBER			O	X			
C. POLYSTYRENE			O	X			
D. CELLULAR GLASS	X	X	O	X		X	X
E. PHENOLIC		O	O	X			
F. FIBERBOARD	X	X	O	X		X	X
G. PERLITE	X	X	O	X		X	X
H. POLYISOCYANURATE		O	O	X			O
I. POLYURETHANE		O	O	X			
J. GYPSUM		O	O	X	O	O	O
K. CONCRETE	X	X	X	X	X	X	X
L. WOOD PLANK		O	O	X	O	O	O
M. PLYWOOD		O	O	X	O	O	O
N. EXISTING BUILT-UP MEMBRANE		O	X	X	X	X	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)			NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	30 - 100	30 - 100	0 - 120	0 - 100	40 - 120	40 - 120	40 - 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	MOD BIT FLASHING CEMENT	MOD BIT FLASHING CEMENT	TORCH	PRESSURE BOND	SELF-ADHERING	HOT MOP	HOT MOP
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	NO	YES	YES	YES	YES
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	USA USA	USA USA	USA USA	GREAT BRIT. GREAT BRIT.	USA USA	USA USA	USA USA
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	 1994	 1994	 1981	 1964 1973	 1983 1984	 1972 1978	 1986 1986
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA	  	  	 NONE MILLIONS	 900,000 200,000	 THOUSANDS	 THOUSANDS	 THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTR. DIRECT	DISTR. DIRECT	DIRECT	DISTRIBUTORS	DISTR, DIRECT	DISTR, DIRECT	DISTR, DIRECT
19. NUMBER OF REGIONAL LOCATIONS	6	6		112	21	21	21
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	NO	NO	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	REGIONAL OFFICE	REGIONAL OFFICE	R. G. READ 937/222-2851	H. LISS 800/800-2844	CUST SERVICE	CUST SERVICE	CUST SERVICE
22. FOR TECHNICAL INFORMATION, CONTACT:	TECHINCAL SERVICES	TECHINCAL SERVICES	R. G. READ 937/222-2851	N. SHEARER 888/882-6335	TECH SERVICE	TECH SERVICE	TECH SERVICE
23. SEE MEMBRANE APPENDIX IF CHECKED					X	X	X

# Modified Bitumen Part 1: General Information

BARRETT CO.	BARRETT CO.	BARRETT CO.	BARRETT CO.	BARRETT CO.	BARRETT CO.	BARRETT CO.	BARRETT CO.	BITEC INC.	BITEC INC.
RAM 306 HP	RAM 309	RAM TOUGH 250	RAM 309 FR	RAM 309 HT	RAM 200	RAM 201	RAM 203	MDA	APS-4T
SBS	SBS	SBS 215	SBS	SBS	SBS	SBS	SBS	APP 160	APP 160
GRANULAR	GRANULAR	PMR	GRANULAR	GRANULAR	MICA	MICA	MICA	MINERAL DESIGN	MODIFIED BITUMEN
POLYESTER	FIBERGLASS	POLYESTER	FIBERGLASS	FIBERGLASS	POLYESTER	FIBERGLASS	FIBERGLASS	SPUNBOND TYPE 55	SPUNBOND POLYESTER
VARIOUS	VARIOUS	BLACK	VARIOUS	VARIOUS	GRAY/BLACK	GRAY/BLACK	GRAY/BLACK	VARIOUS	BLACK
NONE	NONE	CAP SHEET OR PMR	NONE	NONE	COATING	COATING	COATING	1.00	0.90
NONE	NONE	NONE	NONE	NONE	COATING	COATING	COATING	NONE	NONE
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
HOT MOP	HOT MOP	THERMAL FUSION	HOT MOP	HOT MOP	HOT MOP	HOT MOP	HOT MOP	TORCH	TORCH
HOT MOP	HOT MOP	FLUID	HOT MOP	HOT MOP	HOT MOP	HOT MOP	HOT MOP	TORCH	TORCH
X	X	X	X	X	X	X	X	DEAD LEVEL	DEAD LEVEL
TO DRAIN	TO DRAIN	NONE	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	DEAD LEVEL	DEAD LEVEL
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
X	X	O	X	X	X	X	X	O	O
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 130	40 – 130
SAME MATERIAL	SAME MATERIAL	NEOPRENE SHEET	SAME MATERIAL	SAME MATERIAL	SBS/POLY SHEET	SBS/POLY SHEET	SBS/POLY SHEET	SAME MATERIAL OR APM	SAME MATERIAL OR APM
HOT MOP	HOT MOP	ADHERED	HOT MOP	HOT MOP	HOT MOP	HOT MOP	HOT MOP	TORCH	TORCH
YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
USA	USA	USA	USA	USA	USA	USA	USA	ITALY	ITALY
USA	USA	USA	USA	USA	USA	USA	USA	USA	USA
1990	1972	1982	1991	1990	1972	1992	1992	1994	1978
1990	1978		1991	1990	1978			1997	1987
THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	> 20,000	< 5,000	< 5,000	> 5,000	> 2 MILLION
DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT
21	21	21	21	21	21	21	21	6	13
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	800/535-8597	800/535-8597
TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	D. ALLEN	D. ALLEN
X	X	X	X	X	X	X	X	800/535-8597	800/535-8597

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.
2. PRODUCT NAME	APM-4T	APM-4.5T	COMPABASE FA-2T	MDS	SPM-4.5T	SPM-3.5H	SFM-3.5H
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	APP	APP	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	160	180	80	160	180	140	140
C. TOP SURFACE	GRANULES	GRANULES	MODIFIED BITUMEN	MINERAL DESIGN	GRANULES	GRANULES	GRANULES
D. REINFORCING MATERIAL	SPUNBOND POLYESTER	SPUNBOND POLYESTER	NONWOVEN FIBERGLASS	SPUNBOND TYPE 55	SPUNBOND POLYESTER	SPUNBOND POLYESTER	NONWOVEN FIBERGLASS
E. COLOR(S)	VARIOUS	VARIOUS	BLACK	VARIOUS	VARIOUS	VARIOUS	VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.00	0.92	0.47	1.10	1.23	1.00	1.00
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	APS4T, APM4T APM4.5T	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	TORCH	HOT MOP OR COLD ADHES	TORCH	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)	TORCH	TORCH	NAIL TORCH	MOP OR ADHES	TORCH	MOP OR ADHES	MOP OR ADHES
C. FULLY ADHERED (method)							
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIREC	DEAD LEVEL	DEAD LEVEL	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	O	O	O	O
B. MINERAL FIBER	O	O	O	O	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	O	O	O	O	O	O	O
G. PERLITE	O	O	O	O	O	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	X O	X O	X O	O	X O	O	O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	X O	X O	X O	O	X O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 130	40 – 130	40 – 130	30 – 130	30 – 120	30 – 130	30 – 130
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL		SAME MATERIAL OR SPM-4.5T	SAME MATERIAL	SAME MATERIAL OR SPM-4.5T	SAME MATERIAL OR SPM-4.5T
13. FLASHING METHOD	TORCH	TORCH		HOT MOP OR TORCH	TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO		NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	ITALY	ITALY	ITALY	ITALY	ITALY	ITALY	ITALY
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1978	1978	1978	1994	1978	1978	1978
B. WITHIN USA	1987	1987	1988	1997	1987	1987	1989
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA	> 2 MILLION	1 MILLION	100,000	> 5,000	20,000	500,000	
B. WITHIN USA	> 1 MILLION	50,000	1,500	< 5,000	>6,000	2 MILLION	> 200,000
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	13	13	13	6	13	13	13
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/535-8597	800/535-8597	800/535-8597	800/535-8597	800/535-8597	800/535-8597	800/535-8597
22. FOR TECHNICAL INFORMATION, CONTACT:	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	BITEC INC.	BITEC INC.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.
2. PRODUCT NAME	FS-25	FS-40	CELOTEX APP 4/S CAP SHEET	CELOTEX APP 4/M CAP SHEET	CELOTEX SBS/170 CAP SHEET	CELOTEX SBS/250 CAP SHEET	CELOTEX SBS DUEL PLY FR BASE SHEET
3. PRODUCT DESCRIPTION A. TYPE OF MODIFIER B. THICKNESS (mils) C. TOP SURFACE  D. REINFORCING MATERIAL  E. COLOR(S)  F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	SBS 40  MODIFIED BITUMEN  NONWOVEN FIBERGLASS  BLACK	SBS 60  MODIFIED BITUMEN  NONWOVEN FIBERGLASS  BLACK	APP 157  SMOOTH  POLYESTER  BLACK	APP 157  GRANULAR  POLYESTER  BLACK OR WHITE	SBS 149  GRANULAR  POLYESTER  BLACK OR WHITE	SBS 177  GRANULAR  POLYESTER  BLACK OR WHITE	SBS 98  SMOOTH  GLASS FIBER  BLACK
4. KINDS OF FIELD SURFACING REQUIRED	SPM OR SPM SHEETS	SPM OR SPM SHEETS	COATINGS/ EMULSIONS	NONE	NONE	NONE	CAP SHEET
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X	X X	X X	X X	X X
6. FIELD LAP JOINT METHOD	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	TORCH	TORCH	HOT MOP	HOT MOP	HOT MOP
7. TYPES OF ROOF SYSTEMS: A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	MOP OR ADHES	MOP OR ADHES	TORCH	TORCH	HOT MOP	HOT MOP	HOT MOP
8. MINIMUM SLOPE REQUIREC			POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	O	X	X	X
B. MINERAL FIBER	O	O	O	O	X	X	X
C. POLYSTYRENE	O	O	O	O	X	X	O
D. CELLULAR GLASS	O	O	O	O	O	O	X
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	O	O	O	O	X	X	X
G. PERLITE	O	O	O	O	X	X	X
H. POLYISOCYANURATE	O	O	O	O	X	X	X
I. POLYURETHANE	O	O	O	O	O	O	X
J. GYPSUM	O	O	O	O	X	X	X
K. CONCRETE	O	O	O	O	X	X	X
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	30 – 130	30 – 130	30 – 120	30 – 120	30 – 120	30 – 120	30 – 120
12. FLASHING MATERIAL			SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SPEC FLASH 250	SPEC FLASH 250
13. FLASHING METHOD			TORCH	TORCH	HOT MOP	HOT MOP	HOT MOP
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	ITALY USA	ITALY USA	USA	USA USA	USA USA	USA USA	USA USA
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	1978 1988	1978 1988	1965 1983	1963 1983	1965 1986	1965	1985
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA	> 50,000	> 50,000					
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	6	6	6	6	6	6	6
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/535-8597	800/535-8597	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX
22. FOR TECHNICAL INFORMATION, CONTACT:	D. ALLEN 800/535-8597	D. ALLEN 800/535-8597	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX	REG. OFFICE 800/CELOTEX
23. SEE MEMBRANE APPENDIX IF CHECKED			X	X	X	X	



Modified Bitumen Part 1: General Information
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	DANOSA CARIBBEAN, INC.	DANOSA CARIBBEAN, INC.	DANOSA CARIBBEAN, INC.	DANOSA CARIBBEAN, INC.	DANOSA CARIBBEAN, INC.	DERMABIT WATER-PROOFING INDUSTRIES	DERMABIT WATER-PROOFING INDUSTRIES
2. PRODUCT NAME	GLASDAN R-36-3	GLASDAN RM-5	ESTERDAN R-36-3	ESTERDAN RM-5	ESTERDAN RM-PLUS	DERMABIT 4170 SMOOTH	DERMABIT 4170 GRANULE
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	APP	APP
B. THICKNESS (mils)	120	173	120	177	197	160	160
C. TOP SURFACE	BITUMEN	MINERAL GRANULES	BITUMEN	MINERAL GRANULES	MINERAL GRANULES	SMOOTH	GRANULE
D. REINFORCING MATERIAL	SMOOTH	GLASS FIBER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER
E. COLOR(S)	BLACK	WHITE/OTHER	BLACK	WHITE/OTHER	WHITE/OTHER	BLACK	VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	0.72	1.05	0.72	1.07	1.19	0.88	0.95
4. KINDS OF FIELD SURFACING REQUIRED	COATING BALLAST	NONE	EMULSION, BALLAST	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	TORCH	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	MOP OR TORCH	MOP OR TORCH	MOP OR TORCH	MOP OR TORCH	MOP OR TORCH	TORCH	TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIREC	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	X	O	O
B. MINERAL FIBER	X	X	X	X	X	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	X	X	X	X	X	O	O
E. PHENOLIC	X	O	X	X	X	O	O
F. FIBERBOARD	O	O	O	O	O	O	O
G. PERLITE	O	X	O	O	X	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	X	X
K. CONCRETE	X	X	X	X	X	X	X
L. WOOD PLANK	X	O	X	O	X	O	O
M. PLYWOOD	X	O	X	O	X	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	X	X
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	14 – 120	14 – 120	14 – 120	14 – 120	14 – 120	20 – 140	20 – 140
12. FLASHING MATERIAL	GLASD AL-80 OR ESTERDAN RM	SAME MATERIAL OR GLASDAN AL-80	GLASD AL-80 OR ESTERDAN RM	SAME MATERIAL OR GLASDAN AL-80	SAME MATERIAL OR GLASDAN AL-80	SAME MATERIAL OR GRANULATED	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	TORCH	TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	PUERTO RICO	PUERTO RICO	PUERTO RICO	PUERTO RICO	PUERTO RICO	SA/ITALY	SA/ITALY
B. MANUFACTURE	PUERTO RICO	PUERTO RICO	PUERTO RICO	PUERTO RICO	PUERTO RICO	SA/ITALY	SA/ITALY
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA						1976	1976
B. WITHIN USA	1987	1988	1987	1985	1995	1987	1987
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA	MILLIONS THOUSANDS	MILLIONS THOUSANDS	MILLIONS THOUSANDS	MILLIONS THOUSANDS		3.5 MILLION 200,000	1.5 MILLION 100,000
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	2	2	2	2	2	1	1
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	W. RIVERA	W. RIVERA	W. RIVERA	W. RIVERA	W. RIVERA	G. JERMSTAD	G. JERMSTAD
22. FOR TECHNICAL INFORMATION, CONTACT:	F. ROMERO	F. ROMERO	F. ROMERO	F. ROMERO	F. ROMERO	G. JERMSTAD	G. JERMSTAD
23. SEE MEMBRANE APPENDIX IF CHECKED						X	X

Modified Bitumen Part 1: General Information
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.
2. PRODUCT NAME	APP180 FR	SBS BASE SHEET	SBS PREMIUM BASE SHEET	SBS SMOOTH	SBS	SBS FR	SBS PREMIUM
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	170	90	90	145	150	150	160
C. TOP SURFACE	GRANULES	SMOOTH	SMOOTH	SMOOTH	GRANULES	GRANULES	GRANULES
D. REINFORCING MATERIAL	POLYESTER	FIBERGLASS	FIBERGLASS MAT/SCRIM	POLYESTER	POLYESTER	POLYESTER	POLYESTER
E. COLOR(S)	VARIOUS	BLACK	BLACK	BLACK	VARIOUS	VARIOUS	VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.06	0.54	0.55	0.86	0.91	0.91	1.01
4. KINDS OF FIELD SURFACING REQUIRED	NONE	SBS CAP	SBS CAP	FLOOD COAT/ GRAVEL	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	MOP OR WELD	MOP OR WELD	MOP OR WELD	MOP OR WELD	MOP OR WELD	MOP OR WELD
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)		HOT MOP	HOT MOP				
C. FULLY ADHERED (method)	TORCH	MOP OR ADHES	MOP OR ADHES	MOP OR ADHES	MOP OR ADHES	MOP OR ADHES	MOP OR ADHES
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIREC	POS DRAIN			POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	X	X	O	O	O	O
B. MINERAL FIBER	O	X	X	O	O	O	O
C. POLYSTYRENE	O		O	O	O	O	O
D. CELLULAR GLASS	O		O	O	O	O	O
E. PHENOLIC	O		O	O	O	O	O
F. FIBERBOARD	O	X	X	O	O	O	O
G. PERLITE	O	X	X	O	O	O	O
H. POLYISOCYANURATE	O	X	O	O	O	O	O
I. POLYURETHANE	O		O	O	O	O	O
J. GYPSUM	O		O	O	O	O	O
K. CONCRETE	X	O	X	O	O	O	O
L. WOOD PLANK			O	O	O	O	O
M. PLYWOOD		O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	X	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 – 130	30 – 100	30 – 100	30 – 130	30 – 130	30 – 130	30 – 130
12. FLASHING MATERIAL	SAME MATERIAL	SBS FLASHING	SBS FLASHING	SBS FLASHING	SBS FLASHING	SBS FLASHING	SBS FLASHING
13. FLASHING METHOD	TORCH	HOT MOP	HOT MOP	HOT MOP	HOT MOP	HOT MOP	HOT MOP
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA				1965	1965		
B. WITHIN USA	1993	1990	1993	1991	1989	1994	1991
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	5	5	5	5	5	5	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/428-4442	800/428-4442	800/428-4442	800/428-4442	800/428-4442	800/428-4442	800/428-4442
22. FOR TECHNICAL INFORMATION, CONTACT:	800/428-4511	800/428-4511	800/428-4511	800/428-4511	800/428-4511	800/428-4511	800/428-4511
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information	
1.01	Section Includes
1.02	Related Sections
1.03	Notes
1.04	Materials
1.05	Installation
1.06	Quality Assurance
1.07	Measurement
1.08	Payment

FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	GAF MATERIALS CORPORATION
SBS PREMIUM FR	SBS GLASS	SBS GLASS FR	SBS TORCH	SBS FLASHING	SBS GLASS TORCH BASE	SBS POLY TORCH BASE	SBS FR TORCH	SBS GLASS FR TORCH	RUBEROID TORCH (SMOOTH)
SBS 160 GRANULES  POLYESTER  VARIOUS  1.01 NONE	SBS 150 GRANULES  FIBERGLASS  VARIOUS  0.89 NONE	SBS 150 GRANULES  FIBERGLASS  VARIOUS  0.89 NONE	SBS 150 GRANULES  POLYESTER  VARIOUS  0.93 NONE	SBS 150 GRANULES  POLYESTER  VARIOUS  0.91 NONE	SBS 120 GRANULES  FIBERGLASS  BLACK  0.82 NONE	SBS 120 GRANULES  POLYESTER  BLACK  0.82 NONE	SBS 175 GRANULES  POLYESTER  VARIOUS  1.20 NONE	SBS 175 GRANULES  FIBERGLASS  VARIOUS  1.13 NONE	APP 160 SMOOTH  POLYESTER  BLACK  0.80 NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
MOP OR WELD	MOP OR WELD	MOP OR WELD	TORCH	MOP OR WELD	MOP OR WELD	MOP OR WELD	MOP OR WELD	MOP OR WELD	TORCH
MOP OR ADHES X	MOP OR ADHES X	MOP OR ADHES X	TORCH X	MOP OR ADHES X	TORCH X	TORCH X	TORCH X	TORCH X	TORCH TORCH X
POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	MUST DRAIN
O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1992	NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1991	NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1991	NONE 30 – 130 SAME MATERIAL TORCH NO USA USA 1994	NONE 30 – 130 SAME MATERIAL HOT MOP NO USA USA 1994	NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1995	NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1995	NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1995	NONE 30 – 130 SBS FLASHING HOT MOP NO USA USA 1993	CONTACT GAF 40 – 100 SAME MATERIAL TORCH YES USA USA 1985
THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	THOUSANDS DISTR,S,DIRECT 5 YES 800/428–4442 800/428–4511	REGIONAL OFFICE TECHNICAL SERVICES

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION
2. PRODUCT NAME	RUBEROID TORCH (GRANULE)	RUBEROID TORCH PLUS	RUBEROID TORCH FR	RUBEROID TORCH 1	RUBEROID MOP PLUS	RUBEROID MOP FR	RUBEROID MOP (GRANULE)
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	APP	APP	APP	SBS	SBS	SBS
B. THICKNESS (mils)	160	197	197	177	197	160	160
C. TOP SURFACE	GRANULES	GRANULES	GRANULES	GRANULES	GRANULES	GRANULES	GRANULES
D. REINFORCING MATERIAL	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER
E. COLOR(S)	WHITE/BLACK	WHITE/BLACK	WHITE/BLACK	BLK/WH/BRT SIENNA CEDAR/SLATE/ WEATHERWD BLEND	WHITE/BLACK	WHITE/BLACK	WHITE/BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.05	1.25	1.1	1.02	0.9	0.9	0.9
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	TORCH	TORCH	HOT MOP OR COLD	HOT MOP OR COLD	HOT MOP OR COLD
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	TORCH	TORCH	TORCH	TORCH	HOT MOP	HOT MOP	HOT MOP
B. PARTIALLY ADHERED (method)	TORCH	TORCH	TORCH	TORCH	HOT MOP/COLD	HOT MOP/COLD	HOT MOP/COLD
C. FULLY ADHERED (method)	X	X	X	X	X	X	X
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIREC	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN	MUST DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	O	O	O	O
B. MINERAL FIBER	O	O	O	O	O	O	O
C. POLYSTYRENE							
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	O	O	O	O	O	O	O
G. PERLITE	O	O	O	O	O	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	X O	X O	X O	X O	O	O	O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	X O	X O	X O	X O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	CONTACT GAF	CONTACT GAF	CONTACT GAF	CONTACT GAF	CONTACT GAF	CONTACT GAF	CONTACT GAF
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 100	40 – 100	30 – 100	40 – 100	30 – 100	30 – 100	30 – 100
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	TORCH	TORCH	TORCH	TORCH	HOT MOP OR MOD BIT FLASH- ING CEMENT	HOT MOP OR MOD BIT FLASH- ING CEMENT	HOT MOP OR MOD BIT FLASH- ING CEMENT
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							
B. WITHIN USA	1986	1988	1989	1997	1988	1989	1986
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	5	5	5	5	5	5	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE
22. FOR TECHNICAL INFORMATION, CONTACT:	TECHNICAL SERVICES	TECHNICAL SERVICES	TECHNICAL SERVICES	TECHNICAL SERVICES	TECHNICAL SERVICES	TECHNICAL SERVICES	TECHNICAL SERVICES
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE
2. PRODUCT NAME	MODIFIED BASE SHEET	MODIFIED CAP SHEET 601+	ULTRACLAD SBS	STRESSPLY	STRESSPLY MINERAL	STRESSPLY FR	STRESSPLY FR MINERAL
3. PRODUCT DESCRIPTION A. TYPE OF MODIFIER B. THICKNESS (mils) C. TOP SURFACE  D. REINFORCING MATERIAL  E. COLOR(S)  F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	SBS  SMOOTH  FIBERGLASS  BLACK	SBS 140 GRANULES FIBERGLASS WHITE	SBS 145 FOIL FACE FIBERGLASS COPPER/ALUMINUM STAINLESS STL/ OTHER	SBS 80 BLACK BEAUTY DUAL FIBERGLASS BLACK	SBS 135 MINERAL GRANULES DUAL FIBERGLASS OFF WHITE	SBS 80 BLACK BEAUTY DUAL FIBERGLASS BLACK	SBS 135 MINERAL GRANULES DUAL FIBERGLASS OFF WHITE
4. KINDS OF FIELD SURFACING REQUIRED	CAP SHEET	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X	X X	X X	X X	X X
6. FIELD LAP JOINT METHOD	HOT MOP OR COLD	HOT MOP OR COLD	HOT MOP OR HEAT WELDING	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES
7. TYPES OF ROOF SYSTEMS: A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	HOT MOP HOT MOP/COLD X	HOT MOP HOT MOP/COLD X	HOT MOP/TORCH	MOP/COLD ADH X	MOP/COLD ADH X	MOP/COLD ADH X	MOP/COLD ADH X
8. MINIMUM SLOPE REQUIREC	MUST DRAIN	MUST DRAIN	MUST DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	X	X	X	X
B. MINERAL FIBER	O	O	O	X	X	X	X
C. POLYSTYRENE				O	O	O	O
D. CELLULAR GLASS	O	O	O	X	X	X	X
E. PHENOLIC		O	O	O	O	O	O
F. FIBERBOARD	X	O	O	X	X	X	X
G. PERLITE	X	O	O	X	X	X	X
H. POLYISOCYANURATE		O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	X	O	O	O	O	O	O
K. CONCRETE	X	O	O	O	O	O	O
L. WOOD PLANK	X	O	O	O	O	O	O
M. PLYWOOD	X	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	X	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	CONTACT GAF	CONTACT GAF	CONTACT GAF	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	30 – 100	30 – 100		35 – 120	35 – 120	35 – 120	35 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR MOD BIT FLASH- ING CEMENT	HOT MOP OR MOD BIT FLASH- ING CEMENT	TORCH	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NONE	YES	YES	YES	YES
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	USA USA	USA USA	USA	USA USA	USA USA	USA USA	USA USA
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	1996	1997	1997	1978	1989	1986	1989
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	5	5	5	165	165	165	165
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL
22. FOR TECHNICAL INFORMATION, CONTACT:	TECHNICAL SERVICES	TECHNICAL SERVICES	TECHNICAL SERVICES	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH
23. SEE MEMBRANE APPENDIX IF CHECKED							



Modified Bitumen Part 1: General Information	
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GARLAND COMPANY INC., THE	GRACE, W. R. & CO.
2. PRODUCT NAME	STRESSPLY IV MINERAL	HPR TORCH BASE SHEET	STRESSPLY "E"	STRESSPLY "E" MINERAL	STRESSPLY "E" FR	STRESSPLY "E" FR MINERAL	PRMA MEMBRANE
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS/SIS	SBS/SIS	SBS/SIS	SBS/SIS	SBS
B. THICKNESS (mils)	165	120	80	135	80	135	50
C. TOP SURFACE	MINERAL GRANULES	SAND	BLACK BEAUTY	MINERAL GRANULES	BLACK BEAUTY	MINERAL GRANULES	POLYETHYLENE
D. REINFORCING MATERIAL	DUAL FIBERGLASS	FIBERGLASS	POLYESTER/ FIBERGLASS	POLYESTER/ FIBERGLASS	POLYESTER/ FIBERGLASS	POLYESTER/ FIBERGLASS	NONE
E. COLOR(S)	OFF WHITE	BLACK	BLACK	OFF WHITE	BLACK	OFF WHITE	GRAY/BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.05	0.85	0.85	1.00	0.85	1.00	0.34
4. KINDS OF FIELD SURFACING REQUIRED	NONE	SP IV OR SP IV MINERAL	NONE	NONE	NONE	NONE	INSUL BOARD BALLAST
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	SELF- ADHESIVE
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	TORCH	TORCH	MOP/COLD ADH	MOP/COLD ADH	MOP/COLD ADH	MOP/COLD ADH	SELF-ADHERING
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIREC	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	TO DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	X	X	X	X	
B. MINERAL FIBER	O	O	X	X	X	X	
C. POLYSTYRENE	O	O		O		O	
D. CELLULAR GLASS	O	O	X	X	X	X	
E. PHENOLIC	O	O		O		O	
F. FIBERBOARD	O	O	X	X	X	X	
G. PERLITE	O	O	X	X	X	X	
H. POLYISOCYANURATE	O	O		O		O	O
I. POLYURETHANE	O	O		O		O	O
J. GYPSUM	O	O		O		O	O
K. CONCRETE	O	O		O		O	O
L. WOOD PLANK	O	O		O		O	O
M. PLYWOOD	O	O		O		O	O
N. EXISTING BUILT-UP MEMBRANE	O	O		O		O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	35 – 120	35 – 120	35 – 120	35 – 120	35 – 120	35 – 120	25 – 120
12. FLASHING MATERIAL	SAME MATERIAL	STRESSPLY IV OR STRESSPLY IV MINERAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	PRMA MEMBRANE
13. FLASHING METHOD	TORCH	TORCH	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	SELF- ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							1971
B. WITHIN USA	1991	1991	1993	1994	1995	1994	1972
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							1.25 MILLION
B. WITHIN USA							2.0 MILLION
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	165	165	165	165	165	165	34
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL	REGIONAL OFFICE
22. FOR TECHNICAL INFORMATION, CONTACT:	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	B. LAMBERT F. JANOCH	REGIONAL OFFICE
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information	
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.
2. PRODUCT NAME	FLINTLASTIC FR PG	FLINTLASTIC FR BASE SHEET	FLINTLASTIC FR CAP	POLY SMS BASE SHEET	BLACK DIAMOND BASE SHEET	FLEXIGLAS BASE SHEET	FLEXIGLAS PREMIUM CAP 960
3. PRODUCT DESCRIPTION A. TYPE OF MODIFIER B. THICKNESS (mils) C. TOP SURFACE  D. REINFORCING MATERIAL  E. COLOR(S)  F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	SBS 180 GRANULE  POLYESTER AND FIBERGLASS WHITE  1.00	SBS 92 GRANULE  POLYESTER VARIOUS  0.60	SBS 140 GRANULE  POLYESTER VARIOUS  0.90	SBS 120 SAND  POLYESTER BLACK  .045	SBS 50 GRANULE  POLYESTER BLACK  .038	SBS  SAND FIBERGLASS BLACK 0.30	SBS 160 GRANULES FIBERGLASS WHITE 0.90
4. KINDS OF FIELD SURFACING REQUIRED	NONE	CAP SHEET	NONE	CAP SHEET	CAP SHEET	CAP SHEET	NONE
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X	X X	X X	X X	X X
6. FIELD LAP JOINT METHOD	HOT MOP OR COLD ADHES	MECH/HOT MOP/ OR CLD ADHES	HOT MOP OR COLD ADHES	MECH/HOT MOP/ OR CLD ADHES	SELF-ADHESIVE	MECH/HOT MOP/ OR CLD ADHES	HOT MOP OR COLD ADHES
7. TYPES OF ROOF SYSTEMS: A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	MOP/COLD ADH	MOP/COLD ADH	MOP/COLD ADH	MOP/COLD ADH	SELF-ADHERED	MOP/COLD ADHES	MOP/COLD ADH
8. MINIMUM SLOPE REQUIREC	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	X	O	X	X	X	O
B. MINERAL FIBER	O	X	O	X	X	X	O
C. POLYSTYRENE	O	X	O	X	X	X	O
D. CELLULAR GLASS	O	X	O	X	X	X	O
E. PHENOLIC	O	X	O	X	X	X	O
F. FIBERBOARD	O	X	O	X	X	X	O
G. PERLITE	O	X	O	X	X	X	O
H. POLYISOCYANURATE	O	X	O	X	X	X	O
I. POLYURETHANE	O	X	O	X	X	X	O
J. GYPSUM	O	X	O	X	X	X	O
K. CONCRETE	O	X	O	X	X	X	O
L. WOOD PLANK	O	X	O	X	O	X	O
M. PLYWOOD	O	X	O	X	O	X	O
N. EXISTING BUILT-UP MEMBRANE	X	X	X	X	O	X	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	30 – 130	30 – 130	30 – 130	30 – 130	30 – 130	30 – 130	30 – 130
12. FLASHING MATERIAL	SAME MATERIAL	ANY SBS CAP SHEET	SAME MATERIAL	ANY SBS CAP SHEET	FLINTLASTIC STA, GTA, GMS	ANY FLINT-LASTIC CAP SHEET	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	TORCH, MOP, COLD ADHESIVE	TORCH, MOP, COLD ADHESIVE	HOT MOP OR COLD ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	1989	1989	1989	1989	1989	1990	1997
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA	MILLIONS	100,000	100,000	40,000	50,000		
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	2	2	2	2	2	2	2
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	EAST: 927/580-5604 WEST: 510/606-7434	EAST: 927/580-5604 WEST: 510/606-7434	EAST: 927/580-5604 WEST: 510/606-7434	EAST: 927/580-5604 WEST: 510/606-7434	EAST: 927/580-5604 WEST: 510/606-7434	EAST: 927/580-5604 WEST: 510/606-7434	EAST: 927/580-5604 WEST: 510/606-7434
22. FOR TECHNICAL INFORMATION, CONTACT:	972/580-5600	972/580-5600	972/580-5600	972/580-5600	972/580-5600	972/580-5600	972/580-5600
23. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X		

Modified Bitumen Part 1: General Information	
1.01	Section Includes
1.02	Related Sections
1.03	Notes
1.04	Quantities
1.05	Installation
1.06	Materials
1.07	Testing
1.08	Acceptance
1.09	Warranty
1.10	Other

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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	W P HICKMAN SYSTEMS INC.	W P HICKMAN SYSTEMS INC.	HYLOAD, INC.	HYLOAD, INC.	ICA, INC.	ICA, INC.	ICA, INC.
2. PRODUCT NAME	PERFORMANCE PLY MS+MS/FR	WEATHER PLY MA+MA/FR	HYBASE	HYBASE SAM	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP MINERAL	ICA PREMIUM APP SLATE
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SEBS	APO			APP	APP	APP
B. THICKNESS (mils)	120	120	35	55	160	180	180
C. TOP SURFACE	MINERAL	MINERAL	SMOOTH	SMOOTH	SMOOTH	MINERAL GRANULES	SLATE FLAKES
D. REINFORCING MATERIAL	POLYESTER	POLYESTER			NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER
E. COLOR(S)	OFF WHITE	OFF WHITE	BLACK	BLACK	BLACK	VARIOUS	VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)					0.90	1.05	1.05
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	NAILED	SELF- ADHESIVE	TORCH	TORCH	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)			NAILED	SELF-ADHESIVE	COLD ADHES TORCH	COLD ADHES TORCH	COLD ADHES TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIREC	1/8"	1/8"	DEAD LEVEL	DEAD LEVEL	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	X		O	O	O
B. MINERAL FIBER			X		O	O	O
C. POLYSTYRENE	O	O	X		O	O	O
D. CELLULAR GLASS	O	O	X		O	O	O
E. PHENOLIC			X		O	O	O
F. FIBERBOARD	O	O	X	X	O	O	O
G. PERLITE	O	O	X		O	O	O
H. POLYISOCYANURATE	O	O	X	X	O	O	O
I. POLYURETHANE	O	O	X		O	O	O
J. GYPSUM	O	O	X		O	O	O
K. CONCRETE	X	X	X	X	X	X	X
L. WOOD PLANK	O	O	X	X	O	O	O
M. PLYWOOD	O	O	X	X	O	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	X	X	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	SEE SPECS	SEE SPECS	SEE SPECS
11. WORKABLE TEMPERATURE RANGE (degrees F)	35 - 120	35 - 120	40 - 120	55 - 120	40 - 120	40 - 120	40 - 120
12. FLASHING MATERIAL	SAME MATERIAL OR HYPALON	SAME MATERIAL OR HYPALON	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	NAILED	SELF- ADHERED	TORCH	TORCH	TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	NO	NO	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							
B. WITHIN USA	1985	1995	1996	1996	1997	1997	1997
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	THOUSANDS	THOUSANDS	2,000	2,000			
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT	DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	5	5	20	20	2	2	2
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	C FITZGERALD	C FITZGERALD	J. NUSSBAUM 800/457-4056	J. NUSSBAUM 800/457-4056	800/352-7002	800/352-7002	800/352-7002
22. FOR TECHNICAL INFORMATION, CONTACT:	R GALLION K BRZOZOWSKI	R GALLION K BRZOZOWSKI	J. GANNON 800/457-4056	J. GANNON 800/457-4056	800/352-7002	800/352-7002	800/352-7002
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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## Modified Bitumen Part 1: General Information

1. COMPANY NAME	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.
2. PRODUCT NAME	MODIFLEX MF-180-SS-BASE	TORCHFLEX TF-95-FF-BASE	TORCHFLEX TF-95-FF-BASE (22)	TORCHFLEX TP-180-FF-BASE	ARMOURBOND 95	ARMOURBOND 180	ARMOUR BRIDGE/PONT
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	87	118	87	118	98	118	217
C. TOP SURFACE	SAND	FILM	FILM	FILM	FILM	FILM	GRANULAR
D. REINFORCING MATERIAL	180-GRAM POLYESTER	95-GRAM FIBERGLASS	95-GRAM FIBERGLASS	180-GRAM FIBERGLASS	95-GRAM FIBERGLASS	180-GRAM POLYESTER	180-GRAM POLYESTER
E. COLOR(S)	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	0.56	0.79	0.56	0.75	0.64	0.76	1.34
4. KINDS OF FIELD SURFACING REQUIRED	MODIFLEX CAP TORCHFLEX CAP	MODIFLEX CAP TORCHFLEX CAP	MODIFLEX CAP TORCHFLEX CAP	MODIFLEX CAP TORCHFLEX CAP	ARMOURPLAST T-FLEX CAP	ARMOURPLAST MOP/TORCH CAP	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT MOP	TORCH	TORCH	TORCH	SELF-ADHERING	SELF-ADHERING	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	MOP OR ADHES.	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIREC	1/4" OR P. DRAIN	1/4" OR P. DRAIN	1/4" OR P. DRAIN	1/4" OR P. DRAIN	1/4" OR P. DRAIN	1/4" OR P. DRAIN	1/4" OR P. DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	O	O	O
B. MINERAL FIBER	X	X	X	X	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	O	O	O	O	O	O	O
G. PERLITE	O	O	O	O	O	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	X	X	X	X	X	X	O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	35 - 120	0 - 120	0 - 120	0 - 120	40 - 120	40 - 120	40 - 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR ADHESIVE	TORCH	TORCH	TORCH	SELF-ADHERE	SELF-ADHERE	SELF-ADHERE
14. PREFORMED ACCESSORIES AVAILABLE(yes/no)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
15. COUNTRY OF:							
A. ORIGIN	CANADA	CANADA	CANADA	CANADA	CANADA	CANADA	CANADA
B. MANFACTURE	CANADA	CANADA	CANADA	CANADA	CANADA	CANADA	CANADA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							
B. WITHIN USA							
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS							
20. LICENSED APPLICATOR AGREEMENT (yes/no)	NO	NO	NO	NO	NO	NO	NO
21. FOR SALES INFORMATION, CONTACT:	800/323-7171	800/323-7171	800/323-7171	800/323-7171	800/323-7171	800/323-7171	800/323-7171
22. FOR TECHNICAL INFORMATION, CONTACT:	800/323-7171	800/323-7171	800/323-7171	800/323-7171	800/323-7171	800/323-7171	800/323-7171
23. SEE MEMBRANE APPENDIX IF CHECKEC							



# Modified Bitumen Part 1: General Information

IKO INDUSTRIES INC.	IMPERITALIA S P A	IMPERITALIA S P A	IMPERITALIA S P A	IMPERITALIA S P A	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
ARMOURGARD ICE & WATER	PARALON NT4	TRIPLANE	ARWENOL AL	ARWENOL ARD/S	DYNAKAP	DYNAKAP FR	DYNAGLAS	DYNAPLY	DYNAGLAS FR
SBS 63 SAND	APP 160 PLAIN	APP	APP 150 ALUMINUM	APP 170 GRANULAR	SBS 160 GRANULE	SBS 160 GRANULE	SBS 150 GRANULE	SBS 125 SAND	SBS 150 GRANULE
78-GRAM FIBERGLASS	POLYESTER	FIBERGLASS	FIBERGLASS	POLYESTER	FIBERGLASS & POLYESTER	FIBERGLASS & POLYESTER	FIBERGLASS	FIBERGLASS & POLYESTER	FIBERGLASS
BLACK	BLACK	BLACK	VARIOUS	VARIOUS	WHITE/BLACK	WHITE/BLACK	WHITE/BLACK	BLACK	WHITE/BLACK
0.42	0.83		0.73	0.99	1.10	1.10	0.88	0.78	0.88
SHINGLES MOD /TORCH CAP	NONE	NONE	NONE	NONE	NONE	NONE	NONE	ASPHALT & GRAVEL	NONE
X	X		X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
SELF-ADHERE	TORCH	TORCH	TORCH	TORCH	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES
TORCH	10 TORCH TORCH	10 TORCH TORCH	TORCH TORCH	TORCH TORCH	HOT OR COLD X	HOT OR COLD	HOT OR COLD X	HOT OR COLD X	HOT OR COLD
1/4" OR P. DRAIN	1/4"	1/4"	1/4"	1/4"	1/8"	1/8"	1/8"	1/8"	1/8"
O					X	X	X	X	X
O					O	O	O	O	O
O					O	O	O	O	O
O					X	X	X	X	X
O					X	X	X	X	X
O					O	O	O	O	O
O					O	O	O	O	O
O					X	X	X	X	X
O					X	X	X	X	X
O					O	O	O	O	O
O					O	O	O	O	O
X	O				X	X	X	X	X
O					X	X	X	X	X
O					X	X	X	X	X
O					X	X	X	X	X
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
40 - 120	40 - 120	40 - 120	40 - 120	40 - 120	DYNAFLEX	DYNAFLEX	DYNAFLEX	DYNAFLEX	DYNAFLEX
SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	HOT MOP OR MEMB. FLASH-ING CEMENT	HOT MOP OR MEMB. FLASH-ING CEMENT	HOT MOP OR MEMB. FLASH-ING CEMENT	HOT MOP OR MEMB. FLASH-ING CEMENT	HOT MOP OR MEMB. FLASH-ING CEMENT
SELF-ADHERE	TORCH	TORCH	TORCH	TORCH	NO	NO	NO	NO	NO
NONE	NO	NO	NO	NO	USA	USA	USA	USA	USA
CANADA	ITALY	ITALY	ITALY	ITALY	USA	USA	USA	USA	USA
CANADA	ITALY	ITALY	ITALY	ITALY	1968	1986	1987	1987	1988
	1968	1966	1972	1972	1983	1986	1987	1987	1988
	1980	1980	1981	1981	1983	1986	1987	1987	1988
	3,000,000	3,500,000	1,000,000	1,500,000	MILLIONS	MILLIONS	MILLIONS	100,000	MILLIONS
	50,000	25,000	7,500	10,000	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
DISTRSDIRECT	DISTRSDIRECT	DISTRSDIRECT	DISTRSDIRECT	DISTRSDIRECT	5	5	5	5	5
2	2	2	2	2	YES	YES	YES	YES	YES
NO	YES	YES	YES	YES	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE
800/323-7171	G CALABRESE	G CALABRESE	G CALABRESE	G CALABRESE	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES
800/323-7171	G CALABRESE	G CALABRESE	G CALABRESE	G CALABRESE	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES
	X	X	X	X					

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
2. PRODUCT NAME	DYNALASTIC 250	DYNALASTIC 180	DYNALASTIC 180 FR	DYNAGLAS 30 FR	DYNABASE	DYNALASTIC 180 S	SBS 170
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	158	150	150	125	100	118	145
C. TOP SURFACE	GRANULE	GRANULE	GRANULE	GRANULE	GRANULE	GRANULE	GRANULE
D. REINFORCING MATERIAL	POLYESTER	POLYESTER	POLYESTER	FIBERGLASS	FIBERGLASS	POLYESTER	POLYESTER
E. COLOR(S)	WHITE/BLACK	WHITE/BLACK/ TAN	WHITE/BLACK	WHITE/BLACK	BLACK	BLACK	WHITE/BLACK/ TAN
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	0.96	0.88	0.88	0.78	0.58	0.80	0.85
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	CAP SHEET	CAP SHEET	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	HOT OR COLD	HOT OR COLD	HOT OR COLD	HOT OR COLD	HOT OR COLD	HOT OR COLD	HOT OR COLD
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X			X
8. MINIMUM SLOPE REQUIREC	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	X	X	X
B. MINERAL FIBER	O	O	O	O	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC							
F. FIBERBOARD	X	X	X	X	X	X	X
G. PERLITE	X	X	X	X	X	X	X
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	X	X	X	X	X	X	X
K. CONCRETE	X	X	X	X	X	X	X
L. WOOD PLANK	X	X	X	X	X	X	X
M. PLYWOOD	X	X	X	X	X	X	X
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)							
12. FLASHING MATERIAL	DYNAFLEX	DYNAFLEX	DYNAFLEX	DYNAFLEX	DYNAFLEX	DYNAFLEX	DYNAFLEX
13. FLASHING METHOD	HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR COLD FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							
B. WITHIN USA	1995	1993	1994	1993	1987	1979	1979
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	10,000	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS			
19. NUMBER OF REGIONAL LOCATIONS	5	5	5	5	5	5	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE
22. FOR TECHNICAL INFORMATION, CONTACT:	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES
23. SEE MEMBRANE APPENDIX IF CHECKED							

# Modified Bitumen Part 1: General Information

JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
DYNALASTIC 250 FR	DYNAMAX	DYNAMAX FR	APPEX 5S	APPEX 4S	APPEX 4M	BLACK BEAR	CLASSIC MINERAL	TRICOR-M FR	TRICOR
SBS 160 GRANULE	SBS 160 GRANULE	SBS 160 GRANULE	APP 200 SMOOTH	APP 160 SMOOTH	APP 160 MINERAL	APP 160 MINERAL	160 MINERAL	APP 180 MINERAL	APP 160 SMOOTH
POLYESTER	FIBERGLASS POLYESTER	FIBERGLASS POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	LAMINATED GLASS FIBER/ POLYESTER	LAMINATED GLASS FIBER/ POLYESTER
WHITE/BLACK	WHITE/BLACK	WHITE/BLACK	BLACK	BLACK	GRAY/WHITE	BLACK	BLACK AND WHITE	GRAY/WHITE	BLACK
1.06	1.16	1.16	1.10	0.90	0.95	0.95	0.95	1.0	0.95
NONE	NONE	NONE	ALUMINUM	ALUMINUM	NONE	NONE	NONE	NONE	ALUMINUM
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	TORCH	TORCH	TORCH	TORCH	MOP, TORCH, OR CLD ADHES	TORCH	TORCH
HOT OR COLD	HOT OR COLD	HOT OR COLD	10 TORCH X	10 TORCH X	TORCH X	TORCH	MOP/COLD ADHES X	10 TORCH X	TORCH/COLD X
1/8"	1/8"	1/8"	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
X O O O	X O O O	X O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O
X X O O	X X O O	X X O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O
X X O O	X X O O	X X O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O
X X O O	X X O O	X X O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O
X X O O	X X O O	X X O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O	O O O O
NONE	NONE	NONE	NONE 40 – 120	NONE 40 – 120	NONE 40 – 120	NONE 40 – 120	NONE 30 – 120	NONE 40 – 120	NONE 40 – 120
DYNAFLEX	DYNAFLEX	DYNAFLEX	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL OR APPEX 4S	SAME MATERIAL OR APPEX 4S	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT	HOT MOP OR MEMB. FLASH- ING CEMENT	TORCH	TORCH	TORCH	TORCH	MOP, TORCH, COLD ADHESIVE	TORCH	TORCH
NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA	USA USA	USA USA	USA USA
1996	1995	1995	1967 1979	1967 1979	1967 1979	1991	1989	1994	1994
THOUSANDS	THOUSANDS	THOUSANDS	190,000 55,000	83,400,000 8,000,000	18,350,000 600,000	50,000	60,000		
5 YES	DISTRIBUTORS 5 YES	DISTRIBUTORS 5 YES	DISTRIBUTORS 8 YES	DISTRIBUTORS 8 YES	DISTRIBUTORS 8 YES	DISTRIBUTORS 8 YES	DISTRIBUTORS 8 YES	DISTRIBUTORS 8 YES	DISTRIBUTORS 8 YES
REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	KOPPERS INDUSTRIES INC.	KOPPERS INDUSTRIES INC.
2. PRODUCT NAME	BICOR	APPEX 4.5M	APPEX 4.5M FR	CLASSIC SMOOTH	CLASSIC FR PREMIUM	2040-M APP	2040-S APP
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	APP	APP	PAO	PAO	APP	APP
B. THICKNESS (mils)	160	160	160	160	160	160	160
C. TOP SURFACE	SMOOTH	MINERAL	MINERAL	SMOOTH	SMOOTH OR GRANULAR	MINERAL	SMOOTH
D. REINFORCING MATERIAL	FIBERGLASS AND POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER
E. COLOR(S)	BLACK	GRAY/WHITE	GRAY/WHITE	BLACK	BLACK/WHITE	GRAY/WHITE	BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	0.95	1.05	1.12	0.90	0.95	0.95	0.90
4. KINDS OF FIELD SURFACING REQUIRED	ALUMINUM	NONE	NONE	ALUMINUM OR AGGREGATE	NONE	NONE	ALUMINUM
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	TORCH	MOP TORCH COLD ADHES	MOP TORCH COLD ADHES	TORCH	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	TORCH/COLD	TORCH	TORCH	MOP/COLD ADHES	MOP/COLD ADHES	TORCH	TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X		
8. MINIMUM SLOPE REQUIREC	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	1/4"	1/4"
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	O	O	O	O
B. MINERAL FIBER	O	O	O	O	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	O	O	O	O	O	O	O
G. PERLITE	O	O	O	O	O	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	X	O	O	X	O	O	O
K. CONCRETE	O	X	O	O	O	O	O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	X	O	X	O	X	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL OR APPEX 4S	SAME MATERIAL OR APPEX 4S	SAME MATERIAL		SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	TORCH	TORCH	TORCH	HOT MOP, TORCH, OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	TORCH	TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	ITALY	ITALY
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA						1967	1967
B. WITHIN USA	1994	1994	1994	1994	1994	1983	1983
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA						MILLIONS THOUSANDS	MILLIONS MILLIONS
B. WITHIN USA		5,000	5,000	25,000			
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	8	8	8	8	8		
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	REGIONAL OFFICE	800/558-2706	800/558-2706
22. FOR TECHNICAL INFORMATION, CONTACT:	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	GUARANTEE SERVICES	800/558-2706	800/558-2706
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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[illegible]

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.
2. PRODUCT NAME	APP 162 MINERAL	PREMIUM SBS 601	PARAGON SBS 625	PANOPLY SBS 650	POLYGLASS SBS 917	POLYGLASS SBS 919	ESHALUM SBS 1020
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	160	120	125	150	180	160	160
C. TOP SURFACE	GRANULE	GRANULE	GRANULE	GRANULE	GRANULE	SMOOTH	ALUMINUM
D. REINFORCING MATERIAL	POLYESTER	POLYGLASS	FIBERGLASS	FIBERGLASS	POLYGLASS	POLYGLASS	FIBERGLASS
E. COLOR(S)	WHITE	WHITE/BLACK/ VARIOUS	WHITE/BLACK/ VARIOUS	WHITE/BLACK/ VARIOUS	WHITE/ VARIOUS	BLACK	ALUMINUM
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)							
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	NONE	EMULSION/ GRANULE/ALUM.	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	HOT/COLD	HOT/COLD	HOT/COLD	HOT/COLD/ TORCH	HOT/COLD/ TORCH	HOT/TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	TORCH	HOT/COLD	HOT/COLD	HOT/COLD	HOT/COLD/TORCH	HOT/COLD/TORCH	HOT/COLD/TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X	
8. MINIMUM SLOPE REQUIRED	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	X	X	X
B. MINERAL FIBER	X	X	X	X	X	X	X
C. POLYSTYRENE	X O	X O	X O	X O	X O	X O	X O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC							
F. FIBERBOARD	X	X	X	X	X	X	X
G. PERLITE	X	X	X	X	X	X	X
H. POLYISOCYANURATE	X O	X O	X O	X O	X O	X O	X O
I. POLYURETHANE	X O	X O	X O	X O	X O	X O	X O
J. GYPSUM	X	X	X	X	X	X	X
K. CONCRETE	X	X	X	X	X	X	X
L. WOOD PLANK	X	X	X	X	X	X	X
M. PLYWOOD	X	X	X	X	X	X	X
N. EXISTING BUILT-UP MEMBRANE	X O	X O	X O	X O	X O	X O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	20						
12. FLASHING MATERIAL	SAME MATERIAL	SAME	SAME	SAME	601, 625, 650	601, 625, 650	SAME
13. FLASHING METHOD	TORCH	HOT/COLD	HOT/COLD	HOT/COLD	HOT/COLD	HOT/COLD	TORCH OR HOT MOP
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1960	1982			1982	1982	1985
B. WITHIN USA	1990	1982	1993	1992	1981	1981	
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	100 +	100 +	100 +	100 +	100 +	100 +	100 +
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	G MALARKEY	G MALARKEY	G MALARKEY	G MALARKEY	G MALARKEY	G MALARKEY	G MALARKEY
22. FOR TECHNICAL INFORMATION, CONTACT:	J DECHANDT M. MALARKEY	J DECHANDT M. MALARKEY	J DECHANDT M. MALARKEY	J DECHANDT M. MALARKEY	J DECHANDT M. MALARKEY	J DECHANDT M. MALARKEY	J DECHANDT M. MALARKEY
23. SEE MEMBRANE APPENDIX IF CHECKED							

# Modified Bitumen Part 1: General Information

MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY
SUPERCAP SBS SC-100GWH	METALFLEX SBS MF-160WAL	SUPERFLEX SBS SF-160 PSA	FIREGUARD FASTORCH SBS FGFT160 CWH	FIREGUARD SBS FG160 CWH	FIREGUARD SBS FG160 GWH	FIREGUARD SBS FG90 GWH	LAYFLAT SBS LF25	LAYFLAT SBS LF40	LAYFLAT SBS LF60
SBS 135 GRANULES FIBERGLASS VARIOUS 1.00	SBS 145 EMBOSSED COPPER/ALUM. SCRIM- WOVEN ALUMINUM/ VARIOUS 1.01	SBS 125 PLAIN POLYESTER BLACK 0.90	SBS 167 GRANULES POLYESTER & FIBERGLASS VARIOUS 1.20	SBS 154 GRANULES POLYESTER & FIBERGLASS VARIOUS 1.10	SBS 143 FIBERGLASS VARIOUS 1.10	SBS 125 GRANULES FIBERGLASS VARIOUS 0.90	SBS 42 SAND/SMOOTH FIBERGLASS BLACK 0.28	SBS 58 SAND/SMOOTH FIBERGLASS BLACK 0.45	SBS 81 SAND/SMOOTH FIBERGLASS BLACK 0.70
NONE	NONE	GRAVEL, EMUL- SIONS, ACRYLIC	NONE	NONE	NONE	NONE	CAPSHEET, GRA- VEL, EMULSION	CAPSHEET, GRA- VEL, EMULSION	CAPSHEET, GRA- VEL, EMULSION
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
HOT MOP OR COLD ADHES	HOT MOP OR TORCH	HOT MOP OR COLD ADHES	TORCH	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	NAIL, MOP, OR COLD ADHES	NAIL, MOP, OR COLD ADHES	NAIL, MOP, OR COLD ADHES
MOP/CLD ADH	MOP/TORCH	MOP/CLD ADH	TORCH	MOP/CLD ADH	MOP/CLD ADH	MOP/CLD ADH	MOP/CLD ADH	MOP/CLD ADH	MOP/CLD ADH
TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN
O O O O	O O O O	X O X O O O	O O O O	O O O O	O O O O	O O O O	X X O O	X X O O	X O X O O O
O O O O O O O O O O	O O O O O O O O O O	X O X O O O O O X O O O	O O O O O O O O O O	O O O O O O O O O O	O O O O O O O O O O	O O O O O O O O O O	X X O O O O X X X X	X X O O O O O O X X X X	X O X O O O O O O O O O
NONE 50 – 120	NONE 50 – 120	NONE 50 – 120	NONE 50 – 120	NONE 50 – 120	NONE 50 – 120	NONE 40 – 120	NONE 50 – 120	NONE 50 – 120	NONE 50 – 120
SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	FT160CWH MF160WAL	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH
TORCH OR HOT MOP	TORCH OR HOT MOP	TORCH OR HOT MOP	TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT ASPHALT OR TORCH	HOT ASPHALT OR TORCH	HOT ASPHALT OR TORCH
NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
1989	1984	1966 1983				1985		1984	1985
THOUSANDS	THOUSANDS	MILLIONS THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER	SALES MANAGER TECHNICAL MANAGER

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY
2. PRODUCT NAME	LAYFLAT SBS LF60P	SUPERFLEX SBS SF-160PWH	FASTORCH SBS FT-160CWH	FASTORCH SBS FT-160CSA	FASTORCH SBS FT-160GWH	FASTORCH SBS FT-120GSA	SUPERFLEX SBS SF160PWH PREMIUM 250
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	90	142	167	138	155	120	160
C. TOP SURFACE	SAND/SMOOTH	GRANULES	GRANULES	SAND/SMOOTH	GRANULES	SAND	GRANULES
D. REINFORCING MATERIAL	POLYESTER	POLYESTER	POLYESTER & FIBERGLASS	POLYESTER & FIBERGLASS	FIBERGLASS	FIBERGLASS	POLYESTER
E. COLOR(S)	BLACK	VARIOUS	VARIOUS	BLACK	VARIOUS	BLACK	VARIOUS
F. INSTALLED WEIGHT (lbs./ft. <sup>2</sup> without ballast)	0.70	1.00	1.20	1.10	1.20	0.90	1.07
4. KINDS OF FIELD SURFACING REQUIRED	CAPSHEET, GRA- VEL, EMULSION	NONE	NONE	EMULSION, GRA- VEL, ACRYLIC	NONE	EMULSION, GRA- VEL, CAP SHEET	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	NAIL, MOP, OR COLD ADHES	HOT MOP OR COLD ADHES	TORCH	TORCH	TORCH	TORCH	HOT MOP OR COLD ADHES
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft. <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	MOP/CLD ADH	MOP/CLD ADH	TORCH	TORCH	TORCH	TORCH	MOP/CLD ADH
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIRED	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN	TO DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X O	O	O	X O	O	O	O
B. MINERAL FIBER	X O	O	O	X O	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC							O
F. FIBERBOARD	X O	O	O	X O	O	O	O
G. PERLITE	X O	O	O	X O	O	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	O	O	O	O	O	O	O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	50 – 120	50 – 120	50 – 120	50 – 120	50 – 120	50 – 120	50 – 120
12. FLASHING MATERIAL	SF160PWH MF160WAL FT160CWH	SF160PWH MF160WAL FT160CWH	FT160CWH MF160WAL	FT160CWH MF160WAL	FT160CWH MF160WAL	FT160CWH MF160WAL	SAME MATERIAL
13. FLASHING METHOD	HOT ASPHALT OR TORCH	TORCH OR HOT MOP	TORCH	TORCH	TORCH	TORCH	HOT ASPHALT
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							
B. WITHIN USA		1985	1988	1988	1988		1985
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS		
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS							
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES MANAGER	SALES MANAGER	SALES MANAGER	SALES MANAGER	SALES MANAGER	SALES MANAGER	SALES MANAGER
22. FOR TECHNICAL INFORMATION, CONTACT:	TECHNICAL MANAGER	TECHNICAL MANAGER	TECHNICAL MANAGER	TECHNICAL MANAGER	TECHNICAL MANAGER	TECHNICAL MANAGER	TECHNICAL MANAGER
23. SEE MEMBRANE APPENDIX IF CHECKED							



Modified Bitumen Part 1: General Information	
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MFM BUILDING PRODUCTS CORP.	MODBIT CORP.	MODBIT CORP.	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR
BITUFLEX PLUS	BITUTAK MB	BITUTAK MB MINERAL	MODIFIED PLUS G100 s/s [p/s] [p/p]	MODIFIED PLUS NP180s/s [p/s] [p/p]	MODIFIED PLUS NP180gM (T)	MODIFIED PLUS NP250gM4 (T4)	MODIFIED PLUS NP250gT5	MODIFIED PLUS G100gM	MODIFIED PLUS G100gMFR
APP 150  MODIFIED BITUMEN POLYESTER   BLACK   0.85 NONE	APP 152  SMOOTH  POLYESTER	APP  GRANULES  POLYESTER	SBS 80  SMOOTH  NONWOVEN GLASS	SBS 90  SMOOTH  NONWOVEN POLYESTER	SBS 160  GRANULE  NONWOVEN POLYESTER  BLACK/WHITE/ GREY/BROWN	SBS 160  GRANULE  NONWOVEN POLYESTER  BLACK/WHITE/ GREY/BROWN	SBS 200  GRANULE  NONWOVEN POLYESTER  BLACK/WHITE/ GREY/BROWN	SBS 130  GRANULE  NONWOVEN GLASS  BLACK/WHITE/ GREY/BROWN	SBS 148  GRANULE  NONWOVEN GLASS  WHITE/BLACK/ GREY/BROWN
NONE	NONE	NONE	GRANULE SHEET	GRANULE SHEET	NONE	NONE	NONE	NONE	NONE
X X TORCH	X X TORCH	X X TORCH	X X HOT MOP	X X HOT MOP OR TORCH	X X MOP, TORCH, OR COLD ADHES	X X MOP, TORCH, OR COLD ADHES	X X TORCH	X X HOT MOP OR COLD ADHES	X X HOT MOP OR COLD ADHES
TORCH	TORCH	TORCH	MOP/COLD ADH X	MOP/COLD ADH X	MOP/COLD ADH X	MOP/TORCH/ADH X	MOP/TORCH/ADH X	MOP/TORCH/ADH	MOP/COLD ADH
POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
O X X	O X X	O X X	X X O O O X X O O O O O X O O O X O	X X O O O X X O O O O O X O O O X O	X X O O O X X O O O O O X O O O X O	X X O O O X X O O O O O X O O O X O	X X O O O X X O O O O O X O O O X O	X X O O O X X O O O O O X O O O X O	X X O O O X X O O O O O X O O O X O
NONE 20 – 120 SAME MATERIAL	NONE 14- 120 SAME MATERIAL	NONE 40 -120 SAME MATERIAL	SEE SPECS 20 – 115	SEE SPECS 20 – 115	SEE SPECS 20 – 115	SEE SPECS 20 – 115	SEE SPECS 20 – 115	SEE SPECS 20 – 115	SEE SPECS 20 – 115
TORCH	TORCH	TORCH			MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	TORCH	MOP, TORCH, OR COLD ADHESIVE	MOP OR COLD ADHESIVE
NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
USA USA	USA USA	USA USA	GERMANY CANADA	GERMANY CANADA	GERMANY CANADA	GERMANY CANADA	GERMANY CANADA	CANADA CANADA	GERMANY CANADA
1985	1,997	1,997	1971 1985	1971 1988	1971 1988	1971 1988	1971 1988	1981 1985	1992
250,000			MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	THOUSANDS	THOUSANDS
DISTRIBUTORS NO	DISTRIBUTORS 1 NO	DISTRIBUTORS 1 NO	DISTRIBUTORS 7 NO	DISTRIBUTORS 7 NO	DISTRIBUTORS 7 NO	DISTRIBUTORS 7 NO	DISTRIBUTORS 7 NO	DISTRIBUTORS 7 NO	DISTRIBUTORS 7 NO
S FOSTER S FOSTER	D QUNADT 888/663-2488 K HUNT 888/663-2488	D QUNADT 888/663-2488 K HUNT 888/663-2488	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387–9598
	X	X	X	X	X	X	X	X	

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR
2. PRODUCT NAME	MODIFIED PLUS NP180gMFR (TFR)	MODIFIED PLUS NP250gMFR (TFR)	MODIFIED PLUS 170 MOP GRANULE	MODIFIED PLUS 170 TORCH GRANULE	MODIFIED PLUS 170 MOP SMOOTH	MODIFIED PLUS 170 TORCH SMOOTH	MODIFIED PLUS BASE S/S
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	160	160	160	160	140	140	56
C. TOP SURFACE	GRANULE	GRANULE	GRANULE	GRANULE	SMOOTH	SMOOTH	SMOOTH
D. REINFORCING MATERIAL	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN GLASS
E. COLOR(S)	WHITE/BLACK/ GREY/BROWN	WHITE/BLACK/ GREY/BROWN	BLACK/WHITE/ GREY/BROWN	BLACK/WHITE/ GREY/BROWN			
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.25	1.25					
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	GRAVEL OR REF-LECTIVE COAT.	GRAVEL OR REF-LECTIVE COAT.	GRANULE SHEET
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	MOP, TORCH, OR COLD ADHES	MOP, TORCH, OR COLD ADHES	HOT MOP OR COLD ADHES	TORCH	HOT MOP OR COLD ADHES	TORCH	HOT MOP OR COLD ADHES
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	MOP/TORCH/ADH	MOP/TORCH/ADH	MOP/COLD ADH	TORCH	MOP/COLD ADH	TORCH	MOP/COLD ADH
D. PROTECTED ROOF MEMBRANE ASSEMBLY			X	X	X	X	X
8. MINIMUM SLOPE REQUIRED	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	X	X	X
B. MINERAL FIBER	X	X	X	X	X	X	X
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC							
F. FIBERBOARD	X	X	X	O	X	O	X
G. PERLITE	X	X	X	X	X	X	X
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	O	O	O	O	O	O	O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	X	X	X	X	X	X	X
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS
11. WORKABLE TEMPERATURE RANGE (degrees F)	20 – 115	20 – 115	20 – 115	20 – 115	20 – 115	20 – 115	20 – 115
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	MOP, TORCH, OR COLD ADHESIVE	MOP, TORCH, OR COLD ADHESIVE	MOP OR COLD ADHESIVE	TORCH	MOP OR COLD ADHESIVE	TORCH	MOP OR COLD ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	GERMANY	GERMANY	GERMANY	GERMANY	GERMANY	GERMANY	GERMANY
B. MANUFACTURE	CANADA	CANADA	CANADA	CANADA	CANADA	CANADA	CANADA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA			1990	1990	1990	1990	1990
B. WITHIN USA	1992	1992	1990	1990	1990	1990	1990
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	7	7	7	7	7	7	7
20. LICENSED APPLICATOR AGREEMENT (yes/no)	NO	NO	NO	NO	NO	NO	NO
21. FOR SALES INFORMATION, CONTACT:	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268
22. FOR TECHNICAL INFORMATION, CONTACT:	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598
23. SEE MEMBRANE APPENDIX IF CHECKED			X	X	X	X	X

Modified Bitumen Part 1: General Information	
1.01	Section Includes
1.02	Related Sections
1.03	Notes
1.04	Quantities
1.05	Installation
1.06	Materials
1.07	Testing
1.08	Acceptance
1.09	Warranty
1.10	Other

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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA
2. PRODUCT NAME	POLYFLEX 5	POLYBOND	POLYBOND G	POLYFLEX G	DIAMOND BACK	DUFLEX	DUFLEX 5
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	APP	APP	APP	APP	APP	APP
B. THICKNESS (mils)	200	160	180	180	160	160	200
C. TOP SURFACE	SMOOTH	SMOOTH	MINERAL	MINERAL	MINERAL	SMOOTH	SMOOTH
D. REINFORCING MATERIAL	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER, FIBERGLASS	POLYESTER, FIBERGLASS
E. COLOR(S)	BLACK	BLACK	VARIOUS	VARIOUS	BLACK	BLACK	BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.10	0.90	1.05	1.05	0.90	0.90	1.10
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIRED	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	O	O	O	O
B. MINERAL FIBER	O	O	O	O	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	O	O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	O	O	O	O	O	O	O
G. PERLITE	O	O	O	O	O	O	O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	X O	X O	X O	X O	X O	X O	X O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	X O	X O	X O	X O	X O	X O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	POLYFLEX	POLYFLEX	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH	TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	ITALY	ITALY	ITALY	ITALY	ITALY	ITALY	ITALY
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1961	1961	1961	1961	1961	1961	1961
B. WITHIN USA	1991	1991	1991	1991	1991	1991	1991
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA	100 MILLION	80 MILLION	10 MILLION	MILLIONS	MILLIONS	MILLIONS	MILLIONS
B. WITHIN USA	1 MILLION	200,000	50,000	MILLIONS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	1	1	1	1	1	1	1
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782
22. FOR TECHNICAL INFORMATION, CONTACT:	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA
DUFLEX G	POLYGLASS BASE	POLYFLEX G-FR	POLYALL	POLYRAM	INSULROOFING	INSULROOFING GRANULAR	INSULBASE	ELASTOSHIELD TS4	ELASTOFLEX S6
APP 180 MINERAL  POLYESTER, FIBERGLASS  VARIOUS  1.05 NONE	APP 80 SMOOTH  FIBERGLASS  BLACK  .45 NONE	APP 180 MINERAL  POLYESTER  VARIOUS  1.10 NONE	APP 160 ALUMINUM  FIBERGLASS  ALUMINUM  .90 NONE	APP 160 COPPER  FIBERGLASS  COPPER  .90 NONE	APP 160 1/2" INSULATION SMOOTH POLYESTER  BLACK  1.30 NONE	APP 160 1/2" INSULATION SMOOTH POLYESTER  BLACK  1.40 NONE	APP 80 1/2" INSULATION SMOOTH POLYESTER  BLACK  1.00 NONE	SBS 180 MINERAL  POLYESTER  VARIOUS  1.05 NONE	SBS 120 SMOOTH  POLYESTER  BLACK  .80 NONE
X X TORCH	X X TORCH	X X TORCH	X X TORCH	X X TORCH	X X TORCH	X X TORCH	X X TORCH	X X HOT/ TORCH	X X HOT
TORCH X POS DRAIN	TORCH X POS DRAIN	TORCH X POS DRAIN	TORCH X POS DRAIN	TORCH X POS DRAIN	TORCH X POS DRAIN	TORCH X POS DRAIN	TORCH X POS DRAIN	HOT/TORCH X POS DRAIN	HOT X POS DRAIN
O O O O O O O O O O X O O O X O	O O O O O O O O O O X O O O X O	O O O O O O O O O O X O O O X O	O O O O O O O O O O X O O O X O	O O O O O O O O O O X O O O X O	X X X X X X X X X X X X X X	X X X X X X X X X X X X X X	X X X X X X X X X X X X X X	O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O
NONE 40 – 120 SAME MATERIAL  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 SAME MATERIAL  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 SAME MATERIAL  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 SAME MATERIAL  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 SAME MATERIAL  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 POLYFLEX  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 POLYFLEX  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 POLYFLEX  TORCH  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 SAME MATERIAL  HOT  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782	NONE 40 – 120 SAME MATERIAL  HOT  YES  ITALY USA  1961 1991  THOUSANDS DISTRIBUTORS 1 YES 800/222–9782 800/222–9782

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA	POLYGLASS USA
2. PRODUCT NAME	ELASTOFLEX GS-6	ELASTOFLEX G S6-FR	ELASTOBASE	ELASTOBASE POLY	MODIBASE	ELASTOFLEX V	ELASTOFLEX VG
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	140	140	80	80	60	120	140
C. TOP SURFACE	MINERAL	MINERAL	SMOOTH	SMOOTH	SMOOTH	SMOOTH	MINERAL
D. REINFORCING MATERIAL	POLYESTER	POLYESTER	FIBERGLASS	POLYESTER	FIBERGLASS	FIBERGLASS	FIBERGLASS
E. COLOR(S)	VARIOUS	VARIOUS	BLACK	BLACK	BLACK	BLACK	VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	.85	.85	.80	.80	.60	.80	.90
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT	HOT	HOT/COLD/ MECHANICAL	HOT/COLD/ MECHANICAL	HOT/COLD/ MECHANICAL	HOT	HOT
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)			MECHANICAL	MECHANICAL	MECHANICAL		
C. FULLY ADHERED (method)	HOT	HOT	HOT/COLD	HOT/COLD	HOT/COLD	HOT	HOT
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIRED	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	X	X	X	O	O
B. MINERAL FIBER	O	O	X	X	X	O	O
C. POLYSTYRENE	O	O	X	X	X	O	O
D. CELLULAR GLASS	O	O	X	X	X	O	O
E. PHENOLIC	O	O	X	X	X	O	O
F. FIBERBOARD	O	O	X	X	X	O	O
G. PERLITE	O	O	X	X	X	O	O
H. POLYISOCYANURATE	O	O	X	X	X	O	O
I. POLYURETHANE	O	O	X	X	X	O	O
J. GYPSUM	O	O	X	X	X	O	O
K. CONCRETE	O	O	X	X	X	O	O
L. WOOD PLANK	O	O	X	X	X	O	O
M. PLYWOOD	O	O	X	X	X	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	X	X	X	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	HOT	HOT	HOT/COLD	HOT/COLD	TORCH	HOT	HOT
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	ITALY	ITALY	ITALY	ITALY	ITALY	ITALY	ITALY
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1961	1961	1961	1961	1961	1961	1961
B. WITHIN USA	1991	1991	1991	1991	1991	1991	1991
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	1	1	1	1	1	1	1
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782
22. FOR TECHNICAL INFORMATION, CONTACT:	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782	800/222-9782
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information	
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.
2. PRODUCT NAME	VERAL (COPPER)	VERAL (STAINLESS STEEL)	PARADIENE 20 HV	PARADIENE 20 TG	PARADIENE 20 HT TG	PARADIENE 20 PR TG	PARADIENE 20 EG TG
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS 138	SBS 138	SBS 119	SBS 110	SBS 110	SBS 110	SBS 138
B. THICKNESS (mils)	COPPER	STAINLESS STEEL	PLAIN	PLAIN	PLAIN	PLAIN	PLAIN
C. TOP SURFACE							
D. REINFORCING MATERIAL	GLASS SCRIM	GLASS SCRIM	GLASS MAT	GLASS MAT	GLASS MAT, GLASS SCRIM	GLASS SCRIM, POLYESTER	GLASS MAT, GLASS SCRIM
E. COLOR(S)	COPPER	STAIN/STEEL	BLACK	BLACK	BLACK	BLACK	BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.10	1.05	0.90	0.75	0.75	0.95	0.95
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	PARADIENE 30	PARADIENE 30 TG	PARADIENE 30 TG	PARADIENE 30 TG	PARADIENE 30 TG
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT MOP OR TORCH	HOT MOP OR TORCH	HOT MOP/ PA -311 ADHESIVE	TORCH	TORCH	TORCH	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)			MOP/PA-311 ADH	TORCH	TORCH	TORCH	TORCH
C. FULLY ADHERED (method)	MOP OR TORCH	MOP OR TORCH	MOP/PA-311 ADH	TORCH	TORCH	TORCH	TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY				X	X	X	X
8. MINIMUM SLOPE REQUIRED	1/2 "	1/2 "	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	O	O	O	O
B. MINERAL FIBER	X	X	X	O	O	O	O
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	X O	X O	O	O	O	O	O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	X	X	X	O	O	O	O
G. PERLITE	X	X	X	O	O	O	O
H. POLYISOCYANURATE	X	X	X	X	X	X	X
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	O	O	O	O	O	O	O
K. CONCRETE	O	O	O	X O	X O	X O	X O
L. WOOD PLANK	O	O	O	X O	X O	X O	X O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)					NONE		
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL					
13. FLASHING METHOD	TORCH	TORCH					
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO		NO	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	FRANCE	FRANCE	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	FRANCE	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA							
B. WITHIN USA							
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	9	9	9	9	9	9	9
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	J. MOLLENHOFF 972/869-0070	J. MOLLENHOFF 972/869-0070	J. MOLLENHOFF 972/869-0070	J. MOLLENHOFF 972/869-0070	J. MOLLENHOFF 972/869-0070	J. MOLLENHOFF 972/869-0070	J. MOLLENHOFF 972/869-0070
22. FOR TECHNICAL INFORMATION, CONTACT:	K. WOLFORD 972/869-0070	K. WOLFORD 972/869-0070	K. WOLFORD 972/869-0070	K. WOLFORD 972/869-0070	K. WOLFORD 972/869-0070	K. WOLFORD 972/869-0070	K. WOLFORD 972/869-0070
23. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X	X



Modified Bitumen Part 1: General Information	
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.
2. PRODUCT NAME	SOPRALENE 250 GRANULES	SOPRALENE 250 FR GRANULES	SOPRALENE FLAM 250	SOPRALENE FLAM 250 GRANULES	SOPRALENE FLAM 250 FR GRANULES	SOPRALENE 350	SOPRALENE 350 GRANULES
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	160	160	160	160	160	160	200
C. TOP SURFACE	CERAMIC GRANULES	SAND	PLAIN	CERAMIC GRANULES	CERAMIC GRANULES	SAND	CERAMIC GRANULES
D. REINFORCING MATERIAL	NONWOVEN POLYESTER	NONWOVEN POLYESTER	PLASTIC FILM	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER	NONWOVEN POLYESTER
E. COLOR(S)	VARIOUS	BLACK	BLACK	VARIOUS	VARIOUS	BLACK	BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.17	1.16	1.12	1.13	1.17	1.07	1.32
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	GRAVEL ALUMINUM	NONE	NONE	GRAVEL OR ALUMINUM	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	MOP	MOP	TORCH	TORCH	MOP	MOP/TORCH	TORCH OR SELF-ADHERE
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	MOP	MOP	TORCH	TORCH	MOP	MOP/TORCH	MOP/TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIRED	1/8:12	1/8:12	DEAD LEVEL	DEAD LEVEL	1/8:12	1/8:12	1/8:12
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X O	X O	O	O	X O	X O	X O
B. MINERAL FIBER	X O	X O	X	X O	X O	X O	X O
C. POLYSTYRENE	X O	X O	X	X O	X O	O	X O
D. CELLULAR GLASS	X O	X O	X	X O	X O	X O	X O
E. PHENOLIC	O	O	O	O	O	O	O
F. FIBERBOARD	X O	X O	O	O	X O	X O	O
G. PERLITE	X O	X O	X	X O	X O	X O	X O
H. POLYISOCYANURATE	O	O	O	O	O	O	O
I. POLYURETHANE	O	O	O	O	O	O	O
J. GYPSUM	X O	X O	X	X O	X O	X O	X O
K. CONCRETE	X O	X O	X	X O	X O	X O	X O
L. WOOD PLANK	O	O	O	O	O	O	O
M. PLYWOOD	O	O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)				NONE		NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	35 – 120	35 – 120	0 -120	0 – 120	35 – 120	35 – 120	35 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	TORCH OR HOT MOP	TORCH OR HOT MOP	TORCH	TORCH	TORCH OR HOT MOP	HOT MOP, TORCH, OR COLD ADHESIVE	HOT MOP, TORCH, OR COLD ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	FRANCE	FRANCE	FRANCE	FRANCE	FRANCE	FRANCE	FRANCE
B. MANUFACTURE	USA, CANADA	USA, CANADA	USA, CANADA	USA, CANADA	USA, CANADA	USA, CANADA	USA, CANADA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1975	1975	1,975	1975	1975	1975	1975
B. WITHIN USA	1984	1984	1,984	1984	1984	1984	1984
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	5	5	5	5	5	5	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information	
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# Modified Bitumen Part 1: General Information

1. COMPANY NAME	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.
2. PRODUCT NAME	SOPRALAST 50 TV ALU	SOPRALAST TV COPPER	SOPRALAST TV STAINLESS	SOPRAFIX	SOPRALENE 350 PS	SOPRALENE 180 SP 3.5 mm	ELASTOPHENE HD
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	SBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	168	140	160	120	160	140	120
C. TOP SURFACE	ALUMINUM	COPPER	STAINLESS	PLASTIC FILM	PLASTIC FILM	SANDED	SANDED
D. REINFORCING MATERIAL	FIBERGLASS	FIBERGLASS	FIBERGLASS	POLYESTER	POLYESTER	POLYESTER	FIBERGLASS
E. COLOR(S)	ALUMINUM	COPPER	STAINLESS	BLACK	BLACK	BLACK	BLACK
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	.97	0.93	01.15	0.80	1.06		
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	GRAVEL ALUMINUM	GRAVEL ALUMINUM	GRAVEL ALUMINUM	GRAVEL ALUMINUM
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	TORCH	TORCH	HOT MOP	TORCH	HOT MOP
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)				MECH ATTACH			
C. FULLY ADHERED (method)	TORCH	TORCH	TORCH		HOT MOP	TORCH	HOT MOP
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIRED	1/2"	1/2"	1/2"	1/8:12	1/8:12	DEAD LEVEL	1/8:12
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	X	O	X	O
B. MINERAL FIBER	O	O	O	X	O	X	O
C. POLYSTYRENE	O	O	O		O		O
D. CELLULAR GLASS	O	O	O	X	O	X	O
E. PHENOLIC							
F. FIBERBOARD	O	O	O	X	O	X	O
G. PERLITE	O	O	O	X	O	X	O
H. POLYISOCYANURATE	O	O	O		O		O
I. POLYURETHANE	O	O	O		O		O
J. GYPSUM	O	O	O	X	O	X	O
K. CONCRETE	O	O	O	X	O	X	O
L. WOOD PLANK	O	O	O	X	O		O
M. PLYWOOD	O	O	O	X	O		O
N. EXISTING BUILT-UP MEMBRANE	O	O	O	X	O		O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 – 120	0 – 120	0 – 120	0 – 120	0 – 120	0 – 120	35 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SOPRALENE	SOPRALENE	SOPRALENE	SOPRALENE
13. FLASHING METHOD	TORCH	TORCH	TORCH				
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES				
15. COUNTRY OF:							
A. ORIGIN	FRANCE	FRANCE	FRANCE	FRANCE	FRANCE	FRANCE	FRANCE
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1985	1985	1975	1975	1975	1975	1975
B. WITHIN USA				1984	1993	1985	1985
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	5	5	5	5	5	5	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521	SALES MGR 800/356-3521
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066	TECH MGR 330/334-0066
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information
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SOUTH- WESTERN PETROLEUM CORPORATION	SOUTH- WESTERN PETROLEUM CORPORATION	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.
SWEPCO UNI+SHIELD SYS 302	SWEPCO UNI+SHIELD II SYS 303	AWAPLAN PREMIUM	AWAPLAN 170	AWAPLAN PREMIUM FR	AWAPLAN 170 FR	AWAPLAN VERSA- SMOOTH	VERSA-CAP FR	AWAPLAN HEAT WELDING	AWAFLEX
APP 160  MODIFIED ASPHALT POLYESTER	SBS 53  MODIFIED ASPHALT POLYESTER	SBS 155  GRANULE  POLYESTER	SBS 154  GRANULE  POLYESTER	SBS 155  GRANULE  POLYESTER	SBS 154  GRANULE  POLYESTER	SBS 160  SMOOTH  POLYESTER	SBS 140  GRANULE  GLASS MAT	SBS 185  GRANULE  POLYESTER	SBS 125  GRANULE  POLYESTER
BLACK	BLACK	VARIOUS	VARIOUS	VARIOUS	VARIOUS	BLACK	VARIOUS	VARIOUS	WHITE/BLACK
0.90	0.33	1.04	0.99	1.04	0.99	1.0	0.87	1.04	0.76
SWEPCO COATING	SWEPCO COATING	NONE	NONE	NONE	NONE	AWAPLAN, COAT- ING, GRAVEL	NONE	NONE	NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
TORCH	COLD ADHESIVE	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP	HOT MOP	HOT MOP OR TORCH	HOT MOP	TORCH	HOT MOP OR COLD ADHES
TORCH TORCH	COLD ADHES	HOT MOP/COLD	HOT MOP/COLD	HOT MOP	HOT MOP	MOP/TORCH/ADHS	HOT MOP/COLD	TORCH	HOT MOP/COLD
1/4"	1/4"	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
O O	X X	X X	X X	X X	X X	X X	X X	X X	X X
X O	X O	X O	X O	X O	X O	X O	X O	X O	X O
O O	X X	X X	X X	X X	X X	X X	X X	X X	X X
O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
X O	O O	X O	X O	X O	X O	X O	X O	X O	X O
O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
X O	O O	X O	X O	X O	X O	X O	X O	X O	X O
O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
X O	O O	X O	X O	X O	X O	X O	X O	X O	X O
NONE 5 – 125	NONE 40 – 125	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
SAME MATERIAL	SAME MATERIAL	SAME MATERIAL OR VERSA- FLASH	SAME MATERIAL OR VERSA- FLASH	SAME MATERIAL OR VERSA- FLASH	SAME MATERIAL OR VERSA- FLASH	SAME MATERIAL OR VERSA- FLASH	AWAPLN PREM, AWAPLAN 170 OR VERSA-FLSH	SAME MATERIAL	SAME MATERIAL
TORCH	COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR TORCH	HOT MOP	HOT MOP OR TORCH	HOT MOP OR COLD ADHESI VE
NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
USA	USA USA	W GERMANY USA	W GERMANY USA	W GERMANY USA	W GERMANY USA	W GERMANY USA	W GERMANY USA	W GERMANY USA	USA USA
1963 1981	1990 1993	1970 1978	1986	1988	1991	1986	1989	1981	1995
100,000 +	10,000 +								
DIRECT	DIRECT	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES	DISTRIBUTORS 27 YES
NO	NO								
R. KLEINTOP 800/877-9372 R. KLEINTOP 800/877-9372	R. KLEINTOP 800/877-9372 R. KLEINTOP 800/877-9372	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE
		TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691
		X	X	X	X	X	X	X	

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS, INC	TEXAS REFINERY CORP.	TEXSA, S.A.	TEXSA, S.A.
2. PRODUCT NAME	AWAFLEX FR	SPEEDWELD APP GRANULATED	SPEEDWELD APP SMOOTH	VERSA-FLEX	MIGHTYPLATE	HIPER M.P.	MIN TEXAL-15 FP-S
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS	APP	APP	SBS	APP	APP	APP
B. THICKNESS (mils)	125	180	160	115	157	158	158
C. TOP SURFACE	GRANULE	GRANULE	SMOOTH	SMOOTH	MODIFIED BITUMEN	SMOOTH	MINERAL GRANULE
D. REINFORCING MATERIAL	POLYESTER	POLYESTER	POLYESTER	POLYESTER	NONWOVEN POLYESTER FABRIC	NONWOVEN POLY- ESTER & POLY- ETHYLENE FILM	NONWOVEN POLYESTER
E. COLOR(S)	WHITE/BLACK	WHITE/BLACK	BLACK	BLACK	BLACK	BLACK	GRAY/GREEN/ RED
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	0.76	1.05	0.90	0.76	0.88	0.98	1.02
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	SPEEDWELD SP OR COLD COATING	AWAPLAN GRANULE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HOT MOP OR COLD ADHES	TORCH	TORCH	HOT MOP OR COLD ADHES	TORCH	TORCH	TORCH
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	HOT MOP/COLD	TORCH	TORCH	HOT MOP/COLD	TORCH	TORCH TORCH	TORCH TORCH
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIRED	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	DEAD LEVEL	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	O		
B. MINERAL FIBER	X	X	X	X	O	X	X
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	X	X	X	X	O	X	X
E. PHENOLIC					O	X	
F. FIBERBOARD	X	X	X	X	O	X	X
G. PERLITE	X	X	X	X	O	X	X
H. POLYISOCYANURATE	O	O	O	O	O	X	X
I. POLYURETHANE					O	X	X
J. GYPSUM	X	X	X	X	O	X	X
K. CONCRETE	O	O	O	O	X	X	X
L. WOOD PLANK	X	X	X	X	O	O	
M. PLYWOOD	X	X	X	X	O	O	
N. EXISTING BUILT-UP MEMBRANE	X	X	X	X	X	X	X
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)					0 – 120	40 – 120	40 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SPEEDWELD APP GRAN OR SAME MAT'L W/ CTG	AWAFLEX, AWA 170 AWA PREM, VERSA-FLASH	SAME MATERIAL	SAME MATERIAL OR ANY APP CAP SHEET	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR COLD ADHESIVE	TORCH	TORCH	HOT MOP OR COLD ADHESIVE	TORCH	TORCH	TORCH
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	NO	NO	NONE	NO	NO	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	SPAIN	SPAIN
B. MANUFACTURE	USA	USA	USA	USA	USA	SPAIN	SPAIN
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA						1984	1985
B. WITHIN USA	1,997	1995	1995	1997	1981		
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA						THOUSANDS	THOUSANDS
B. WITHIN USA					MILLIONS		
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DIRECT	DISTR,DIRECT	DISTR,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	27	27	27	27			
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES		
21. FOR SALES INFORMATION, CONTACT:	DIST OFFICE	DIST OFFICE	DIST OFFICE	DIST OFFICE	J. MC GEE	CUST SERVICE	CUST SERVICE
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	J. MC GEE	TECH SERVICE	TECH SERVICE
23. SEE MEMBRANE APPENDIX IF CHECKED							

# Modified Bitumen Part 1: General Information

TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.
TEXAL-10 FV 3MM	TEXAL-15 FPS 4MM	MIN MOFLEX-20 FP-S	TEXSELF	M.P. PARKING	MINERAL M.P. 5KG FM	TEXSELF AL 45	TEXSELF ICE AND WATER SCREEN	TEXSELF GAS SCREEN	TEXSELF FP
SBS 120 SMOOTH  FIBERGLASS  BLACK  0.74	SBS 158 SMOOTH  NONWOVEN POLYESTER  BLACK  0.98	SBS 158 MINERAL GRANULE NONWOVEN POLYESTER  GRAY/GREEN/ RED  1.02	SBS 60 POLYETHYLENE  NONE  BLACK  0.36	SBS 170 NONWOVEN POLYESTER NONWOVEN POLYESTER  WHITE  0.98	SBS 158 MINERAL GRANULE COMPOSITE: NONWOVEN + GLASS GRAY/GREEN/ RED  1.02	SBS 80 ALUMINUM  NONE  ALUMINUM  0.43	SBS 60 POLYETHYLENE  NONE  BLACK  0.36	SBS 80 SMOOTH  POLYETHYLENE FILM + ALUM- INUM FOIL BLACK  0.48	SBS 80 SMOOTH  NONWOVEN POLYESTER  BLACK  0.48
NONE	NONE	NONE	NONE	NONE	NONE		NONE	NONE	NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
TORCH	TORCH	TORCH	SELF- ADHESIVE	TORCH	TORCH	SELF- ADHESIVE	SELF- ADHESIVE	SELF- ADHESIVE	SELF- ADHESIVE
TORCH TORCH	TORCH TORCH	TORCH TORCH	SELF-ADHERING	TORCH	MECHANICAL TORCH	SELF-ADHERING	SELF-ADHERING	SELF-ADHERING	SELF-ADHERING
POS DRAIN	DEAD LEVEL	POS DRAIN	TO DRAIN					TO DRAIN	TO DRAIN
X O X X X X X X X O O X	X O X X X X X X X O O X	X O X X X X X X X O O X	X O X X X X X X X O O X	X O X X X X X X X O O X	O O O O O O O O O O O X	X O X X X X X X X O O X	X O X X X X X X X O O X	X O X X X X X X X O O X	X O X X X X X X X O O X
NONE 40 – 120	NONE 40 – 120	NONE 40 – 120	NONE 50 – 120	NONE 40 – 120	NONE 40 – 120	NONE 50 – 120	NONE 50 – 120	NONE 50 – 120	NONE 50 – 120
SAME MATERIAL OR ANY SBS CAP SHEET	SAME MATERIAL OR ANY SBS CAP SHEET	SAME MATERIAL	SELF-ADHESIVE TEXSELF CAP SHEET	ANY SBS CAP SHEET	ANY SBS CAP SHEET	SELF-ADHESIVE TEXSELF CAP SHEET	SELF-ADHESIVE TEXSELF CAP SHEET	SELF-ADHESIVE TEXSELF CAP SHEET	SELF-ADHESIVE TEXSELF CAP SHEET
TORCH	TORCH	TORCH	SELF-ADHERING	TORCH	TORCH	SELF-ADHERING	SELF-ADHERING	SELF-ADHERING	SELF-ADHERING
NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN	SPAIN SPAIN
1991	1991	1991	1986	1994	1994	1994	1995	1995	1996
THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS					
DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE	CUST SERVICE
TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE	TECH SERVICE

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	TREMCO INC.	TREMCO INC.	TREMCO INC.	TREMCO INC.	TREMCO INC.	TREMCO INC.	TRI-PLY
2. PRODUCT NAME	THERM MB 2C6S	THERM MB 2C2S	THERM MB LTD	THERM MB 4PFR	THERM MB 2PS	THERM MB HT BASE SHEET	KARIFALT 306
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	SBS/SEBS	SBS/SEBS	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	85	85	125	160	94		135
C. TOP SURFACE	SMOOTH	SMOOTH	GRANULE	GRANULE	SMOOTH	SMOOTH	GRANULES
D. REINFORCING MATERIAL	POLYESTER/ GLASS	POLYESTER/ GLASS	GLASS	POLYESTER	POLYESTER	GLASS	FIBERGLASS
E. COLOR(S)	BLACK	BLACK	VARIOUS	WHITE	BLACK	BLACK	VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	0.48	0.50	0.89	1.10	0.60	0.40	0.95
4. KINDS OF FIELD SURFACING REQUIRED	EMULSIONS OR GRAVEL	EMULSIONS OR GRAVEL	NONE	NONE	CAP SHEET	CAP SHEET	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	MOP MOD BIT/ COLD ADHES	HOT MOP OR COLD ADHES	MOP MOD BIT/ COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP OR COLD ADHES	HOT MOP
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	MOP/COLD ADHES	MOP/CLD ADHES	MOP/COLD ADHES	MOP/COLD ADHES	MOP/COLD ADHES	MOP/COLD ADHES	HOT MOP
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIRED	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	X	X	O
B. MINERAL FIBER							O
C. POLYSTYRENE							O
D. CELLULAR GLASS							O
E. PHENOLIC							O
F. FIBERBOARD	X	X	X	X	X	X	O
G. PERLITE	X	X	X	X	X	X	O
H. POLYISOCYANURATE		O	O	O	O	O	O
I. POLYURETHANE		O	O	O	O	O	O
J. GYPSUM		O	O	O	O	O	O
K. CONCRETE	X	X	X	X	X	X	O
L. WOOD PLANK		O	O	O	O	O	O
M. PLYWOOD		O	O	O	O	O	O
N. EXISTING BUILT-UP MEMBRANE		O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)							0 – 120
12. FLASHING MATERIAL	SAME MATE- RIAL, CSPE, OR COMP. MEMB.	SAME MATE- RIAL, CSPE, OR COMP. MEMB.	CSPE OR COMPARABLE MEMBRANE	CSPE, MOD. BIT. OR COMP. MEMBRANE	CSPE, MOD. BIT. OR COMP. MEMBRANE	CSPE, MOD. BIT. OR COMP. MEMBRANE	SAME MATERIAL
13. FLASHING METHOD	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP OR COLD ADHESIVE	HOT MOP
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	NO
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA				1990			
B. WITHIN USA	1987	1995	1990	1990			
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	14	14	14	14	14	14	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH DEPT	TECH DEPT	TECH DEPT	TECH DEPT	TECH DEPT	TECH DEPT	R. WHITE
23. SEE MEMBRANE APPENDIX IF CHECKED							X



Modified Bitumen Part 1: General Information
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[illegible]

# Modified Bitumen Part 1: General Information

1. COMPANY NAME	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.
2. PRODUCT NAME	INTEC GBSP4FR	INTEC GBSP 250 FR	INTEC/FLEX M	INTEC/FLEX 190	INTEC/FLEX FR4.5	INTEC/FLEX S	INTEC/FLEX FR3 HS
3. PRODUCT DESCRIPTION							
A. TYPE OF MODIFIER	APP	APP	SBS	SBS	SBS	SBS	SBS
B. THICKNESS (mils)	160	177	160	160	160	138	150
C. TOP SURFACE	GRANULES	GRANULES	GRANULES	GRANULES	GRANULES	SMOOTH	GRANULES
D. REINFORCING MATERIAL	POLYESTER	POLYESTER COMPOSITE	POLYESTER	POLYESTER	FIBERGLASS	POLYESTER	GLASS MAT GLASS SCRIM
E. COLOR(S)	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS		VARIOUS
F. INSTALLED WEIGHT (lbs./ft <sup>2</sup> without ballast)	1.05	1.1	1.05	0.95	1.05	0.85	0.93
4. KINDS OF FIELD SURFACING REQUIRED	NONE	NONE	NONE	NONE	NONE	CAP SHEET/ MOP GRAVEL	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TORCH	TORCH	MOP/ ADHESIVE	MOP/ ADHESIVE	MOP/ ADHESIVE	MOP/ ADHESIVE	MOP/ ADHESIVE
7. TYPES OF ROOF SYSTEMS:							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )							
B. PARTIALLY ADHERED (method)							
C. FULLY ADHERED (method)	TORCH	TORCH	HOT MOP	HOT MOP	HOT MOP	MOP/ADHES	MOP/ADHES
D. PROTECTED ROOF MEMBRANE ASSEMBLY							
8. MINIMUM SLOPE REQUIRED	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	O	O	O	O	O	X O	X
B. MINERAL FIBER	O	O	O	O	O	X O	X
C. POLYSTYRENE	O	O	O	O	O	O	O
D. CELLULAR GLASS	O	O	O	O	O	X O	X O
E. PHENOLIC		O					
F. FIBERBOARD		O	O	O	O	X	X
G. PERLITE	O	O	O	O	O	X	X
H. POLYISOCYANURATE	O	O	O	O	O	X O	X O
I. POLYURETHANE	O	O	O	O	O	X O	X O
J. GYPSUM	O	O	O	O	O	X O	X O
K. CONCRETE	X O	O	O	O	O	X O	X O
L. WOOD PLANK	O	O	O	O	O	X O	X O
M. PLYWOOD	O	O	O	O	O	X O	X O
N. EXISTING BUILT-UP MEMBRANE	X O	O	O	O	O	X O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	SEE SPECS	SEE SPECS	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
13. FLASHING METHOD	TORCH	TORCH	MOP/CEMENT	MOP/CEMENT	MOP/CEMENT	MOP/CEMENT	MOP/CEMENT
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	ITALY	USA				USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1976	1990	1985	1985	1985	1985	1985
B. WITHIN USA	1991	1990	1985	1985	1985	1985	1985
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							
B. WITHIN USA							
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	9	9	9	9	9	9	9
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/231-4631	800/231-4631	800/231-4631	800/231-4631	800/231-4631	800/231-4631	800/231-4631
22. FOR TECHNICAL INFORMATION, CONTACT:	800/624-6832	800/624-6832	800/624-6832	800/624-6832	800/624-6832	800/624-6832	800/624-6832
23. SEE MEMBRANE APPENDIX IF CHECKED							

Modified Bitumen Part 1: General Information	
1.01	Section Includes
1.02	Related Sections
1.03	Notes
1.04	Quantities
1.05	Installation
1.06	Materials
1.07	Testing
1.08	Acceptance
1.09	Warranty
1.10	Other

U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.
INTEC/FLEX 190 FR	INTEC/FLEX 250 FR	INTEC/FLEX G4 CAP	FLEXBASE 60 FR	INTEC MODIFIED BASE PLUS
SBS 160 GRANULES  POLYESTER  VARIOUS  0.98 NONE	SBS 177 GRANULES  POLYESTER COMPOSITE  VARIOUS  0.98 NONE	SBS 160 GRANULES  FIBERGLASS  VARIOUS  0.98 NONE	SBS 80 SMOOTH  FIBERGLASS  0.40 CAP SHEET/ MOP GRAVEL	SBS 95 SMOOTH  FIBERGLASS  0.54 CAP SHEET/ MOP GRAVEL
X X	X X	X X	X X	X X
MOP/ ADHESIVE	MOP/ ADHESIVE	MOP/ ADHESIVE	MOP/ ADHESIVE	MOP/ ADHESIVE
MOP/ADHES	MOP/ADHES	MOP/ADHES	MOP/MECH FAS	MOP/MECH FAS
POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN	POS DRAIN
X X  O X O O O O O O O	X X  O X O O O O O O O	X X  O X O O O O O O O	X X  O X O O O O O O O	X X  O X O O O O O O O
NONE 40 – 120	NONE 40 – 120	NONE 40 – 120	NONE 40 – 120	NONE 40 – 120
SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL
MOP/CEMENT	MOP/CEMENT	MOP/CEMENT	MOP/CEMENT	MOP/CEMENT
YES	YES	YES	YES	YES
USA USA	USA USA	USA USA	USA USA	USA USA
1990 1990	1990 1990	1985 1985	1988 1988	1989 1989
DISTRIBUTORS 9 YES	DISTRIBUTORS 9 YES	DISTRIBUTORS 9 YES	DISTRIBUTORS 9 YES	DISTRIBUTORS 9 YES
800/231-4631	800/231-4631	800/231-4631	800/231-4631	800/231-4631
800/624-6832	800/624-6832	800/624-6832	800/624-6832	800/624-6832

# APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

1. COMPANY NAME	AL-KOAT INC.	AL-KOAT INC.	AMERICAN LUBRICANTS CO.	ANDEK CORP.	BITEC INC.
2. PRODUCT NAME	AL-FLEX, G	AL-FLEX, S	TIFFANY	FLASHBAND-28	MDA
3. SHEET THICKNESS (average thickness, inches)	0.160	0.160	0.157		
4. LOAD STRAIN PROPERTIES (at 0°F)					
4.1 INITIAL					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD 208 XD 180.4	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD 64 XD 74	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD 461 XD	MD XD	MD XD
4.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD 43 XD 42	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
5. TENSILE TEAR STRENGTH (at 77° F)					
AVERAGE TEAR STRENGTH (pounds force)	MD 105 XD 105	MD 105 XD 105	MD XD	MD XD	MD XD
6. MOISTURE CONTENT AVERAGE PERCENT OF DRY MASS	NIL	NIL	NIL		
7. WATER ABSORPTION (distilled water immersion, 4 hrs. at 122° F)					
AVERAGE PERCENT OF DRY MASS	NIL	NIL	NIL		
8. DIMENSIONAL STABILITY					
AVERAGE ABSOLUTE DIMENSIONAL CHANGE (%)	MD XD	MD XD	MD XD	MD XD	MD XD
9. LOW TEMPERATURE FLEXIBILITY					
9.1 INITIAL					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD +5 XD +5	MD +5 XD +5	MD +5 XD +5	MD XD	MD XD
9.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD +7 XD +7	MD +7 XD +7	MD +7 XD +7	MD XD	MD XD
9.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD +10 XD +10	MD +10 XD +10	MD +10 XD +10	MD XD	MD XD
10. GRANULE EMBEDMENT					
AVERAGE GRANULE LOSS (ounces or NA)	NA	NA	NA		
11. COMPOUND STABILITY TEMPERATURE AT WHICH FLOW DRIP DROP FORMATION OBSERVED (0°F)	>300	>300	>302		
12. SEE MEMBRANE APPENDIX IF CHECKED					

1. COMPANY NAME	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	CELOTEX CORP.
2. PRODUCT NAME	APS-4T	APM-4T	APM-4.5T	COMPABASE FA-2T	CELOTEX APP 4/S CAP SHEET
3. SHEET THICKNESS (average thickness, inches)	0.160	0.160	0.180	0.080	0.157
4. LOAD STRAIN PROPERTIES (at 0°F)					
4.1 INITIAL					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD 164 XD 125
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD 46 XD 60
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD 197 XD 176
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD 24 XD 12
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD 197 XD 158
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD 41 XD 17
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
5. TENSILE TEAR STRENGTH (at 77° F)					
AVERAGE TEAR STRENGTH (pounds force)	MD XD	MD XD	MD XD	MD XD	MD 179 XD 149
6. MOISTURE CONTENT AVERAGE PERCENT OF DRY MASS					0.15
7. WATER ABSORPTION (distilled water immersion, 4 hrs. at 122° F)					
AVERAGE PERCENT OF DRY MASS					0.7
8. DIMENSIONAL STABILITY					
AVERAGE ABSOLUTE DIMENSIONAL CHANGE (%)	MD #.05 XD #.05	MD #.05 XD #.05	MD #.05 XD #.05	MD 0 XD 0	MD 0.9 XD 0.5
9. LOW TEMPERATURE FLEXIBILITY					
9.1 INITIAL					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 5 XD 5	MD 5 XD 5	MD 5 XD 5	MD 14 XD 14	MD 12.2 XD
9.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD XD	MD XD	MD XD	MD XD	MD 21 XD
9.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD XD	MD XD	MD XD	MD XD	MD 20 XD
10. GRANULE EMBEDMENT					
AVERAGE GRANULE LOSS (ounces or NA)					NA
11. COMPOUND STABILITY TEMPERATURE AT WHICH FLOW DRIP DROP FORMATION OBSERVED (0°F)					275
12. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable  
MD=machine direction  
XD=cross direction

# APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

CELOTEX CORP.	CONSOLIDATED COATINGS CORPORATION	DERMABIT WATERPROOFING INDUSTRIES	DERMABIT WATERPROOFING INDUSTRIES	DIBITEN	DIBITEN	DIBITEN	DIBITEN
CELOTEX APP 4/M CAP SHEET	CONSO-GARD II	DERMABIT 4170 SMOOTH	DERMABIT 4170 GRANULE	DIBITEN POLY/4	DIBITEN POLY/4.5 GRANULAR	DIBITEN POLY/5	DIBITEN BLACK GRANITE
0.157				0.16	0.18	0.20	0.16
MD 160 XD 121 MD 48 XD 38 MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD 220 XD 160 MD 22 XD 25 MD XD	MD 210 XD 160 MD 21 XD 24 MD XD	MD 240 XD 200 MD 22 XD 25 MD XD	MD 220 XD 160 MD 22 XD 25 MD XD
MD 185 XD 155 MD 29 XD 21 MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD
MD 152 XD 135 MD 30 XD 23 MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD
MD 177 XD 147	MD XD	MD XD	MD XD	MD 102 XD 84	MD 124 XD 100	MD 145 XD 118	MD 104 XD 66
0.15				< 0.2	< 0.2	< 0.2	< 0.2
1.7				< 0.4	< 0.5	< 0.4	< 0.4
MD 0.9 XD 0.6	MD XD	MD XD	MD XD	MD 0.1 XD 0.1	MD 0.1 XD 0.1	MD 0.1 XD 0.1	MD 0.1 XD 0.1
MD 12.2 XD MD 19 XD MD 18 XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD 14 XD 14 MD XD MD XD	MD 23 XD 23 MD XD MD XD	MD 14 XD 14 MD XD MD XD	MD 14 XD 14 MD XD MD XD
0.096				NA	< 0.05		NA
275				>250	> 250	> 250	> 250

DIBITEN	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION
DIBITEN MINERAL	APP160	APP170	APP180	APP180 FR	RUBEROID TORCH (SMOOTH)	RUBEROID TORCH (GRANULE)	RUBEROID TORCH PLUS
0.18	0.150	0.165	0.170	0.170			
MD 210 XD 160 MD 21 XD 24 MD XD	MD 140 XD 115 MD 30 XD 30 MD XD	MD 140 XD 115 MD 30 XD 30 MD XD	MD 140 XD 115 MD 30 XD 30 MD XD	MD 140 XD 115 MD 30 XD 30 MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD
MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD
MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD
MD 124 XD 100 < 0.2	MD 90 XD 80	MD 90 XD 80	MD 90 XD 80	MD 90 XD 80	MD XD	MD XD	MD XD
< 0.5							
MD 0.1 XD 0.1	MD <0.5 XD <0.45	MD < 0.4 XD < 0.4	MD < 0.6 XD < 0.5	MD 0.05 XD 0.05	MD XD	MD XD	MD XD
MD 23 XD 23 MD XD MD XD	MD 15 XD 15 MD XD MD XD	MD 15 XD 15 MD XD MD XD	MD 15 XD 15 MD XD MD XD	MD 15 XD 15 MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD	MD XD MD XD MD XD
< 0.05	NA	NA	< 0.07	< 0.07			
> 250	250	250	250	250			



## APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

[illegible]

IMPERITALIA SPA		IMPERITALIA SPA		JOHNS MANVILLE INTERNATIONAL INC.		JOHNS MANVILLE INTERNATIONAL INC.		JOHNS MANVILLE INTERNATIONAL INC.		JOHNS MANVILLE INTERNATIONAL INC.		JOHNS MANVILLE INTERNATIONAL INC.		JOHNS MANVILLE INTERNATIONAL INC.	
ARWENOL AL		ARWENOL ARD/S		APPEX 5S		APPEX 4S		APPEX 4M		BLACKBEAR		TRICOR-M FR		TRICOR S	
				197		157		157		157		177		157	
MD	XD	MD	XD	MD 186	XD 127	MD 181	XD 121	MD 135	XD 84	MD 140	XD 90	MD 300	XD 300	MD 300	XD 300
MD	XD	MD	XD	MD 90	XD 40	MD 42	XD 46	MD 39	XD 44	MD 42	XD 47	MD 4.7	XD 5.3	MD 4.7	XD 5.3
MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD
MD	XD	MD	XD	MD 199	XD 79	MD 197	XD 176	MD 170	XD 112	MD 185	XD 155	MD	XD	MD	XD
MD	XD	MD	XD	MD 25	XD 14	MD 24	XD 12	MD 32	XD 11	MD 29	XD 21	MD	XD	MD	XD
MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD
MD	XD	MD	XD	MD 200	XD 159	MD 197	XD 158	MD 156	XD 146	MD 152	XD 135	MD	XD	MD	XD
MD	XD	MD	XD	MD 42	XD 19	MD 41	XD 17	MD 27	XD 21	MD 30	XD 23	MD	XD	MD	XD
MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD	MD	XD
MD	XD	MD	XD	MD 184	XD 165	MD 179	XD 149	MD 151	XD 122	MD 177	XD 147	MD 260	XD 260	MD 260	XD 260
				0.10		0.15		0.10		0.15		0.05		0.05	
				0.05		0.7		2.4		1.7		1.3		1.3	
MD	XD	MD	XD	MD 0.8	XD 0.5	MD 0.9	XD 0.5	MD 0.9	XD 0.7	MD 0.9	XD 0.6	MD 0	XD 0	MD 0	XD 0
MD	XD	MD	XD	MD 14	XD 14	MD 10	XD 10	MD 12.2	XD 12.2	MD 12	XD 12	MD 12	XD 12	MD 10	XD 10
MD	XD	MD	XD	MD 21	XD 21	MD 21	XD 21	MD 21	XD 21	MD 19	XD 19	MD 23	XD 23	MD 23	XD 23
MD	XD	MD	XD	MD 20	XD 20	MD 20	XD 20	MD 20	XD 20	MD 18	XD 18	MD	XD	MD	XD
				NA		NA		1.8		0.3		NA		NA	
				275		275		275		275		230		230	

# APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
2. PRODUCT NAME	BICOR S	APPEX 4.5M	APPEX 4.5M FR	CLASSIC SMOOTH	CLASSIC FR PREMIUM
3. SHEET THICKNESS (average thickness, inches)	157	177	177	157	169
4. LOAD STRAIN PROPERTIES (at 0°F)					
4.1 INITIAL					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD 180 XD 180	MD 151 XD 105	MD 155 XD 106	MD 150 XD 112	MD 170 XD 155
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD 4 XD 3.5	MD 38 XD 42	MD 38 XD 42	MD 38 XD 40	MD 45 XD 48
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD 186 XD 131	MD 173 XD 122	MD 146 XD 112	MD 200 XD 162
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD 24 XD 18	MD 26 XD 19	MD 35 XD 33	MD 38 XD 31
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD 184 XD 133	MD 175 XD 126	MD XD	MD 162 XD 123
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD 26 XD 19	MD 27 XD 20	MD XD	MD 31 XD 23
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
5. TENSILE TEAR STRENGTH (at 77° F)					
AVERAGE TEAR STRENGTH (pounds force)	MD 163 XD 195	MD 143 XD 175	MD 161 XD 141	MD 157 XD 122	MD 197 XD 175
6. MOISTURE CONTENT AVERAGE PERCENT OF DRY MASS	0.05	0.15	0.10	0.05	0.05
7. WATER ABSORPTION (distilled water immersion, 4 hrs. at 122° F)					
AVERAGE PERCENT OF DRY MASS	1.3	1.8	2.2	1.3	1.7
8. DIMENSIONAL STABILITY					
AVERAGE ABSOLUTE DIMENSIONAL CHANGE (%)	MD 0 XD 0	MD 0.9 XD 0.7	MD 0.6 XD 0.5	MD 0.1 XD 0.2	MD 0.1 XD 0.2
9. LOW TEMPERATURE FLEXIBILITY					
9.1 INITIAL					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 9 XD 9	MD 12 XD 12	MD 12 XD 12	MD 5 XD 5	MD 5 XD 5
9.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 23 XD 23	MD 21 XD 21	MD 23 XD 23	MD 3.2 XD 3.2	MD 3.2 XD 3.2
9.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD XD	MD 20 XD 20	MD 22 XD 22	MD XD	MD 20 XD 20
10. GRANULE EMBEDMENT					
AVERAGE GRANULE LOSS (ounces or NA)	NA	2.0	2.0	0.5	0.5
11. COMPOUND STABILITY TEMPERATURE AT WHICH FLOW DRIP DROP FORMATION OBSERVED (0°F)	230	275	275	270	270
12. SEE MEMBRANE APPENDIX IF CHECKED					

1. COMPANY NAME	KOPPERS INDUSTRIES INC.	KOPPERS INDUSTRIES INC.	KOPPERS INDUSTRIES INC.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.
2. PRODUCT NAME	2040-M APP	2040-S APP	2050-S APP	APP 159 SMOOTH	APP 160 SMOOTH
3. SHEET THICKNESS (average thickness, inches)				0.080	0.160
4. LOAD STRAIN PROPERTIES (at 0°F)					
4.1 INITIAL					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
5. TENSILE TEAR STRENGTH (at 77° F)					
AVERAGE TEAR STRENGTH (pounds force)	MD XD	MD XD	MD XD	MD XD	MD XD
6. MOISTURE CONTENT AVERAGE PERCENT OF DRY MASS					
7. WATER ABSORPTION (distilled water immersion, 4 hrs. at 122° F)					
AVERAGE PERCENT OF DRY MASS					
8. DIMENSIONAL STABILITY					
AVERAGE ABSOLUTE DIMENSIONAL CHANGE (%)	MD XD	MD XD	MD XD	MD XD	MD XD
9. LOW TEMPERATURE FLEXIBILITY					
9.1 INITIAL					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD XD	MD XD	MD XD	MD XD	MD XD
9.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD XD	MD XD	MD XD	MD XD	MD XD
9.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD XD	MD XD	MD XD	MD XD	MD XD
10. GRANULE EMBEDMENT					
AVERAGE GRANULE LOSS (ounces or NA)					
11. COMPOUND STABILITY TEMPERATURE AT WHICH FLOW DRIP DROP FORMATION OBSERVED (0°F)					
12. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable  
MD=machine direction  
XD=cross direction



## APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MFM BUILDING PRODUCTS CORP.	MOD BIT CORP.	MOD BIT CORP.	PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.
APP 161 MINERAL	APP 162 MINERAL	BITUFLEX PLUS	BITUTAK MB	BITUTAK MB	DERBIGUM XPS FR	DERBICOLOR XPS FR	DERBICOLOR-GP FR
0.180	0.180		0.150	0.170	0.16	0.18	0.18
MD XD	MD XD	MD XD	MD 140 XD 120	MD 130 XD 120	MD 220 XD 225	MD 245 XD 210	MD 190 XD 180
MD XD	MD XD	MD XD	MD 35 XD 25	MD 25 XD 20	MD 4.5 XD 4.5	MD 4.5 XD 4.1	MD 4.8 XD 4.8
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD 0 XD 0	MD 0 XD 0	MD 0 XD 0	MD 0 XD 0	MD 4 XD 4
MD XD	MD XD	MD XD	MD 5 XD 5	MD 5 XD 5	MD 5 XD 5	MD 6 XD 6	MD XD
MD XD	MD XD	MD XD	MD 18 XD 18	MD 18 XD 18	MD 21 XD 21	MD 19 XD 19	MD 19 XD 19
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
						0.75	
				120			

PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.	PERFORMANCE ROOF SYSTEMS, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.
DERBIGUM-GP	DERBIGUM GP FR	DERBIGUM-XPS	DERBICOLOR XPS	DERBICOLOR GP	DERBIBASE	POLYFLEX	POLYFLEX 5
0.16	0.16	0.16	0.16	0.18	0.8	0.160	0.196
MD 170 XD 180	MD 170 XD 180	MD 225 XD 230	MD 270 XD 230	MD 190 XD 180	MD 140 XD 140	MD 130 XD 100	MD 130 XD 100
MD 4.3 XD 4.4	MD 4 XD 4.1	MD 4.7 XD 4.6	MD 4.7 XD 4	MD 4.2 XD 4.3	MD 3.8 XD 3.8	MD 10 XD 10	MD 10 XD 10
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD 20 XD 20	MD 20 XD 20
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD 120 XD 80	MD 120 XD 80
						< 0.1	< 0.1
MD 0 XD 0	MD 0 XD 0	MD 4 XD 4	MD 0 XD 0	MD 0 XD 0	MD 0 XD 0	MD -0.5 XD +0.5	MD -0.5 XD +0.5
MD 5 XD 5	MD 1 XD 1	MD XD	MD 5 XD 5	MD 3 XD 3	MD -10 XD	MD 14 XD 14	MD 14 XD 14
MD 18 XD 18	MD 19 XD 19	MD 19 XD 19	MD 28 XD 28	MD 18 XD 18	MD 7 XD 7	MD 22 XD 22	MD 22 XD 22
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD 22 XD 22	MD 22 XD 22
0.75			0.75	0.75		NA	NA
						248	248

# APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

1. COMPANY NAME	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.
2. PRODUCT NAME	POLYBOND	POLYBOND G	POLYFLEX G	POLYGLASS G-FR	POLYALL
3. SHEET THICKNESS (average thickness, inches)	0.160	0.160	0.177	0.180	0.180
4. LOAD STRAIN PROPERTIES (at 0°F)					
4.1 INITIAL					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD 120 XD 100	MD 120 XD 100	MD 130 XD 100	MD 130 XD 100	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD 8 XD 8	MD 8 XD 8	MD 10 XD 10	MD 10 XD 10	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD 15 XD 15	MD 15 XD 15	MD 20 XD 20	MD 20 XD 20	MD XD
4.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
5. TENSILE TEAR STRENGTH (at 77° F)					
AVERAGE TEAR STRENGTH (pounds force)	MD 110 XD 75	MD 110 XD 75	MD 120 XD 80	MD 120 XD 80	MD XD
6. MOISTURE CONTENT AVERAGE PERCENT OF DRY MASS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
7. WATER ABSORPTION (distilled water immersion, 4 hrs. at 122° F)					
AVERAGE PERCENT OF DRY MASS					
8. DIMENSIONAL STABILITY					
AVERAGE ABSOLUTE DIMENSIONAL CHANGE (%)	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD XD
9. LOW TEMPERATURE FLEXIBILITY					
9.1 INITIAL					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 14 XD 14	MD 14 XD 14	MD 14 XD 14	MD 14 XD 14	MD XD
9.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 32 XD 32	MD 32 XD 32	MD 22 XD 22	MD 32 XD 32	MD XD
9.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 32 XD 32	MD 32 XD 32	MD 22 XD 22	MD 32 XD 32	MD XD
10. GRANULE EMBEDMENT					
AVERAGE GRANULE LOSS (ounces or NA)	NA	0.07	0.07	0.07	NA
11. COMPOUND STABILITY TEMPERATURE AT WHICH FLOW DRIP DROP FORMATION OBSERVED (0°F)	248	248	248	248	248
12. SEE MEMBRANE APPENDIX IF CHECKED					

1. COMPANY NAME	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.
2. PRODUCT NAME	DIAMOND BACK	DUFLEX	DUFLEX 5	DUFLEX G	POLYGLASS BASE
3. SHEET THICKNESS (average thickness, inches)	0.160	0.160	0.196	0.177	0.078
4. LOAD STRAIN PROPERTIES (at 0°F)					
4.1 INITIAL					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD 120 XD 100	MD 130 XD 100	MD 130 XD 100	MD 130 XD 100	MD 90 XD 60
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD 8 XD 8	MD 10 XD 8	MD 10 XD 8	MD 10 XD 8	MD 2 XD 2
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD 15 XD 15	MD 20 XD 15	MD 20 XD 15	MD 20 XD 15	MD 2 XD 2
4.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
4.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
AVERAGE MAXIMUM LOAD (lbf/in.)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE ELONGATION AT MAXIMUM LOAD (%)	MD XD	MD XD	MD XD	MD XD	MD XD
AVERAGE STRAIN ENERGY AT MAXIMUM LOAD (inch-pound/inch <sup>2</sup> )	MD XD	MD XD	MD XD	MD XD	MD XD
5. TENSILE TEAR STRENGTH (at 77° F)					
AVERAGE TEAR STRENGTH (pounds force)	MD 110 XD 75	MD 130 XD 120	MD 130 XD 120	MD 130 XD 120	MD 80 XD 70
6. MOISTURE CONTENT AVERAGE PERCENT OF DRY MASS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
7. WATER ABSORPTION (distilled water immersion, 4 hrs. at 122° F)					
AVERAGE PERCENT OF DRY MASS					
8. DIMENSIONAL STABILITY					
AVERAGE ABSOLUTE DIMENSIONAL CHANGE (%)	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD -0.01 XD +0.01
9. LOW TEMPERATURE FLEXIBILITY					
9.1 INITIAL					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 14 XD 14	MD 14 XD 14	MD 14 XD 14	MD 14 XD 14	MD 14 XD 14
9.2 AFTER HEAT CONDITIONING (158° F for 90 days)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 32 XD 32	MD 22 XD 22	MD 22 XD 22	MD 22 XD 22	MD 32 XD 32
9.3 AFTER ACCELERATED WEATHERING (2,000 cycles)					
LOW TEMPERATURE CRACKING DOES NOT OCCUR (°F)	MD 32 XD 32	MD 22 XD 22	MD 22 XD 22	MD 22 XD 22	MD 32 XD 32
10. GRANULE EMBEDMENT					
AVERAGE GRANULE LOSS (ounces or NA)	NA	NA	NA	0.07	NA
11. COMPOUND STABILITY TEMPERATURE AT WHICH FLOW DRIP DROP FORMATION OBSERVED (0°F)	248	248	248	248	248
12. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable  
MD=machine direction  
XD=cross direction

# APP Modified Bitumens Part 2: Test Results

Test description and suggested values as specified in ASTM D 6222-98 and D 6223-98

POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.	POLYGLASS USA, INC.	SOUTHWESTERN PETROLEUM CORPORATION	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.	TEXAS REFINERY CORP.
POLYRAM	INSULROOFING	INSULROOFING-GR	INSULBASE	SWEPCO UNI + SHIELD SYS 302	SPEEDWELD APP GRANULATED	SPEEDWELD APP SMOOTH	MIGHTYPLATE
0.180	0.160	0.177	0.98				0.157
MD XD	MD 130 XD 100	MD 130 XD 100	MD 90 XD 60	MD XD	MD XD	MD XD	MD 208 XD 180.4
MD XD	MD 10 XD 10	MD 10 XD 10	MD 2 XD 2	MD XD	MD XD	MD XD	MD 45 XD 45
MD XD	MD 20 XD 20	MD 20 XD 20	MD 2 XD 2	MD XD	MD XD	MD XD	MD 461 XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD 43 XD 42
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD 465 XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD 40 XD 40
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD 120 XD 80	MD 120 XD 80	MD 80 XD 70	MD XD	MD XD	MD XD	MD XD
< 0.1	< 0.1	< 0.1	< 0.1				NIL
							NIL
MD XD	MD -0.5 XD +0.5	MD -0.5 XD +0.5	MD -0.01 XD +0.01	MD XD	MD XD	MD XD	MD XD
MD XD	MD 14 XD 14	MD 14 XD 14	MD 14 XD 14	MD XD	MD XD	MD XD	MD 8 XD 8
MD XD	MD 22 XD 22	MD 22 XD 22	MD 32 XD 32	MD XD	MD XD	MD XD	MD 10 XD 10
MD XD	MD 22 XD 22	MD 22 XD 22	MD 32 XD 32	MD XD	MD XD	MD XD	MD 10 XD 10
NA	NA	0.07	NA				NA
248	248	248	248				>30

TEXSA, S.A.	TEXSA, S.A.	TRI-PLY	TRI-PLY	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.	U S INTEC, INC.
HIPER M.P.	MIN TEXAL -15 FP-S	TP-4	TP-4G	INTEC SP4	INTEC GBSP-4	INTEC GBSP-4-FR	INTEC GBSP 250 FR
0.135	0.158	0.150		160	160	160	197
MD 203 XD 145	MD 132 XD 159	MD XD	MD XD	MD 120 XD 90	MD 120 XD 90	MD 120 XD 90	MD 130 XD 110
MD 40 XD 45	MD 45 XD 50	MD XD	MD XD	MD 80 XD 70	MD 90 XD 70	MD 80 XD 80	MD 90 XD 90
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD 120 XD 85	MD 120 XD 85	MD 120 XD 40	MD 130 XD 110
MD XD	MD XD	MD XD	MD XD	MD 55 XD 50	MD 60 XD 55	MD 50 XD 55	MD 80 XD 75
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
MD 105 XD 100	MD 105 XD 100	MD XD	MD XD	MD 145 XD 115	MD 145 XD 115	MD 145 XD 115	MD 150 XD 120
< 0.1	< 0.1						
< 0.2	< 0.2						
MD < 0.5 XD < 0.5	MD < 0.5 XD < 0.5	MD XD	MD XD	MD < 0.5 XD < 0.5	MD < 0.05 XD < 0.05	MD < 0.05 XD < 0.05	MD < 0.05 XD < 0.05
MD 5 XD 5	MD 5 XD 5	MD XD	MD XD	MD 15 XD	MD 15 XD	MD 15 XD	MD 15 XD
MD 16 XD 16	MD 16 XD 16	MD XD	MD XD	MD 20 XD	MD 20 XD	MD 20 XD	MD 20 XD
MD 16 XD 16	MD 16 XD 16	MD XD	MD XD	MD XD	MD XD	MD XD	MD XD
NA	NA	>0.5			< -0.07	< -0.07	< -0.07
250	>250	>250		250	250	250	250

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		AL-KOAT INC.		AL-KOAT INC.		AL-KOAT INC.		
2. PRODUCT NAME		AL-KOAT PG-40		AL-KOAT PA-30		AL-KOAT VG-30		
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S								
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		85						
THICKNESS (min., mils) Grade S, TYPE II		115						
THICKNESS (min., mils) Grade G		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S		80						
THICKNESS (min., mils) Grade G, TYPE I		95						
THICKNESS (min., mils) Grade G, TYPE II		105						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		70						
THICKNESS (min., mils) Grade S, TYPE II		80						
THICKNESS (min., mils) Grade G, TYPE I		110						
THICKNESS (min., mils) Grade G, TYPE II		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		35	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		50	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE I		38	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE II		60	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		55						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		1						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE I		3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE II		3	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		40	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		20	MD	XMD	MD	XMD	MD	XMD
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		35						
DIMENSIONAL STABILITY, max., (%)		110						
COMPOUND STABILITY @ 225 F		0						
GRANULE EMBEDMENT, max., (g), (Grade G only)		0.5						
		no failures						
		2						
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE I		26	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE II		9	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		75	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		30	MD	XMD	MD	XMD	MD	XMD
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		65						
DIMENSIONAL STABILITY, max., (%)		90						
COMPOUND STABILITY @ 225 F		0						
GRANULE EMBEDMENT, max., (g), (Grade G only)		0.5						
		no failures						
		2						
6. SEE MEMBRANE APPENDIX IF CHECKED								

NA=not applicable

## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		BARRETT CO.		BARRETT CO.		BARRETT CO.		
2. PRODUCT NAME		RAM 306 HP		RAM 309		RAM TOUGH 250		
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S								
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		85						
THICKNESS (min., mils) Grade S, TYPE II		115						
THICKNESS (min., mils) Grade G		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S		80						
THICKNESS (min., mils) Grade G, TYPE I		95						
THICKNESS (min., mils) Grade G, TYPE II		105						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		70						
THICKNESS (min., mils) Grade S, TYPE II		80						
THICKNESS (min., mils) Grade G, TYPE I		110						
THICKNESS (min., mils) Grade G, TYPE II		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		35	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		50	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE I		38	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE II		60	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		55						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		1						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE I		3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE II		3	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		40	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		20	MD	XMD	MD	XMD	MD	XMD
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		35						
DIMENSIONAL STABILITY, max., (%)		110						
COMPOUND STABILITY @ 225 F		0						
GRANULE EMBEDMENT, max., (g), (Grade G only)		0.5						
		no failures						
		2						
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE I		26	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) as manufactured, TYPE II		9	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		75	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		30	MD	XMD	MD	XMD	MD	XMD
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		65						
DIMENSIONAL STABILITY, max., (%)		90						
COMPOUND STABILITY @ 225 F		0						
GRANULE EMBEDMENT, max., (g), (Grade G only)		0.5						
		no failures						
		2						
6. SEE MEMBRANE APPENDIX IF CHECKED								

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		BITEC INC.	BITEC INC.	BITEC INC.
2. PRODUCT NAME		SFM-3.5H	SPM-4H	SPM-4H/250
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130		160	160
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90		108	108
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40		80	80
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105	140		
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75	100		
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	70		
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD 105 XMD 75	MD 120 XMD 85
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD 60 XMD 70	MD 60 XMD 60
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0		-13	-13
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD 80 XMD 75	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD 30 XMD 30	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0		-13	
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable



# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.	BITEC INC.
SPS-3H	PS-2H	FS-2H	COMPAFLASH BFS-2H	FS-2H-FR	SFM-3.5H-FR	SFM-4H-FR	FS-2H PLUS
	80		80				
120	54		54				
73							
60	20		20				
		80		80			80
		53		47	140	160	60
		40		40	103 70	105 80	40
MD XMD MD XMD MD XMD MD XMD MD 105 XMD 75 MD 60 XMD 70 MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD 105 XMD 80 MD 50 XMD 50 MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD 105 XMD 80 MD 50 XMD 50 MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
-23	14		14				
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD 80 XMD 70 MD 6 XMD 6 MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD 80 XMD 70 MD 6 XMD 6 MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD 120 XMD 120 MD 40 XMD 40 MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD 120 XMD 120 MD 40 XMD 40 MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD 80 XMD 70 MD 6 XMD 6 MD XMD MD XMD MD XMD MD XMD MD XMD
		14		14	-4	-4	14
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		BITEC INC.	BITEC INC.	CELOTEX CORP.
2. PRODUCT NAME		FS-25	FS-40	CELOTEX SBS/ 170 CAP SHEET
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80	40	60	
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45	25	40	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	20	30	
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD 75 XMD 60	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD 3 XMD 3	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35			
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	14		
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	65			
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		DANOSA CARRIBEAN INC.		DANOSA CARRIBEAN INC.		DANOSA CARRIBEAN INC.		
2. PRODUCT NAME		ESTERDAN R-36		GLASDAN AL-80-3		GLASDAN RM		
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S								
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		85						
THICKNESS (min., mils) Grade S, TYPE II		115						
THICKNESS (min., mils) Grade G		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S		80						
THICKNESS (min., mils) Grade G, TYPE I		95						
THICKNESS (min., mils) Grade G, TYPE II		105						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		70						
THICKNESS (min., mils) Grade S, TYPE II		80						
THICKNESS (min., mils) Grade G, TYPE I		110						
THICKNESS (min., mils) Grade G, TYPE II		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		35	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		50	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		38	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)		60	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)		55						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		70						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		1						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		40	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		35						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		110						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		0.5						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		26	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		9	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		75	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		30	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		65						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		90						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		0.5						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
6. SEE MEMBRANE APPENDIX IF CHECKED								

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.
2. PRODUCT NAME		SBS PREMIUM BASE SHEET	SBS SMOOTH GRADE S	SBS
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		GLASS FIBER S	POLYESTER	POLYESTER "G"
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85		145	
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			150
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54		86	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			91
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40		NA	NA
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80	90		
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45	54		
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	NA		
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD >70 XMD >70	MD >70 XMD >70
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD >30 XMD >30	MD >30 XMD >30
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD >50 XMD >50	MD >50 XMD >50
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD >35 XMD >35	MD >35 XMD >35
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD >38 XMD >38	MD >38 XMD >38
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55		MD >55	MD >55
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0		MD <0	MD <0
DIMENSIONAL STABILITY, max., (%)	1		MD <1	MD <1
COMPOUND STABILITY @ 225 F	no failures		MD >225	MD >225
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	NA	NA	<2
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD >70 XMD >70	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD >1 XMD >1	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD >30 XMD >30	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD >2 XMD >2	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD >3 XMD >3	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35	MD >35 XMD >35		
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	MD <0 XMD		
DIMENSIONAL STABILITY, max., (%)	0.5	MD <0.5		
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	MD >2.25		
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.
2. PRODUCT NAME		SBS POLY TORCH BASE	SBS FR TORCH	SBS GLASS FR TORCH
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		POLYESTER S	POLYESTER G	GLASS FIBER G
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85	120		
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130		175	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75	82	120	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	>40	>40	
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			175
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			113
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			>40
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD >70 XMD >70	MD >70 XMD >70	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD >20 XMD >20	MD >20 XMD >20	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD >50 XMD >50	MD >50 XMD >50	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD >35 XMD >35	MD >35 XMD >35	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD >38 XMD >38	MD >38 XMD >38	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55	MD <55 XMD <55	MD <55 XMD <55	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	<0	<0	
DIMENSIONAL STABILITY, max., (%)	1	<1	<1	
COMPOUND STABILITY @ 225 F	no failures	>225	>225	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	NA	NA	
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD >70 XMD >70
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD >1 XMD >1
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD >30 XMD >30
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD >2 XMD >2
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD >3 XMD >3
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			MD >35 XMD >35
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			<0
DIMENSIONAL STABILITY, max., (%)	0.5			<0
COMPOUND STABILITY @ 225 F	no failures			>225
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			NA
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable



Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		GAF MATERIALS CORPORATION		GAF MATERIALS CORPORATION		GAF MATERIALS CORPORATION	
2. PRODUCT NAME		RUBEROID SBS HW (SMOOTH)		RUBEROID SBS HW (GRANULES)		RUBEROID SBS HW (FR)	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S							
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I	85						
THICKNESS (min., mils) Grade S, TYPE II	115						
THICKNESS (min., mils) Grade G	130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40						
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S	80						
THICKNESS (min., mils) Grade G, TYPE I	95						
THICKNESS (min., mils) Grade G, TYPE II	105						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40						
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I	70						
THICKNESS (min., mils) Grade S, TYPE II	80						
THICKNESS (min., mils) Grade G, TYPE I	110						
THICKNESS (min., mils) Grade G, TYPE II	130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40						
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0						
DIMENSIONAL STABILITY, max., (%)	1						
COMPOUND STABILITY @ 225 F	no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)	2						
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0						
DIMENSIONAL STABILITY, max., (%)	0.5						
COMPOUND STABILITY @ 225 F	no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)	2						
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0						
DIMENSIONAL STABILITY, max., (%)	0.5						
COMPOUND STABILITY @ 225 F	no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)	2						
6. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		GARLAND COMPANY INC., THE		GARLAND COMPANY INC., THE		GARLAND COMPANY INC., THE	
2. PRODUCT NAME		VERSIPLY MINERAL		VERSIPLY 40		VERSIPLY 60	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S							
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I		85					
THICKNESS (min., mils) Grade S, TYPE II		115					
THICKNESS (min., mils) Grade G		130					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S		80					
THICKNESS (min., mils) Grade G, TYPE I		95					
THICKNESS (min., mils) Grade G, TYPE II		105					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I		70					
THICKNESS (min., mils) Grade S, TYPE II		80					
THICKNESS (min., mils) Grade G, TYPE I		110					
THICKNESS (min., mils) Grade G, TYPE II		130					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70		MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100		MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20		MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50		MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100		MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		35		MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		50		MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE I		38		MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE II		60		MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		55					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		1					
COMPOUND STABILITY @ 225 F		ures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70		MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150		MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE I		1		MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE II		2		MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30		MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80		MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE I		2		MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE II		4		MD	XMD	MD	XMD
after heat conditioning, TYPE I		3		MD	XMD	MD	XMD
after heat conditioning, TYPE II		3		MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) , as manufactured, TYPE I		40		MD	XMD	MD	XMD
after heat conditioning, TYPE II		20		MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		35					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		110					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		0.5					
COMPOUND STABILITY @ 225 F		ures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75		MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125		MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1		MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2		MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75		MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80		MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE I		2		MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE II		4		MD	XMD	MD	XMD
after heat conditioning, TYPE I		26		MD	XMD	MD	XMD
after heat conditioning, TYPE II		9		MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%) , as manufactured, TYPE I		75		MD	XMD	MD	XMD
after heat conditioning, TYPE II		30		MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		65					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		90					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		0.5					
COMPOUND STABILITY @ 225 F		ures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
6. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		GARLAND COMPANY INC., THE		GARLAND COMPANY INC., THE		GARLAND COMPANY INC., THE	
2. PRODUCT NAME		STRESSPLY "E"		STRESSPLY "E" FR		STRESSPLY "E" MINERAL	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S							
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I		85					
THICKNESS (min., mils) Grade S, TYPE II		115					
THICKNESS (min., mils) Grade G		130					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S		80					
THICKNESS (min., mils) Grade G, TYPE I		95					
THICKNESS (min., mils) Grade G, TYPE II		105					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I		70					
THICKNESS (min., mils) Grade S, TYPE II		80					
THICKNESS (min., mils) Grade G, TYPE I		110					
THICKNESS (min., mils) Grade G, TYPE II		130					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		35	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		50	MD XMD	MD XMD	MD XMD	MD XMD	
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)		38	MD XMD	MD XMD	MD XMD	MD XMD	
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)		60	MD XMD	MD XMD	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		55					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		1					
COMPOUND STABILITY @ 225 F		no failures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		1	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		2	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		2	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		4	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		3	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		3	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		40	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD XMD	MD XMD	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		35					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		110					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		0.5					
COMPOUND STABILITY @ 225 F		no failures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		2	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		4	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		26	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		9	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		75	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		30	MD XMD	MD XMD	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		65					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		90					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		0.5					
COMPOUND STABILITY @ 225 F		no failures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
6. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.
2. PRODUCT NAME		POLY SMS BASE SHEET	BLACK DIAMOND BASE SHEET	FLEXIGLAS BASE SHEET
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		POLYESTER; GDE. S	GLASS; GDE. S	GLASS; GDE. S
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115	120		
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80		50	80
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE I	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE II	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	0		
DIMENSIONAL STABILITY, max., (%)	1	0.5/0.3		
COMPOUND STABILITY @ 225 F	no failures	>250		
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE I	3	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE II	40	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	35			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0		0	0
DIMENSIONAL STABILITY, max., (%)	0.5		< 0.1/0.1	< 0.1/0.1
COMPOUND STABILITY @ 225 F	no failures		>250	>250
GRANULE EMBEDMENT, max., (g), (Grade G only)	2		NA	< 2.0
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE I	26	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE II	9	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	75	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	30	MD XMD	MD XMD	MD XMD
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED		X	X	X

NA=not applicable



SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	GS ROOFING PRODUCTS CO. INC.	WP HICKMAN SYSTEMS INC.	WP HICKMAN SYSTEMS INC.	WP HICKMAN SYSTEMS INC.	WP HICKMAN SYSTEMS INC.	WP HICKMAN SYSTEMS INC.
FLEXIGLAS PRE- MIUM CAP 960	FLINTLASTIC GTS	FLINTLASTIC GMS	PIKA PLY SS-4	PIKA PLY MS-4	PIKA PLY 808	PIKA PLY SS-3P	PIKA PLY SS-2
GLASS; GDE. S	POLYESTER; GDE. G	POLYESTER; GDE. G	POLYESTER	POLYESTER	COMBINATION	POLYESTER	POLYESTER
	180	160					
	120 MIN 40	100					
160							
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
	0 0.5/0.3 >250 < 2.0	0 0.5/0.3 >250 < 2.0					
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
0 < 0.1/0.1 >250 < 2.0							
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
X	X	X					

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		WP HICKMAN SYSTEMS INC.		WP HICKMAN SYSTEMS INC.		WP HICKMAN SYSTEMS INC.		
2. PRODUCT NAME		PIKA PLY MS-3G		PIKA PLY 808-MS		PERFORMANCE PLY		
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		GLASS		COMBINATION		POLYESTER		
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		85						
THICKNESS (min., mils) Grade S, TYPE II		115						
THICKNESS (min., mils) Grade G		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S		80						
THICKNESS (min., mils) Grade G, TYPE I		95						
THICKNESS (min., mils) Grade G, TYPE II		105						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
THICKNESS (min., mils) Grade S, TYPE I		70						
THICKNESS (min., mils) Grade S, TYPE II		80						
THICKNESS (min., mils) Grade G, TYPE I		110						
THICKNESS (min., mils) Grade G, TYPE II		130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40						
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		35	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		50	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE I		38	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE II		60	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		55						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		1						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE I		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE II		4	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE I		3	MD	XMD	MD	XMD	MD	XMD
after heat conditioning, TYPE I		3	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE II		40	MD	XMD	MD	XMD	MD	XMD
after heat conditioning, TYPE II		20	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		35						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		110						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		0.5						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS								
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE I		2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) , TYPE II		4	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE I		26	MD	XMD	MD	XMD	MD	XMD
after heat conditioning, TYPE I		9	MD	XMD	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE II		75	MD	XMD	MD	XMD	MD	XMD
after heat conditioning, TYPE II		30	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		65						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		90						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0						
DIMENSIONAL STABILITY, max., (%)		0.5						
COMPOUND STABILITY @ 225 F		no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)		2						
6. SEE MEMBRANE APPENDIX IF CHECKED								

NA=not applicable



# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.
2. PRODUCT NAME		TORCHFLEX TP-250-CAP	TORCHFLEX TP-250-CAP (5mm)	MODIFLEX MF-95-SS-BASE
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		POLYESTER -G	POLYESTER -G	GLASS FIBER - S
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130	150	196	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90	99	119	
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			87
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			57
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD 114 XMD 126	MD 114 XMD 126	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE I	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%), TYPE II	60	MD 63 XMD 73	MD 63 XMD 73	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70	MD 124 XMD 123	MD 124 XMD 123	
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	MD -22 XMD -22	MD -15 XMD -15	
DIMENSIONAL STABILITY, max., (%)	1	0.5	0.5	
COMPOUND STABILITY @ 225 F	no failures	NO FAILURES	NO FAILURES	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	0.4	0.4	
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD 69 XMD 69
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE I	3	MD XMD	MD XMD	MD 3 XMD 4
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE II	3	MD XMD	MD XMD	MD 3 XMD 4
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	35			MD 73 XMD 78
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	110			MD XMD
DIMENSIONAL STABILITY, max., (%)	0			MD -26 XMD -26
COMPOUND STABILITY @ 225 F	0.5			0.0
GRANULE EMBEDMENT, max., (g), (Grade G only)	no failures			NO FAILURES
2				
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE I	26	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%), as manufactured, TYPE II	9	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	75	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	30	MD XMD	MD XMD	MD XMD
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	65			
DIMENSIONAL STABILITY, max., (%)	0			
COMPOUND STABILITY @ 225 F	0.5			
GRANULE EMBEDMENT, max., (g), (Grade G only)	no failures			
2				
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

SBS Modified Bitumens: Part 2 Test Results									
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Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	IKO INDUSTRIES INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
TORCHFLEX TF-95-FF-BASE	TORCHFLEX TF-95-FF-BASE (2.2)	TORCHFLEX TP-180-FF-BASE	ARMOUR BOND 95	ARMOURBOND 180	ARMOUR BRIDGE/PONT	ARMOUR GARD ICE & WATER	DYNAKAP	DYNAKAP FR
GLASS FIBER - S	GLASS FIBER - S	POLYESTER-S	GLASS FIBER -S	POLYESTER-S	POLYESTER-S	GLASS FIBER-S		
		118		118				
		75		75	217			
					144			
118	87		98			63		
79	56		63			37		
							158	158
							115	115
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
		91 XMD 74		91 XMD 74	91 XMD 74	91 XMD 74		
		60 XMD 70		60 XMD 70	60 XMD 70	60 XMD 70		
		75 XMD 105		75 XMD 105	85 XMD 115	85 XMD 115		
		-15 XMD -15		-15 XMD -15	-4 XMD -4	-4 XMD -4		
		0.5 NO FAILURES		0.5 NO FAILURES	0.5 NO FAILURES	0.5 NO FAILURES		
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
69 XMD 69			69 XMD 69				34 XMD 34	
3 XMD 4			3 XMD 4					
3 XMD 4			3 XMD 4					
73 XMD 78			73 XMD 78					
-26 XMD -26			-26 XMD -26				<-20 XMD <-20	
0.0 NO FAILURES			0.0 NO FAILURES				0.0 212 NO FAILURES	
MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD	MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD MD XMD
150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD	150 XMD 4 XMD 81 XMD 5 XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD XMD
-10 0.2 NO FAILURES			-10 0.2 NO FAILURES					

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
2. PRODUCT NAME		DYNAGLAS	DYNAPLY	DYNAGLAS FR
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95	150		150
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65	100		100
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110		125	
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60		90	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD 135 XMD 95	MD XMD	MD 135 XMD 95
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD 4 XMD 4	MD XMD	MD 4 XMD 4
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD 72 XMD 58	MD XMD	MD 80 XMD 55
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD 5 XMD 5	MD XMD	MD 5 XMD 5
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35	MD 125 XMD 100		MD 125 XMD 100
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5	-10		-10
COMPOUND STABILITY @ 225 F	no failures	0.2		0.2
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	NO FAILURES		NO FAILURES
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65		MD 150 XMD 125	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5		-10	
COMPOUND STABILITY @ 225 F	no failures		0.2	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2		NO FAILURES	
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	KOPPERS INDUSTRIES INC.
2. PRODUCT NAME		DYNAMAX	DYNAMAX FR	2041-M SBS
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			160
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			95
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130	158	177	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75	99	116	
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD 300 XMD 300	MD 300 XMD 300	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD 4 XMD 4	MD 4 XMD 4	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD 308 XMD 343	MD 308 XMD 343	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD 7 XMD 7	MD 7 XMD 9	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65	MD 350 XMD 350	MD 350 XMD 350	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5	MD -15 XMD 0.2	-15	
COMPOUND STABILITY @ 225 F	no failures	NO FAILURES	NO FAILURES	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable



Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		MALARKEY ROOFING CO.	MALARKEY ROOFING CO.	MALARKEY ROOFING CO.
2. PRODUCT NAME		POLYGLASS SBS 917	POLYGLASS SBS 919	ESHALUM SBS 1020
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		MBTECHNOLOGY	MBTECHNOLOGY	MBTECHNOLOGY	
2. PRODUCT NAME		LAYFLAT SBS LF40	LAYFLAT SBS LF60	LAYFLAT SBS LF60P	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S					
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS					
THICKNESS (min., mils) Grade S, TYPE I	85				
THICKNESS (min., mils) Grade S, TYPE II	115				
THICKNESS (min., mils) Grade G	130				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90				
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40				
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS					
THICKNESS (min., mils) Grade S	80				
THICKNESS (min., mils) Grade G, TYPE I	95				
THICKNESS (min., mils) Grade G, TYPE II	105				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75				
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40				
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS					
THICKNESS (min., mils) Grade S, TYPE I	70				
THICKNESS (min., mils) Grade S, TYPE II	80				
THICKNESS (min., mils) Grade G, TYPE I	110				
THICKNESS (min., mils) Grade G, TYPE II	130				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75				
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40				
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS					
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD	XMD	MD	XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55				
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70				
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0				
DIMENSIONAL STABILITY, max., (%)	1				
COMPOUND STABILITY @ 225 F	no failures				
GRANULE EMBEDMENT, max., (g), (Grade G only)	2				
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS					
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35				
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110				
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0				
DIMENSIONAL STABILITY, max., (%)	0.5				
COMPOUND STABILITY @ 225 F	no failures				
GRANULE EMBEDMENT, max., (g), (Grade G only)	2				
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS					
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65				
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90				
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0				
DIMENSIONAL STABILITY, max., (%)	0.5				
COMPOUND STABILITY @ 225 F	no failures				
GRANULE EMBEDMENT, max., (g), (Grade G only)	2				
6. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	
2. PRODUCT NAME		MODIFIED PLUS NP180gM (T)	MODIFIED PLUS NP250gM4 (T4)	MODIFIED PLUS NP250gT5	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S					
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS					
THICKNESS (min., mils) Grade S, TYPE I	85				
THICKNESS (min., mils) Grade S, TYPE II	115				
THICKNESS (min., mils) Grade G	130				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90				
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40				
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS					
THICKNESS (min., mils) Grade S	80				
THICKNESS (min., mils) Grade G, TYPE I	95				
THICKNESS (min., mils) Grade G, TYPE II	105				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75				
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40				
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS					
THICKNESS (min., mils) Grade S, TYPE I	70				
THICKNESS (min., mils) Grade S, TYPE II	80				
THICKNESS (min., mils) Grade G, TYPE I	110				
THICKNESS (min., mils) Grade G, TYPE II	130				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60				
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75				
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40				
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS					
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	38	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	60	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55				
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70				
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0				
DIMENSIONAL STABILITY, max., (%)	1				
COMPOUND STABILITY @ 225 F	no failures				
GRANULE EMBEDMENT, max., (g), (Grade G only)	2				
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS					
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35				
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110				
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0				
DIMENSIONAL STABILITY, max., (%)	0.5				
COMPOUND STABILITY @ 225 F	no failures				
GRANULE EMBEDMENT, max., (g), (Grade G only)	2				
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS					
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65				
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90				
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0				
DIMENSIONAL STABILITY, max., (%)	0.5				
COMPOUND STABILITY @ 225 F	no failures				
GRANULE EMBEDMENT, max., (g), (Grade G only)	2				
6. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

SBS Modified Bitumens: Part 2 Test Results									
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Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		MONSEY BAKOR	POLYGLASS USA	POLYGLASS USA
2. PRODUCT NAME		MODIFIED PLUS BASE S/S	ELASTOSHIELD TS4	ELASTOFLEX S6
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable



## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.
2. PRODUCT NAME		PARADIENE 20	PARADIENE 20 HT	PARADIENE 20 PR
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		GLASS, S	GLASS, S	COMBINATION, S
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80	87	87	
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45	58	58	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			87
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			55
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD 70 XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD 150 XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD 3 XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD 4 XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD 30 XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD 80 XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD 3 XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD 5 XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD 50 XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD 13 XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD 50 XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD 13 XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35	40		
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110		120	
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	-5	-5	
DIMENSIONAL STABILITY, max., (%)	0.5	0.1	0.1	
COMPOUND STABILITY @ 225 F	no failures	NO FAILURES	NO FAILURES	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD 150 XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD 4 XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD 80 XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD 5 XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD 50 XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD 13 XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			120
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			-5
DIMENSIONAL STABILITY, max., (%)	0.5			0.2
COMPOUND STABILITY @ 225 F	no failures			NO FAILURES
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.
2. PRODUCT NAME		PARADIENE 20 HV	PARADIENE 20 TG	PARADIENE 20 HT TG
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		GLASS, S	GLASS, S	GLASS, S
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80	114	106	106
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45	80	63	63
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	70	70	70
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD 75 XMD	MD 75 XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD 150 XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD 3 XMD	MD 3 XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD 4 XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD 30 XMD	MD 30 XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD 80 XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD 3 XMD	MD 3 XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD 5 XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD 100 XMD	MD 50 XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD 25 XMD	MD 20 XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD 50 XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD 20 XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35	40	40	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			120
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	-5	-5	-5
DIMENSIONAL STABILITY, max., (%)	0.5	0.1	0.1	0.1
COMPOUND STABILITY @ 225 F	no failures	NO FAILURES	NO FAILURES	NO FAILURES
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SIPLAST, INC.	SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.
PARADIENE 20 PR TG	PARADIENE 20 EG TG	PARADIENE 20 HV TG	PARADIENE 30 TG	PARADIENE 30 HT TG	SOPRALENE 180	SOPRALENE FLAM 180	SOPRALENE 180 GRANULES
COMBINATION, S	GLASS, S	GLASS, S	GLASS, G	GLASS, G	POLYESTER; GDE. S	POLYESTER; GDE. S	POLYESTER; GDE. G
					120	120	160
					76	72	99
						40	
	134	134	150	150			
	86	88	92	92			
	90	90	70	70			
106							
63							
70							
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD 115 XMD 85	MD 115 XMD 85	MD 115 XMD 85
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD 25 XMD 15	MD 25 XMD 15	MD 25 XMD 15
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD 95 XMD 65	MD 95 XMD 65	MD 95 XMD 65
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD 50 XMD 55	MD 50 XMD 55	MD 50 XMD 55
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD 50 XMD 55	MD 50 XMD 55	MD 50 XMD 55
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
					120/87	120/87	120/87
					-5	-5	-5
					0.5	0.5	0.5
					>250	>250	>250
							2
MD XMD	MD XMD	MD 75 XMD	MD 75 XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD 150 XMD	MD XMD	MD XMD	MD 150 XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD 3 XMD	MD 3 XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD 4 XMD	MD XMD	MD XMD	MD 3 XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD 30 XMD	MD 30 XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD 80 XMD	MD XMD	MD XMD	MD 80 XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD 3 XMD	MD 3 XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD 5 XMD	MD XMD	MD XMD	MD 3 XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD 100 XMD	MD 55 XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD 30 XMD	MD 25 XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD 100 XMD	MD XMD	MD XMD	MD 55 XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD 30 XMD	MD XMD	MD XMD	MD 25 XMD	MD XMD	MD XMD	MD XMD
		40	40				
	120			120			
	0	0	-5	-5			
	0.1	0.1	0.1	0.1			
	NO FAILURES	NO FAILURES	NO FAILURES	NO FAILURES			
			1.5	1.5			
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD 150 XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD 4 XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD 80 XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD 5 XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD 50 XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
MD 25 XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD	MD XMD
120							
0							
0.2							
NO FAILURES							

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.
2. PRODUCT NAME		SOPRALENE FLAM 180 GRANULES	SOPRALENE 250	SOPRALENE FLAM 250
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		POLYESTER; GDE. G	POLYESTER; GDE. S	POLYESTER; GDE. S
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130	160	160	120
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90	101	101	98
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	40		40
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD 115 XMD 85	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD 160 XMD 115	MD 160 XMD 115
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD 25 XMD 15	MD 25 XMD 15	MD 25 XMD 15
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD 95 XMD 65	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD 132 XMD 100	MD 132 XMD 100
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD 50 XMD 55	MD 55 XMD 60	MD 55 XMD 60
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	38	MD 50 XMD 55	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	60	MD XMD	MD 55 XMD 60	MD 55 XMD 60
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70	120/87	165/125	165/125
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	-5	-5	-5
DIMENSIONAL STABILITY, max., (%)	1	0.5	0.3	0.3
COMPOUND STABILITY @ 225 F	no failures	>250	>250	>250
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	2		
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.
2. PRODUCT NAME		ELASTOPHENE FLAM GRANULES	ELASTOPHENE PS	ELASTOPHENE 180
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S			GLASS; GDE. S	GLASS; GDE. S
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			90
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			55
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80		90	
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105	140		
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45		60	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75	94		
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40		40	
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD 115 XMD 85
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD 25 XMD 15
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD 95 XMD 65
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD 50 XMD 55
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD 50 XMD 55
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			120/87
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			-5
DIMENSIONAL STABILITY, max., (%)	1			0.5
COMPOUND STABILITY @ 225 F	no failures			>250
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD 100 XMD 91	MD 100 XMD 91	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD 4.3 XMD 4	MD 4.3 XMD 4	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD 50 XMD 41	MD 50 XMD 41	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD 4 XMD 4	MD 4 XMD 4	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., as manufactured, TYPE I	3	MD XMD	MD XMD	MD XMD
after heat conditioning, TYPE I	3	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	40	MD 48 XMD 48	MD 48 XMD 48	MD XMD
after heat conditioning, TYPE II	20	MD 30 XMD 30	MD 30 XMD 30	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35	82/73	82/73	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	-5	-5	
DIMENSIONAL STABILITY, max., (%)	0.5	0	0	
COMPOUND STABILITY @ 225 F	no failures	>250	>250	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2	1		
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	26	MD XMD	MD XMD	MD XMD
after heat conditioning, TYPE I	9	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	75	MD XMD	MD XMD	MD XMD
after heat conditioning, TYPE II	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable



Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		SOPREMA, INC.	SOPREMA, INC.	SOPREMA, INC.
2. PRODUCT NAME		SOPRALENE 180 SP 3.5 mm	ELASTOPHENE HD	SOPRALENE 180 FR GRANULES
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S		POLYESTER; GDE. S	GLASS; GDE. G	
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115	140		160
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70	86		
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			101
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	40		
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80		120	
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65		90	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD 115 XMD 85	MD XMD	MD 115 XMD 85
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD 25 XMD 15	MD XMD	MD 25 XMD 15
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD 95 XMD 65	MD XMD	MD 95 XMD 65
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD 50 XMD 55	MD XMD	MD 50 XMD 55
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	38	MD 50 XMD 55	MD XMD	MD 50 XMD 55
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70	120/87		120/87
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	-5		-5
DIMENSIONAL STABILITY, max., (%)	1	0.5		1
COMPOUND STABILITY @ 225 F	no failures	>250		>250
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			2
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD 100 XMD 91	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD 4.3 XMD 4	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD 50 XMD 41	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD 4 XMD 4	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD 48 XMD 48	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD 30 XMD 30	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35		82/73	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0		-5	
DIMENSIONAL STABILITY, max., (%)	0.5		0	
COMPOUND STABILITY @ 225 F	no failures		>250	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		SOUTHWESTERN PETROLEUM CORPORATION	TAMKO ROOFING PRODUCTS INC.	TAMKO ROOFING PRODUCTS INC.
2. PRODUCT NAME		SWEPCO UNI+ SHIELD II SYS 303	AWAPLAN PREMIUM	VERSA-CAP FR
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S				
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85			
THICKNESS (min., mils) Grade S, TYPE II	115			
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	1			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65			
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	no failures			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

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# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		TEXSA, S.A.	TEXSA, S.A.	TEXSA, S.A.
2. PRODUCT NAME		TEXSELF	M.P. PARKING	MINERAL M.P. 5KG FM
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or		NO REINFORCEMENT	POLYESTER	POLYESTER & GLASS FIBER
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	85	59		
THICKNESS (min., mils) Grade S, TYPE II	115		158	
THICKNESS (min., mils) Grade G	130			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54	37		
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75		38	
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40	0.4	0.4	
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S	80			
THICKNESS (min., mils) Grade G, TYPE I	95			
THICKNESS (min., mils) Grade G, TYPE II	105			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
THICKNESS (min., mils) Grade S, TYPE I	70			
THICKNESS (min., mils) Grade S, TYPE II	80			
THICKNESS (min., mils) Grade G, TYPE I	110			
THICKNESS (min., mils) Grade G, TYPE II	130			166
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50			
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60			102
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75			
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40			0.4
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD 58 XMD 58	MD 261 XMD 203	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD 200 XMD 200	MD 50 XMD 55	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	38	MD 1500 XMD 1500	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%)	60	MD XMD	MD 105 XMD 100	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70	MD XMD	MD XMD	
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0	MD 9 XMD 15	MD 9 XMD 15	
DIMENSIONAL STABILITY, max., (%)	1	MD 0.5 XMD 0.5	MD 0.5 XMD 0.5	
COMPOUND STABILITY @ 225 F	ilures 2	212	212	
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	3	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	3	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	40	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	20	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	35			
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			
DIMENSIONAL STABILITY, max., (%)	0.5			
COMPOUND STABILITY @ 225 F	ilures 2			
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS				
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD XMD	MD XMD	MD XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD XMD	MD XMD	MD XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD XMD	MD XMD	MD 246 XMD 217
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD XMD	MD XMD	MD XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD XMD	MD XMD	MD 50 XMD 55
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	26	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	9	MD XMD	MD XMD	MD XMD
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., (%)	75	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	30	MD XMD	MD XMD	MD XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	65			MD 125 XMD 120
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0			MD 6 XMD 5
DIMENSIONAL STABILITY, max., (%)	0.5			MD 0 XMD 0
COMPOUND STABILITY @ 225 F	ilures 2			239
GRANULE EMBEDMENT, max., (g), (Grade G only)	2			
6. SEE MEMBRANE APPENDIX IF CHECKED				

NA=not applicable

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		TRI-PLY		TRI-PLY		TRI-PLY	
2. PRODUCT NAME		KARIFALT 306		KARIFALT 307		KARIFALT 308	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S							
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I		85					
THICKNESS (min., mils) Grade S, TYPE II		115					
THICKNESS (min., mils) Grade G		130					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		54					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		70					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		75					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		90					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S		80					
THICKNESS (min., mils) Grade G, TYPE I		95					
THICKNESS (min., mils) Grade G, TYPE II		105					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S		45					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		65					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I		70					
THICKNESS (min., mils) Grade S, TYPE II		80					
THICKNESS (min., mils) Grade G, TYPE I		110					
THICKNESS (min., mils) Grade G, TYPE II		130					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I		45					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II		50					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I		60					
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II		75					
BOTTOM COATING THICKNESS (heat welding application products, min., mils)		40					
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)		20	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		50	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		100	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE I		35	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%), TYPE II		50	MD XMD	MD XMD	MD XMD	MD XMD	
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%) TYPE I		38	MD XMD	MD XMD	MD XMD	MD XMD	
ULTIMATE ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, (%) TYPE II		60	MD XMD	MD XMD	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		55					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		70					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		1					
COMPOUND STABILITY @ 225 F		no failures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		70	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		150	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE I		1	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		2	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		30	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE I		2	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		4	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		3	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		3	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		40	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		20	MD XMD	MD XMD	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		35					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		110					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		0.5					
COMPOUND STABILITY @ 225 F		no failures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		125	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I		1	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II		2	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I		75	MD XMD	MD XMD	MD XMD	MD XMD	
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II		80	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE I		2	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		4	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		26	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		9	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		75	MD XMD	MD XMD	MD XMD	MD XMD	
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%) TYPE II		30	MD XMD	MD XMD	MD XMD	MD XMD	
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I		65					
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II		90					
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F		0					
DIMENSIONAL STABILITY, max., (%)		0.5					
COMPOUND STABILITY @ 225 F		no failures					
GRANULE EMBEDMENT, max., (g), (Grade G only)		2					
6. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

1. COMPANY NAME		U S INTEC, INC.		U S INTEC, INC.		U S INTEC, INC.	
2. PRODUCT NAME		INTEC/FLEX FR 3 HS		INTEC/FLEX 190 FR		INTEC/FLEX 250 FR	
3. INDICATE REINFORCEMENT AND GRADE: POLYESTER, GLASS-FIBER, COMBINATION; GRADE: G or S							
4A. DIMENSIONS AND MASSES OF SHEET MATERIALS: POLYESTER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I	85						
THICKNESS (min., mils) Grade S, TYPE II	115						
THICKNESS (min., mils) Grade G	130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	54						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	70						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	75						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	90						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40						
4B. DIMENSIONS AND MASSES OF SHEET MATERIALS: GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S	80						
THICKNESS (min., mils) Grade G, TYPE I	95						
THICKNESS (min., mils) Grade G, TYPE II	105						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S	45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	65						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40						
4C. DIMENSIONS AND MASSES OF SHEET MATERIALS: COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
THICKNESS (min., mils) Grade S, TYPE I	70						
THICKNESS (min., mils) Grade S, TYPE II	80						
THICKNESS (min., mils) Grade G, TYPE I	110						
THICKNESS (min., mils) Grade G, TYPE II	130						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE I	45						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade S, TYPE II	50						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE I	60						
NET MASS PER UNIT AREA (min., lbs/100 sq. ft.) Grade G, TYPE II	75						
BOTTOM COATING THICKNESS (heat welding application products, min., mils)	40						
5A. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING POLYESTER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	50	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	100	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	35	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	50	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	38	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	60	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	55						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	70						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0						
DIMENSIONAL STABILITY, max., (%)	1						
COMPOUND STABILITY @ 225 F	no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)	2						
5B. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	70	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	150	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	30	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	3	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	40	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	20	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	35						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	110						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0						
DIMENSIONAL STABILITY, max., (%)	0.5						
COMPOUND STABILITY @ 225 F	no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)	2						
5C. PHYSICAL PROPERTIES OF SBS MODIFIED BITUMINOUS SHEET MATERIALS USING A COMBINATION OF POLYESTER AND GLASS-FIBER REINFORCEMENTS							
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 0 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	125	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE I	1	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 0 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, lbf/in. TYPE II	2	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE I	75	MD	XMD	MD	XMD	MD	XMD
MAXIMUM LOAD AT 73.4 ± 3.6 F, MD AND XMD, min., before and after heat conditioning, lbf/in., TYPE II	80	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	2	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	4	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	26	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	9	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	75	MD	XMD	MD	XMD	MD	XMD
ELONGATION AT 73.4 ± 3.6 F, MD AND XMD, min., at max. load, before and after heat conditioning, (%)	30	MD	XMD	MD	XMD	MD	XMD
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE I	65						
TEAR STRENGTH AT 73.4 ± 3.6 F, min., lbf, TYPE II	90						
LOW TEMPERATURE FLEXIBILITY, max., before and after heat conditioning, degrees F	0						
DIMENSIONAL STABILITY, max., (%)	0.5						
COMPOUND STABILITY @ 225 F	no failures						
GRANULE EMBEDMENT, max., (g), (Grade G only)	2						
6. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## SBS Modified Bitumens: Part 2 Test Results

Test description and suggested values as specified in ASTM D 6162-97, D 6163-97, D 6164-97

[illegible]

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.					
COMPANY NAME					
AL-KOAT, INC.					
NEW/REPLACEMENT					
NONNAILABLE					
AK 01, APP	1	NONE	AL-FLEX-S		
AK 01, APP	1	NONE	AL-FLEX-G		
AK 01, SBS	1	NONE	AL-KOAT, PG-45T		
NEW/REPLACEMENT					
NAAILABLE					
AK 11, APP	2	G-2 BASE	AL-FLEX-S		
AK 11, APP	2	G-2 BASE	AL-FLEX-G		
AK 11, APP	2	NONE	AL-KOAT, VA-20	AL-FLEX-S	
AK 11, APP	2	NONE	AL-KOAT, VA-20	AL-FLEX-G	
AK 11, SBS	2	NONE	AL-KOAT, VA-20	AL-KOAT, PG-45T	
AK 11, SBS	2	NONE	AL-KOAT, VA-30T	AL-KOAT, PG-45T	
NEW/REPLACEMENT					
INSULATED					
AK 12, APP	2	G-2 BASE	AL-FLEX-S		
AK 12, APP	2	G-2 OR AL-KOAT, VA-20	AL-FLEX-G		
AK 12, SBS	2	G-2 OR AL-KOAT, VA-20	AL-KOAT PG-40, SBS		
AK 12, SBS	2	G-2 OR AL-KOAT, VA-20	AL-KOAT VG-30, SBS		
AK 12, SBS	2	G-2 OR AL-KOAT, VA-20	AL-KOAT PG-45T		
AK 12, SBS	2	G-2 OR AL-KOAT, VA-20	AL-KOAT VG-35T		
AK 13, SBS	3	G-2 BASE	AL-KOAT VA-20	AL-KOAT PG-45T	
AK 13, SBS	3	G-2 BASE	AL-KOAT VA-20	AL-KOAT PG-40	
AK 13, SBS	3	G-2 BASE	AL-KOAT VA-20	AL-KOAT VG-35T	
AK 13, SBS	3	G-2 BASE	AL-KOAT VA-20	AL-KOAT VG-30	
AK 13, SBS	3	AL-KOAT, VA-20	AL-KOAT PA-30	AL-KOAT PG-45T	
AK 13, SBS	3	AL-KOAT, VA-20	AL-KOAT PA-30	AL-KOAT PG-40	
RECOVER					
EXISTING ROOF	See New/Replacement: Nailable and Nonnailable				
RECOVER					
EXISTING ROOF					
INSULATION ADDED	See New/Replacement: Insulated				

## COMPANY NAME **ALLIED SIGNAL, INC.**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
M-100-MN-NN	2	BLACK ARMOR-ORGANIC	MILLENNIUM GMC		
M-120-MP-NN	3	2 BLACK ARMOR TC GLASS IV	MILLENNIUM GMC		
M-140-MP-NN	3	BLACK ARMOR ORGANIC	MILLENNIUM BASE	MILLENNIUM GMC	
M-145-MP-NN	3	MILLENNIUM BASE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-150-MP-NN	2	NONE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-160-MP-NN	4	3 BLACK ARMOR TC GLASS IV	MILLENNIUM GMC		
M-100-C-NN	2	MILLENNIUM BASE	MILLENNIUM BMC		
M-140-C-NN	3	MILLENNIUM BASE	MILLENNIUM BASE	MILLENNIUM GMC	
M-145-C-NN	3	MILLENNIUM BASE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-150-C-NN	2	NONE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-100-MP-N	2	BLACK ARMOR ORGANIC	MILLENNIUM GMC		
M-120-MP-NN	4	BLACK ARMOR ORGANIC BASE & 2 BLACK ARMOR TC GLASS IV	MILLENNIUM GMC		
M-140-MP-N	3	BLACK ARMOR ORGANIC BASE	MILLENNIUM BASE SHEET	MILLENNIUM GMC	
M-145-MP-NN	3	MILLENNIUM BASE SHEET	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-160-MP-NN	5	BLACK ARMOR BASE & 3 BLACK ARMOR GLASS IV	MILLENNIUM GMC		
M-100-C-N	2	MILLENNIUM BASE SHEET	MILLENNIUM GMC		
M-140-C-N	3	MILLENNIUM BSE SHEET	MILLENNIUM BASE SHEET	MILLENNIUM GMC	
M-145-C-N	3	MILLENNIUM BASE SHEET	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
I-100-MA-NN	2	BLACK ARMOR BASE SHEET	INFINITEE 30 GMC		
I-105-PM-NN	2	POLYMOP BASE SHEET	INFINITEE 30 GMC		
I-120-MA-NN	3	2 BLK ARMOR TYPE IV GLASS	INFINITEE 30 GMC		
I-125-PM-NN	3	2 POLYMOP PLY TYPE IV	INFINITEE 30 GMC		
I-130-MA-NN	2	NONE	INFINITEE 20 5M	INFINITEE 30 GMC	
I-135-PM-NN	2	NONE	INFINITEE 20 5M	INFINITEE 30 GMC	
I-140-MA-NN	3	BLACK ARMOR BASE SHEET	INFINITEE 20 5M		
I-145-PM-NN	3	POLYMOP BASE SHEET	INFINITEE 20 5M		
I-160-MA-NN	4	3 BLK ARMOR TYPE IV GLASS	INFINITEE 30 GMC		
I-165-PM-NN	4	3 POLYMOP TYPE IV	INFINITEE 30 GMC		
I-100-C-NN	2	BLACK ARMOR BASE	INFINITEE 30 GMC		
I-105-C-NN	2	POLYMOP BASE SHEET	INFINITEE 30 GMC		
I-140-C-NN	3	BLACK ARMOR BSE	POLYMOP BASE SHEET	INFINITEE 30 GMC	
I-145-C-NN	3	POLYMOP BASE SHEET	POLYMOP BASE SHEET	INFINITEE 30 GMC	
I-150-C-NN	3	BLACK ARMOR BASE SHEET	INFINITEE 20 5M	INFINITEE 30 GMC	
I-145-T-NN	3	BLACK ARMOR BASE SHEET	INFINITEE	INFINITEE GTC	
<b>NEW/REPLACEMENT</b>					
<b>NAAILABLE</b>					
I-100-MA-N	2	BLACK ARMOR BASE SHEET	INFINITEE 30 GMC		
I-105-PM-N	2	POLYMOP BASE SHEET	INFINITEE 30 GMC		
I-120-MA-N	4	BLACK ARMOR BASE SHEET & 2 BLK ARMOR TYPE IV GLASS	INFINITEE 30 GMC		
I-125-PM-N	4	POLYMOP BASE SHEET & 2 POLY MOP PLY IV	INFINITEE 30 GMC		

## Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
I-140-MA-N	3	BLACK ARMOR BASE SHEET	INFINITEE 20 5M	INFINITEE 30 GMC	
I-145-PM-N	3	POLY MOP BASE SHEET	INFINITEE 20 5M	INFINITEE 30 GMC	
I-160-MA-N	5	BLACK ARMOR BASE SHEET & 3 BLACK ARMOR TYPE IV GLASS	INFINITEE 30 GMC		
I-165-PM-N	5	POLYMOP BASE SHEET & 3 POLYMOP PLY IV	INFINITEE 30 GMC		
I-100-C-N	2	BLACK ARMOR BASE SHEET	INFINITEE 30 GMC		
I-105-C-N	2	POLYNOIP BASE SHEET	INFINITEE 30 GMC		
I-140-C-N	3	BLACK ARMOR BASE SHEET	POLY MOP BASE SHEET	INFINITEE 30 GMC	
I-145-C-N	3	POLYMOP BSAE SHEET	POLYMOP BSAE SHEET	INFINITEE 30 GMC	
I-150-C-N	3	BLACK ARMOR BASE SHEET	INFINITEE 20 5M	INFINITEE 30 GMC	
I-100-T-N	2	BLACK ARMOR BASE SHEET	INFINITEE GTC		
I-140-T-N	3	BLACK ARMOR BASE SHEET	INFINITEE ST	INFINITEE GRLO	
NEW/REPLACEMENT					
INSULATED					
M-100-MN-NN	2	BLACK ARMOR-ORGANIC	MILLENNIUM GMC		
M-120-MP-NN	3	2 BLACK ARMOR TC GLASS IV	MILLENNIUM GMC		
M-140-MP-NN	3	BLACK ARMOR ORGANIC	MILLENNIUM BASE	MILLENNIUM GMC	
M-145-MP-NN	3	MILLENNIUM BASE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-150-MP-NN	2	NONE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-160-MP-NN	4	3 BLACK ARMOR TC GLASS IV	MILLENNIUM GMC		
M-100-C-NN	2	MILLENNIUM BASE	MILLENNIUM BMC		
M-140-C-NN	3	MILLENNIUM BASE	MILLENNIUM BASE	MILLENNIUM GMC	
M-145-C-NN	3	MILLENNIUM BASE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
M-150-C-NN	2	NONE	MILLENNIUM SMOOTH MOP	MILLENNIUM GMC	
I-100-MA-NN	2	BLACK ARMOR BASE SHEET	INFINITEE 30 GMC		
I-105-PM-NN	2	POLYMOP BASE SHEET	INFINITEE 30 GMC		
I-120-MA-NN	3	2 BLK ARMOR TYPE IV GLASS	INFINITEE 30 GMC		
I-125-PM-NN	3	2 POLYMOP PLY TYPE IV	INFINITEE 30 GMC		
I-130-MA-NN	2	NONE	INFINITEE 20 5M	INFINITEE 30 GMC	
I-135-PM-NN	2	NONE	INFINITEE 20 5M	INFINITEE 30 GMC	
I-140-MA-NN	3	BLACK ARMOR BASE SHEET	INFINITEE 20 5M		
I-145-PM-NN	3	POLYMOP BASE SHEET	INFINITEE 20 5M		
I-160-MA-NN	4	3 BLK ARMOR TYPE IV GLASS	INFINITEE 30 GMC		
I-165-PM-NN	4	3 POLYMOP TYPE IV	INFINITEE 30 GMC		
I-100-C-NN	2	BLACK ARMOR BASE	INFINITEE 30 GMC		
I-105-C-NN	2	POLYMOP BASE SHEET	INFINITEE 30 GMC		
I-140-C-NN	3	BLACK ARMOR BSE	POLYMOP BASE SHEET	INFINITEE 30 GMC	
I-145-C-NN	3	POLYMOP BASE SHEET	POLYMOP BASE SHEET	INFINITEE 30 GMC	
I-150-C-NN	3	BLACK ARMOR BASE SHEET	INFINITEE 20 5M	INFINITEE 30 GMC	
I-145-T-NN	3	BLACK ARMOR BASE SHEET	INFINITEE ST	INFINITEE GTC	
NEW/REPLACEMENT					
NAIABLE					
RECOVER					
EXISTING ROOF					
RECOVER					
EXISTING ROOF					
INSULATED ADDED					

COMPANY NAME **ANDEK CORP.**

NEW/REPLACEMENT					
NONNAILABLE					
B.P. 27	2	NONE	FLASHBAND R.F.	FLASHBAND-28	
NEW/REPLACEMENT					
INSULATED					
B.P. 23	2	NONE	FLASHBAND R.F.	FLASHBAND-28	
NEW/REPLACEMENT					
NAIABLE					
B.P. 21	2	NONE	FLASHBAND R.F.	FLASHBAND-28	
RECOVER					
EXISTING ROOF					
B.P. 17	1	NONE	FLASHBAND-28		
RECOVER					
EXISTING ROOF					
INSULATED ADDED					
B.P. 14	1	NONE	FLASHBAND-28		

COMPANY NAME **BITEC INC.**

NEW/REPLACEMENT					
NONNAILABLE					
APS-4T.1	2	BETA BASE	APS-4T		
APM-4T.1	2	BETA BASE	APM-4T		
APM-4.5T.1	2	BETA BASE	APM-4.5T		
SPM-4.5T.1	2	BETA BASE	SPM-4.5T		
SPM-3.5H.1	2	BETA BASE	SPM-3.5H		
SFM-3.5H.1	2	BETA BASE	SFM-3.5H		
SPM-4H.1	2	BETA BASE	SPM-4H		
SPS-3H.1	2	BETA BASE	SPS-3H		
APM-4T.1.15	3	BETA BASE	FA-2T	APS-4T	

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.					
COMPANY NAME BITEC INC.					
APM-4T.1.15	3	BETA BASE	FA-2T	APM-4T	
APM4.5T.1.15	3	BETA BASE	FA-2T	APM-4.5T	
SPM4.5T.1.15	3	BETA BASE	PS-2H OR FS-2H	SPM-4.5T	
SPM3.5H.1.15	3	BETA BASE	PS-2H OR FS-2H	SPM-3.5H	
SFM3.5H.1.15	3	BETA BASE	PS-2H OR FS-2H	SFM-3.5H	
SPM-4H.1.15	3	BETA BASE	PS-2H OR FS-2H	SPM-4H	
SPS-3H.1.20	3	BETA BASE	SPS-3H	SPS-3H GRAVEL	
SPS-3H.1.20	3	NONE	PS-2H OF FS-2H	SPS-3H	SPS-3H GRAVEL
APS-4T.1.20	3	BETA BASE	APS-4T	APS-4T	
APS-4T.1.20	3	NONE	FA-2T	APS-4T	APS-4T
APM-4T.1.20	3	BETA BASE	APS-4T	APM-4T	
APM-4T.1.20	3	NONE	FA-2T	APS-4T	APM-4T
APM4.5T.1.20	3	BETA BASE	APS-2T	APM-4.5T	
APM4.5T.1.20	3	NONE	FA-2T	APS-2T	APM-4.5T
SPM4.5T.1.20	3	BETA BASE	SPS-3H	SPM-4.5T	
SPM4.5T.1.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SPM-4.5T
SPM3.5H.1.20	3	BETA BASE	SPS-3H	SPM-3.5H	
SPM3.5H.1.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SPM-3.5H
SFM3.5H.1.20	3	BETA BASE	SPS-3H	SFM-3.5H	
SFM3.5H.1.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SFM-3.5H
SPM-4H.1.20	3	BETA BASE	SPS-3H	SPM-4H	
SPM-4H.1.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SPM-4H
NEW/REPLACEMENT					
NAILABLE					
APS-4T.2	2	BETA BASE	APS-4T		
APM-4T.2	2	BETA BASE	APM-4T		
APM-4.5T.2	2	BETA BASE	APM-4.5T		
SPM-4.5T.2	2	BETA BASE	SPM-4.5T		
SPM-3.5H.2	2	BETA BASE	SPM-3.5H		
SFM-3.5H.2	2	BETA BASE	SFM-3.5H		
SPM-4H.2	2	BETA BASE	SPM-4H		
SPS-3H.2	2	BETA BASE	SPS-3H		
APM-4T.2.15	3	BETA BASE	FA-2T	APS-4T	
APM-4T.2.15	3	BETA BASE	FA-2T	APM-4T	
APM4.5T.2.15	3	BETA BASE	FA-2T	APM-4.5T	
SPM4.5T.2.15	3	BETA BASE	PS-2H OR FS-2H	SPM-4.5T	
SPM3.5H.2.15	3	BETA BASE	PS-2H OR FS-2H	SPM-3.5H	
SFM3.5H.2.15	3	BETA BASE	PS-2H OR FS-2H	SFM-3.5H	
SPM-4H.2.15	3	BETA BASE	PS-2H OR FS-2H	SPM-4H	
NEW/REPLACEMENT					
NAILABLE (CONT'D)					
SPS-3H.2.20	3	BETA BASE	SPS-3H	SPS-3H GRAVEL	
SPS-3H.2.20	3	NONE	PS-2H OF FS-2H	SPS-3H	SPS-3H GRAVEL
APS-4T.2.20	3	BETA BASE	APS-4T	APS-4T	
APS-4T.2.20	3	NONE	FA-2T	APS-4T	APS-4T
APM-4T.2.20	3	BETA BASE	APS-4T	APM-4T	
APM-4T.2.20	3	NONE	FA-2T	APS-4T	APM-4T
APM4.5T.2.20	3	BETA BASE	APS-2T	APM-4.5T	
APM4.5T.2.20	3	NONE	FA-2T	APS-2T	APM-4.5T
SPM4.5T.2.20	3	BETA BASE	SPS-3H	SPM-4.5T	
SPM4.5T.2.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SPM-4.5T
SPM3.5H.2.20	3	BETA BASE	SPS-3H	SPM-3.5H	
SPM3.5H.2.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SPM-3.5H
SFM3.5H.2.20	3	BETA BASE	SPS-3H	SFM-3.5H	
SFM3.5H.2.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SFM-3.5H
SPM-4H.2.20	3	BETA BASE	SPS-3H	SPM-4H	
SPM-4H.2.20	3	NONE	PS-2H OR FS-2H	SPS-3H	SPM-4H
NEW/REPLACEMENT					
INSULATED	See New Replacement, Nailable and Nonnailable				
RECOVER					
EXISTING ROOF	See New Replacement, Nailable and Nonnailable				
RECOVER					
EXISTING ROOF					
INSULATION ADDED	See New Replacement, Nailable and Nonnailable				

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET

COMPANY NAME **CELOTEX CORP.**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
<b>and</b>					
<b>NEW/REPLACEMENT</b>					
<b>INSULATED</b>					
SBS-4-C-M	4	D 4601 TYPE II BASE SHEET & 2 TYPE VI PLY SHEETS	SBS 250 CAP SHEET		
SBS-3-C-M	3	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	SBS 250 CAP SHEET		
SBS-2-C-M	2	D 4601 TYPE II BASE SHEET	SBS 250 CAP SHEET		
SBS-DP-4-C-M	4	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
SBS-DP-3-C-M	3	D 4601 TYPE II BASE SHEET	SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
SBS-DP-2-C-M	2		SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
APP-4-C-M	4	D 4601 TYPE II BASE SHEET & 2 TYPE VI PLY SHEETS	APP 4M CAP SHEET		
APP-4-C-S	4	D 4601 TYPE II BASE SHEET & 2 TYPE VI PLY SHEETS	APP 4S CAP SHEET		
APP-3-C-M	3	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	APP 4M CAP SHEET		
APP-3-C-S	3	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	APP 4S CAP SHEET		
APP-2-C-M	2	D 4601 TYPE II BASE SHEET	APP 4M CAP SHEET		
APP-2-C-S	2	D 4601 TYPE II BASE SHEET	APP 4S CAP SHEET		
<b>NEW/REPLACEMENT</b>					
<b>NAILABLE</b>					
SBS-4-W-M	4	D 4601 TYPE II BASE SHEET & 2 TYPE VI PLY SHEETS	SBS 250 CAP SHEET		
SBS-3-W-M	3	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	SBS 250 CAP SHEET		
SBS-2-W-M	2	D 4601 TYPE II BASE SHEET	SBS 250 CAP SHEET		
SBS-DP-4-W-M	4	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
SBS-DP-3-W-M	3	D 4601 TYPE II BASE SHEET	SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
SBS-DP-2-W-M	2		SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
APP-4-W-M	4	D 4601 TYPE II BASE SHEET & 2 TYPE VI PLY SHEETS	APP 4M CAP SHEET		
APP-4-W-S	4	D 4601 TYPE II BASE SHEET & 2 TYPE VI PLY SHEETS	APP 4S CAP SHEET		
APP-3-W-M	3	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	APP 4M CAP SHEET		
APP-3-W-S	3	D 4601 TYPE II BASE SHEET & 1 TYPE VI PLY SHEETS	APP 4S CAP SHEET		
APP-2-W-M	2	D 4601 TYPE II BASE SHEET	APP 4M CAP SHEET		
APP-2-W-S	2	D 4601 TYPE II BASE SHEET	APP 4S CAP SHEET		
SBS-H+3-W-M	4	HYDRO-STOP VAP. BARRIER & 2 TYPE VI PLY SHEETS	SBS 250 CAP SHEET		
SBS-H+2-W-M	3	HYDRO-STOP VAP. BARRIER & 1 TYPE VI PLY SHEETS	SBS 250 CAP SHEET		
SBS-H+2-IV-W-M	3	HYDRO-STOP VAP. BARRIER & 1 TYPE IV PLY SHEETS	SBS 250 CAP SHEET		
SBS-DP-H+3-W-M	4	HYDRO-STOP VAP. BARRIER & 1 TYPE VI PLY SHEETS	SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
SBS-DP-H+2-W-M	3	HYDRO-STOP VAP. BARRIER	SBS DUEL PLY FR BASE SHEET	SBS DUEL PLY FR CAP SHEET	
APP-H+3-W-M	4	HYDRO-STOP VAP. BARRIER & 2 TYPE VI PLY SHEETS	APP 4/M CAP SHEET		
APP-H+3-W-S	3	HYDRO-STOP VAP. BARRIER & 1 TYPE VI PLY SHEETS	APP 4/S CAP SHEET		
APP-H+2-W-M	3	HYDRO-STOP VAP. BARRIER & 1 TYPE VI PLY SHEETS	APP 4/M CAP SHEET		
APP-H+2-W-S	3	HYDRO-STOP VAP. BARRIER & 1 TYPE VI PLY SHEETS	APP 4/S CAP SHEET		
APP-H+2-IV-W-M	3	HYDRO-STOP VAP. BARRIER & 1 TYPE IV PLY SHEETS	APP 4/M CAP SHEET		
APP-H+2-IV-W-S	3	HYDRO-STOP VAP. BARRIER & 1 TYPE IV PLY SHEETS	APP 4/S CAP SHEET		
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
<b>INSULATION ADDED</b>	See New/Replacement, Insulated				

Company Name **DANOSA CARIBBEAN, INC.**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
1-RC	2		GLASDAN R-36	GLASDAN AL-80-3	
3-RC	2		ESTERDAN R-36	ESTERDAN RM	
6-RC	1		GLASDAN AL-80		
7-RC	1		ESTERDAN RM-5		
8-RC	2		GLASDAN R-36	ESTERDAN RM	
9-RC	2		GLASDAN R-36	GLASDAN RM	
9-RC	2	BASEDAN IV	GLASDAN RM		

## Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **DANOSA CARIBBEAN, INC.**

NEW/REPLACEMENT					
INSULATED,					
RECOVER					
EXISTING ROOF, AND					
RECOVER					
EXISTING ROOF					
INSULATION ADDED					
1-ID	3	BASEDAN II	ESTERDAN R-36	ESTERDAN RM	
4-ID	3	BASEDAN II	GLASDAN R-36	ESTERDAN RM	
NEW/REPLACEMENT					
AVAILABLE					
1-LW	3	BASEDAN II	ESTERDAN R-36	ESTERDAN RM	
3-LW	3	BASEDAN II	GLASDAN R-36	ESTERDAN RM	
1-WP	3	BASEDAN II	ESTERDAN R-36	ESTERDAN RM	
2-WP	2	BASEDAN II	ESTERDAN RM-5	ESTERDAN RM	
3-WP	3	BASEDAN II	GLASDAN R-36	ESTERDAN RM	
5-ID (H/A)	3	BASEDAN II	ESTERDAN RM		

Company Name **DIBITEN**

NEW/REPLACEMENT					
NONAVAILABLE					
403	1	NONE	POLY/4		
453	1	NONE	POLY/4.5 GRANULAR, DIBITEN MINERAL, OR BLACK GRANITE		
403-2	2	NONE	POLY/4	POLY/4	
453-2	2	NONE	POLY/4	POLY/4.5 GRANULAR OR BLACK	
503	2	NONE	POLY/4	GRANITE	
NEW/REPLACEMENT					
INSULATED					
and					
RECOVER					
EXISTING ROOF					
INSULATION ADDED					
402	2	FIBERGLASS	POLY/4		
452	2	FIBERGLASS	POLY/4.5 GRANULAR, DIBITEN MINERAL, OR BLACK GRANITE		
404	2	FIBERGLASS	DIBITEN POLY/4		
454	2	FIBERGLASS	POLY/4.5 GRANULAR, DIBITEN MINERAL, OR BLACK GRANITE		
402-2	3	FIBERGLASS	POLY/4	POLY/4	
452-2	3	FIBERGLASS	POLY/4	POLY/4.5 GRANULAR OR BLACK GRANITE	
404-2	3	FIBERGLASS	POLY/4		
454-2	3	FIBERGLASS	POLY/4	POLY/4.5 GRANULAR OR BLACK GRANITE	
502	2	FIBERGLASS	POLY/5		
504	2	FIBERGLASS	POLY/5		
NEW/REPLACEMENT					
AVAILABLE					
401	2	APPROVED	POLY/4		
451	2	APPROVED	POLY/4.5 GRANULAR, DIBITEN MINERAL, OR BLACK GRANITE		
401-2	3	APPROVED	POLY/4	POLY/4	
451-2	3	APPROVED	POLY/4	POLY/4.5 GRANULAR OR BLACK GRANITE	
501	2	APPROVED	POLY/5		
RECOVER					
EXISTING ROOF					
R405	2	FIBERGLASS	POLY/4		
R455	2	FIBERGLASS	POLY/4.5 GRANULAR, DIBITEN MINERAL, OR BLACK GRANITE		
R406	2	FIBERGLASS	POLY/4		
R456	2	FIBERGLASS	POLY/4.5 GRANULAR, DIBITEN MINERAL, OR BLACK GRANITE		
R505	2	FIBERGLASS	POLY/5		
R506	2	FIBERGLASS	POLY/5		



# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.					
Company Name FIRESTONE BUILDING PRODUCTS					
NEW/REPLACEMENT					
INSULATED					
I-M16-C	2	MB BASE SHEET	APP160		
I-M17-C	2	MB BASE SHEET	APP170		
I-M18-M	2	MB BASE SHEET	APP180		
I-M18FR-M	2	MB BASE SHEET	APP180 FR		
I-M16-18-M	3	MB BASE SHEET	APP160	APP180	
I-M16-18FR-M	3	MB BASE SHEET	APP160	APP180 FR	
I-M30-M	2	MB BASE SHEET	SBS		
I-M31-M	2	MB BASE SHEET	SBS FR		
I-M32-G	2	MB BASE SHEET	SBS SMOOTH		
I-M33-M	2	MB BASE SHEET	SBS PREMIUM		
I-M36-M	2	MB BASE SHEET	SBS PREMIUM FR	SBS	
I-M41-M	2	MB BASE SHEET	SBS TORCH		
I-S34-M	2		SBS BASE SHEET	SBS SMOOTH	
I-S35-M	2		SBS BASE SHEET	SBS PREMIUM	
I-X34-M	2		SBS PREMIUM BASE SHEET	SBS PREMIUM FR	
I-X35-M	2		SBS PREMIUM BASE SHEET		
I-3233-M	2		SBS SMOOTH	SBS GLASS	
I-3236-M	2		SBS SMOOTH	SBS GLASS FR	
I-46-42-M	2		SBS GLASS TORCH BASE	SBS GLASS FR TORCH	
I-46-41-M	2		SBS GLASS TORCH BASE	SBS FR TORCH	
I-45-42-M	2		SBS POLY TORCH BASE	SBS GLASS FR TORCH	
I-45-41-M	2		SBS POLY TORCH BASE	SBS FR TORCH	
NEW/REPLACEMENT					
NAILABLE					
W-M16-C	2	MB BASE SHEET	APP160		
W-M17-C	2	MB BASE SHEET	APP170		
W-M-18-M	2	MB BASE SHEET	APP180		
W-M-18FR-M	2	MB BASE SHEET	APP180FR		
W-M16-18-M	3	MB BASE SHEET	APP160	APP180	
W-M16-18FR-M	3	MB BASE SHEET	APP160	APP180FR	
W-M30-M	2	MB BASE SHEET	SBS		
W-M31-M	2	MB BASE SHEET	SBS FR		
W-M32-G	2	MB BASE SHEET	SBS SMOOTH		
W-M33-M	2	MB BASE SHEET	SBS PREMIUM		
W-M36-M	2	MB BASE SHEET	SBS PREMIUM FR		
W-M40-M	2	MB BASE SHEET	SBS TORCH		
W-MS34-M	3	MB BASE SHEET	SBS BASE SHEET	SBS GLASS	
W-MS35-M	3	MB BASE SHEET	SBS BASE SHEET	SBS GLASS FR	
W-MX34-M	3	MB BASE SHEET	SBS PREMIUM BASE SHEET	SBS GLASS	
W-MX35-M	3	MB BASE SHEET	SBS PREMIUM BASE SHEET	SBS GLASS FR	
W-M32-33-M	3	MB BASE SHEET	SBS SMOOTH	SBS PREMIUM	
W-M32-36-M	3	MB BASE SHEET	SBS SMOOTH	SBS PREMIUM FR	
W-M-46-42-M	2	MB BASE SHEET	SBS GLASS TORCH BASE	SBS GLASS FR TORCH	
W-M-46-41-M	2	MB BASE SHEET	SBS GLASS TORCH BASE	SBS FR TORCH	
W-M-45-42-M	2	MB BASE SHEET	SBS POLY TORCH BASE	SBS GLASS FR TORCH	
W-M-45-41-M	2	MB BASE SHEET	SBS POLY TORCH BASEQ	SBS FR TORCH	
NEW/REPLACEMENT					
NONNAILABLE					
C-PM-16-C	2	MB BASE SHEET	APP160		
C-PM-17-C	2	MB BASE SHEET	APP170		
C-PM-18-M	2	MB BASE SHEET	APP180		
C-PM-18FR-M	2	MB BASE SHEET	APP180FR		
C-PM16-18-M	3	MB BASE SHEET	APP160	APP180	
C-PM16-18FR-M	3	MB BASE SHEET	APP160	APP180FR	
C-PM-30-M	2	MB BASE SHEET	SBS		
C-PM-31-M	2	MB BASE SHEET	SBS FR		
C-PM-32-G	2	MB BASE SHEET	SBS SMOOTH		
C-PM-33-M	2	MB BASE SHEET	SBS PREMIUM		
C-PS-36-M	2	MB BASE SHEET	SBS PREMIUM FR		
C-PS-40-M	2	MB BASE SHEET	SBS TORCH		
C-PS-34-M	2		SBS BASE SHEET	SBS GLASS	
C-PS-35-M	2		SBS BASE SHEET	SBS GLASS FR	
C-PX-34-M	2		SBS PREMIUM BASE SHEET	SBS GLASS	
C-PX-35-M	2		SBS PREMIUM BASE SHEET	SBS GLASS FR	
C-P32-33-M	2		SBS SMOOTH	SBS PREMIUM	
C-P32-36-M	2		SBS SMOOTH	SBS PREMIUM FR	
L-M-16-C	2	MB BASE SHEET	APP160		
L-M-17-C	2	MB BASE SHEET	APP170		
L-M-18-M	2	MB BASE SHEET	APP180		
L-M-18FR-M	2	MB BASE SHEET	APP180FR		
L-M16-18-M	3	MB BASE SHEET	APP160	APP180	
L-M16-18FR-M	3	MB BASE SHEET	APP160	APP180FR	
L-M30-M	2	MB BASE SHEET	SBS		
L-M31-M	2	MB BASE SHEET	SBS FR		
L-M32-G	2	MB BASE SHEET	SBS SMOOTH		
L-M33-M	2	MB BASE SHEET	SBS PREMIUM		
L-M36-M	2	MB BASE SHEET	SBS PREMIUM FR		
L-MS-34-M	3	MB BASE SHEET	SBS BASE SHEET	SBS GLASS	
L-MS-35-M	3	MB BASE SHEET	SBS BASE SHEET	SBS GLASS FR	

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.	ASSEMBLY	BITUMEN SHEET	FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **FIRESTONE BUILDING PRODUCTS**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
L-MX-34-M	3	MB BASE SHEET	SBS PREMIUM BASE SHEET	SBS GLASS	
L-MX-35-M	3	MB BASE SHEET	SBS PREMIUM BASE SHEET	SBS GLASS FR	
L-M32-33-M	3	MB BASE SHEET	SBS SMOOTH	SBS PREMIUM	
L-M32-36-M	3	MB BASE SHEET	SBS SMOOTH	SBS PREMIUM FR	
C-P-46-42-M	2		SBS GLASS TORCH BASE	SBS GLASS FR TORCH	
C-P-46-41-M	2		SBS GLASS TORCH BASE	SBS FR TORCH	
C-P-45-42-M	2		SBS POLY TORCH BASE	SBS GLASS FR TORCH	
C-P-45-41-M			SBS POLY TORCH BASE	SBS FR TORCH	
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
E-M16-C	2	MB BASE SHEET	APP160		
E-M17-C	2	MB BASE SHEET	APP170		
E-M18-M	2	MB BASE SHEET	APP180		
E-M18FR-M	2	MB BASE SHEET	APP180 FR		
E-M30-M	2	MB BASE SHEET	SBS		
E-M31-M	2	MB BASE SHEET	SBS FR		
E-M32-G	2	MB BASE SHEET	SBS SMOOTH		
E-M33-M	2	MB BASE SHEET	SBS PREMIUM		
E-M36-M	2	MB BASE SHEET	SBS PREMIUM FR		
E-M40-M	2	MB BASE SHEET	SBS TORCH		
E-MS-34-M	3	MB BASE SHEET	SBS BASE SHEET	SBS GLASS	
E-MS-35-M	3	MB BASE SHEET	SBS BASE SHEET	SBS GLASS FR	
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
<b>INSULATION ADDED</b>					
I-M16-C	2	MB BASE SHEET	APP160		
I-M17-C	2	MB BASE SHEET	APP170		
I-M18-M	2	MB BASE SHEET	APP180		
I-M18FR-M	2	MB BASE SHEET	APP180 FR		
I-M30-M	2	MB BASE SHEET	SBS		
I-M31-M	2	MB BASE SHEET	SBS FR		
I-M32-G	2	MB BASE SHEET	SBS SMOOTH		
I-M33-M	2	MB BASE SHEET	SBS PREMIUM		
I-M36-M	2	MB BASE SHEET	SBS PREMIUM FR		
I-M40-M	2	MB BASE SHEET	SBS TORCH		
I-S34-M	2	MB BASE SHEET	SBS GLASS		
I-S35-M	2	MB BASE SHEET	SBS GLASS FR		

Company Name **GAF MATERIALS CORPORATION**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
NN-0-1-TS	1	NONE	RUBEROID TORCH (SMOOTH)		
NN-1-1-TG	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (GRANULE)		
NN-1-1-MG	2	GAFGLAS 75 BASE SHEET	RUBEROID MOP (GRANULE)		
NN-1-1-MGFR	2	GAFGLAS 75 BASE SHEET	RUBEROID 170 FR		
NN-1-1-MSG	2	GAFGLAS 75 BASE SHEET	RUBEROID MOP SMOOTH (GRAVEL)		
NN-1-1-TS	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (SMOOTH)		
NN-01-TG	1	NONE	RUBEROID TORCH GRANULE		
NN-01-TSC	1	NONE	RUBEROID TORCH		
NN-1-1-TSC	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH		
NN-1-2-20/30	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID 30	
NN-1-2-20/30 FR	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID 30 FR	
<b>NEW/REPLACEMENT</b>					
<b>INSULATED</b>					
I-1-1-TG	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (GRANULE)		
I-2-1-TG	3	2 GAFGLAS PLY 4 OR 6	RUBEROID TORCH (GRANULE)		
I-1-2-TGPFR	3	GAFGLAS 75 BASE SHEET	RUBEROID TORCH	RUBEROID TORCH FR	
I-2-1-TGPFR	3	GAFGLAS 75 BASE SHEET AND 1 PLY 4 OR PLY 6	RUBEROID TORCH FR		
I-2-1-MGPFR	3	GAFGLAS 75 BASE SHEET AND 1 PLY 4 OR PLY 6	RUBEROID MOP FR		
I-0-2-20-MGPFR	2	NONE	RUBEROID 20 (SMOOTH)	RUBERIOD MOP FR	
I-3-1-TGPFR	4	3 GAFGLAS PLY 4 OR 6	RUBEROID TORCH FR		
I-3-1-MGPFR	4	3 GAFGLAS PLY 4 OR 6	RUBEROID MOP FR		
I-1-2-20-MGP	3	GAFGLAS 75 BASE SHEET	RUBEROID MOP 20	RUBEROID MOP PLUS	
I-1-2-MGPFR	3	GAFGLAS 75 BASE SHEET	RUBEROID MOP (SMOOTH)	RUBEROID MOP FR	
I-1-1-TSC	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (SMOOTH)		
I-2-1-TGP	3	2 GAFGLAS PLY 6	RUBEROID TORCH PLUS		
I-1-2-TGP	3	GAFGLAS 75 BASE SHEET	RUBEROID TORCH PLUS		
I-0-2-MGP	2	NONE	RUBEROID MOP 20	RUBEROID MOP PLUS	
I-1-2-20/30	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID 30	
I-1-2-20/30 FR	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID 30 FR	
I-0-2-20/30	2	NONE	RUBEROID 20	RUBEROID 30	
I-0-2-20/30 FR	2	NONE	RUBEROID 20	RUBEROID 30 FR	
I-1-2-20/MG	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID MOP (GRANULE)	
I-1-2-20/MGP	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID MOP PLUS	
I-1-2-20/MGPFR	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID MOP FR	
I-1-1-MGFR	2	GAFGLAS BASE SHEET	RUBEROID MOP 170FR		
I-1-1-MGP	2	GAFGLAS BASE SHEET	RUBEROID MOP PLUS		
I-2-1-MG	3	GAFGLAS PLY 4 OR 6	RUBEROID MOP (GRANULE)		
I-2-1-MGFR	3	GAFGLAS PLY 4 OR 6	RUBEROID MOP 170FR		
I-0-2-20/MG	2	NONE	RUBEROID 20	RUBEROID MOP (GRANULE)	

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **GAF MATERIALS CORPORATION**

<b>NEW/REPLACEMENT</b>					
<b>INSULATED (CONT'D)</b>					
I-O-2-20/MGP	2	NONE	RUBEROID 20	RUBEROID MOP PLUS	
I-O-2-20/MGFR	2	NONE	RUBEROID 20	RUBEROID MOP FR	
<b>NEW/REPLACEMENT</b>					
<b>AVAILABLE</b>					
N-1-1-TG	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (GRANULE)		
N-1-1-MG	2	GAFGLAS 75 BASE SHEET	RUBEROID MOP (GRANULE)		
N-1-1-TS	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (SMOOTH)		
N-1-1-TSC	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH (SMOOTH)		
N-1-1-M170FR	2	GAFGLAS 75 BASE SHEET	RUBEROID MOP 170 FR		
N-1-1-MG	3	GAFGLAS 75 BASE SHEET	RUBEROID MOP (GRANULE)		
N-1-2-MGP	3	GAFGLAS 75 BASE SHEET	RUBEROID MOP (SMOOTH)		
N-1-2-MGPFR	3	GAFGLAS 75 BASE SHEET	RUBEROID MOP (SMOOTH)	RUBEROID MOP PLUS	
N-1-2-TGP	3	STRATAVENT	RUBEROID TORCH SMOOTH	RUBEROID TORCH PLUS	
N-1-2-TGPFR	3	STRATAVENT	RUBEROID TORCH SMOOTH	RUBEROID TORCH FR	
N-2-1-MGP	3	GAFGLAS 75 BASE SHEET	RUBEROID MOP PLUS		
N-2-1-MGPFR	3	AND 1 PLY 4 OR PLY 6			
N-2-1-TGP	3	GAFGLAS STRATAVENT	RUBEROID MOP FR		
N-2-1-TGPFR	3	AND 1 PLY 4 OR PLY 6			
N-2-1-TGPFR	3	GAFGLAS STRATAVENT	RUBEROID TORCH PLUS		
N-2-1-TGPFR	3	AND GAFGLAS PLY 6			
N-2-1-TGPFR	3	GAFGLAS STRATAVENT	RUBEROID TORCH FR		
N-2-1-TGPFR	3	AND GAFGLAS PLY 6			
N-2-(20/P6)-1-M6P	3	GAFGLAS PLY 6	RUBEROID 20	RUBEROID MOP PLUS	
N-2-(20/P6)-1-M6PFR	3	GAFGLAS PLY 6	RUBEROID 20	RUBEROID MOP FR	
N-3-1-MGP	4	GAFGLAS STRATAVENT	RUBEROID MOP PLUS		
N-3-1-MGPFR	4	AND 2 PLY 4 OR PLY 6			
N-3-1-MGPFR	4	GAFGLAS STRATAVENT	RUBEROID MOP FR		
N-3-1-TGP	4	AND 2 PLY 4 OR PLY 6			
N-3-1-TGPFR	4	GAFGLAS STRATAVENT	RUBEROID TORCH PLUS		
N-3-1-TGPFR	4	AND 2 GAFGLAS PLY 6			
N-3-1-TGPFR	4	GAFGLAS STRATAVENT	RUBEROID TORCH FR		
N-1-2-20/30	3	AND 2 GAFGLAS PLY 6			
N-1-2-20/30	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID 30	
N-1-2-20/30 FR	3	OR 1 PLY 4 OR PLY 6			
N-1-2-20/MG	3	GAFGLAS 75 BASE SHEET	RUBEROID 20	RUBEROID 30 FR	
N-1-2-20/MG	3	OR 1 PLY 4 OR PLY 6			
N-1-2-20/MG	3	GAFGLAS STRATAVENT	RUBEROID 20	RUBEROID MOP (GRANULE)	
N-1-2-20/MGP	3	BASE SHEET			
N-1-2-20/MGP	3	GAFGLAS STRATAVENT	RUBEROID 20	RUBEROID MOP PLUS	
N-1-2-20/MGPFR	3	BASE SHEET			
N-1-2-20/MGPFR	3	GAFGLAS STRATAVENT	RUBEROID 20	RUBEROID MOP FR	
N-1-2-20/MGPFR	3	BASE SHEET			
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
R-1-1-TG	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH		
R-1-1-MG	2	GAFGLAS 75 BASE SHEET	RUBEROID MOP		
R-1-1-MSG	2	GAFGLAS STRATAVENT	RUBEROID MOP SMOOTH (GRAVEL)		
R-1-1-TS	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH		
R11M6FR	2	GAFGLAS STRATAVENT	RUBEROID MOP 170FR		
R-0-1-TG	1	NONE	RUBEROID TORCH		
R-0-1-TS	1	NONE	RUBEROID TORCH		
R-1-1-TSC	2	GAFGLAS 75 BASE SHEET	RUBEROID TORCH		

Company Name **W. R. GRACE & COMPANY**

<b>NEW/REPLACEMENT</b>					
<b>NONAVAILABLE</b>					
PRMA	1 OR 2	NONE	PRMA MEMBRANE		

Company Name **GS ROOFING PRODUCTS INC.**

<b>NEW/REPLACEMENT</b>					
<b>AVAILABLE</b>					
STA-N-B2	2	GLASBASE		FLINTLASTIC STA	
STA-N-B3	3		FLEXIGLAS BASE	FLINTLASTIC STA	
STA-N-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC STA
GTA-N-B2	2	GLASBASE		FLINTLASTIC GTA	
GTA-N-B3	3		FLEXIGLAS BASE	FLINTLASTIC STA	
GTA-N-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GTA
GTAFR-N-B2	2	GLASBASE		FLINTLASTIC GTA-FR	
GTAFR-N-B3	3		FLEXIGLAS BASE	FLINTLASTIC STA	
GTAFR-N-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GTA-FR
GMS-N-B2	2	GLASBASE		FLINTLASTIC GMS	
GMS-N-B3	3		FLEXIGLAS BASE	FLINTGLAS PLY IV	
GMS-N-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GMS
FRP-N-B2	2	GLASBASE		FLINTLASTIC FR-P	
FRP-N-B3	3		FLEXIGLAS BASE	FLINTLASTIC PLY IV	
FRP-N-B4	4		FLEXIGLAS BASE	FLINTLASTIC PLY IV (2 PLIES)	FLINTLASTIC FR-P
GTS-N-B2	2	GLASBASE		FLINTLASTIC GTS	
GTS-N-B3	3		FLEXIGLAS BASE	FLINTGLAS PLY IV	
GTS-N-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GTS
FRBC-N-B3	3	GLASBASE		FLEXIGLAS FR BASE	FLINTLASTIC FR CAP
FRBC-N-B4	4		FLEXIGLAS FR BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC FR CAP

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.					
Company Name <b>GS ROOFING PRODUCTS INC.</b>					
NEW/REPLACEMENT					
NONNAILABLE					
STA-C-B2	2	GLASBASE		FLINTLASTIC STA	
STA-C-B3	3		FLEXIGLAS BASE	FLINTLASTIC STA	FLINTLASTIC STA
STA-C-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC STA
GTA-C-B2	2	GLASBASE		FLINTLASTIC GTA	
GTA-C-B3	3		FLEXIGLAS BASE	FLINTLASTIC STA	FLINTLASTIC GTA
GTA-C-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GTA
NEW/REPLACEMENT					
NONNAILABLE (CONTD)					
GTAFR-C-B2	2	GLASBASE		FLINTLASTIC GTA-FR	
GTAFR-C-B3	3		FLEXIGLAS BASE	FLINTLASTIC STA	FLINTLASTIC GTA-FR
GTAFR-C-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GTA-FR
GMS-C-B2	2	GLASBASE		FLINTLASTIC GMS	
GMS-C-B3	3		FLEXIGLAS BASE	FLINTGLAS PLY IV	FLINTLASTIC GMS
GMS-C-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GMS
FRP-C-B2	2	GLASBASE		FLINTLASTIC FR-P	
FRP-C-B3	3		FLEXIGLAS BASE	FLINTLASTIC PLY IV	FLINTLASTIC FR-P
FRP-C-B4	4		FLEXIGLAS BASE	FLINTLASTIC PLY IV (2 PLIES)	FLINTLASTIC FR-P
GTS-C-B2	2	GLASBASE		FLINTLASTIC GTS	
GTS-C-B3	3		FLEXIGLAS BASE	FLINTGLAS PLY IV	FLINTLASTIC GTS
GTS-C-B4	4		FLEXIGLAS BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC GTS
FRBC-C-B2	2		FLEXIGLAS FR BASE	FLINTLASTIC FR CAP	
FRBC-C-B3	3		FLEXIGLAS FR BASE	FLEXIGLAS FR BASE	FLINTLASTIC FR CAP
FRBC-C-B4	4		FLEXIGLAS FR BASE	FLINTGLAS PLY IV (2 PLIES)	FLINTLASTIC FR CAP
NEW/REPLACEMENT	See description of the following specs under				
INSULATION	NEW/REPLACEMENT NAILABLE AND NONNAILABLE				
STA-N-B2/IN	GMS-C-B2/IC				
STA-N-B3/IN	GMS-C-B3/IC				
STA-N-B4/IN	GMS-C-B4/IC				
STA-C-B2/IC	FRP-N-B2/IN				
STA-C-B3/IC	FRP-N-B3/IN				
STA-C-B4/IC	FRP-N-B4/IN				
GTA-N-B2/IN	FRP-C-B2/IC				
GTA-N-B3/IN	FRP-C-B3/IC				
GTA-N-B4/IN	FRP-C-B4/IC				
GTA-C-B2/IC	GTS-N-B2/IN				
GTA-C-B3/IC	GTS-N-B3/IN				
GTA-C-B4/IC	GTS-N-B4/IN				
GTAFR-N-B2/IN	GTS-C-B2/IC				
GTAFR-N-B3/IN	GTS-C-B3/IC				
GTAFR-N-B4/IN	GTS-C-B4/IC				
GTAFR-C-B2/IC	FRBC-N-B3/IN				
GTAFR-C-B3/IC	FRBC-N-B4/IN				
GTAFR-C-B4/IC	FRBC-C-B2/IN				
GMS-N-B2/IN	FRBC-C-B3/IN				
GMS-N-B3/IN	FRBC-C-B4/IN				
GMS-N-B4/IN	& (All New/Replacement Specs /IS)				
RECOVER	See description of the following specs under				
EXISTING ROOF	NEW/REPLACEMENT NAILABLE AND NONNAILABLE				
STA-N-B2/RN	GMS-N-B2/RN	FRBC-N-B3/RN			
STA-N-B3/RN	GMS-N-B3/RN	FRBC-N-B4/RN			
STA-N-B4/RN	GMS-N-B4/RN	FRBC-C-B2/RC			
STA-C-B2/RC	GMS-C-B2/RC	FRBC-C-B3/RC			
STA-C-B3/RC	GMS-C-B3/RC	FRBC-C-B4/RC			
STA-C-B4/RC	GMS-C-B4/RC				
GTA-N-B2/RN	FRP-N-B2/RN				
GTA-N-B3/RN	FRP-N-B3/RN				
GTA-N-B4/RN	FRP-N-B4/RN				
GTA-C-B2/RC	FRP-C-B2/RC				
GTA-C-B3/RC	FRP-C-B3/RC				
GTA-C-B4/RC	FRP-C-B4/RC				
GTAFR-N-B2/RN	GTS-N-B2/RN				
GTAFR-N-B3/RN	GTS-N-B3/RN				
GTAFR-N-B4/RN	GTS-N-B4/RN				
GTAFR-C-B2/RC	GTS-C-B2/RC				
GTAFR-C-B3/RC	GTS-C-B3/RC				
GTAFR-C-B4/RC	GTS-C-B4/RC				
RECOVER					
EXISTING ROOF	(All New/Replacement Specs /RI)				
INSULATION ADDED					

## Modified Bitumen Part 3: Modified Bitumen Specifications

Company Name **ICA, INC.**

NEW/REPLACEMENT					
NONNAILABLE					
PS1-N	1	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH		
PS2-N	2	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP SMOOTH	
PM1-N	1	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP MINERAL OR SLATE		
PM2-N	2	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP MINERAL OR SLATE	
NEW/REPLACEMENT					
NONNAILABLE					
PS1-NN	1	NONE	ICA PREMIUM APP SMOOTH		
PS2-NN	2	NONE	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP SMOOTH	
PM1-NN	1	NONE	ICA PREMIUM APP MINERAL OR SLATE		
PM2-NN	2	NONE	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP MINERAL OR SLATE	
TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET
NEW/REPLACEMENT INSULATED					
PS1-NI	1	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH		
PS2-NI	2	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP SMOOTH	
PM1-NI	1	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP MINERAL		
PM2-NI	2	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP MINERAL OR SLATE	
PS1-NNI	1	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH		
PS2-NNI	2	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP SMOOTH	
PM1-NNI	1	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP MINERAL		
PM2-NNI	2	ICA FIBERGLASS 62 BASE SHEET	ICA PREMIUM APP SMOOTH	ICA PREMIUM APP MINERAL OR SLATE	
RECOVER					
EXISTING ROOF	See New/Replacement: Nailable and Nonnailable				
RECOVER					
EXISTING ROOF					
INSULATION ADDED	See New/Replacement: Insulated				

Company Name **IKO INDUSTRIES INC.**

NEW/REPLACEMENT					
NONNAILABLE					
IKO #5	2	IKO GLASS BASE OR IKO ORGANIC BASE	IKO ARMOURPLAST OR IKO MODIFLEX OR IKO TORCHFLEX		
NEW/REPLACEMENT					
NAILABLE					
IKO #3	2	IKO GLASS BASE OR IKO ORGANIC BASE	IKO ARMOURPLAST OR IKO MODIFLEX		
NEW/REPLACEMENT					
INSULATED					
IKO #4	2	IKO GLASS BASE OR IKO ORGANIC BASE	IKO ARMOURPLAST OR IKO MODIFLEX OR IKO TORCHFLEX		
RECOVER					
EXISTING ROOF					
IKO #1	2	IKO GLASS BASE OR IKO ORGANIC BASE	IKO ARMOURPLAST OR IKO MODIFLEX OR IKO TORCHFLEX		
RECOVER					
EXISTING ROOF					
INSULATION ADDED					
IKO #2	2	IKO GLASS BASE OR IKO ORGANIC BASE	IKO ARMOURPLAST OR IKO MODIFLEX OR IKO TORCHFLEX		

Company Name **JOHNS MANVILLE INTERNATIONAL, INC.**

NEW/REPLACEMENT					
NONNAILABLE					
2CID	2	GLASPLY PREMIER	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
2CID	2	GLASBASE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	
2CID	2	NONE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
2CID-C	2	GLASBASE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
2CID-C	2	NONE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
2CIG	2	GLASPLY PREMIER OR GLASBASE	DYNAPLY OR DYNAKAP		
2CIG	2	NONE	DYNABASE	DYNAPLY OR DYNAKAP	
2FID	2	GLASPLY IV OR GLASBASE	DYNAGLAS OR DYNAGLAS FR		
2FID	2	NONE	DYNABASE	DYNAGLAS, DYNAGLAS 30FR, OR DYNAGLAS FR	
2FID-C	2	NONE	DYNABASE	DYNAGLAS, DYNAGLAS 30FR, OR DYNAGLAS FR	

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.					
Company Name <b>JOHNS MANVILLE INTERNATIONAL, INC.</b>					
NEW/REPLACEMENT					
NONAVAILABLE (CONT'D)					
2PID	2	GLASPLY PREMIER	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR	
2PID	2	GLASBASE	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR		
2PID	2	NONE	DYNALASTIC 180S		
3CID	3	TWO GLASPLY PREMIER	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
3CID-C	3	TWO GLASPLY PREMIER	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
3FID	3	TWO GLASPLY PREMIER	DYNAGLAS OR DYNAGLAS FR		
3FID-C	3	TWO GLASPLY PREMIER	DYNAGLAS OR DYNAGLAS FR		
3PID	3	TWO GLASPLY PREMIER	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR		
3PID-C	3	TWO GLASPLY PREMIER	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR		
NEW/REPLACEMENT					
NONAVAILABLE (CONT'D)					
2CBS-W/2PBS-W	2	GLASBASE, PP28	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES	
2CBN-W/2PBN-W	2	GLASBASE, PP28	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES		
3CBS-W/3PBS-W	3	GLASBASE, PP28	JOHNS MANVILLE APP BASE		
3CBN-W/3PBN-W	3	GLASBASE, PP28	JOHNS MANVILLE APP BASE		
NEW/REPLACEMENT					
INSULATED					
1CIN-W/1PIS-W	1	NONE	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES	
1CIN-W/1PIN-W	1	NONE	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES		
2CIS-W/2PIS-W	2	GLASBASE, PP28	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES		
2CIS-W/2PIS-W	2	NONE	JOHNS MANVILLE APP BASE		
2CIN-W/2PIN-W	2	GLASBASE, PP28	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES		
2CIN-W/2PIN-W	2	NONE	JOHNS MANVILLE APP BASE		
3CIS-W/3PIS-W	3	GLASBASE, PP28	JOHNS MANVILLE APP BASE		
3CIS-W/3PIS-W	3	NONE	JOHNS MANVILLE APP BASE		
3CIN-W/3PIN-W	3	GLASBASE, PP28	JOHNS MANVILLE APP BASE	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES
3CIN-W/3PIN-W	3	NONE	JOHNS MANVILLE APP BASE	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES	
NEW/REPLACEMENT					
NAILABLE					
2CND	2	VENTSULATION OR GLASBASE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	
2CND	2	NONE	DYNABASE		
2CND-C	2	VENTSULATION OR GLASBASE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	
2CND-C	2	NONE	DYNABASE		
2CNG	2	VENTSULATION OR GLASBASE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR	
2CNG	2	NONE	DYNABASE		
2FND	2	VENTSULATION OR GLASBASE	DYNAGLAS OR DYNAGLAS FR	DYNAGLAS, DYNAGLAS 30FR, OR DYNAGLAS FR	
2FND	2	NONE	DYNABASE		
2FND-C	2	VENTSULATION OR GLASBASE	DYNAGLAS OR DYNAGLAS FR	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR	
2PND	2	VENTSULATION OR GLASBASE	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR		
2PND	2	NONE	DYNALASTIC 180S		
2PND-C	2	VENTSULATION OR GLASBASE	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR		
3CND	3	VENTSULATION OR GLASBASE	DYNAKAP, DYNAKAP FR, DYNAMAX, OR DYNAMAX FR		
3CLD	3	VENTSULATION	DYNABASE		
3FND	3	VENTSULATION OR GLASBASE	DYNAGLAS OR DYNAGLAS FR		
3FLD	3	VENTSULATION	DYNABASE		
3PND	3	VENTSULATION OR	DYNALASTIC 180, DYNALASTIC 180 FR,		

## Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **JOHNS MANVILLE INTERNATIONAL, INC.**

<b>NEW/REPLACEMENT</b> <b>AVAILABLE (CONTD)</b>					
3PLD	3	VENTSULATION	DYNALASTIC 180S	DYNALASTIC 180, DYNALASTIC 180 FR, DYNALASTIC 250, OR DYNALASTIC 250 FR	
2CNS-W/2PNS-W	2	GLASBASE, PP28	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES JOHNS MANVILLE APP BASE	CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES	
2CNS-W/2PNS-W	2	NONE			
2CNN-W/2PNN-W	2	GLASBASE, PP28	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES JOHNS MANVILLE APP BASE		
2CNN-W/2PNN-W	2	NONE		CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES APPEX SERIES	
3CNS-W/3PNS-W	3	GLASBASE, PP28	JOHNS MANVILLE APP BASE		CLASSIC SERIES, TRICOR, BICOR, OR APPEX SERIES
3CNS-W/3PNS-W	3	NONE	JOHNS MANVILLE APP BASE		
3CNN-W/3PNN-W	3	GLASBASE, PP28	JOHNS MANVILLE APP BASE	CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES APPEX SERIES	
3CNN-W/3PNN-W	3	NONE	JOHNS MANVILLE APP BASE		CLASSIC SERIES, TRICOR M, TRICOR M FR, OR APPEX SERIES
<b>RECOVER</b> <b>EXISTING ROOF</b> <b>INSULATION ADDED</b>					
See New/Replacement, Nonavailable and Insulated					

Company Name **KOPPERS INDUSTRIES, INC.**

<b>NEW/REPLACEMENT</b> <b>NONAVAILABLE</b>					
403	2	KOPPERS BASE SHEET	2040-S, 2040-M		
403	2	KOPPERS BASE SHEET	2050-S		
415	2	KOPPERS BASE SHEET	2041-S, 2041-M		
415	2	KOPPERS BASE SHEET	2045-M		
<b>NEW/REPLACEMENT</b> <b>INSULATED</b>					
404	2	KOPPERS BASE SHEET	2040-S, 2040-M		
404	2	KOPPERS BASE SHEET	2050-S		
416	2	KOPPERS BASE SHEET	2041-S, 2041-M		
416	2	KOPPERS BASE SHEET	2045-M		
423	3	KOPPERS BASE SHEET	2042 FR BASE	2042 MFR CAP	
428	3	KOPPERS BASE SHEET	2042 FR BASE	2045 MFR CAP	
<b>NEW/REPLACEMENT</b> <b>AVAILABLE</b>					
401	2	KOPPERS BASE SHEET	2040-S, 2040-M		
401	2	KOPPERS BASE SHEET	2050-S		
402	2	KOPPERS BASE SHEET	2040-S, 2040-M		
402	2	KOPPERS BASE SHEET	2050-S		
412	2	KOPPERS BASE SHEET	2041-S, 2041-M		
412	2	KOPPERS BASE SHEET	2045-M		
414	2	KOPPERS BASE SHEET	2041-S, 2041-M		
414	2	KOPPERS BASE SHEET	2045-M		
421	3	KOPPERS BASE SHEET	2042 FR BASE	2042 MFR CAP	
422	3	KOPPERS BASE SHEET	2042 FR BASE	2042 MFR CAP	
426	3	KOPPERS BASE SHEET	2042 FR BASE	2045 MFR CAP	
427	3	KOPPERS BASE SHEET	2042 FR BASE	2045 MFR CAP	
<b>RECOVER</b> <b>EXISTING ROOF</b>					
406	2	KOPPERS BASE SHEET	2040-S, 2040-M		
406	2	KOPPERS BASE SHEET	2050-S		
418	2	KOPPERS BASE SHEET	2041-S, 2041-M		
418	2	KOPPERS BASE SHEET	2045-M		
<b>RECOVER</b> <b>EXISTING ROOF</b> <b>INSULATION ADDED</b>					
405	2	KOPPERS BASE SHEET	2040-S, 2040-M		
405	2	KOPPERS BASE SHEET	2050-S		
417	2	KOPPERS BASE SHEET	2041-S, 2041-M		
417	2	KOPPERS BASE SHEET	2045-M		
424	3	KOPPERS BASE SHEET	2042 FR BASE	2042 MFR CAP	
429	3	KOPPERS BASE SHEET	2042 FR BASE	2045 MFR CAP	

Company Name **MALARKEY ROOFING COMPANY**

<b>NEW/REPLACEMENT</b> <b>NONAVAILABLE</b>					
S2-BXF	2		#501 PREMIUM I		#919 POLYGLASS SMOOTH
S2-CXF	2		#602 ARCTIC SHIELD		#919 POLYGLASS SMOOTH
S2-DXF	2		#603 SUPERBASE		#919 POLYGLASS SMOOTH
S2-EXF	2		#605 PANOPLY		#919 POLYGLASS SMOOTH
S3-BBF	3		#501 PREMIUM I	#501 PREMIUM I	#919 POLYGLASS SMOOTH
S3-EBF	3		#605 PANOPLY	#501 PREMIUM I	#919 POLYGLASS SMOOTH
S3-EEF	3		#605 PANOPLY	#605 PANOPLY	#919 POLYGLASS SMOOTH

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.					
Company Name	MALARKEY ROOFING COMPANY				
NEW/REPLACEMENT					
NONNAILABLE (CONTD)					
S3-FHF	3		#1000 ESHAVENT	#500 PREMIUM	#919 POLYGLASS SMOOTH
S3-FIF	3		#1000 ESHAVENT	#506 SUPER 6	#919 POLYGLASS SMOOTH
S3-FBF	3		#1000 ESHAVENT	#501 PREMIUM I	#919 POLYGLASS SMOOTH
A2-DXF	2		#603 SUPERBASE		#919 POLYGLASS SMOOTH
A2-EXF	2		#605 PANOLPY		#919 POLYGLASS SMOOTH
A3-BBF	3		#501 PREMIUM I	#501 PREMIUM I	#919 POLYGLASS SMOOTH
A3-EBF	3		#605 PANOLPY	#501 PREMIUM I	#919 POLYGLASS SMOOTH
A4-BBF	4		#501 PREMIUM I	#501 PREMIUM I	#919 POLYGLASS SMOOTH
A4-EBF	4		#605 PANOLPY	#501 PREMIUM I	#919 POLYGLASS SMOOTH
M2-CXB	2		#602 ARCTIC SHIELD		#601 PREMIUM MINERAL
M2-DXB	2		#603 SUPERBASE		#601 PREMIUM MINERAL
M2-EXB	2		#605 PANOLPY		#601 PREMIUM MINERAL
M3-BHB	3		#501 PREMIUM I	#500 PREMIUM	#601 PREMIUM MINERAL
M3-BIB	3		#501 PREMIUM I	#506 SUPER 6	#601 PREMIUM MINERAL
M3-BBB	3		#501 PREMIUM I	#501 PREMIUM I	#601 PREMIUM MINERAL
M3-BCB	3		#501 PREMIUM I	#602 ARCTIC SHIELD	#601 PREMIUM MINERAL
M3-BDB	3		#501 PREMIUM I	#603 SUPER BASE	#601 PREMIUM MINERAL
M3-EHB	3		#605 PANOLPY	#500 PREMIUM	#601 PREMIUM MINERAL
M3-EIB	3		#605 PANOLPY	#506 SUPER 6	#601 PREMIUM MINERAL
M3-EBB	3		#605 PANOLPY	#501 PREMIUM I	#601 PREMIUM MINERAL
M3-EEB	3		#605 PANOLPY	#605 PANOLPY	#601 PREMIUM MINERAL
M3-FHB	3		#1000 ESHAVENT	#500 PREMIUM	#601 PREMIUM 1 MINERAL
M3-FIB	3		#1000 ESHAVENT	#506 SUPER 6	#601 PREMIUM 1 MINERAL
M3-FBB	3		#1000 ESHAVENT	#501 PREMIUM I	#601 PREMIUM 1 MINERAL
M3-FEB	3		#1000 ESHAVENT	#605 PANOLPY	#601 PREMIUM 1 MINERAL
M4-BHB	4		#501 PREMIUM I	#500 PREMIUM	#601 PREMIUM 1 MINERAL
M4-BIB	4		#501 PREMIUM I	#506 SUPER 6	#601 PREMIUM 1 MINERAL
M4-BBB	4		#501 PREMIUM I	#501 PREMIUM I	#601 PREMIUM 1 MINERAL
M4-EBB	4		#605 PANOLPY	#501 PREMIUM I	#601 PREMIUM 1 MINERAL
M4-EHB	4		#1000 ESHAVENT	#500 PREMIUM	#601 PREMIUM 1 MINERAL
M4-FIB	4		#1000 ESHAVENT	#506 SUPER 6	#601 PREMIUM 1 MINERAL
M4-FBB	4		#1000 ESHAVENT	#501 PREMIUM I	#601 PREMIUM 1 MINERAL
M4-FEB	4		#1000 ESHAVENT	#605 PANOLPY	#601 PREMIUM 1 MINERAL
M5-EIB	5		#501 PREMIUM I	#506 SUPER 6	#601 PREMIUM 1 MINERAL
M5-EHB	5		#605 PANOLPY	#500 PREMIUM	#601 PREMIUM 1 MINERAL
M5-BIB	5		#605 PANOLPY	#506 SUPER 6	#601 PREMIUM 1 MINERAL
M2-CXC	2		#602 ARCTIC SHIELD		#625 PARAGON MINERAL
M2-DXC	2		#603 SUPERBASE		#625 PARAGON MINERAL
M2-EXC	2		#605 PANOLPY		#625 PARAGON MINERAL
M3-BHC	3		#501 PREMIUM I	#500 PREMIUM	#625 PARAGON MINERAL
M3-BIC	3		#501 PREMIUM I	#506 SUPER 6	#625 PARAGON MINERAL
M3-BBC	3		#501 PREMIUM I	#501 PREMIUM I	#625 PARAGON MINERAL
M3-EHC	3		#605 PANOLPY	#500 PREMIUM	#625 PARAGON MINERAL
M3-EIC	3		#605 PANOLPY	#506 SUPER 6	#625 PARAGON MINERAL
M3-EBC	3		#605 PANOLPY	#501 PREMIUM I	#625 PARAGON MINERAL
M3-EEC	3		#605 PANOLPY	#605 PANOLPY	#625 PARAGON MINERAL
M3-FHC	3		#1000 ESHAVENT	#500 PREMIUM	#625 PARAGON MINERAL
M3-FIC	3		#1000 ESHAVENT	#506 SUPER 6	#625 PARAGON MINERAL
M3-FBC	3		#1000 ESHAVENT	#501 PREMIUM I	#625 PARAGON MINERAL
M3-FCC	3		#1000 ESHAVENT	#602 ARCTIC SHIELD	#625 PARAGON MINERAL
M3-FDC	3		#1000 ESHAVENT	#603 SUPERBASE	#625 PARAGON MINERAL
M3-FEC	3		#1000 ESHAVENT	#605 PANOLPY	#625 PARAGON MINERAL
M4-BHC	4		#501 PREMIUM I	#500 PREMIUM	#625 PARAGON MINERAL
M4-BIC	4		#501 PREMIUM I	#506 SUPER 6	#625 PARAGON MINERAL
M4-BBC	4		#501 PREMIUM I	#501 PREMIUM I	#625 PARAGON MINERAL
M4-EHC	4		#605 PANOLPY	#500 PREMIUM	#625 PARAGON MINERAL
M4-EIC	4		#605 PANOLPY	#506 SUPER 6	#625 PARAGON MINERAL
M4-EBC	4		#605 PANOLPY	#501 PREMIUM I	#625 PARAGON MINERAL
M4-FHC	4		#1000 ESHAVENT	#500 PREMIUM	#625 PARAGON MINERAL
M4-FIC	4		#1000 ESHAVENT	#506 SUPER 6	#625 PARAGON MINERAL
M4-FBC	4		#1000 ESHAVENT	#501 PREMIUM I	#625 PARAGON MINERAL
M4-FEC	4		#1000 ESHAVENT	#605 PANOLPY	#625 PARAGON MINERAL
M5-BHC	5		#501 PREMIUM I	#500 PREMIUM	#625 PARAGON MINERAL
M5-BIC	5		#501 PREMIUM I	#506 SUPER 6	#625 PARAGON MINERAL
M5-BBC	5		#501 PREMIUM I	#501 PREMIUM I	#625 PARAGON MINERAL
M5-EBC	5		#605 PANOLPY	#501 PREMIUM I	#625 PARAGON MINERAL
M5-FHC	5		#1000 ESHAVENT	#500 PREMIUM	#625 PARAGON MINERAL
M5-FIC	5		#1000 ESHAVENT	#506 SUPER 6	#625 PARAGON MINERAL
M5-FBC	5		#1000 ESHAVENT	#501 PREMIUM I	#625 PARAGON MINERAL
M2-CXD	2		#602 ARCTIC SHIELD		#650 PANOLPY MINERAL
M2-DXD	2		#603 SUPERBASE		#650 PANOLPY MINERAL
M2-EXD	2		#605 PANOLPY		#650 PANOLPY MINERAL
M3-BHD	3		#501 PREMIUM I	#500 PREMIUM	#650 PANOLPY MINERAL
M3-BID	3		#501 PREMIUM I	#506 SUPER 6	#650 PANOLPY MINERAL
M3-BBD	3		#501 PREMIUM I	#501 PREMIUM I	#650 PANOLPY MINERAL
M3-EHD	3		#605 PANOLPY	#500 PREMIUM	#650 PANOLPY MINERAL
M3-EID	3		#605 PANOLPY	#506 SUPER 6	#650 PANOLPY MINERAL



# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET
Company Name MALARKEY ROOFING COMPANY					
NEW/REPLACEMENT					
NONNAILABLE (CONT'D)					
M3-EBD	3		#605 PANOPLY	#501 PREMIUM I	#650 PANOPLY MINERAL
M3-EED	3		#605 PANOPLY	#605 PANOPLY	#650 PANOPLY MINERAL
M3-FHD	3		#1000 ESHAVENT	#500 PREMIUM	#650 PANOPLY MINERAL
M3-FID	3		#1000 ESHAVENT	#506 SUPER 6	#650 PANOPLY MINERAL
M3-FBD	3		#1000 ESHAVENT	#501 PREMIUM I	#650 PANOPLY MINERAL
M3-FED	3		#1000 ESHAVENT	#605 PANOPLY	#650 PANOPLY MINERAL
M4-BHD	4		#501 PREMIUM I	#500 PREMIUM	#650 PANOPLY MINERAL
M4-BID	4		#501 PREMIUM I	#506 SUPER 6	#650 PANOPLY MINERAL
M4-BBD	4		#501 PREMIUM I	#501 PREMIUM I	#650 PANOPLY MINERAL
M4-EHD	4		#605 PANOPLY	#500 PREMIUM	#650 PANOPLY MINERAL
M4-EID	4		#605 PANOPLY	#506 SUPER 6	#650 PANOPLY MINERAL
M4-EBD	4		#605 PANOPLY	#501 PREMIUM I	#650 PANOPLY MINERAL
M4-FHD	4		#1000 ESHAVENT	#500 PREMIUM	#650 PANOPLY MINERAL
M4-FID	4		#1000 ESHAVENT	#506 SUPER 6	#650 PANOPLY MINERAL
M4-FBD	4		#1000 ESHAVENT	#501 PREMIUM I	#650 PANOPLY MINERAL
M4-FED	4		#1000 ESHAVENT	#605 PANOPLY	#650 PANOPLY MINERAL
M5-EHD	5		#605 PANOPLY	#500 PREMIUM	#650 PANOPLY MINERAL
M5-EID	5		#605 PANOPLY	#506 SUPER 6	#650 PANOPLY MINERAL
M5-EBD	5		#605 PANOPLY	#501 PREMIUM I	#650 PANOPLY MINERAL
M5-FHD	5		#1000 ESHAVENT	#500 PREMIUM	#650 PANOPLY MINERAL
M5-FID	5		#1000 ESHAVENT	#506 SUPER 6	#650 PANOPLY MINERAL
M5-FBD	5		#1000 ESHAVENT	#501 PREMIUM I	#650 PANOPLY MINERAL
M2-BXE	2		#501 PREMIUM I		#917 POLYGLASS MINERAL
M2-CXE	2		#602 ARCTIC SHIELD		#917 POLYGLASS MINERAL
M2-DXE	2		#603 SUPERBASE		#917 POLYGLASS MINERAL
M2-EXE	2		#605 PANOPLY		#917 POLYGLASS MINERAL
M3-BBE	3		#501 PREMIUM I	#501 PREMIUM I	#917 POLYGLASS MINERAL
M3-EBE	3		#605 PANOPLY	#501 PREMIUM I	#917 POLYGLASS MINERAL
M3-EEE	3		#605 PANOPLY	#605 PANOPLY	#917 POLYGLASS MINERAL
M3-FHE	3		#1000 ESHAVENT	#500 PREMIUM	#917 POLYGLASS MINERAL
M3-FIE	3		#1000 ESHAVENT	#506 SUPER 6	#917 POLYGLASS MINERAL
M3-FBE	3		#1000 ESHAVENT	#501 PREMIUM I	#917 POLYGLASS MINERAL
M3-FEE	3		#1000 ESHAVENT	#605 PANOPLY	#917 POLYGLASS MINERAL
M4-BBE	4		#501 PREMIUM I	#501 PREMIUM I	#917 POLYGLASS MINERAL
M4-EBE	4		#605 PANOPLY	#501 PREMIUM I	#917 POLYGLASS MINERAL
F2-BXG	2		#501 PREMIUM I		#1020 ESHALUM
F2-EXG	2		#605 PANOPLY		#1020 ESHALUM
F3-BHG	3		#501 PREMIUM I	#500 PREMIUM	#1020 ESHALUM
F3-BIG	3		#501 PREMIUM I	#506 SUPER 6	#1020 ESHALUM
F3-BBG	3		#501 PREMIUM I	#501 PREMIUM I	#1020 ESHALUM
F3-EHG	3		#605 PANOPLY	#500 PREMIUM	#1020 ESHALUM
F3-EIG	3		#605 PANOPLY	#506 SUPER 6	#1020 ESHALUM
F3-EBG	3		#605 PANOPLY	#501 PREMIUM I	#1020 ESHALUM
NEW/REPLACEMENT	See description of the following specs under				
NAILABLE	NEW/REPLACEMENT NONNAILABLE				
S2-BXF	S2-CXF	S2-DXF			
S2-EXF	S3-BBF	S3-EBF			
S3-EEF	S4-BBF	S4-EBF			
A3-BBF	A3-EBF	A4-BBF			
A4-EBF	N3-BHB	N3-BIB			
M3-BBB	M3-BCB	M3-BDB			
M3-EHB	M3-EIB	M3-EBB			
M3-EEB	M4-BHB	M4-BIB			
M4-BBB	M4-EEB	M5-BHB			
M5-BIB	M5-EHB	M5-EIB			
M3-BHC	M3-BIC	M3-BBC			
M3-EHC	M3-EIC	M3-EBC			
M3-EEC	M4-BHC	M4-BIC			
M4-BBC	M4-EHC	M4-EIC			
M4-EBC	M5-BHC	M5-BIC			
M5-BBC	M5-EBC	M3-BHD			
M3-BID	M3-BBD	M3-EHD			
M3-EID	M3-EBD	M3-EED			
M4-BHD	M4-BID	M4-BBD			
M4-EHD	M4-EID	M4-EBD			
M5-EHD	M5-EID	M5-EBD			
M2-BXE	M2-CXE	M2-DXE			
M2-EXE	M3-BBE	M3-EBE			
M3-EEE	M4-BBE	M4-EBE			
M3-FEE	M4-BBE	M4-EBE			
F2-BXG	F2-EXG	F3-BHG			
F3-BIG	F3-BBG	F3-EHG			
F3-EIG	F3-EBG				
NEW/REPLACEMENT	See description of the following specs under				
INSULATED	NEW/REPLACEMENT NONNAILABLE				
S2-BXF	S2-CXF	S2-DXF			
S2-EXF	S3-BBF	S3-EBF			
S3-EEF	S3-FHF	S3-FIF			
S3-FBF	S3-FEF	S4-BBF			
S4-EBF	A2-BXF	A2-CXF			
A2-DXF	A2-EXF	A3-BBF			

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET
Company Name <b>MALARKEY ROOFING COMPANY</b>					
NEW/REPLACEMENT INSULATED (CONT'D)		See description of the following specs under NEW/REPLACEMENT NONNAILABLE			
A3-EBF	A4-BBF	A4-EBF			
M2-CXB	M2-DXB	M2-EXB			
M3-BHB	M5-BIB	M3-BBB			
M3-BCB	M3-BDB	M3-EHB			
M3-EIB	M3-EBB	M3-EEB			
M3-FHB	M3-FIB	M3-FBB			
M3-FEB	M4-BHB	M4-BIB			
M4-BBB	M4-EBB	M4-FEB			
M5-BHB	M5-BIB	M5-EIB			
M2-CXC	M2-DXC	M2-EXC			
M3-BHC	M3-BIC	M3-BBC			
M3-EHC	M3-EIC	M3-EBC			
M3-EEC	M3-FHC	M3-FIC			
M3-FBC	M3-FCC	M3-FDC			
M3-FEC	M4-BHC	M4-BIC			
M4-BBC	M4-EHC	M4-EIC			
M4-EBC	M4-FHC	M4-FIC			
M4-FBC	M4-FEC	M5-BHC			
M5-BIC	M5-BBC	M5-EBC			
M6-FHC	M5-FIC	M5-FBC			
M2-CXD	M2-DXD	M2-EXD			
M3-BHD	M3-BID	M3-BBD			
M3-EHD	M3-EID	M3-EBD			
M3-EED	M3-FHD	M3-FID			
M3-FBD	M3-FED	M4-BHD			
M4-BID	M4-BBD	M4-EHD			
M4-EID	M4-EBD	M4-FHD			
M4-FID	M4-FBD	M4-FED			
M5-EHD	M5-EID	M5-EBD			
M5-FHD	M5-FID	M5-FBD			
M2-BXE	M2-CXE	M2-DXE			
M2-EXE	M3-BBE	M3-EBE			
M3-EEE	M3-FHE	M3-FIE			
M3-FBE	M3-FEE	M4-BBE			
M4-EBE	F2-BXG	F2-EXG			
F3-BHG	F3-BIG	F3-BBG			
F3-EHG	F3-EIG	F3-EBG			
RECOVER EXISTING ROOF		See description of the following specs under NEW/REPLACEMENT NONNAILABLE			
S3-BBF	S3-EBF	S3-EEF			
S3-FHF	S3-FIF	S3-FBF			
S3-FEF	S4-BBF	S4-EBF			
A3-BBF	A3-EBF	A4-BBF			
A4-EBF	M3-BHB	M5-BIB			
M3-BBB	M3-BCB	M3-BDB			
M3-EHB	M3-EIB	M3-EBB			
M3-EEB	M3-FHB	M3-FIB			
M3-FBB	M3-FEB	M4-BHB			
M4-BIB	M4-BBB	M4-EBB			
M4-FHB	M4-FIB	M4-FBBJ			
M4-FEB	M5-BHB	M5-BIB			
M5-RHB	M5-EIB	M3-BHC			
M3-BIC	M3-BBC	M3-EHC			
M3-EIC	M3-EBC	N3-EEC			
M3-FHC	M3-FIC	M3-FBC			
M3-FCC	M3-FDC	M3-FEC			
M4-BHC	M4-BIC	M4-BBC			
M4-EHC	M4-EIC	M4-EBC			
M4-FHC	M4-FIC	M4-FBC			
M4-FEC	M5-BHC	M5-BIC			
M5-BBC	M5-EBC	M5-FHC			
M5-FIC	M5-FBC	M3-BHD			
M3-BID	M3-BBD	M3-EHD			
M3-EID	M3-EBD	M3-EED			
M3-FHD	M3-FID	M3-FBD			
M3-FED	M4-BHD	M4-BID			
M4-BBD	M4-EHD	M4-EID			
M4-EBD	M4-FHD	M4-FID			
ME-FBD	M4-FED	M5-EHD			
M5-EID	M5-EBD	M5-FHD			
M5-FID	M5-FBD	M3-BBE			
M3-EBE	M3-EEE	M3-FHE			
M3-FIE	M3-FBE	M3-FEE			
M4-BBE	M4-EBE	F3-BHG			
F3-BIG	F3-BBG	F3-EHG			
F3-EIG	F3-EBG				
RECOVER EXISTING ROOF INSULATION ADDED		See description of the following specs under NEW/REPLACEMENT NONNAILABLE			
S2-BXF	S2-CXF	S2-DXF			
S2-EXF	S3-BBF	S3-EBF			
S3-EEF	S3-FHF	S3-FIF			
S3-FBF	S3-FEF	S4-BBF			
S4-EBF	A2-BXF	A2-CXF			
A2-DXF	A2-EXF	A3-BBF			

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **MALARKEY ROOFING COMPANY**

RECOVER	See description of the following specs under		
EXISTING ROOF	NEW/REPLACEMENT NONNAILABLE		
INSULATION ADDED (CONTD)			
A3-EBF	A4-BBF	A4-EBF	
M2-CXB	M2-DXB	M2-EXB	
M3-BHB	MS-BIB	M3-BBB	
M3-BCB	M3-BDB	M3-EHB	
M3-EIB	M3-EBB	M3-EEB	
M3-FHB	M3-FIB	M3-FBB	
M3-FEB	M4-BHB	M4-BIB	
M4-BBB	M4-EBB	M4-EHB	
M5-BHB	M5-EIB	M5-EHB	
M5-BIB	M2-CXC	M2-DXC	
M2-EXC	M3-BHC	M3-BIC	
M3-BBC	M3-EHC	M3-EIC	
M3-EBC	M3-EEC	M3-FHC	
M3-FIC	M3-FBC	M3-FCC	
M3-FDC	M3-FEC	M4-BHC	
M4-BIC	M4-BBC	M4-EHC	
M4-EIC	M4-EBC	M4-FHC	
M4-FIC	M4-FBC	M4-FEC	
M5-BHC	M5-BIC	M5-BBC	
M5-EBC	M5-FHC	M5-FIC	
M5-FBC	M2-CXD	M2-DXD	
M2-EXD	M3-BHD	M3-BID	
M3-BBD	M3-EHD	M3-EID	
M3-EBD	M3-EED	M3-FHD	
M3-FID	M3-FBD	M3-FED	
M4-BHD	M4-BID	M4-BBD	
M4-EHD	M4-EID	M4-EBD	
M4-FHD	M4-FID	M4-FBD	
M4-FED	M4-EHD	M4-EID	
M4-EBD	M5-FHD	M5-FID	
M5-FBD	M2-BXE	M2-CXE	
M2-DXE	M2-EXE	M3-BBE	
M3-EBE	M3-EEE	M3-FHE	
M3-FIE	M3-FBE	M3-FEE	
M4-BBE	M4-EBE	F2-BXG	
F2-EXG	F3-BHG	F3-BIG	
F3-BBG	F3-EHG	F3-EIG	
F3-EBG			

Company Name **MBTECHNOLOGY**

NEW/REPLACEMENT NONNAILABLE					
C4H-SC100GWH	4		LF25	LF25 (2)	SC100GWH
C3H-FG90GWH	3		LF25	LF60	FG90GWH
C3H-FG160GWH	3		LF25	LF25	FG160CWH
C3H-FG160GWH	3		LF25	LF60	FG160GWH
C2H-FG160CWH	2		LF25	FG160CWH	
C3H-FG160CWH	3		LF25	SF160PSA	FG160CWH
C3H-MF160WAL	3		LF25	LF60	MF160WAL
C3H-MF160WAL	3		LF25	SF160PSA	MF160WAL
C4H-LF25	4		LF25	LF 25 (2)	LF 25 + PROTECTION
NEW/REPLACEMENT INSULATED					
I4H-SC100GWH	4		LF25	LF25 (2)	SC100GWH
I2H-FG90GWH	2			LF60	FG90GWH
I3H-FG160CWH	3		LF25	LF25	FG160CWH
I2H-FG160CWH	2			LF60	FG160CWH
I2H-FG160CWH	2			SF160PSA	FG160CWH
I2H-FG160CWH	2		LF25		FG160CWH
I2H-MF160WAL	2			LF60	MF160WAL
I2H-MF160WAL	2			SF160PSA	MF160WAL
I2T-FGFT160CWH	2		LF25		FGFT160CWH
I3T-FGFT160CWH	3		LF25	FT160CSA	FGFT160CWH
I3HT-FG160CWH	3		LF25	SF160PSA	FG160CWH
NEW/REPLACEMENT NAILABLE					
W4H-SC100GWH	4		LF25	LF25 (2)	SC100GWH
W3H-FG90GWH	3		LF25	LF60	FG90GWH
W3H-FG160CWH	3		LF25	LF25	FG160CWH
W3T-MF160WAL	3		LF25	FT160CSA	MF160WAL
L3T-MF160WAL	3		LF25	FT160CSA	MF160WAL
L4H-SC75GWH	4		LF25	LF25 (2)	SC75GWH
L2H-FG90GWH	3		LF25	LF60	FG90GWH
L3H-FG160CWH	3		LF25	LF25	FG160CWH
L3H-FG160CWH	3		LF25	LF60	FG160GWH
L3H-FG160CWH	3		LF25	SF160PSA	FG160GWH
L2H-FG160CWH	2		LF25	FG160CWH	
L3H-MF160WAL	3		LF25	LF60	MF160WAL
L3H-MF160WAL	3		LF25	SF160PSA	MF160WAL

## Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			BITUTAK MB AND BITUTAK MB MINERAL		
			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **MODBIT CORP.**

NEW/REPLACEMENT					
NONNAILABLE					
NNC	2	APPROVED BASE SHEET	BITUTAK MB OR MB MINERAL	OPTIONAL	OPTIONAL
NEW/REPLACEMENT					
INSULATED					
INS	2	APPROVED BASE SHEET	BITUTAK MB OR MB MINERAL	OPTIONAL	OPTIONAL
NEW/REPLACEMENT					
NAILABLE					
ND	2	APPROVED BASE SHEET	BITUTAK MB OR MB MINERAL	OPTIONAL	OPTIONAL
RECOVER					
EXISTING ROOF					
RCV	2				

Company Name **MFM BUILDING PRODUCTS CORP.**

NEW/REPLACEMENT					
NONNAILABLE					
MFM-21-BC	1	NONE	BITUFLEX		
NEW/REPLACEMENT					
INSULATED					
MFM-22-BC	2	DURABASE	BITUFLEX		
NEW/REPLACEMENT					
NAILABLE					
MFM-22-BW	2	DURABASE	BITUFLEX		
RECOVER					
EXISTING ROOF					
MFM-21-BR	2	DURABASE	BITUFLEX		

Company Name **MONSEY BAKOR**

NEW/REPLACEMENT					
NAILABLE					
WDU/PMR 2005	2	NONE	NP180s/s[p/s][p/p] OR G100s/s[p/s]	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]	
WDU/PMR 2005	2	COATED GLASS BASE	NP180gM[MFR] or NP180gT[TFR] or NP250gM[MFR] or NP250gT4[TFR]		
NEW/REPLACEMENT					
NONNAILABLE					
CDU/PMR 2004	2	G100s/s[p/s] OR NP180s/s[p/s][p/p]	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]		
CDU 2004	2	COATED GLASS BASE	NP180gM[MFR] or NP180gT[TFR] or NP250gM[MFR] or NP250gT4[TFR]		
NEW/REPLACEMENT					
INSULATED					
SDI-2000	2	NONE	G100s/s[p/s] OR NP180s/s[p/p][p/s]	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]	
CDI-2001	2	NONE	G100s/s[p/s] OR NP180s/s[p/p][p/s]	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]	
WDI-2002	2	NONE	G100s/s[p/s] OR NP180s/s[p/p][p/s]	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]	
SDI-2000	2	COATED GLASS SHEET	NP180gM[MFR] or NP180gT[TFR] or NP250gM[MFR] or NP250gT4[TFR]		
CDI-2001	2	COATED GLASS SHEET	NP180gM[MFR] or NP180gT[TFR] or NP250gM[MFR] or NP250gT4[TFR]		
WDI-2002	2	COATED GLASS SHEET	NP180gM[MFR] or NP180gT[TFR] or NP250gM[MFR] or NP250gT4[TFR]		
REC-2006	1	NONE	NP180gM[MFR] or NP180gT[TFR] or NP250gM[MFR] or NP250gT4[TFR]		
RECOVER					
EXISTING ROOF					
INSULATION ADDED					
REC-2006	2	NONE	G100s/s[p/s] OR NP180s/s[p/s][p/p]	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]	
REC-2006	2	COATED BASE SHEET	G100gM[MFR] OR NP180gM[MFR] or NP250gM[MFR] or NP250gT4[TFR]		

Company Name **PERFORMANCE ROOF SYSTEMS, INC.**

NEW/REPLACEMENT					
NAILABLE					
1N1X-()	2	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
1N1G-()	2	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
2N1X-()	3	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
2N1G-()	3	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
3N1X-()	4	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
3N1G-()	4	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		

## Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **PERFORMANCE ROOF SYSTEMS, INC.**

NEW/REPLACEMENT					
NAILABLE (CONT'D)					
1N2X-()	3	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
1N2G-()	3	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
2N2X-()	4	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
2N2G-()	4	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
NEW/REPLACEMENT INSULATED					
111X-()	2	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
111G-()	2	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
211X-()	3	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
211G-()	3	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
311X-()	4	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
311G-()	4	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
112X-()	3	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP	DERBIGUM-XPS/DERBICOLOR-XPS	
112G-()	3	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP	DERBIGUM-GP/DERBICOLOR-GP	
212X-()	4	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP	DERBIGUM-XPS/DERBICOLOR-XPS	
212G-()	4	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP	DERBIGUM-GP/DERBICOLOR-GP	
012X-()	2	NONE	DERBIGUM-XPS/DERBICOLOR-XPS		
012G-()	2	NONE	DERBIGUM-GP/DERBICOLOR-GP		
RECOVER					
EXISTING ROOF					
INSULATION ADDED					
RECOVER	SEE NEW/REPLACEMENT INSULATED				
EXISTING ROOF					
1R1X-()	2	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
1R1G-()	2	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		
2R1X-()	3	GLASS FIBER	DERBIGUM-XPS/DERBICOLOR-XPS		
2R1G-()	3	GLASS FIBER	DERBIGUM-GP/DERBICOLOR-GP		

Company Name **POLYGLASS USA, INC.**

NEW/REPLACEMENT					
NONNAILABLE					
101PS	1	NONE	POLYFLEX SMOOTH		
101PG	1	NONE	POLYFLEX GRANULAR		
201PS	2	APPROVED	POLYFLEX SMOOTH		
201PG	2	APPROVED	POLYFLEX GRANULAR		
201PGFR	2	APPROVED	POLYFLEX GRANULAR FR		
211DS/DG	2	APPROVED	DUFLEX SMOOTH/GRANULAR		
211EST	2	APPROVED	ELASTOSHIELD TS4		
311DS/DG	3	APPROVED	APPROVED	DUFLEX SMOOTH/GRANULAR	
321EST	3	APPROVED	APPROVED	ELASTOSHIELD TS4	
341EFGSF	3	APPROVED	APPROVED	ELASTOFLEX G S6-FR	
341FVG	3	APPROVED	APPROVED	ELASTOFLEX VG	
341FVGF	3	APPROVED	APPROVED	ELASTOFLEX VG-FR	
391PS	3	APPROVED	APPROVED	POLYFLEX SMOOTH	
391PG	3	APPROVED	APPROVED	POLYFLEX GRANULAR	
391DS/DG	3	APPROVED	APPROVED	DUFLEX SMOOTH/GRANULAR	
NEW/REPLACEMENT NAILABLE					
202PS	2	APPROVED	POLYFLEX SMOOTH		
202PG	2	APPROVED	POLYFLEX GRANULAR		
104IN	1	NONE	INSULROOFING		
NEW/REPLACEMENT INSULATED					
103PS	1	NONE	POLYFLEX SMOOTH		
103PG	1	NONE	POLYFLEX GRANULAR		
203PS	2	APPROVED	POLYFLEX SMOOTH		
203PG	2	APPROVED	POLYFLEX GRANULAR		
203PGFR	2	APPROVED	POLYFLEX GRANULAR FR		
204PS	2	APPROVED	POLYFLEX SMOOTH		
204PG	2	APPROVED	POLYFLEX GRANULAR		
204PGFR	2	APPROVED	POLYFLEX GRANULAR FR		
213DS/DG	2	APPROVED	DUFLEX SMOOTH/GRANULAR		
223EST	2	APPROVED	ELASTOSHIELD TS4		
224EST	2	APPROVED	ELASTOSHIELD TS4		
223PA/PR	2	APPROVED	POLYALL OR POLYRAM		
303PGFR	3	APPROVED	APPROVED	POLYFLEX GRANULAR FR	
393PS/PG	3	APPROVED	POLYFLEX SMOOTH/GRANULAR		
304PG/FR	3	APPROVED	POLYFLEX GRANULAR FR		
313DS/DG	3	APPROVED	DUFLEX SMOOTH/GRANULAR		
343EFGS	3	APPROVED	ELASTOFLEX GL-S6		
343EFVG	3	APPROVED	ELASTOFLEX VG		
343EFVGF	3	APPROVED	ELASTOFLEX VG-FR		
333PA/PR	3	APPROVED	POLYALL OR POLYRAM		
RECOVER					
EXISTING ROOF	SEE NEW REPLACEMENT, NAILABLE AND NONNAILABLE				
RECOVER					
EXISTING ROOF					
INSULATION ADDED	SEE NEW REPLACEMENT, NAILABLE AND NONNAILABLE				

## Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET

Company Name **SIPLAST INC**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
2030CPH	3	PUNCHED GLASS BASE	PARADIENE 20	PARADIENE 30	
2030CAA	3	PUNCHED GLASS BASE	PARADIENE 20	PARADIENE 30	
4040CPT	3	PUNCHED GLASS BASE	IREX	VERAL	
5000CPH	2	PUNCHED GLASS BASE	PARAFOR 50		
5000CAA	2	PUNCHED GLASS BASE	PARAFOR 50		
5000CPT	2	PUNCHED GLASS BASE	PARAFOR 50		
1035CPH	3	PUNCHED GLASS BASE & PARABASE	PARATECH		
<b>NEW/REPLACEMENT</b>					
<b>INSULATED</b>					
2030IH	2	NONE	PARADIENE 20	PARADIENE 30	
2030IA	2	NONE	PARADIENE 20	PARADIENE 30	
4040IT	2	NONE	IREX	VERAL	
5000IH	1	NONE	PARAFOR 50		
5000IA	1	NONE	PARAFOR 50		
5000IT	1	NONE	PARAFOR 50		
1035IH	2	PARABASE	PARATECH		
<b>NEW/REPLACEMENT</b>					
<b>NAILABLE</b>					
2030PSH	3	PARAGLAS	PARADIENE 20	PARADIENE 30	
2030WSH	3	PARAGLAS	PARADIENE 20	PARADIENE 30	
2030CBH	3	PARABASE	PARADIENE 20	PARADIENE 30	
2030PSA	3	PARAGLAS	PARADIENE 20	PARADIENE 30	
2030WSA	3	PARAGLAS	PARADIENE 20	PARADIENE 30	
2030CBA	3	PARABASE	PARADIENE 20	PARADIENE 30	
5000PSA	2	PARAGLAS	PARAFOR 50	PARADIENE	
5000WSA	2	PARAGLAS	PARAFOR 50		
5000CBA	2	PARABASE	PARAFOR 50		
5000PIT	2	NONE	IREX	PARAFOR 50	
5000WIT	2	NONE	IREX	PARAFOR 50	
5000CBT	2	PARABASE	PARAFOR 50		
3040PGH	2	PARABASE	PARADIENE 40		
3040CGH	2	PARABASE	PARADIENE 40		
1035CBH	3	PARABASE & PARAGLAS	PARATECH		
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
<b>INSULATION ADDED</b>					
2030IH	2	NONE	PARADIENE 20	PARADIENE 30	
2030IA	2	NONE	PARADIENE 20	PARADIENE 30	
4040IT	2	NONE	IREX	VERAL	
5000IH	1	NONE	PARAFOR 50		
5000IA	1	NONE	PARAFOR 50		
5000IT	1	NONE	PARAFOR 50		
1035IH	2	PARABASE	PARATECH		

Company Name **SOUTHWESTERN PETROLEUM CORPORATION**

<b>NEW/REPLACEMENT</b>					
<b>NONNAILABLE</b>					
302	1	NONE	UNI+SHIELD		
302	2	APPROVED	UNI+SHIELD		
303	2	NONE	UNI+SHIELD II	UNI+SHIELD II	
<b>NEW/REPLACEMENT</b>					
<b>INSULATED</b>					
302	1	NONE	UNI+SHIELD		
302	2	NONE	UNI+SHIELD		
303	2	NONE	UNI+SHIELD II	UNI+SHIELD II	
<b>NEW/REPLACEMENT</b>					
<b>NAILABLE</b>					
302	1	NONE	UNI+SHIELD		
302	2	APPROVED	UNI+SHIELD		
303	3	ASTM 2626	UNI+SHIELD II	UNI+SHIELD II	
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
302	1	NONE	UNI+SHIELD		
302	2	APPROVED	UNI+SHIELD		
303	2	NONE	UNI+SHIELD II	UNI+SHIELD II	
303	3	ASTM 2626	UNI+SHIELD II	UNI+SHIELD II	
<b>RECOVER</b>					
<b>EXISTING ROOF</b>					
<b>INSULATION ADDED</b>					
302	1	NONE	UNI+SHIELD		
302	2	APPROVED	UNI+SHIELD		
303	2	NONE	UNI+SHIELD II	UNI+SHIELD II	

# Modified Bitumen Part 3: Modified Bitumen Specifications

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
			FIRST SHEET	SECOND SHEET	THIRD SHEET
MANUFACTURER'S SPECIFICATION NO.	Company Name <b>TAMKO ROOFING PRODUCTS INC.</b>				
NEW/REPLACEMENT					
INSULATED					
101					
102					
103					
107					
108					
109					
101C					
107C					
243					
201C					
207C					
101HW					
102HW					
103HW					
107HW					
108HW					
109HW					
101FR					
102FR					
107FR					
108FR					
109FR					
201					
203					
202					
204					
207					
208					
209					
201FR					
203FR					
204FR					
207FR					
208FR					
209FR					
244					
701					
744					
703					
704					
705					
706					
1001					
1002					
103FR					
203FR					
1001 FR					
1002 FR					
1101/1101 M					
1102					
1201/1201 M					
1202					
1304					
1343					
NEW/REPLACEMENT					
NAILABLE					
111					
112					
113					
114					
111C					
111HW					
112C					
112HW					
113HW					
114HW					
111FR					
112FR					
113FR					
114FR					
211					
212					
213					
214					
211C					
212C					
211FR					
212FR					

## Modified Bitumen Part 3: Modified Bitumen Specifications

Company Name **TAMKO ROOFING PRODUCTS INC.**

TYPE OF ROOF INSTALLATION AND SUBSTRATE	TOTAL NO. OF PLIES IN MEMBRANE ASSEMBLY	BASE SHEET DESCRIPTION IF OTHER THAN MODIFIED BITUMEN SHEET	NAME(S) OF MODIFIED BITUMEN SHEET(S) USED IN MEMBRANE		
MANUFACTURER'S SPECIFICATION NO.			FIRST SHEET	SECOND SHEET	THIRD SHEET
NEW/REPLACEMENT NAILABLE (CONT'D)					
745	3	VAPOR CHAN	AWAPLAN VERSA SMOOTH	VERSA CAP FR	
1013	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAFLEX	
1014	3	BASE-N-PLY	GLASS PLY (NONMODIFIED)	AWAFLEX	
1111	2	VAPOR CHAN	SPEEDWELD GRANULATED		
1112	2	GLASS BASE	SPEEDWELD GRANULATED		
1211	2	VAPOR CHAN	SPEEDWELD SMOOTH		
1212	2	GLASS BASE	SPEEDWELD SMOOTH		
1312	2	BASE-N-PLY	AWAPLAN VERSA FLEX		
1013FR	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)		
1014FR	3	BASE-N-PLY	GLASS PLY (NONMODIFIED)		
RECOVER EXISTING ROOF					
135	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN PREMIUM	
136	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN PREMIUM	
135HW	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN HEAT WELDING	
136HW	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN HEAT WELDING	
135FR	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN PREMIUM FR	
136FR	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN PREMIUM FR	
235	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN 170	
236	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN 170	
235FR	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN 170 FR	
236FR	3	VAPOR CHAN	GLASS PLY (NONMODIFIED)	AWAPLAN 170 FR	
1134	2	VAPOR CHAN	SPEEDWELD GRANULATED		
1234	2	VAPOR CHAN	SPEEDWELD SMOOTH		
RECOVER EXISTING ROOF INSULATION ADDED					

See New/Replacement, Insulated

Company Name **TEXAS REFINERY CORP.**

NEW/REPLACEMENT NONNAILABLE					
N-101	3	TYPE II GLASBASE	MIGHTYPLATE	MIGHTYPLATE	
N-102	3	APPROVED	MIGHTYPLATE	MIGHTYPLATE	
NEW/REPLACEMENT INSULATED					
N-201	3	TYPE II GLASBASE	MIGHTYPLATE	MIGHTYPLATE	
N-202	3	APPROVED	MIGHTYPLATE	MIGHTYPLATE	
N-203	2	NONE	MIGHTYPLATE	MIGHTYPLATE	
NEW/REPLACEMENT NAILABLE					
N-301	3	TYPE II GLASBASE	MIGHTYPLATE	MIGHTYPLATE	
N-302	3	APPROVED	MIGHTYPLATE	MIGHTYPLATE	
RECOVER EXISTING ROOF					
E-401	1	NONE	MIGHTYPLATE		
RECOVER EXISTING ROOF INSULATION ADDED					
E-501	1	NONE	MIGHTYPLATE		
E-502	2	TYPE II GLASBASE	MIGHTYPLATE		
E-503	2	APPROVED	MIGHTYPLATE		

COMPANY NAME **TEXSA, S.A.**

NEW/REPLACEMENT NONNAILABLE					
	1		HIPER M.P.		
	1		MIN TEXAL -15 FP-S		
	2		TEXAL FV 3MM	TEXAL -15 FP-S 4MM	
	1		TEXAL -15 FP-S 4MM		
	1		MIN MOFLEX -20 FP-S		
	2		TEXAL FV 3MM	MIN MOFLEX -20 FP-S	
	1		M.P. PARKING		
NEW/REPLACEMENT INSULATED					
	2		TEXAL FV 3MM	TEXAL -15 FP-S 4MM	
	2		HIPER M.P.	TEXAL PY MIN	
	2		TEXAL FV 3MM	MIN MOFLEX -20 FP-S	
NEW/REPLACEMENT NAILABLE					
	1		MINERAL M.P. 5KG FM		

Company Name **TRI-PLY**

NEW/REPLACEMENT NONNAILABLE					
KA-230-NN	2	EAGLE BASE	KARIFALT MEMBRANE		
KA-330-NN	3	EAGLE BASE AND GLASS	KARIFALT MEMBRANE		
KA-430-NN	4	EAGLE BASE AND 2 GLASS	KARIFALT MEMBRANE		



## Modified Bitumen Part 3: Modified Bitumen Specifications

Company Name **TRI-PLY**

NEW/REPLACEMENT					
NONNAILABLE (CONTD)					
TP-230-NN	1	NONE	TP-4 OR TP-4G		
TP-330-NN	2	NONE	TP-4	TP-4 OR TP4G	
NEW/REPLACEMENT					
INSULATED					
KA-200-NI	2	EAGLE BASE	KARIFALT MEMBRANE		
KA-300-NI	3	2 EAGLE GLASS	KARIFALT MEMBRANE		
KA-400-NI	4	2 EAGLE GLASS	KARIFALT MEMBRANE		
KA-220-NNI	2	EAGLE BASE	KARIFALT MEMBRANE		
KA-320-NNI	3	2 EAGLE GLASS	KARIFALT MEMBRANE		
KA-420-NNI	4	3 EAGLE GLASS	KARIFALT MEMBRANE		
TP-200-NI	2	EAGLE BASE	TP-4 OR TP-4G	TP-4 OR TP-4G	
TP-300-NI	3	EAGLE BASE	TP-4		
TP-220-NNI	2	EAGLE BASE	TP-4 OR TP-4G	TP-4 OR TP-4G	
TP-320-NNI	3	EAGLE BASE	TP-4		
NEW/REPLACEMENT					
NAILABLE					
KA-210-N	2	EAGLE BASE	KARIFALT MEMBRANE		
KA-310-N	3	EAGLE BASE AND GLASS	KARIFALT MEMBRANE		
KA-410-N	4	EAGLE BASE AND 2 GLASS	KARIFALT MEMBRANE		
TP-210-N	2	EAGLE BASE	TP-4 OR TP-4G		
TP-310-N	3	EAGLE BASE	TP-4	TP-4 OR TP4G	
RECOVER					
EXISTING ROOF					
KA-RRS	2	EAGLE BASE	KARIFALT MEMBRANE		
TP-RRS	1	EAGLE BASE (OPTIONAL)	TP-4 OR TP-4G		
RECOVER					
EXISTING ROOF					
INSULATION ADDED					
KA-RRG	2	EAGLE BASE	KARIFALT MEMBRANE		
TP-RRG	2	EAGLE BASE	TP-4 OR TP-4G		

## PVC Part 1: General Information

1. COMPANY NAME	ENSURCO DURADEK U.S. LTD.	FIRESTONE BUILDING PRODUCTS	FIRESTONE BUILDING PRODUCTS	FLEX MEMBRANE INTERNATIONAL INC.	FLEX MEMBRANE INTERNATIONAL INC.	GAF MATERIALS CORP.
2. PRODUCT NAME	ULTRA	ULTRAPLY .045	ULTRAPLY .060	FLEX MF/R 50	FLEX MF/R 60	EVERGUARD EGSR-40
3. PRODUCT DESCRIPTION A. REINFORCEMENT B. COLOR(S)  C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	POLYESTER 10  0.40	POLYESTER WHITE  0.30 NOM	POLYESTER WHITE  0.40 NOM	REINF POLY. WHITE/ OFFWHITE 0.35	REINF POLY. WHITE/ OFFWHITE 0.45	POLYESTER WHITE/GRAY CUSTOM 0.26
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X	X X	X X	X X
6. FIELD LAP JOINT METHOD	HEAT WELD	HEAT WELD	HEAT WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD
7. TYPES OF ROOF SYSTEMS A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	ADHESIVE	10 LBS. MECH. FAST. CONT. ADHES. X	10 LBS. MECH. FAST. CONT. ADHES. X	10 MIN. MECH. FAST. CONT. ADHES.	10 MIN. MECH. FAST. CONT. ADHES.	10 MECH. FAST. ADHESIVE X
8. MINIMUM SLOPE REQUIRED	POSITIVE DRAIN	POSITIVE DRAIN	POSITIVE DRAIN	DEAD LEVEL	DEAD LEVEL	PER CODE
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances) A. GLASS FIBER B. MINERAL FIBER C. POLYSTYRENE D. CELLULAR GLASS E. PHENOLIC F. FIBERBOARD G. PERLITE H. POLYISOCYANURATE I. POLYURETHANE J. GYPSUM K. CONCRETE L. WOOD PLANK M. PLYWOOD N. EXISTING BUILTUP MEMBRANE		O O O O  X X  O O O O O	O O O O  X X  O O O O O	S O S O S O S O  X O X O  X O X O X S S O	S O S O S O S O  X O X O  X O X O X S S O	  X   X X X X O O O O O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	30 - 100	0 – 120	0 – 120	0 – 120	0 – 120	0 -120
12. FLASHING MATERIAL	PVC MEMBRANE PVC METAL	ULTRAPLY CTD METAL/ REINF'D MEMB.	ULTRAPLY CTD METAL/ REINF'D MEMB.	ROOF MEMBRANE/ CTD METAL	ROOF MEMBRANE/ CTD METAL	REINFORCED MEMBRANE COATED METAL
13. FLASHING METHOD	HEAT WELD	HEAT WELD	HEAT WELD	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	1974 1976	1992 1986	1994	1988	1988	1988
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA	THOUSANDS THOUSANDS	THOUSANDS THOUSANDS	THOUSANDS THOUSANDS	THOUSANDS	THOUSANDS	MILLIONS+
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DIRECT	DIRECT	DIST/DIRECT
19. NUMBER OF REGIONAL LOCATIONS	12	5	5	4	4	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/338-3568	800/428-4442	800/428-4442	J. DOYLE 610/286-7788	J. DOYLE 610/286-7788	REGIONAL OFFICE
22. FOR TECHNICAL INFORMATION, CONTACT:	800/338-3568	800/428-4511	800/428-4511	M GIANGIACOMO 610/286-7788	M GIANGIACOMO 610/286-7788	TECHNICAL SERVICES
23. SEE MEMBRANE APPENDIX IF CHECKED						

## PVC Part 1: General Information

GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GENFLEX ROOFING SYSTEMS
EVERGUARD EGSR-45	EVERGUARD EGSR-50	EVERGUARD EGSR-60	EVERGUARD EGSR-80	EVERGUARD EGFB-40	EVERGUARD EGFB-45	EVERGUARD EGFB-50	EVERGUARD EGFB-60	EVERGUARD EGFB-80	GENFLEX RM .048
POLYESTER WHITE/GRAY CUSTOM 0.29	POLYESTER WHITE/GRAY CUSTOM 0.32	POLYESTER WHITE/GRAY CUSTOM 0.38	POLYESTER WHITE/GRAY CUSTOM 0.51	POLY/FLEECE BK WHITE/GRAY CUSTOM 0.30	POLY/FLEECE BK WHITE/GRAY CUSTOM 0.33	POLY/FLEECE BK WHITE/GRAY CUSTOM 0.36	POLY/FLEECE BK WHITE/GRAY CUSTOM 0.43	POLY/FLEECE BK WHITE/GRAY CUSTOM 0.55	POLYESTER WHITE/GRAY/ TAN 0.30
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HEAT
10 MECH. FAST. ADHESIVE X	10 MECH. FAST. ADHESIVE X	10 MECH. FAST. ADHESIVE X	10 MECH. FAST. ADHESIVE X	10 MECH. FAST. ADHES/ASPHALT X	10 MECH. FAST. ADHES/ASPHALT X	10 MECH. FAST. ADHES/ASPHALT X	10 MECH. FAST. ADHES/ASPHALT X	10 MECH. FAST. ADHES/ASPHALT X	MECH. FAST. CONT. ADHES.
PER CODE	PER CODE	PER CODE	PER CODE	PER CODE	PER CODE	PER CODE	PER CODE	PER CODE	DEAD LEVEL
X	X	X	X	O	O	O	O	O	X X S X
X	X	X	X	X	X	X	X	X	X X X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
O	O	O	O	O	O	O	O	O	O
X	X	X	X	X	X	X	X	X	O
O	O	O	O	O	O	O	O	O	O
X	X	X	X	X	X	X	X	X	O
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	SEE SPECS
0 - 120	0 - 120	0 - 120	0 - 120	0 - 120	0 - 120	0 - 120	0 - 120	0 - 120	0 - 140
REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	REINFORCED MEMBRANE COATED METAL	PVC MEMBRANE OR PVC-COAT- ED MATERIAL
HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	SOLVENT ADHESIVE OR HEAT
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
1988	1988	1988	1988	1990	1990	1990	1990	1990	1983 1980
MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS+	MILLIONS
DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DIST/DIRECT 5	DISTRIBUTORS 8
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	REGIONAL OFFICE TECHNICAL SERVICES	SALES OFFICE  TECH. SERVICE 800/443-4272

## PVC Part 1: General Information

1. COMPANY NAME	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	IB ROOF SYSTEMS	IB ROOF SYSTEMS
2. PRODUCT NAME	GENFLEX RM .060	GENFLEX RMT .080	GENFLEX RM-C .048	GENFLEX RM-C .060	IB SINGLE-PLY	INSULATED BLANKET
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER
B. COLOR(S)	WHITE/GRAY/ TAN	WHITE	WHITE/GRAY/ TAN	WHITE/GRAY/ TAN	WHITE/TAN/ GRAY/BLUE	WHITE/TAN/ GRAY/BLUE
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.40	0.51	0.30	0.30	0.33	0.33
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HEAT	HEAT	HEAT	HEAT	HOT AIR WELD	HOT AIR WELD
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )						
B. PARTIALLY ADHERED (method)	MECH. FAST.	MECH. FAST.	MECH. FAST.	MECH. FAST.	BALLASTED MECH. FAST.	BALLASTED MECH. FAST.
C. FULLY ADHERED (method)	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY						
8. MINIMUM SLOPE REQUIRED	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	NONE	NONE
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X	X	X	X	X	X
B. MINERAL FIBER	X	X	X	X	S	S
C. POLYSTYRENE	S	S	S	S	X	X
D. CELLULAR GLASS	X	X	X	X	S	S
E. PHENOLIC					X	X
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X	X	X	X	S	S
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE					X	X
J. GYPSUM	X	X	X	X	X	X
K. CONCRETE	O	O	O	O	X	X
L. WOOD PLANK	O	O	O	O	S	S
M. PLYWOOD	O	O	O	O	S	S
N. EXISTING BUILTUP MEMBRANE	O	O	O	O	S	S
10. RESTRICTED REGIONS (refer to manufacturer's literature)	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 - 140		0 - 140	0 - 140	0-120	0-120
12. FLASHING MATERIAL	PVC MEMBRANE OR PVC-COAT- ED MATERIAL	PVC MEMBRANE OR PVC-COAT- ED MATERIAL	PVC MEMBRANE OR PVC-COAT- ED MATERIAL	PVC MEMBRANE OR PVC-COAT- ED MATERIAL	IB MEMBRANE CPA CLAD METAL PREFAB. FLASH.	IB MEMBRANE CPA CLAD METAL PREFAB. FLASH.
13. FLASHING METHOD	SOLVENT ADHESIVE OR HEAT	SOLVENT ADHESIVE OR HEAT	SOLVENT ADHESIVE OR HEAT	SOLVENT ADHESIVE OR HEAT	HOT AIR WELD	HOT AIR WELD
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA & CANADA	USA & CANADA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA	1983				1987	1987
B. WITHIN USA	1980	1989	1995	1995	1979	1979
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA					THOUSANDS	THOUSANDS
B. WITHIN USA	MILLIONS	THOUSANDS	THOUSANDS	THOUSANDS	MILLIONS	MILLIONS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	8	8	8	8	5	5
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	800/426-1626	800/426-1626
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH. SERVICE 800/443-4272	TECH. SERVICE 800/443-4272	TECH. SERVICE 800/443-4272	TECH. SERVICE 800/443-4272	800/426-1626	800/426-1626
23. SEE MEMBRANE APPENDIX IF CHECKED						

PVC Part 1: General Information
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[illegible]

## PVC Part 1: General Information

1. COMPANY NAME	MULE-HIDE PRODUCTS CO. INC.	ROOF DESIGN SYSTEMS, INC.	ROOF DESIGN SYSTEMS, INC.	SARNAFIL INC.	SARNAFIL INC.	SARNAFIL INC.
2. PRODUCT NAME	PEM .060	PROSEAL MF	PROSEAL FA	SARNAFIL G410	SARNAFIL S327	SARNAFIL G476
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	POLYESTER	POLYESTER	FIBERGLASS	FIBERGLASS	POLYESTER	FIBERGLASS
B. COLOR(S)	WHITE	VARIOUS	VARIOUS	ASSORTED	ASSORTED	ORANGE
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.40 NOM			0.33	0.33	0.33
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HEAT WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )		10				
B. PARTIALLY ADHERED (method)	MECH. FAST.	MECH. FAST.			MECH. FAST.	
C. FULLY ADHERED (method)		CONT. ADHES.	CONT. ADHES.	CONT. ADHES.		
D. PROTECTED ROOF MEMBRANE ASSEMBLY						X
8. MINIMUM SLOPE REQUIRED		NONE	NONE	NONE	NONE	NONE
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	O	O	O	O	O	O
B. MINERAL FIBER	O			O	O	O
C. POLYSTYRENE	O	O	O	O	S	S
D. CELLULAR GLASS	O			O	O	
E. PHENOLIC						
F. FIBERBOARD	X	X	X	X	X	
G. PERLITE				O	O	
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE		X	X	X	X	X
J. GYPSUM	O	X	X	O	S O	S O
K. CONCRETE	O			X O	S O	S O
L. WOOD PLANK	O	O	O	O	S O	S O
M. PLYWOOD	O	X	X	O	X S O	
N. EXISTING BUILTUP MEMBRANE	O	O	O	O	S O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 – 120	0 – 120	0 – 120	0 – 120	0 – 120	0 – 120
12. FLASHING MATERIAL	REINFORCED MEMBRANE COATED METAL	PVC OR PVC-CLAD METAL	PVC OR PVC-CLAD METAL	G410, G459, CLAD METAL	G410, G459, S327, OR CLAD METAL	G410, G459 OR CLAD METAL
13. FLASHING METHOD	HEAT WELD	ADHESIVE OR HEAT WELD	ADHESIVE OR HEAT WELD	ADHESIVE AND HEAT WELD	ADHESIVE AND HEAT WELD	ADHESIVE AND HEAT WELD
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	CANADA	CANADA	SWITZERLAND	SWITZERLAND	SWITZERLAND
B. MANUFACTURE	USA	CANADA	CANADA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA		1985	1985	1964	1964	1964
B. WITHIN USA	1986	1990	1990	1975	1978	1981
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA		THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	15	6	6	6	6	6
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/786-1492	P. WHALEY	P. WHALEY	SALES DEPT.	SALES DEPT.	SALES DEPT.
22. FOR TECHNICAL INFORMATION, CONTACT:	800/786-1492	P. WHALEY	P. WHALEY	TECH. DEPT.	TECH. DEPT.	TECH. DEPT.
23. SEE MEMBRANE APPENDIX IF CHECKED				X	X	X

## PVC Part 2: Test Results

Test description and suggested values as specified in ASTM D 4434-95

1. COMPANY NAME		ENSURO DURADEK U.S. LTD.	FIRESTONE BUILDING PRODUCTS	FIRESTONE BUILDING PRODUCTS	FLEX MEMBRANE INTERNATIONAL INC.	FLEX MEMBRANE INTERNATIONAL INC.	GAF MATERIALS CORP.
2. PRODUCT NAME		ULTRA	ULTRAPLY .045	ULTRAPLY .060	FLEX MF/R 50	FLEX MF/R 60	EVERGUARD EGSR-40
3. TYPE I (unreinforced sheet) TYPE II (unreinforced sheet) GRADE 1 (containing fibers) GRADE 2 (containing fabrics) TYPE III (reinforced sheet containing fibers of fabrics)		III	III	III	III	III	III
4. OVERALL THICKNESS (min. in.)	0.045	0.06	0.045	0.060	0.050	0.060	0.040
5. TENSILE STRENGTH AT BREAK (min. psi) TYPE I; TYPE II, GRADE 1 MACHINE DIRECTION CROSS-MACHINE DIRECTION	1500 1500	NA NA	NA NA	NA NA	NA NA	NA NA	
6. BREAKING STRENGTH (min. lbf/in.) TYPE II, GRADE 2; TYPE III	200	250	450	250	> 230	> 250	275
7. ELONGATION AT BREAK (min. %) TYPE I; TYPE II, GRADE 1 MACHINE DIRECTION CROSS-MACHINE DIRECTION TYPE II, GRADE 2; TYPE III MACHINE DIRECTION CROSS-MACHINE DIRECTION	250 220 15* 15*	NA NA	NA NA	NA NA	NA NA	NA NA	
8. SEAM STRENGTH (min. % of tensile or breaking strength)	75.0	75.0	75.0	75.0	> 80	> 80	90
9. RETENTION OF PROPERTIES AFTER HEAT AGING (minimum % of original) TENSILE STRENGTH TYPE I; TYPE II, GRADE 1 BREAKING STRENGTH TYPE II, GRADE 1; TYPE III ELONGATION	80.0 80.0 80.0	NA 96	80 80	80 80	NA > 80 90	NA > 80 90	95 95
10. TEAR RESISTANCE (min. lbf) TYPE I; TYPE II, GRADE	10.0	NA			NA	NA	
11. TEARING STRENGTH (min. lbf) TYPE II, GRADE 2; TYPE III	45.0	50	150	80	> 50	> 50	
12. LOW TEMPERATURE BEND	pass	PASS	PASS	PASS	PASS	PASS	PASS
13. ACCELERATED WEATHERING TEST CRACKING (7X magnification) DISCOLORATION (by observation) CRAZING (7X magnification)	none negligible none	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE
14. LINEAR DIMENSIONAL CHANGE (max. %) TYPE I TYPE II TYPE III	3.0 0.1 0.5	NA NA 0.3	NA NA 0.3	NA NA 0.3	NA NA < 0.2	NA NA < 0.2	0.03
15. CHANGE IN WEIGHT AFTER IMMERSION IN WATER (max. %)	±3.0	2	PASS	PASS	< 0.2	< 0.2	1.2
16. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

\* for reinforcing fabric only; elongation of PVC material shall be the same as Type I

## PVC Part 2: Test Results

Test description and suggested values as specified in ASTM D 4434-95

GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GAF MATERIALS CORP.	GENFLEX ROOFING SYSTEMS
EVERGUARD EGSR-45	EVERGUARD EGSR-50	EVERGUARD EGSR-60	EVERGUARD EGSR-80	EVERGUARD EGFB-40	EVERGUARD EGFB-45	EVERGUARD EGFB-50	EVERGUARD EGFB-60	EVERGUARD EGFB-80	GENFLEX RM .048
III	III	III	III	III	III	III	III	III	III
0.045	0.050	0.060	0.080	0.055	0.060	0.065	0.075	0.095	0.048
									NA NA
275	300	350	450						210
									NA NA
									15 15
90	90	90	90	90	90	90	90	90	>75.0
95	95	95	95	95	95	95	95	95	NA
95	95	95	95	95	95	95	95	95	>95
									NA
									50
PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	NA NA <0.1
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	+3.0



## PVC Part 2: Test Results

Test description and suggested values as specified in ASTM D 4434-95

1. COMPANY NAME		GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	IB ROOF SYSTEMS	IB ROOF SYSTEMS
2. PRODUCT NAME		GENFLEX RM .060	GENFLEX RM-T .080	GENFLEX RM-C .048	GENFLEX RM-C .060	IB SINGLE-PLY	INSULATED BLANKET
3. TYPE I (unreinforced sheet) TYPE II (unreinforced sheet) GRADE 1 (containing fibers) GRADE 2 (containing fabrics) TYPE III (reinforced sheet containing fibers of fabrics)		III	III	III	III	III	III
4. OVERALL THICKNESS (min. in.)	0.045	0.060	0.080	0.048	0.060	0.050	0.050
5. TENSILE STRENGTH AT BREAK (min. psi) TYPE I; TYPE II, GRADE 1 MACHINE DIRECTION CROSS-MACHINE DIRECTION	1500 1500	NA NA	NA NA	NA NA	NA NA		
6. BREAKING STRENGTH (min. lbf/in.) TYPE II, GRADE 2; TYPE III	200	210	300	210	210	300	300
7. ELONGATION AT BREAK (min. %) TYPE I; TYPE II, GRADE 1 MACHINE DIRECTION CROSS-MACHINE DIRECTION TYPE II, GRADE 2; TYPE III MACHINE DIRECTION CROSS-MACHINE DIRECTION	250 220 15* 15*	NA NA 15 15	NA NA 35 40	NA NA 15 15	NA NA 15 15		
8. SEAM STRENGTH (min. % of tensile or breaking strength)	75.0	>75.0	> 90.0	>75.0	>75.0		
9. RETENTION OF PROPERTIES AFTER HEAT AGING (minimum % of original) TENSILE STRENGTH TYPE I; TYPE II, GRADE 1 BREAKING STRENGTH TYPE II, GRADE 1; TYPE III ELONGATION	80.0 80.0 80.0	NA 80.0 >95	NA 80.0 80.0	NA 80.0 >95	NA 80.0 >95	90 90 90	90 90 90
10. TEAR RESISTANCE (min. lbf) TYPE I; TYPE II, GRADE 2; TYPE III	10.0 45.0	NA 50	NA 100	NA 50	NA 50		
11. TEARING STRENGTH (min. lbf) TYPE II, GRADE 2; TYPE III	45.0	50	100	50	50	50	50
12. LOW TEMPERATURE BEND	pass	PASS	PASS	PASS	PASS	-40	-40
13. ACCELERATED WEATHERING TEST CRACKING (7X magnification) DISCOLORATION (by observation) CRAZING (7X magnification)	none negligible none	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE
14. LINEAR DIMENSIONAL CHANGE (max. %) TYPE I TYPE II TYPE III	3.0 0.1 0.5	NA NA <0.1	NA NA .3	NA NA <0.1	NA NA <0.1	0.5	0.5
15. CHANGE IN WEIGHT AFTER IMMERSION IN WATER (max. %)	±3.0	+3.0	+1.0	+3.0	+3.0	±2.0	±2.0
16. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

\* for reinforcing fabric only; elongation of PVC material shall be the same as Type I

## PVC Part 2: Test Results

Test description and suggested values as specified in ASTM D 4434-95

IB ROOF SYSTEMS	IB ROOF SYSTEMS	JOHNS MANVILLE	JOHNS MANVILLE	JOHNS MANVILLE	JOHNS MANVILLE	JOHNS MANVILLE	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.
I B 60 MIL.	IB 80 MIL.	ULTRAGARD V 250	ULTRAGARD V 260	ULTRAGARD SR 50	ULTRAGARD SR 60	ULTRAGARD SR 80	MH-50	MH-60	PEM .040
III	III	III	III	III	III	III	III	III	III
0.060	0.080	0.047	0.054	0.047	0.054	0.072	0.050	0.060	0.040
		NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA
370	440								
340	400	412	396	412	396	420	> 320	> 325	> 250
		NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA
60	130	32	32	32	32	33	> 20	> 20	30
40	90	33	34	33	34	37	> 20	> 20	30
		101	103	101	103	129	>75.0	>75.0	75.0
90	95	NA 107	NA 91	NA 107	NA 91	NA 99	NA >80	NA >80	80
92	96	125	127	125	127	223	>80	>80	80
		NA	NA	NA	NA	NA	NA	NA	
68	73	69	53	69	53	74	50	50	80
PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE
0.5	0.5	NA NA 0.14	NA NA 0.12	NA NA 0.14	NA NA 0.12	NA NA 0.14	NA NA <0.2	NA NA <0.2	NA NA <0.3
0.24	0.18	1.73	1.46	1.73	1.46	1.71	< +3.0	< +3.0	PASS

## PVC Part 2: Test Results

Test description and suggested values as specified in ASTM D 4434-95

1. COMPANY NAME		MULE-HIDE PRODUCTS CO. INC.	ROOF DESIGN SYSTEMS INC.	ROOF DESIGN SYSTEMS INC.	SARNAFIL INC.	SARNAFIL INC.	SARNAFIL INC.
2. PRODUCT NAME		PEM .060	PROSEAL MF	PROSEAL FA	SARNAFIL G410	SARNAFIL S327	SARNAFIL G476
3. TYPE I (unreinforced sheet) TYPE II (unreinforced sheet) GRADE 1 (containing fibers) GRADE 2 (containing fabrics) TYPE III (reinforced sheet containing fibers of fabrics)		III	III	II 1	II 1		II 1
4. OVERALL THICKNESS (min. in.)	0.045	0.060	0.047	0.047	0.048	0.048	0.048
5. TENSILE STRENGTH AT BREAK (min. psi) TYPE I; TYPE II, GRADE 1 MACHINE DIRECTION CROSS-MACHINE DIRECTION	1500 1500	NA NA	NA NA	2200 1800	1600 1600	NA NA	1650 1650
6. BREAKING STRENGTH (min. lbf/in.) TYPE II, GRADE 2; TYPE III	200	> 250	350	NA	NA	230	NA
7. ELONGATION AT BREAK (min. %) TYPE I; TYPE II, GRADE 1 MACHINE DIRECTION CROSS-MACHINE DIRECTION TYPE II, GRADE 2; TYPE III MACHINE DIRECTION CROSS-MACHINE DIRECTION	250 220 15* 15*	NA NA 30 30	NA NA 60 45	300 250 NA NA	270 250 NA NA	NA NA 20 20	280 260 NA NA
8. SEAM STRENGTH (min. % of tensile or breaking strength)	75.0	75.0	>80	>80	>80	>85	>80
9. RETENTION OF PROPERTIES AFTER HEAT AGING (minimum % of original) TENSILE STRENGTH TYPE I; TYPE II, GRADE 1 BREAKING STRENGTH TYPE II, GRADE 1; TYPE III ELONGATION	80.0 80.0 80.0	 80 80	NA >90 >90	>90 NA >90	95 NA 90	NA 95 90	95 NA 90
10. TEAR RESISTANCE (min. lbf) TYPE I; TYPE II, GRADE 2	10.0		NA	25	14	NA	14
11. TEARING STRENGTH (min. lbf) TYPE II, GRADE 2; TYPE III	45.0	80	60	NA	NA	50	NA
12. LOW TEMPERATURE BEND	pass	PASS	PASS	PASS	PASS	PASS	PASS
13. ACCELERATED WEATHERING TEST CRACKING (7X magnification) DISCOLORATION (by observation) CRAZING (7X magnification)	none negligible none	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	NONE NEGLIGIBLE NONE	
14. LINEAR DIMENSIONAL CHANGE (max. %) TYPE I TYPE II TYPE III	3.0 0.1 0.5	NA NA <0.3	NA NA 0.5	NA 0.1 NA	NA 0.02 NA	NA NA 0.1	NA 0.02 NA
15. CHANGE IN WEIGHT AFTER IMMERSION IN WATER (max. %)	±3.0	PASS	+0.2	+2.0	2.5	2.5	2.5
16. SEE MEMBRANE APPENDIX IF CHECKED					X	X	X

NA=not applicable

\* for reinforcing fabric only; elongation of PVC material shall be the same as Type I

# EPDM Part 1: General Information

1. COMPANY NAME	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED
2. PRODUCT NAME	SURE-SEAL EPDM	SURE-SEAL FR EPDM	SURE-SEAL FR PLUS EPDM	SURE-SEAL HTM EPDM	BRITE-PLY	SURE-SEAL REINFORCED EPDM
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	NONE	NONE	NONE	YES	NONE	YES
B. COLOR(S)	BLACK	BLACK	BLACK	BLACK	WHITE ON BLACK	BLACK
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.28	0.35	0.35	0.30	0.35	0.30
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10	10	10			10
B. PARTIALLY ADHERED (method)				MECH. FAST.		MECH. FAST.
C. FULLY ADHERED (method)		CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X			X
8. MINIMUM SLOPE REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X O	X O	X O	X O	X O	X O
B. MINERAL FIBER	X O	X O	X O	X O	O	X O
C. POLYSTYRENE	X O	X O	X O	X O	X O	X O
D. CELLULAR GLASS	X	X	X	X	X	X
E. PHENOLIC						
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X O	X O	X O	X O	O	X O
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE	X	X	X	X	X	X
J. GYPSUM	X O	X O	X O	X O	X O	X O
K. CONCRETE	X O	X O	X O	X O	X O	X O
L. WOOD PLANK	X O	X O	X O	X O	X O	X O
M. PLYWOOD	X O	X O	X O	X O	X O	X O
N. EXISTING BUILTUP MEMBRANE	X O	X O	X O	X O	X O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	-49 TO 180	-49 TO 180	-49 TO 180	-49 TO 180	-49 TO 180	-49 TO 180
12. FLASHING MATERIAL	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM
13. FLASHING METHOD	ADHESIVE	ADHESIVE	ADHESIVE	ADHESIVE	ADHESIVE	ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA	1963	1983	1983	1998	1977	1986
B. WITHIN USA	1963	1983	1983	1998	1977	1986
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	70	70	70	70	70	70
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	C. KUHL 717/245-7000	C. KUHL 717/245-7000	C. KUHL 717/245-7000	C. KUHL 717/245-7000	C. KUHL 717/245-7000	C. KUHL 717/245-7000
22. FOR TECHNICAL INFORMATION, CONTACT:	S. IBRAHIM 717/245-7000	S. IBRAHIM 717/245-7000	S. IBRAHIM 717/245-7000	S. IBRAHIM 717/245-7000	S. IBRAHIM 717/245-7000	S. IBRAHIM 717/245-7000
23. SEE MEMBRANE APPENDIX IF CHECKED						

# EPDM Part 1: General Information

CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.
SURE-SEAL FR REINFORCED EPDM	SURE-SEAL REINFORCED EXTRA EPDM	SURE-SEAL FLEECEBACK EPDM	BRITE-PLY FLEECEBACK EPDM	CELO I .045	CELO I .060	CELO I .060	CELO I .045 REINFORCED	CELO I .045 REINFORCED	CELO I .060 REINFORCED
YES	YES	YES	YES	NONE	NONE	NONE	POLYESTER	POLYESTER	POLYESTER
BLACK	BLACK	BLACK	WHITE ON BLACK	BLACK	BLACK	WHITE ON BLACK	BLACK	WHITE ON BLACK	BLACK
0.30	0.37	0.32	0.32	0.27	0.36	0.36	0.27	0.27	0.36
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	TAPE OR CONTACT ADHESIVE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE
10 MECH. FAST. CONT. ADHES. X	10 CONT. ADHES. X	URETHANE ADHES	URETHANE ADHES						
NONE	NONE	NONE	NONE	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
X O X O X O X	X O X O X O X	X O X O X O X	X O X O X O X	X X X X			X X X X	X X X X	X X X X
X X O X X X X O X O X O X O X O X O	X X O X X X X O X O X O X O X O X O	X X O X X X X O X O X O X O X O X O	X X O X X X X O X O X O X O X O X O	X X X X X X X X X X X	X X X X X X X X X X X	X X X X X X X X X X X	X X X X X X X X X X X	X X X X X X X X X X X	X X X X X X X X X X X
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
-49 TO 180	-49 TO 180	-49 TO 180	-49 TO 180						
UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED WHITE EPDM	UNCURED EPDM	UNCURED WHITE EPDM	UNCURED EPDM
ADHESIVE	ADHESIVE	ADHESIVE	ADHESIVE	CONT. ADHES. OR SELF-FLASH TAPE	CONT. ADHES. OR SELF-FLASH TAPE	CONT. ADHES. OR SELF-FLASH TAPE	CONT. ADHES. OR SELF-FLASH TAPE	CONT. ADHES. OR SELF-FLASH TAPE	CONT. ADHES. OR SELF-FLASH TAPE
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
1986 1986	1986 1986	1985	1985	1965	1965	1965	1965	1965	1965
MILLIONS	MILLIONS	MILLIONS	MILLIONS						
DISTRS,DIRECT 70	DISTRS,DIRECT 70	DISTRS,DIRECT 70	DISTRS,DIRECT 70	DISTRS,DIRECT 6	DISTRS,DIRECT 6	DISTRS,DIRECT 6	DISTRS,DIRECT 6	DISTRS,DIRECT 6	DISTRS,DIRECT 6
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
C. KUHLMANN 717/245-7000 S. IBRAHIM 717/245-7000	C. KUHLMANN 717/245-7000 S. IBRAHIM 717/245-7000	C. KUHLMANN 717/245-7000 S. IBRAHIM 717/245-7000	C. KUHLMANN 717/245-7000 S. IBRAHIM 717/245-7000	REGIONAL OFFICE REGIONAL OFFICE	REGIONAL OFFICE REGIONAL OFFICE	REGIONAL OFFICE REGIONAL OFFICE	REGIONAL OFFICE REGIONAL OFFICE	REGIONAL OFFICE REGIONAL OFFICE	REGIONAL OFFICE REGIONAL OFFICE

# EPDM Part 1: General Information

1. COMPANY NAME	CELOTEX CORP.	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS
2. PRODUCT NAME	CELO I .060 FR	ER SYSTEMS RUBBER ROOF .060 BLACK	ER SYSTEMS RUBBER ROOF .045 BLACK	ER SYSTEMS RUBBER ROOF .060 BLACK FR	ER SYSTEMS RUBBER ROOF .045 BLACK FR	ER SYSTEMS POLY-BOND .045 BLACK
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	NONE	NONE	NONE	NONE	NONE	NONWOVEN POLY BACKING
B. COLOR(S)	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.36	0.35	0.25	0.35	0.25	0.30
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	CONT. ADHES. & SEALANT OR SEAM TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	COVER TAPE ADHESIVE OR TAPE
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )		10 MIN	10 MIN	10 MIN	10 MIN	10 MIN
B. PARTIALLY ADHERED (method)		PLATE BONDED	PLATE BONDED	PLATE BONDED	PLATE BONDED	MECH. FAST.
C. FULLY ADHERED (method)		CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	ASPHALT
D. PROTECTED ROOF MEMBRANE ASSEMBLY		X	X	X	X	X
8. MINIMUM SLOPE REQUIRED	1/4"	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X	O	O	O	O	O
B. MINERAL FIBER	X	O	O	O	O	O
C. POLYSTYRENE	X	O	O	O	O	O
D. CELLULAR GLASS	X	O	O	O	O	X
E. PHENOLIC		O	O	O	O	X
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X	O	O	O	O	X
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE		O	O	O	O	O
J. GYPSUM		O	O	O	O	X
K. CONCRETE		O	O	O	O	X
L. WOOD PLANK	X	O	O	O	O	X
M. PLYWOOD	X	O	O	O	O	X
N. EXISTING BUILTUP MEMBRANE	X	O	O	O	O	X
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)		0 - 120	0 - 120	0 - 120	0 - 120	0 - 120
12. FLASHING MATERIAL	UNCURED WHITE EPDM	UNCURED EPDM OR NEOPRENE	UNCURED EPDM OR NEOPRENE	UNCURED EPDM OR NEOPRENE	UNCURED EPDM OR NEOPRENE	UNCURED EPDM OR NEOPRENE
13. FLASHING METHOD	CONTACT ADHESIVE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA						
B. WITHIN USA	1965	1965	1965	1965	1965	1988
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA		THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	6	14	14	14	14	14
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	REGIONAL OFFICE	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747
22. FOR TECHNICAL INFORMATION, CONTACT:	REGIONAL OFFICE	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747
23. SEE MEMBRANE APPENDIX IF CHECKED						

## EPDM Part 1: General Information

[illegible]

# EPDM Part 1: General Information

1. COMPANY NAME	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS
2. PRODUCT NAME	RUBBERGARD 0.045 LSFR	RUBBERGARD 0.060 LSFR	GENFLEX .045 BLACK	GENFLEX .060 BLACK	GENFLEX FRM .045 BLACK	GENFLEX FRM .060 BLACK
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	NONE	NONE	NONE	NONE	YES	YES
B. COLOR(S)	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.28	0.38	0.28	0.38	0.28	0.38
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	SEAM TAPE	SEAM TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	TAPE	TAPE
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10	10	10	10	10	10
B. PARTIALLY ADHERED (method)	BATTENS	BATTENS	MECH. FAST.	MECH. FAST.	MECH. FAST.	MECH. FAST.
C. FULLY ADHERED (method)	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIRED	POS. DRAIN	POS. DRAIN	LEVEL	LEVEL	LEVEL	LEVEL
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X O	X O	X	X	X	X
B. MINERAL FIBER	X O	X O	X	X	X	X
C. POLYSTYRENE	X O	X O	O	O	O	O
D. CELLULAR GLASS	X	X	X	X	X	X
E. PHENOLIC						
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X O	X O	X	X	X	X
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE	X	X	X	X	X	X
J. GYPSUM	X O	X O	X	X	X	X
K. CONCRETE	X O	X O	O	O	O	O
L. WOOD PLANK	X O	X O	O	O	O	O
M. PLYWOOD	X O	X O	O	O	O	O
N. EXISTING BUILTUP MEMBRANE	X O	X O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 – 100	0 – 100	0 – 100	0 – 100	0 – 100	0 – 100
12. FLASHING MATERIAL	EPDM QUICKSEAM FLASHING	EPDM QUICKSEAM FLASHING	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM
13. FLASHING METHOD	CONTACT ADHESIVE/ TAPE	CONTACT ADHESIVE/ TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	TAPE	TAPE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA	1994	1994				
B. WITHIN USA	1994	1994	1979	1979	1989	1989
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA	THOUSANDS	THOUSANDS				
B. WITHIN USA	MILLIONS	MILLIONS	MILLIONS	MILLIONS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	5	5	8	8	8	8
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	800/428-4442	800/428-4442	SALES	SALES	SALES	SALES
22. FOR TECHNICAL INFORMATION, CONTACT:	800/428-4511	800/428-4511	TECH SERVICE 800/443-4272	TECH SERVICE 800/443-4272	TECH SERVICE 800/443-4272	TECH SERVICE 800/443-4272
23. SEE MEMBRANE APPENDIX IF CHECKED						



## EPDM Part 1: General Information

GENFLEX ROOFING SYSTEMS	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
GENFLX AFR .060 BLACK	INTERNATIONAL BLACK EPDM .045	INTERNATIONAL BLACK .060	INTERNATIONAL FIRE RETAR- DANT .060	INTERNATIONAL REINFORCED .045	INTERNATIONAL REINFORCED .060	SPM 45 BLACK	SPM 45R BLACK	SPM 60 BLACK	SPM 60R BLACK
NONE	NONE	NONE	NONE	SCRIM	SCRIM	NONE	POLYESTER	NONE	POLYESTER
BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
0.38	0.30	0.40	0.50	0.40	0.50	0.29	0.30	0.38	0.39
NONE	NONE	NONE	NONE	SCRIM	SCRIM	NONE	NONE	NONE	NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT AD- HESIVE & SEAL- ANT OR TAPE	CONTACT AD- HESIVE & SEAL- ANT OR TAPE	CONTACT AD- HESIVE & SEAL- ANT OR TAPE	CONTACT AD- HESIVE & SEAL- ANT OR TAPE
10 MECH. FAST. CONT. ADHES. X						10 MIN	10 MIN MECH. FAST. ADHESIVE	10 MIN MECH. FAST. ADHESIVE	10 MIN MECH. FAST. ADHESIVE
LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	NONE	NONE	NONE	NONE
X X  O	X X  O	X X  O	X X  O	X X  O	X X  O	O O O O	O O O O	O O O O	O O O O
X X X X X O	X  O	X  O	X  O	X  O	X  O	X X X X X O	X X X X X O	X O X O X O	X O X O X O
O O O O	S S X S	S S X S	S S X S	S S X S	S S X S	X O X O X O O	X O X O X O O	X O X O X O O	X O X O X O O
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
0 – 100	40 – 120	40 – 120	40 – 120	40 – 120	40 – 120	25 – 160	25 – 160	25 – 160	25 – 160
UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM
CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
1994	1982 1982	1982 1982	1982 1982	1982 1982	1982 1982	1979	1993	1979	1993
MILLIONS	MILLIONS	MILLIONS	MILLIONS	THOUSANDS	THOUSANDS	MILLIONS	THOUSANDS	MILLIONS	THOUSANDS
DISTRIBUTORS 8	DISTR,S,DIRECT 40	DISTR,S,DIRECT 40	DISTR,S,DIRECT 40	DISTR,S,DIRECT 40	DISTR,S,DIRECT 40	DISTR,S,DIRECT 5	DISTR,S,DIRECT 5	DISTR,S,DIRECT 5	DISTR,S,DIRECT 5
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
SALES TECH SERVICE 800/443-4272	J. DIAS S. HALL A. HONSBERGER 419/382–0111	J. DIAS S. HALL A. HONSBERGER 419/382–0111	J. DIAS S. HALL A. HONSBERGER 419/382–0111	J. DIAS S. HALL A. HONSBERGER 419/382–0111	J. DIAS S. HALL A. HONSBERGER 419/382–0111	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES	REGIONAL OFFICE GUARANTEE SERVICES

# EPDM Part 1: General Information

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.
2. PRODUCT NAME	SP 60 FR BLACK	SPM 60W WHITE	M-H EPDM .045	M-H EPDM .060	M-H REINFORCED .045	M-H REINFORCED .060
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	NONE	NONE	NONE	NONE	YES	YES
B. COLOR(S)	BLACK	WHITE	BLACK	BLACK	BLACK	BLACK
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.39	0.41	0.30	0.40	0.30	0.40
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONT. ADHES. & SEALANT OR SEAM TAPE	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )			10	10	10	10
B. PARTIALLY ADHERED (method)	MECH. FAST.	MECH. FAST.			MECH. FAST.	MECH. FAST.
C. FULLY ADHERED (method)	ADHESIVE	ADHESIVE	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY			X	X		
8. MINIMUM SLOPE REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	O	O	O	O	O	O
B. MINERAL FIBER	O	O	O	O	O	O
C. POLYSTYRENE	O	O	X O	X O	X O	X O
D. CELLULAR GLASS	O	O	X O	X O	X O	X O
E. PHENOLIC						
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X O	X O	X O	X O	X O	X O
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE	X	X	X	X	X	X
J. GYPSUM	O	O	X O	X O	X O	X O
K. CONCRETE	X O	X O	X O	X O	X O	X O
L. WOOD PLANK	X O	X O	X O	X O	X O	X O
M. PLYWOOD	X O	X O	X O	X O	X O	X O
N. EXISTING BUILTUP MEMBRANE	O	O	O	O	O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	25 – 160	25 – 160	-49 – 180	-49 – 180	-49 – 180	-49 – 180
12. FLASHING MATERIAL	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM	UNCURED OR CURED EPDM
13. FLASHING METHOD	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONT. ADHES. OR FLASHING TAPE	CONT. ADHES. OR FLASHING TAPE	CONT. ADHES. OR FLASHING TAPE	CONT. ADHES. OR FLASHING TAPE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA			1986	1986		
B. WITHIN USA	1983	1983	1963	1963	1986	1986
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS	MILLIONS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	5	5	12	12	12	12
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	REGIONAL OFFICE	REGIONAL OFFICE	L. PUNZEL	L. PUNZEL	L. PUNZEL	L. PUNZEL
22. FOR TECHNICAL INFORMATION, CONTACT:	GUARANTEE SERVICES	GUARANTEE SERVICES	608/365-3111	608/365-3111	608/365-3111	608/365-3111
23. SEE MEMBRANE APPENDIX IF CHECKED			T. MCFARLAND	T. MCFARLAND	T. MCFARLAND	T. MCFARLAND
			608/365-3111	608/365-3111	608/365-3111	608/365-3111

## EPDM Part 1: General Information

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# EPDM Part 1: General Information

1. COMPANY NAME	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.
2. PRODUCT NAME	PRO SHIELD BLACK	PRO SHIELD WHITE	PRO SHIELD WHITE	PRO SHIELD WHITE	PRO SHIELD WHITE FIRE RETARDANT	PRO SHIELD WHITE FIRE RETARDANT
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	NONE	NONE	NONE	NONE	NONE	NONE
B. COLOR(S)	BLACK	WHITE	WHITE	WHITE	WH/FIRE RET	WH/FIRE RET
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.60	0.40	0.50	0.60	0.40	0.60
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10	10	10	10		
B. PARTIALLY ADHERED (method)	PLATE BONDED	PLATE BONDED	PLATE BONDED	PLATE BONDED	PLATE BONDED	PLATE BONDED
C. FULLY ADHERED (method)	CONT. CEMENT	CONT. CEMENT	CONT. CEMENT	CONT. CEMENT	CONT. CEMENT	CONT. CEMENT
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X					
8. MINIMUM SLOPE REQUIRED	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL		
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X O	X O	X O	X O	X O	X O
B. MINERAL FIBER	X O	X O	X O	X O	X O	X O
C. POLYSTYRENE	X O	X O	X O	X O	X O	X O
D. CELLULAR GLASS	X O	X O	X O	X O	X O	X O
E. PHENOLIC	X O	X O	X O	X O	X O	X O
F. FIBERBOARD	X O	X O	X O	X O	X O	X O
G. PERLITE	X	X	X	X	X	X
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE	X O	X O	X O	X O	X O	X O
J. GYPSUM	X O	X O	X O	X O	X O	X O
K. CONCRETE	X O	X O	X O	X O	X O	X O
L. WOOD PLANK	X O	X O	X O	X O	X O	X O
M. PLYWOOD	X O	X O	X O	X O	X O	X O
N. EXISTING BUILTUP MEMBRANE	X O	X O	X O	X O	X O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 - 120	0 - 160	0 - 160	0 - 160	0 - 160	0 - 160
12. FLASHING MATERIAL	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM METAL	UNCURED EPDM METAL
13. FLASHING METHOD	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT	CONTACT ADHESIVE AND SEALANT
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA	1982					
B. WITHIN USA	1965	1965	1965	1965	1982	1982
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA	MILLIONS	MILLIONS	MILLIONS	MILLIONS	1,000,000	1,000,000
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	10	10	10	10	10	10
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES MANAGER MURRELL	SALES MANAGER MURRELL	SALES MANAGER MURRELL	SALES MANAGER MURRELL	SALES MANAGER MURRELL	SALES MANAGER MURRELL
22. FOR TECHNICAL INFORMATION, CONTACT:						
23. SEE MEMBRANE APPENDIX IF CHECKED						

# EPDM Part 1: General Information

ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	VERSICO INCORPORATED	VERSICO INCORPORATED
RPI EPDM BLACK .045	RPI EPDM BLACK .060	RPI EPDM BLACK .045	RPI EPDM BLACK .060	RPI EPDM WHITE .045	RPI EPDM WHITE .060	RPI EPDM FR BLACK .045	RPI EPDM FR BLACK .060	VERSIGARD EPDM.045	VERSIGARD EPDM.050
NONE	NONE	POLYESTER	POLYESTER	NONE	NONE	NONE	NONE	NONE	NONE
BLACK	BLACK	BLACK	BLACK	WHITE	WHITE	BLACK	BLACK	BLACK	BLACK
0.28	0.38			0.30	0.40	0.30	0.40	0.28	0.31
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X X	X X	X X	X X	X X	X X	X X	X X	X X	X X
CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE & SEALANT OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE
10 BATTEN CONT. ADHES. X	10 CONT. ADHES. X	10 CONT. ADHES. X	10 CONT. ADHES. X	10 BATTEN CONT. ADHES. X	10 CONT. ADHES. X	10 BATTEN CONT. ADHES. X	10 CONT. ADHES. X	10 – 15 BATTENS CONT. ADHES. X	10 – 15 BATTENS CONT. ADHES. X
LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	NONE	NONE
O O O O O	O O O O O	O O O O O	O O O O O	O O O O O	O O O O O	O O O O O	O O O O O	X X X X	X X X X
X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X X X	X X X
X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	X O O O O	S O S O S O	S O S O S O
S O	S O	S O	S O	S O	S O	S O	S O	S O	X S
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
40 & ABOVE	40 & ABOVE	40 & ABOVE	40 & ABOVE	40 & ABOVE	40 & ABOVE	40 & ABOVE	40 & ABOVE	-25 – 180	-25 – 180
UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	UNCURED EPDM	EPDM, UNCURED EPDM, METAL	EPDM, UNCURED EPDM, METAL
CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA	USA USA
1965	1965	1965	1965	1965	1965	1965	1965	1982 1965	1986 1986
THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	MILLIONS	MILLIONS
DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 75	DISTRIBUTORS 150	DISTRIBUTORS 150
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
800/628-2957	800/628-2957	800/628-2957	800/628-2957	800/628-2957	800/628-2957	800/628-2957	800/628-2957	M. MCAULEY 800/992-7663 J. WOHL 800/992-7663	M. MCAULEY 800/992-7663 J. WOHL 800/992-7663
								X	X

# EPDM Part 1: General Information

1. COMPANY NAME	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED
2. PRODUCT NAME	VERSIGARD EPDM.060	VERSIGARD PE ROOFING SYSTEM EPDM .050	VERSIGARD II FR EPDM.060	VERSIGARD REINFORCED EPDM.045	VERSIGARD II FR REINFORCED	VERSIGARD-1 WHITE
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	NONE	NONE	NONE	YES	YES	NONE
B. COLOR(S)	BLACK	BLACK	BLACK	BLACK	BLACK	WHITE ON BLK
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.38	0.31	0.40	0.30	0.30	0.40
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X		X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	CONTACT ADHESIVE OR TAPE		CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE	CONTACT ADHESIVE AND SEAL-OR TAPE	CONTACT ADHESIVE AND SEAL-OR TAPE
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10 – 15		10 – 15	10 – 15	10 – 15	
B. PARTIALLY ADHERED (method)	BATTENS	METAL RAIL ASSY.		MECH. FAST.	MECH. FAST.	
C. FULLY ADHERED (method)	CONT. ADHES.		CONT. ADHES.	CONT. ADHES.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X		X			
8. MINIMUM SLOPE REQUIRED	NONE	1/2" IN 12"	NONE	NONE	NONE	1/8"
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	O		O	X O	X O	X O
B. MINERAL FIBER	O		O	X O	X O	X O
C. POLYSTYRENE	O	O	O	O	O	O
D. CELLULAR GLASS	X		X	X O	X O	X
E. PHENOLIC	O					
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	O		O	X	X O	O
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE						
J. GYPSUM	O		O	S O	S O	O
K. CONCRETE	X O		X O	X O	X O	X O
L. WOOD PLANK	O		O	O	O	O
M. PLYWOOD	O		X O	X O	X O	X O
N. EXISTING BUILTUP MEMBRANE			O	X S	X S	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	-25 – 180	-25 – 180	-25 – 180	-25 – 180	-25 – 180	-25 – 180
12. FLASHING MATERIAL	EPDM, UNCURED EPDM, METAL	GALVALUME	EPDM, UNCURED EPDM, METAL	EPDM, UNCURED EPDM, METAL	EPDM, UNCURED EPDM, METAL	EPDM, UNCURED EPDM, METAL
13. FLASHING METHOD	CONTACT ADHESIVE OR TAPE	METAL RAIL ASSEMBLY OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE OR TAPE	CONTACT ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA	1982					1977
B. WITHIN USA	1965	1986	1983	1986	1986	1977
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA	MILLIONS	THOUSANDS	THOUSANDS	MILLIONS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	150	150	150	150	150	150
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	M. MCAULEY 800/992-7663	M. MCAULEY 800/992-7663	M. MCAULEY 800/992-7663	M. MCAULEY 800/992-7663	M. MCAULEY 800/992-7663	M. MCAULEY 800/992-7663
22. FOR TECHNICAL INFORMATION, CONTACT:	J. WOHL 800/992-7663	J. WOHL 800/992-7663	J. WOHL 800/992-7663	J. WOHL 800/992-7663	J. WOHL 800/992-7663	J. WOHL 800/992-7663
23. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X	X

## EPDM Part 2: Test Results

Test description and suggested values as specified in ASTM D 4637–96

1. COMPANY NAME		CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED
2. PRODUCT NAME		SURE-SEAL EPDM	SURE-SEAL FR EPDM	SURE-SEAL FR- PLUS EPDM	SURE-SEAL HTM EPDM	BRITE-PLY	SURE-SEAL REINFORCED EPDM
3. GRADE 1 (greater than 95% principal polymer) or GRADE 2 (50% to 95% principal polymer)		1	1	1	1	1	1
4. CLASS U (unreinforced) or CLASS SR (scrim or fabric internally reinforced)		U	U	U	U	U	SR
5. THICKNESS (min. in.)							
SHEET OVERALL	0.039	0.045	0.060	0.060	0.045	0.06	0.045
COATING OVER SCRIM CLASS SR	0.015	NA	NA	NA	NA	NA	0.015
6. BREAKING STRENGTH (min. lbf) CLASS SR	90	NA	NA	NA	NA	NA	180
7. TENSILE STRENGTH (min. psi) CLASS U	1305	1630	1630	1830	2000	1685	NA
8. ELONGATION, ULTIMATE (min. %)							
CLASS U	300	520	520	580	500	550	NA
CLASS SR	250	NA	NA	NA	NA	NA	500
9. TENSILE SET (max. %) CLASS U	10	5	5	5	5	7	NA
10. TEAR RESISTANCE (min. lbf/in.) CLASS U	150	230	230	230	200	200	NA
11. TEARING STRENGTH (min. lbf) CLASS SR	5	NA	NA	NA	NA	NA	30
12. BRITTLINESS POINT (max. F)	-49	-85	-85	-85	-85	-75	-75
13. OZONE RESISTANCE (pass/fail)	no cracks	PASS	PASS	PASS	PASS	PASS	PASS
14. HEAT AGING							
BREAKING STRENGTH (min. lbf) CLASS SR	80	NA	NA	NA	NA	NA	175
TENSILE STRENGTH (min. psi) CLASS U	1205	1500	1500	1860	2100	1550	NA
ELONGATION, ULTIMATE (min. %)	200	310	310	250	250	250	250
TEAR RESISTANCE (min. lbf/in.) CLASS U	125	215	215	240	215	185	NA
LINEAR DIMENSIONAL CHANGE (max. %)	± 2	-0.4	-0.4	-0.6	-0.4	-0.5	-0.7
15. WATER ABSORPTION (max. mass %)	+8, -2	+2.0	+2.0	+2.0	+2.0	+3.6	+2.0
16. FACTORY SEAM STRENGTH (min. lbf/in.)	51 or sheet failure	X	X	X	X	X	X
17. WEATHER RESISTANCE (pass/fail)	no cracks or crazing	PASS	PASS	PASS	PASS	PASS	PASS
18. SEE MEMBRANE APPENDIX IF CHECKED							

1. COMPANY NAME		CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CELOTEX CORP.	CELOTEX CORP.
2. PRODUCT NAME		SURE-SEAL FR REINFORCED EPDM	SUPER-SEAL REINFORCED EXTRA EPDM	SURE-SEAL FLEECEBACK EPDM	BRITE-PLY FLEECEBACK EPDM	CELO I .045	CELO I .060
3. GRADE 1 (greater than 95% principal polymer) or GRADE 2 (50% to 95% principal polymer)		1	1	1	1	1	1
4. CLASS U (unreinforced) or CLASS SR (scrim or fabric internally reinforced)		SR	SR	FR	FR	U	U
5. THICKNESS (min. in.)							
SHEET OVERALL	0.039	0.045	0.066	0.100, 0.115	0.100, 0.115		
COATING OVER SCRIM CLASS SR	0.015	0.015	0.020	0.045	0.045		
6. BREAKING STRENGTH (min. lbf) CLASS SR	90	180	230	200	200	NA	NA
7. TENSILE STRENGTH (min. psi) CLASS U	1305	NA	NA	NA	NA	1500	1500
8. ELONGATION, ULTIMATE (min. %)							
CLASS U	300	NA	NA	NA	NA	350	350
CLASS SR	250	500	500	500	500	NA	NA
9. TENSILE SET (max. %) CLASS U	10	NA	NA	NA	NA	10	10
10. TEAR RESISTANCE (min. lbf/in.) CLASS U	150	NA	NA	NA	NA	175	175
11. TEARING STRENGTH (min. lbf) CLASS SR	5	30	60	45	45	NA	NA
12. BRITTLINESS POINT (max. F)	-49	-75	-75	-75	-75	-75	-75
13. OZONE RESISTANCE (pass/fail)	no cracks	PASS	PASS	PASS	PASS	PASS	PASS
14. HEAT AGING							
BREAKING STRENGTH (min. lbf) CLASS SR	80	175	220	200	200	NA	NA
TENSILE STRENGTH (min. psi) CLASS U	1205	NA	NA	NA	NA	1450	1450
ELONGATION, ULTIMATE (min. %)	200	250	250	310	250	225	225
TEAR RESISTANCE (min. lbf/in.) CLASS U	125	NA	NA	NA	NA	150	150
LINEAR DIMENSIONAL CHANGE (max. %)	± 2	-0.7	-0.7	-0.7	-0.7	-0.3	-0.3
15. WATER ABSORPTION (max. mass %)	+8, -2	+2.0	+2.0	+2.0	+3.6	±1.0	±1.0
16. FACTORY SEAM STRENGTH (min. lbf/in.)	51 or sheet failure	X	X	X	X	NA	NA
17. WEATHER RESISTANCE (pass/fail)	no cracks or crazing	PASS	PASS	PASS	PASS	NA	NA
18. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## EPDM Part 2: Test Results

Test description and suggested values as specified in ASTM D 4637-96

CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS
CELO I .060	CELO I .045 REINFORCED	CELO I .045 REINFORCED	CELO I .060 REINFORCED	CELO I .060 FR	ER SYSTEMS RUBBER ROOF .060 BLACK	ER SYSTEMS RUBBER ROOF .045 BLACK	ER SYSTEMS RUBBER ROOF .060 BLACK FR	ER SYSTEMS RUBBER ROOF .045 BLACK FR	ER SYSTEMS POLY-BOND .045 BLACK
					1	1	1	1	1
U	SR	SR	SR	U	U	U	U	U	SR
					0.055 NA	0.040 NA	0.055 NA	0.040 NA	0.045 NA
NA 1500	100 NA	100 NA	100 NA	NA 1500	NA 1305	NA 1305	NA 1305	NA 1305	60 1305
350 NA	NA 400	NA 400	NA 400	350 NA	300 NA	300 NA	300 NA	300 NA	NA 400
10 175 NA	NA NA 35	NA NA 35	NA NA 35	10 175 NA	10 150 NA	10 150 NA	10 150 NA	10 150 NA	NA NA 200
-75 PASS	-75 PASS	-75 PASS	-75 PASS	-75 PASS	-49 PASS	-49 PASS	-49 PASS	-49 PASS	-75 PASS
NA 1450 225 150 -0.3	90 NA 250 NA -0.3	90 NA 250 NA -0.3	90 NA 250 NA -0.3	NA 1450 225 150 -0.3	NA 1205 200 125 ±2	NA 1205 200 125 ±2	NA 1205 200 125 ±2	NA 1205 200 125 ±2	45 NA 250 NA +1.0
±1.0	±1.0	±1.0	±1.0	±1.0	+8, -2	+8, -2	+8, -2	+8, -2	+1.0
NA	55	55	55	NA	X	X	X	X	50
NA	NA	NA	NA	NA	PASS	PASS	PASS	PASS	PASS
ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.
ER SYSTEMS REINFORCED-90 .045 BLACK	ER SYSTEMS POLY-BOND .060 BLACK	ER SYSTEMS REINFORCED-90 .060 BLACK	RUBBERGARD .045	RUBBERGARD .060	RUBBERGARD .045 FR	RUBBERGARD .060 FR	RUBBERGARD .090	RUBBERGARD .045 REINFORCED	RUBBERGARD .060 REINFORCED
1	1	1	1	1	1	1	1	1	1
SR	SR	SR	U	U	U	U	U	SR	SR
0.045 0.015	0.060 NA	0.060 NA	0.045 NA	0.060 NA	0.045 NA	0.060 NA	0.090 NA	0.045 0.015	0.060 0.015
100 NA	NA NA	NA NA	NA 1305	NA 1305	NA 1305	NA 1305	NA 1305	90 NA	90 NA
NA 400	NA 400	NA 400	300 NA	300 NA	300 NA	300 NA	300 NA	NA 250	NA 250
NA NA 200	NA NA 200	NA NA 200	10 150 NA	10 150 NA	10 150 NA	10 150 NA	10 150 NA	NA NA 10	NA NA 5
-75 PASS	-75 PASS	-75 PASS	-49 PASS	-49 PASS	-49 PASS	-49 PASS	-49 PASS	-49 PASS	-49 PASS
90 NA 250 NA +1.0	45 NA 250 NA +1.0	90 NA 250 NA +1.0	NA 1205 200 125 ±1	NA 1205 200 125 ±1	NA 1205 200 125 ±1	NA 1205 200 125 ±1	NA 1205 200 125 ±1	80 NA 200 NA ±1	80 NA 200 NA ±1
+1.0	+1.0	+1.0	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2
50	50	50	X	X	X	X	X	X	X
PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS



## EPDM Part 2: Test Results

Test description and suggested values as specified in ASTM D 4637–96

1. COMPANY NAME		FIRESTONE BUILDING PRODUCTS CO.	FIRESTONE BUILDING PRODUCTS CO.	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS	GENFLEX ROOFING SYSTEMS
2. PRODUCT NAME		RUBBERGARD .045 LSFR	RUBBERGARD .060 LSFR	GENFLEX .045 BLACK	GENFLEX .060 BLACK	GENFLEX FRM .045 BLACK	GENFLEX FRM .060 BLACK
3. GRADE 1 (greater than 95% principal polymer) or GRADE 2 (50% to 95% principal polymer)		1	1	1	1	1	1
4. CLASS U (unreinforced) or CLASS SR (scrim or fabric internally reinforced)		U	U	U	U	SR	SR
5. THICKNESS (min. in.)							
SHEET OVERALL	0.039	0.045	0.045	0.043	0.058	0.043	0.058
COATING OVER SCRIM CLASS SR	0.015	NA	NA	NA	NA	0.015	0.015
6. BREAKING STRENGTH (min. lbf) CLASS SR	90	NA	NA	NA	NA	90	90
7. TENSILE STRENGTH (min. psi) CLASS U	1305	1305	1305	1305	1500	NA	NA
8. ELONGATION, ULTIMATE (min. %)							
CLASS U	300	300	300	300	450	NA	NA
CLASS SR	250	NA	NA	NA	NA	300	300
9. TENSILE SET (max. %) CLASS U	10	10	10	10	10	NA	NA
10. TEAR RESISTANCE (min. lbf/in.) CLASS U	150	150	150	150	150	NA	NA
11. TEARING STRENGTH (min. lbf) CLASS SR	5	NA	NA	NA	NA	50	50
12. BRITTLINESS POINT (max. F)	-49	-49	-49	-49	-49	-49	-49
13. OZONE RESISTANCE (pass/fail)	no cracks	PASS	PASS	PASS	PASS	PASS	PASS
14. HEAT AGING							
BREAKING STRENGTH (min. lbf) CLASS SR	80	NA	NA	NA	NA	80	80
TENSILE STRENGTH (min. psi) CLASS U	1205	1205	1205	1500	1500	NA	NA
ELONGATION, ULTIMATE (min. %)	200	200	200	225	225	200	200
TEAR RESISTANCE (min. lbf/in.) CLASS U	125	125	125	230	230	NA	NA
LINEAR DIMENSIONAL CHANGE (max. %)	± 2	± 1	± 1	+1.0	+1.0	+1.0	+1.0
15. WATER ABSORPTION (max. mass %)	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2
16. FACTORY SEAM STRENGTH (min. lbf/in.)	51 or sheet failure	X	X	X	X	X	X
17. WEATHER RESISTANCE (pass/fail)	no cracks or crazing	PASS	PASS	PASS	PASS	PASS	PASS
18. SEE MEMBRANE APPENDIX IF CHECKED							

1. COMPANY NAME		GENFLEX ROOFING SYSTEMS	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.	INTERNATIONAL DIAMOND SYSTEMS, INC.
2. PRODUCT NAME		GENFLEX AFR .060 BLACK	INTERNATIONAL BLACK EPDM .045	INTERNATIONAL BLACK .060	INTERNATIONAL FIRE RETAR- DANT .060	INTERNATIONAL REINFORCED .045	INTERNATIONAL REINFORCED .060
3. GRADE 1 (greater than 95% principal polymer) or GRADE 2 (50% to 95% principal polymer)		1	1	1	1	1	1
4. CLASS U (unreinforced) or CLASS SR (scrim or fabric internally reinforced)		U	U	U	U		
5. THICKNESS (min. in.)							
SHEET OVERALL	0.039	0.043	0.045	0.060	0.060		
COATING OVER SCRIM CLASS SR	0.015	NA	NA	NA	NA		
6. BREAKING STRENGTH (min. lbf) CLASS SR	90	NA	NA	NA	NA		
7. TENSILE STRENGTH (min. psi) CLASS U	1305	1305	1305	1305	1305		
8. ELONGATION, ULTIMATE (min. %)							
CLASS U	300	300	300	300	300		
CLASS SR	250	NA	NA	NA	NA		
9. TENSILE SET (max. %) CLASS U	10	10	5	5	5		
10. TEAR RESISTANCE (min. lbf/in.) CLASS U	150	150	150	150	150		
11. TEARING STRENGTH (min. lbf) CLASS SR	5	NA	NA	NA	NA		
12. BRITTLINESS POINT (max. F)	-49	-49	-49	-49	-49		
13. OZONE RESISTANCE (pass/fail)	no cracks	PASS	PASS	PASS	PASS		
14. HEAT AGING							
BREAKING STRENGTH (min. lbf) CLASS SR	80	NA	NA	NA	NA		
TENSILE STRENGTH (min. psi) CLASS U	1205	1500	1305	1305	1305		
ELONGATION, ULTIMATE (min. %)	200	225	300	300	300		
TEAR RESISTANCE (min. lbf/in.) CLASS U	125	230	150	150	150		
LINEAR DIMENSIONAL CHANGE (max. %)	± 2	+1.0	+2	+2	+2		
15. WATER ABSORPTION (max. mass %)	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2		
16. FACTORY SEAM STRENGTH (min. lbf/in.)	51 or sheet failure	X	30	30	30		
17. WEATHER RESISTANCE (pass/fail)	no cracks or crazing	PASS	PASS	PASS	PASS		
18. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## EPDM Part 2: Test Results

Test description and suggested values as specified in ASTM D 4637–96

JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.	MULE-HIDE PRODUCTS CO. INC.
SPM 45 BLACK	SPM 45R BLACK	SPM 60 BLACK	SPM 60R BLACK	SP 60 FR BLACK	SPM 60W WHITE	M-H EPDM .045	M-H EPDM .060	M-H REINFORCED EPDM .045	M-H REINFORCED EPDM .060
1	1	1	1	1	1	1	1	1	1
U	SR	U	SR	U	U	U	U	SR	SR
0.043 NA	0.040 0.015	0.058 NA	0.058 0.025	0.058 NA	0.058 NA	0.045 NA	0.060 NA	0.045 NA	0.060 NA
NA 1650	90 NA	NA 1485	90 NA	NA 1470	NA 1440	NA 1405+	NA 1405+	210 NA	210 NA
450 NA	NA 250	470 NA	NA 250	425 NA	635 NA	350+ NA	350+ NA	NA 250+	NA 250+
4 200 NA -72 PASS	NA NA 10 -49 PASS	4 192 NA -72 PASS	NA NA 10 -49 PASS	3 201 NA -64 PASS	2 211 NA -80 PASS	10 175 NA -75 PASS	10 175 NA -75 PASS	NA NA 50 -75 PASS	NA NA 50 -75 PASS
NA 1650 320 182 -0.50 +1.7 X PASS	80 NA 200 NA ±2 +4.0 X PASS	NA 1750 285 182 -0.50 +1.7 X PASS	80 NA 200 NA ±2 +4.0 X PASS	NA 1510 300 171 -0.60 +2.8 X PASS	NA 1480 390 143 -1.50 +7.4 X PASS	NA 1205+ 250 150 ±2 +2 X PASS	NA 1205+ 250 150 ±2 +2 X PASS	220 NA 250 NA ±2 +3.6 X PASS	220 NA 250 NA ±2 +3.6 X PASS

MULE-HIDE PRODUCTS CO. INC.	OLYMPIC RUBBER ROOFING SYSTEM	OLYMPIC RUBBER ROOFING SYSTEM	OLYMPIC RUBBER ROOFING SYSTEM	PLY-TECH RUBBER	PLY-TECH RUBBER	PLY-TECH RUBBER	PLY-TECH RUBBER	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.
M-H W/B EPDM .060	WATERSHIELD .045 .060	WATERGUARD .060	WATERGUARD MR	EPT (EPDM) TALC FREE 0.045	EPT (EPDM) TALC FREE RE- INFORCED 0.045	EPT (EPDM) TALC FREE 0.060	EPT (EPDM) TALC FREE RE- INFORCED 0.060	PRO SHIELD BLACK	PRO SHIELD BLACK
1	1	1	1	1	1	1	1	1	1
U	U	U	U	U	SR	U	SR	U	U
0.060 NA	0.045 NA	0.060 NA	0.060 NA	0.045 0.020	0.045 0.020	0.060 0.020	0.060 0.020	0.040 NA	0.050 NA
NA 1405+	NA 1305	NA 1305	NA 1305	90 1500	90 NA	90 1500	90 NA	NA 1400	NA 1400
350+ NA	300 NA	300 NA	300 NA	300 NA	250 NA	300 NA	NA 250	300 NA	300 NA
10 175 NA -75 PASS	<5 150 NA PASS	<5 150 NA PASS	<5 150 NA PASS	10 200 NA -50 PASS	NA NA 25 -50 PASS	10 200 NA -50 PASS	NA NA 25 -50 PASS	10 200 NA -70 PASS	10 200 NA -70 PASS
NA 1205+ 250 150 ±2 +2 X PASS	NA 1205 200 125 ±2 +8 X PASS	NA 1205 200 125 ±2 -2 X PASS	NA 1205 200 125 ±2 -2 X PASS	NA 1205 200 125 ±2 +8, -2 X PASS	80 NA 200 NA ±2 +8, -2 X PASS	NA 1205 200 125 ±2 +8, -2 X PASS	80 NA 200 NA ±2 +8, -2 X PASS	NA 1205 200 125 ±2 +8, -2 X PASS	NA 1205 200 125 ±2 +8, -2 X PASS

## EPDM Part 2: Test Results

Test description and suggested values as specified in ASTM D 4637–96

1. COMPANY NAME		PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.	PROTECTIVE COATINGS, INC.
2. PRODUCT NAME		PRO SHIELD BLACK	PRO SHIELD WHITE	PRO SHIELD WHITE	PRO SHIELD WHITE	PRO SHIELD WHITE FIRE RETARDANT	PRO SHIELD WHITE FIRE RETARDANT
3. GRADE 1 (greater than 95% principal polymer) or GRADE 2 (50% to 95% principal polymer)		1	1	1	1	1	1
4. CLASS U (unreinforced) or CLASS SR (scrim or fabric internally reinforced)		U	U	U	U	U	U
5. THICKNESS (min. in.)							
SHEET OVERALL	0.039	0.060	0.040	0.050	0.060	0.040	0.060
COATING OVER SCRIM CLASS SR	0.015	NA	NA	NA	NA	NA	NA
6. BREAKING STRENGTH (min. lbf) CLASS SR	90	NA	NA	NA	NA	NA	NA
7. TENSILE STRENGTH (min. psi) CLASS U	1305	1400	1400	1400	1400	1400	1400
8. ELONGATION, ULTIMATE (min. %)							
CLASS U	300	300	300	300	300	300	300
CLASS SR	250	NA	NA	NA	NA	NA	NA
9. TENSILE SET (max. %) CLASS U	10	10	10	10	10	10	10
10. TEAR RESISTANCE (min. lbf/in.) CLASS U	150	200	200	200	200	200	200
11. TEARING STRENGTH (min. lbf) CLASS SR	5	NA	NA	NA	NA	NA	NA
12. BRITTLINESS POINT (max. F)	-49	-70	-70	-70	-70	-70	-70
13. OZONE RESISTANCE (pass/fail)	no cracks	PASS	PASS	PASS	PASS	PASS	PASS
14. HEAT AGING							
BREAKING STRENGTH (min. lbf) CLASS SR	80	NA	NA	NA	NA	NA	NA
TENSILE STRENGTH (min. psi) CLASS U	1205	1205	1205	1205	1205	1205	1205
ELONGATION, ULTIMATE (min. %)	200	200	200	200	200	200	200
TEAR RESISTANCE (min. lbf/in.) CLASS U	125	125	125	125	125	125	125
LINEAR DIMENSIONAL CHANGE (max. %)	± 2	+2	+2	+2	+2	+2	+2
15. WATER ABSORPTION (max. mass %)	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2
16. FACTORY SEAM STRENGTH (min. lbf/in.)	51 or sheet failure	X	X	X	X	X	X
17. WEATHER RESISTANCE (pass/fail)	no cracks or crazing	PASS	PASS	PASS	PASS	PASS	PASS
18. SEE MEMBRANE APPENDIX IF CHECKED							

1. COMPANY NAME		ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.
2. PRODUCT NAME		RPI EPDM BLACK .045	RPI EPDM BLACK .060	RPI EPDM BLACK .045	RPI EPDM BLACK .060	RPI EPDM WHITE .045	RPI EPDM WHITE .060
3. GRADE 1 (greater than 95% principal polymer) or GRADE 2 (50% to 95% principal polymer)		1	1	1	1	1	1
4. CLASS U (unreinforced) or CLASS SR (scrim or fabric internally reinforced)		U	U	R	R	U	U
5. THICKNESS (min. in.)							
SHEET OVERALL	0.039	0.040	0.054			0.040	0.054
COATING OVER SCRIM CLASS SR	0.015	NA	NA			NA	NA
6. BREAKING STRENGTH (min. lbf) CLASS SR	90	NA	NA			NA	NA
7. TENSILE STRENGTH (min. psi) CLASS U	1305	1305	1305			1305	1305
8. ELONGATION, ULTIMATE (min. %)							
CLASS U	300	300	300			300	300
CLASS SR	250	NA	NA			NA	NA
9. TENSILE SET (max. %) CLASS U	10						
10. TEAR RESISTANCE (min. lbf/in.) CLASS U	150	150	150			125	125
11. TEARING STRENGTH (min. lbf) CLASS SR	5	NA	NA			NA	NA
12. BRITTLINESS POINT (max. F)	-49	-49	-49			-49	-49
13. OZONE RESISTANCE (pass/fail)	no cracks	PASS	PASS			PASS	PASS
14. HEAT AGING							
BREAKING STRENGTH (min. lbf) CLASS SR	80	NA	NA			NA	NA
TENSILE STRENGTH (min. psi) CLASS U	1205	1205	1205			1205	1205
ELONGATION, ULTIMATE (min. %)	200	200	200			200	200
TEAR RESISTANCE (min. lbf/in.) CLASS U	125	125	125			125	125
LINEAR DIMENSIONAL CHANGE (max. %)	± 2	-2	-2			-2	-2
15. WATER ABSORPTION (max. mass %)	+8, -2	0.05	0.05			0.05	0.05
16. FACTORY SEAM STRENGTH (min. lbf/in.)	51 or sheet failure	X	X			X	X
17. WEATHER RESISTANCE (pass/fail)	no cracks or crazing	PASS	PASS			PASS	PASS
18. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## EPDM Part 2: Test Results

Test description and suggested values as specified in ASTM D 4637–96

ROOFING PRODUCTS INTERNATIONAL INC.	ROOFING PRODUCTS INTERNATIONAL INC.	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED	VERSICO INCORPORATED
RPI EPDM FR BLACK 0.045	RPI EPDM FR BLACK 0.060	VERSIGARD EPDM .045	VERSIGARD EPDM .050	VERSIGARD EPDM .060	VERSIGARD PE ROOFING SYSTEM EPDM .050	VERSIGARD II FR EPDM .060	VERSIGARD REINFORCED EPDM .045	VERSIGARD II FR REINFORCED EPDM .045	VERSIGARD WHITE/BLACK 0.060
1	1	1	1	1	1	1	1	1	1
U	U	U	U	U	U	U	SR	SR	U
0.040	0.054	0.040	0.045	0.054	0.045	0.054	0.045	0.045	0.054
NA	NA	NA	NA	NA	NA	NA	0.015	0.015	NA
NA	NA	NA	NA	NA	NA	NA	210	210	NA
1305	1305	1305	1305	1305	1305	1780	NA	NA	1305
300	300	300	300	300	300	495	NA	NA	300
NA	NA	NA	NA	NA	NA	NA	290	290	NA
150	150	150	150	150	150	215	NA	NA	150
NA	NA	NA	NA	NA	NA	NA	50	50	NA
-49	-49	-75	-75	-75	-75	-85	-75	-75	-75
PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
NA	NA	NA	NA	NA	NA	NA	220	220	NA
1205	1205	1205	1205	1205	1205	1205	NA	NA	1200
200	200	200	200	200	200	200	200	200	200
125	125	125	125	125	125	125	NA	NA	125
-2	-2	± 2	± 2	± 2	± 2	± 2	-0.7	-0.7	+2
0.05	0.05	+8, -2	+8, -2	+8, -2	+8, -2	+8, -2	+4.0	+4.0	+4
X	X	X	X	X	X	X	X	X	X
PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
		X	X	X	X	X			

VERSICO INCORPORATED
VERSIGARD WHT REINFORCED EPDM .045
1
SR
0.041
0.015
90
NA
NA
250
NA
NA
10
-49
PASS
80
NA
200
NA
+2
+4.0
X
PASS

# CSPE (Hypalon) Part 1: General Information

1. COMPANY NAME	BURKE INDUSTRIES	BURKE INDUSTRIES	BURKE INDUSTRIES	CONKLIN CO. INC.	WP HICKMAN SYSTEMS, INC.	MULE-HIDE PRODUCTS CO, INC.	PLY-TECH RUBBER
2. PRODUCT NAME	BURKELINE M-358 MF	BURKELINE M-358 FA	BURKELINE M-350 VAC Q	HY-CROWN 45 MILS	HK 3000	M-H HYPALON 0.045	CSM(CSPE)
3. PRODUCT DESCRIPTION							
A. REINFORCEMENT	POLYESTER	POLYESTER	POLYESTER	POLYESTER	10 X 10 WOVEN POLYESTER WHITE/BLACK	10 X 10 POLYESTER WHITE 0.29 MIN	POLYESTER
B. COLOR	VARIOUS	VARIOUS	VARIOUS	VARIOUS			ALL COLORS
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.32	0.32	0.32	0.32			0.29
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:							
A. NEW ROOFING	X	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	SOLVENT, HEAT, OR WELD SOLUTION	SOLVENT, HEAT, OR WELD SOLUTION	SOLVENT, HEAT, OR WELD SOLUTION	WELD SOLUTION OR HEAT WELD	CONTACT ADHESIVE	HEAT WELD	HEAT WELD OR CURABLE SEAM TAPE
7. TYPES OF ROOF SYSTEMS							
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10	10	10	10	10	10	10
B. PARTIALLY ADHERED (method)	MECH. FAST.		LOOSE LAID	MECH. FAST.	MECH. FAST.	MECH. FAST.	MECH. FAST.
C. FULLY ADHERED (method)		CONT. ADHES.		CONT. ADHES.	COLD/HOT ADHES.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X		X
8. MINIMUM SLOPE REQUIRED	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	POS DRAIN	1/8"	NONE	
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some/all circumstances)							
A. GLASS FIBER	X	X	X	X	X		X O
B. MINERAL FIBER	X		O X	X		X	X O
C. POLYSTYRENE	S		O S	S	O	X S O	X O
D. CELLULAR GLASS	X	X	X	X	O	X	X O
E. PHENOLIC	X	X	X	X		X	X O
F. FIBERBOARD	X	X	X	X	X	X	X O
G. PERLITE	X		O X	X	X	X	X O
H. POLYISOCYANURATE	X	X	X	X	X	X	X O
I. POLYURETHANE	X	X	X	X	X	X	X
J. GYPSUM	X	X	X	X	O	X	X
K. CONCRETE		O X	X	O	X	X	X
L. WOOD PLANK	S	X	X	X	O	X	X
M. PLYWOOD	S	X	X	X	O	X	X
N. EXISTING BUILT-UP MEMBRANE	O	O	X	O	O	O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	-40 - 140	-40 - 140	-40 - 140	-25 - 140	50 - 120	-25 - 140	
12. FLASHING MATERIAL	REINFORCED & UNREINFORCED CLAD METAL	REINFORCED & UNREINFORCED CLAD METAL	REINFORCED & UNREINFORCED CLAD METAL	REINFORCED & UNREINFORCED CLAD METAL	SAME MATERIAL	REINFORCED & UNREINFORCED HYPALON	REINFORCED & UNREINFORCED CSM (CSPE)
13. FLASHING METHOD	CONT. ADHES. AND SOLUTION OR HEAT WELD	CONT. ADHES. AND SOLUTION OR HEAT WELD	CONT. ADHES. AND SOLUTION OR HEAT WELD	CONT. ADHES. AND SOLUTION OR HEAT WELD	CONTACT ADHESIVE	CONTACT ADHESIVE AND HEAT WELD	HEAT WELD, CONT. ADHES., CUR. SEAM TAPE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:							
A. ORIGIN	USA	USA	USA	USA	USA	USA	CANADA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA	CANADA
16. YEAR OF FIRST COMMERCIAL USE							
A. OUTSIDE USA	1982	1982	1986				1983
B. WITHIN USA	1976	1976	1986	1985	1985	1978	1983
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )							
A. OUTSIDE USA							THOUSANDS
B. WITHIN USA	MILLIONS	MILLIONS	>100,000	>2,000,000	THOUSANDS	MILLIONS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTR,DIRECT	DISTR,DIRECT	DISTR,DIRECT	DISTRIBUTORS	DIRECT	DISTRIBUTORS	DISTR,DIRECT
19. NUMBER OF REGIONAL LOCATIONS	54	54	54	5	5	12	6
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	B. ROADES	B. ROADES	B. ROADES	BLDG. PRODS. 800/888-8838	C. FITZGERALD	L. PUNZEL 608/365-3111	416/749-7070
22. FOR TECHNICAL INFORMATION, CONTACT:	B. ROADES 800/669-7010	B. ROADES 800/669-7010	B. ROADES 800/669-7010	PROD. SERVS. 800/888-8838	R. GALLION K. BRZOZOWSKI	T. MCFARLAND 608/365-3111	416/749-7070
23. SEE MEMBRANE APPENDIX IF CHECKED							

CSPE (Hypalon) Part 1: General Information
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STEVENS ROOFING SYSTEMS	STEVENS ROOFING SYSTEMS	TREMCO INC.	UNIROOF CORPORATION	UNIROOF CORPORATION
STEVENS HYPALON .045	STEVENS HYPALON .060	TREMCO HP 4510	UNIROOF REINFORCED	UNIROOF BACKED
10 X 10 POLYESTER WHITE 0.29 MIN	10 X 10 POLYESTER WHITE 0.43 MIN	10 X 10 WOVEN POLYESTER WHITE/BLACK	POLYESTER ALL COLORS 0.25	NONE  ALL COLORS 0.25
NONE	NONE	NONE	NONE	NONE
X X	X X	X X	X X	X X
HEAT WELD	HEAT WELD	CONTACT ADHESIVE OR HEAT WELD	HEAT WELD	HEAT WELD
10 MECH. FAST. CONT. ADHES. X	10 MECH. FAST. CONT. ADHES. X	10 MECH. FAST. CONT. ADHES. X	10 MECH. FAST.  X	  LATEX ADHES. X
NONE	NONE	1/4"	DEAD LEVEL	DEAD LEVEL
X X X O X O X O X O X O X X X X X X X O	X X X O X O X O X O X O X X X X X X X O	X  O O  X O X O O O O O	X X X X O  O X X O O X X O	X X X X O  O X X O O X X O
NONE	NONE	NONE	NONE	NONE
-25 - 140	-25 - 140		0 - 120	10 - 120
REINFORCED & UNREINFORCED HYPALON	REINFORCED & UNREINFORCED HYPALON	REINFORCED HYPALON	REINFORCED AND NONREIN- FORCED	BACKED UNIROOF
CONTACT ADHESIVE AND HEAT WELD	CONTACT ADHESIVE AND HEAT WELD	CONTACT ADHESIVE AND HEAT WELD	CONT.ADHES. SOLUTION AND HEAT WELD	CONT.ADHES. SOLUTION AND HEAT WELD
YES	YES	YES	YES	YES
USA USA	USA USA	USA USA	USA USA	UK UK
1977 1978	1977 1978	1981		1969 1976
MILLIONS MILLIONS	THOUSANDS THOUSANDS			THOUSANDS THOUSANDS
DISTRIBUTORS 108	DISTRIBUTORS 108	DIRECT 18	DIRECT 8	DIRECT 8
YES	YES	YES	YES	YES
B. ABBOTT J. PEAK TECH. DEPT. 800/621-ROOF	B. ABBOTT J. PEAK TECH. DEPT. 800/621-ROOF	SALES OFFICE  TECH. DEPT.	D. KONSTAN 407/869-5110 D. KONSTAN 407/869-5110	D. KONSTAN 407/869-5110 D. KONSTAN 407/869-5110

# CSPE (Hypalon) Part 2: Test Results

Test description and suggested values as specified in ASTM D 5019-96

1. COMPANY NAME	BURKE INDUSTRIES	BURKE INDUSTRIES	BURKE INDUSTRIES	CONKLIN CO. INC	WP HICKMAN SYSTEMS INC	MULE-HIDE PRODUCTS CO INC
2. PRODUCT NAME	BURKELINE M-358 MF	BURKELINE M-358 FA	BURKELINE M-358 VAC Q	HY-CROWN 45 MILS	HK 3000	M-H HYPALON 0.045
3. SHEET CONSTRUCTION						
GRADE 1 (backed with fibers)						
GRADE 2 (internally reinforced with fabric)	2	2	2	2	2	2

## PHYSICAL PROPERTIES OF SHEET

4. THICKNESS (min. in.)	0.036	0.045	0.045	0.045	0.045	0.045	0.045
5. BREAKING STRENGTH (min. lbf)							
GRADE 1	50	NA	NA	NA	NA		NA
GRADE 2 (fabric)	125	225	225	225	225		225
6. ELONGATION (min. %)							
GRADE 1	250	NA	NA	NA	NA		NA
GRADE 2 (fabric)	15	81	81	81	81		15
7. TEARING STRENGTH (min. lbf)							
GRADE 1	10	NA	NA	NA	NA		NA
GRADE 2 (fabric)	25	90	90	90	90		90
8. LOW-TEMPERATURE BEND	pass	PASS	PASS	PASS	PASS		PASS
9. LINEAR DIMENSIONAL CHANGE (max. %)							
GRADE 1	1.0	NA	NA	NA	NA		NA
GRADE 2 (fabric)	2.0	1.0	1.0	1.0	1.0		2.0
10. FABRIC ADHESION (min. lbf/in. width)							
GRADE 1	A*	NA	NA	NA	NA		NA
11. PLY ADHESION (min. lbf/in.)							
GRADE 2	6	10	10	10	10		10
12. HYDROSTATIC RESISTANCE (min. psi)							
GRADE 1	15	NA	NA	NA	NA		NA
GRADE 2	160	300	300	300	300		300
13. OZONE RESISTANCE OF SHEET (no cracks)	pass	PASS	PASS	PASS	PASS		PASS
14. WEATHER RESISTANCE (no cracks or crazing)	pass	PASS	PASS	PASS	PASS		PASS

## PHYSICAL PROPERTIES OF THE COATING PORTION OF THE WEATHER SIDE OF SHEET

13. TENSILE STRENGTH (min. psi)	700	1000	1000	1000	1000		1000
14. ELONGATION (min. %)	300	400	400	400	400		300
15. TEAR RESISTANCE (min. lbf/in.)	150	320	320	320	320		150
16. OZONE RESISTANCE (no cracks)	pass	PASS	PASS	PASS	PASS		PASS
17. WATER ABSORPTION (max. mass %)	10	8	8	8	8		10
18. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

A=internal delamination of backing occurs prior to failure at bond between backing and coating

## CSPE (Hypalon) Part 2: Test Results

PLY-TECH RUBBER	STEVENS ROOFING SYSTEMS	STEVENS ROOFING SYSTEMS	TREMCO INC	UNIROOF CORPORATION	UNIROOF CORPORATION
CSM (CSPE)	STEVENS HYPALON .045	STEVENS HYPALON .060	TREMCO HP 4510	UNIROOF REINFORCED	UNIROOF BACKED
2	2	2	2		

0.036	0.0405	.054			
NA 220	NA 280	NA 280			
NA 30	NA 15	NA 15			
NA 90	NA 110	NA 110			
PASS	PASS	PASS			
NA 2.0	NA .1	NA .1			
NA	NA	NA			
6	10	10			
NA 300	NA 400	NA 400			
PASS	PASS	PASS			
PASS	PASS	PASS			

1500	1000	1000			
300	300	300			
150	150	150			
PASS	PASS	PASS			
10	10	10			



# **PIB (Polyisobutylene) Part 1: General Information**

1. COMPANY NAME	PLY-TECH RUBBER	REPUBLIC POWDERED METALS	TREMCO INC.
2. PRODUCT NAME	TRENT-GARD	REPUBLIC SINGLE PLY SYSTEMS: GEOFLEX	TREMAST
3. PRODUCT DESCRIPTION A. REINFORCEMENT B. COLOR(S) C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	POLYESTER WHITE 0.60	POLYESTER WHITE 0.57	POLYESTER WHITE
4. COATING REQUIRED	NONE	NONE	NONE
5. USE IN: A. NEW ROOFING B. REROOFING	X X	X X	X X
6. FIELD LAP JOINT METHOD	PIB ADHESIVE	PEEL AND STICK	SELF ADHESIVE
7. TYPES OF ROOF SYSTEMS A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> ) B. PARTIALLY ADHERED (method) C. FULLY ADHERED (method) D. PROTECTED ROOF MEMBRANE ASSEMBLY	10 ASPHALT ADHESIVE X	10 ASPH OR ADHES ADHESIVE X	HOT OR COLD COLD ADHS. X
8. MINIMUM SLOPE REQUIRED	1" PER 10'	POS DRAIN	POS DRAIN
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)			
A. GLASS FIBER	X	X	X
B. MINERAL FIBER	X	X	X
C. POLYSTYRENE	O	O	
D. CELLULAR GLASS	X	X	X
E. PHENOLIC	X	X	
F. FIBERBOARD	X	X	X
G. PERLITE	X	X	O
H. POLYISOCYANURATE	X O	X O	X
I. POLYURETHANE	O	O	X
J. GYPSUM	X O	X O	O
K. CONCRETE	X O	X O	O
L. WOOD PLANK	X O	X O	O
M. PLYWOOD	X O	X O	O
N. EXISTING BUILT-UP MEMBRANE	X O	X O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	20 – 100	40 – 100	20 – 100
12. FLASHING MATERIAL	PIB BUTYLTAPE	REINFORCED AND UNREIN- FORCED PIB	REINFORCED AND UNREIN- FORCED PIB
13. FLASHING METHOD	PIB ADHESIVE	SELF-SEAL AND CONTACT ADHESIVE	SELF ADHESIVE AND ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES
15. COUNTRY OF: A. ORIGIN B. MANUFACTURE	GERMANY USA-CANADA	GERMANY USA	GERMANY USA
16. YEAR OF FIRST COMMERCIAL USE A. OUTSIDE USA B. WITHIN USA	1935 1980	1950 1977	1950
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> ) A. OUTSIDE USA B. WITHIN USA	MILLIONS THOUSANDS	MILLIONS THOUSANDS	
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	6	4	18
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	416/749-7070	888/742-7759	SALES OFFICE
22. FOR TECHNICAL INFORMATION, CONTACT:	416/749-7070	800/551-7081	TECH. DEPT.
23. SEE MEMBRANE APPENDIX IF CHECKED			

## PIB (Polyisobutylene) Part 2: Test Results

Test description and suggested values as specified in ASTM D 5019–96

1. COMPANY NAME	PLY-TECH RUBBER	REPUBLIC POWDERED METALS	TREMCO INC.
2. PRODUCT NAME	TRENT-GARD	REPUBLIC SINGLE PLY SYSTEMS: GEOFLEX	TREMFAST
PHYSICAL PROPERTIES OF SHEET			
3. THICKNESS (min. in.)	0.087	0.120	0.100
4. BREAKING STRENGTH (min. lbf)	140	190	175
5. ELONGATION (min. %)	50	120	60
6. TEARING STRENGTH (min. lbf)	30	30	30
7. LOW TEMPERATURE BEND	pass	PASS	PASS
8. LINEAR DIMENSIONAL CHANGE (max. %)	1.0	0.5	0.5
9. FABRIC ADHESION (min. lbf/in.)	7	12	12
10. HYDROSTATIC RESISTANCE (min. psi)	175	200	200
11. OZONE RESISTANCE (no cracks)	pass	PASS	PASS
12. WEATHER RESISTANCE (no cracks or crazing)	pass	PASS	PASS
PHYSICAL PROPERTIES OF THE COATING PORTION ON THE WEATHER SIDE OF SHEET			
13. TENSILE STRENGTH (min. psi)	600	600	700
14. ELONGATION (min. %)	400	400	400
15. TEAR RESISTANCE (min. lbf/in.)	100	120	100
16. OZONE RESISTANCE (no cracks)	pass	PASS	PASS
17. WATER ABSORPTION (max. mass %)	1.0	0.2	1.0
18. SEE MEMBRANE APPENDIX IF CHECKED			

NA=not applicable

# Other Prefabricated Sheet-applied Membranes Part 1: General Information

1. COMPANY NAME	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS
2. PRODUCT NAME	BONDCOTE 350 SERIES	BONDCOTE 400 SERIES	BONDCOTE 500 SERIES	BONDCOTE 600 SERIES	BONDCOTE 800 SERIES	BONDCOTE FLEECEBOND 1000
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	18 X 12 POLYESTER	18 X 12 POLYESTER	18 X 12 POLYESTER	18 X 12 POLYESTER	18 X 12 POLYESTER	18 X 12 POLYESTER
B. COLOR	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.24	0.28	0.33	0.40	0.55	0.30
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HEAT WELD	HEAT WELD	HEAT WELD	HEAT WELD	HEAT WELD	HEAT WELD
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10	10	10	10	10	10
B. PARTIALLY ADHERED (method)	MECHANICALLY CONT. ADHES.	MECHANICALLY CONT. ADHES.	MECHANICALLY CONT. ADHES.	MECHANICALLY CONT. ADHES.	MECHANICALLY CONT. ADHES.	MECHANICALLY CONT. ADHES.
C. FULLY ADHERED (method)	X	X	X	X	X	X
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIRED (inches per foot)	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X O	X O	X O	X O	X O	X
B. MINERAL FIBER	X O	X O	X O	X O	X O	X
C. POLYSTYRENE	S O	S O	S O	S O	S O	X
D. CELLULAR GLASS	X	X	X	X	X	X
E. PHENOLIC						
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X	X	X	X	X	X
H. POLYISOCYANURATE	X	X	X	X	X	X
I. POLYURETHANE	X	X	X	X	X	X
J. GYPSUM	X	X	X	X	X	X
K. CONCRETE	O	O	O	O	O	X
L. WOOD PLANK	O	O	O	O	O	X
M. PLYWOOD	O	O	O	O	O	X
N. EXISTING BUILT-UP MEMBRANE	O	O	O	O	O	X
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	0 – 180	0 – 180	0 – 180	0 – 180	0 – 180	0 – 180
12. FLASHING MATERIAL	ROOF MEMB NBP-COATED METAL	ROOF MEMB NBP-COATED METAL	ROOF MEMB NBP-COATED METAL	ROOF MEMB NBP-COATED METAL	ROOF MEMB NBP-COATED METAL	ROOF MEMB NBP-COATED METAL
13. FLASHING METHOD	HEAT WELD AND CONTACT ADHESIVE	HEAT WELD AND CONTACT ADHESIVE	HEAT WELD AND CONTACT ADHESIVE	HEAT WELD AND CONTACT ADHESIVE	HEAT WELD AND CONTACT ADHESIVE	HEAT WELD AND CONTACT ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA		1987				
B. WITHIN USA	1977	1977	1995	1995	1995	1991
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	4	4	4	4	4	4
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES DEPT. 800/368-2160	SALES DEPT. 800/368-2160	SALES DEPT. 800/368-2160	SALES DEPT. 800/368-2160	SALES DEPT. 800/368-2160	SALES DEPT. 800/368-2160
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH. DEPT. 800/368-2160	TECH. DEPT. 800/368-2160	TECH. DEPT. 800/368-2160	TECH. DEPT. 800/368-2160	TECH. DEPT. 800/368-2160	TECH. DEPT. 800/368-2160
23. SEE MEMBRANE APPENDIX IF CHECKED	X	X				X

## Other Prefabricated Sheet-applied Membranes Part 1: General Information

[illegible]

# Other Prefabricated Sheet-applied Membranes Part 1: General Information

1. COMPANY NAME	ERSYSTEMS	ERSYSTEMS	FLEX MEMBRANE INTERNATIONAL INC.	FLEX MEMBRANE INTERNATIONAL INC.	FLEX MEMBRANE INTERNATIONAL INC.	GENFLEX ROOFING SYSTEMS
2. PRODUCT NAME	PERMAWELD FLEECE-BACKED	PERMAWELD	FLEX FB 100	FLEX FB ELVALOY	FLEX MF/R ELVALOY	GENFLEX .045 TPO
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	CPA MEMB. REIN- FORCED W/ FLEECE- BACKED POLY. FAB.	CPA POLYESTER REINFORCED	REINFORCED POLYESTER W/ FLEECE BACK.	REINFORCED POLYESTER W/ FLEECE BACK.	REINFORCED POLYESTER	POLYESTER
B. COLOR	WHITE	WHITE	WHITE/ OFF-WHITE	WHITE/ OFF-WHITE	WHITE/ OFF-WHITE	WHITE/BLACK/ GRAY
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)	0.40	0.33	0.44	0.35	0.30	0.21
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD	HEAT WELD OR SOLVENT WELD	HEAT WELD	HOT AIR WELD	HOT AIR WELD	HOT AIR WELD	HEAT WELD
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )	10	10	10 MIN	10 MIN	10 MIN	10-15
B. PARTIALLY ADHERED (method)	MECH. FAST.	MECHANICALLY	MECH. FAST.	MECH. FAST.	MECH. FAST.	MECH. FAST.
C. FULLY ADHERED (method)	HOT AS./CLD AD.	COLD ADHES	HOT AS./CLD AD.	HOT AS./CLD AD.	CONT. ADHES.	CONT. ADHES.
D. PROTECTED ROOF MEMBRANE ASSEMBLY	X	X	X	X	X	X
8. MINIMUM SLOPE REQUIRED (inches per foot)	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	LEVEL
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER	X	X	X	X	X	O
B. MINERAL FIBER	X	X	X	O	X	X
C. POLYSTYRENE	X O	X O	X O	X	S O	O
D. CELLULAR GLASS	O	O	X	X	X O	X
E. PHENOLIC	X	X	X	X	X	X
F. FIBERBOARD	X	X	X	X	X	X
G. PERLITE	X	X	X	X	X O	X
H. POLYISOCYANURATE	X	X	X	X O	X	X
I. POLYURETHANE	X	X	X	O	X	X
J. GYPSUM	X	X	X	X O	X O	X
K. CONCRETE	X O	X O	X	X	S	O
L. WOOD PLANK	X	X	X	X O	O	O
M. PLYWOOD	X	X	X	X O	X O	O
N. EXISTING BUILT-UP MEMBRANE	S O	S O	X	X O	X O	O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	-30 - 160	-30 - 160	0 - 120	0 - 120	0 - 120	0 - 140
12. FLASHING MATERIAL	ROOF MEM- BRANE/COATED METAL	ROOF MEM- BRANE/COATED METAL	ROOF MEM- BRANE/COATED METAL	ROOF MEM- BRANE/COATED METAL	ROOF MEM- BRANE/COATED METAL	MEMBRANE OR COATED METAL
13. FLASHING METHOD	HEAT WELD OR WALL MASTIC	HEAT WELD OR WALL MASTIC	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	HOT AIR WELD OR ADHESIVE	CONTACT ADHESIVE AND HEAT WELD
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	YES	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA						
B. WITHIN USA	1994	1984	1988	1988	1988	1995
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRs, DIRECT	DISTRs, DIRECT	DIRECT	DIRECT	DIRECT	DISTRIBUTORS
19. NUMBER OF REGIONAL LOCATIONS	14	14		4	4	
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	J. DOYLE 610/286-7788	J. DOYLE 610/286-7788	J. DOYLE 610/286-7788	SALES DEPT.
22. FOR TECHNICAL INFORMATION, CONTACT:	J. LEONARD 800/403-7747	R. BAKER 800/403-7747	M GIANGIACOMO 610/286-7788	M GIANGIACOMO 610/286-7788	M GIANGIACOMO 610/286-7788	TECH. DEPT. 800/443-4272
23. SEE MEMBRANE APPENDIX IF CHECKED	X					

# Other Prefabricated Sheet-applied Membranes Part 1: General Information

GENFLEX ROOFING SYSTEMS	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.
GENFLEX .060 TPO	HYLOAD 250	HYLOAD SAM	ALPROOF	ALPROOF CP	HYLOAD 150E	ALPSAM WS	HYLOAD WS	ALPSAM	PMVB
POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	
WHITE/BLACK/ GRAY	BLACK	BLACK	WHITE		BLACK	WHITE	BLACK	WHITE	
	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.40	0.70
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
HEAT WELD	HEAT WELD	SELF-ADHERED	HEAT WELD	HEAT WELD	HEAT WELD	HEAT WELD	HEAT WELD	SELF-ADHERED	SELF-ADHERED
10-15 MECH. FAST. CONT. ADHES. X	CONT. ADHES. X	SELF-ADHERED	BITUMEN X	ADHESIVE X	BITUMEN X	SELF-ADHERED	SELF-ADHERED	SELF-ADHERED	SELF-ADHERED
LEVEL	DEAD LEVEL	DEAD LEVEL	1	1	DEAD LEVEL	1	DEAD LEVEL	1	DEAD LEVEL
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
X	O	O	O	O	O	O	O	O	
O	O	O	O	O	O	O	O	O	X O
O	O	O	O	O	O	O	O	O	X O
O	O	O	O	O	O	O	O	O	X O
O	O	O	O	O	O	O	O	O	X O
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	
0 - 140	40 - 120	40 - 120	40 - 120	40 - 120	40 - 120	40 - 120	40 - 120	40 - 120	
MEMBRANE OR COATED METAL	HYLOAD WS STRAPPED METHOD	SAME MATERIAL STRAPPED METHOD	ALPSAM WS STRAPPED METHOD	ALPSAM WS STRAPPED METHOD	H 150E, HYLOAD SAM, WS STRAP METHOD	SAME MATERIAL STRAPPED METHOD	SAME MATERIAL STRAPPED METHOD	SAME MATERIAL STRAPPED METHOD	SAME MATERIAL STRAPPED METHOD
CONTACT ADHESIVE AND HEAT WELD	SELF-ADHERING W/ HEAT WELD	SELF-ADHERING	SELF-ADHERING W/ HEAT WELD	SELF-ADHERING W/ HEAT WELD	SELF-ADHERING W/ HEAT WELD	SELF-ADHERING W/ HEAT WELD	SELF-ADHERING W/HEAT WELD	SELF- ADHERING	SELF- ADHERING
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
USA	USA	USA	USA	USA	USA	USA	USA	USA	
USA	USA	USA	USA	USA	USA	USA	USA	USA	
1995	1977	1985	1989	1989	1969	1989	1985	1989	
THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	> 1 MILLION	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
DISTRIBUTORS	DIRECT 20	DIRECT 20	DIRECT 20	DIRECT 20	DIRECT 20	DIRECT 20	DIRECT 20	DIRECT 20	DIRECT 20
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
SALES DEPT.	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM
TECH. DEPT.	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON
800/443-4272									

# Other Prefabricated Sheet-applied Membranes Part 1: General Information

1. COMPANY NAME	HYLOAD INC.	HYLOAD INC.	HYLOAD INC.	SEAL-DRY/ USA, INC.	SEAL-DRY/ USA, INC.	SEAMAN CORP.
2. PRODUCT NAME	HY BASE	HY BASE SAM	HY BASE SAM VR	SEAL-DRY SYSTEM 5000	SEAL-DRY SYSTEM 3000	FIBERTITE FB
3. PRODUCT DESCRIPTION						
A. REINFORCEMENT	POLYESTER	POLYESTER	POLYESTER	POLYESTER	POLYESTER	REINFORCED POLYESTER W/ FLEECE BACK LIGHT BEIGE
B. COLOR	BLACK	BLACK	BLACK	WHITE	WHITE	
C. INSTALLED WEIGHT (lbs./ft <sup>2</sup> w/o ballast)				0.25	0.25	< 0.28
4. COATING REQUIRED	NONE	NONE	NONE	NONE	NONE	NONE
5. USE IN:						
A. NEW ROOFING	X	X	X	X	X	X
B. REROOFING	X	X	X	X	X	X
6. FIELD LAP JOINT METHOD		SEF ADHERED	SELF ADHERED	HEAT WELD	HEAT WELD	HEAT WELD
7. TYPES OF ROOF SYSTEMS						
A. LOOSE LAID/BALLASTED (ballast: lbs./ft <sup>2</sup> )				10	10	
B. PARTIALLY ADHERED (method)	MECH. FAST.			MECH. FAST.	MECH. FAST.	
C. FULLY ADHERED (method)		SELF ADHERED	SELF ADHERED	ADHESIVE	ADHESIVE	ADHESIVE
D. PROTECTED ROOF MEMBRANE ASSEMBLY				X	X	
8. MINIMUM SLOPE REQUIRED (inches per foot)	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	DEAD LEVEL	NONE
9. ACCEPTABLE SUBSTRATES (X=direct application permitted) (S=separator sheet required) (O=overlayment required in some or all circumstances)						
A. GLASS FIBER				X	X	X
B. MINERAL FIBER				X	X	
C. POLYSTYRENE				S O	S O	O
D. CELLULAR GLASS				O	O	O
E. PHENOLIC				X	X	
F. FIBERBOARD	X	X		X	X	
G. PERLITE	X	X		X	X	O
H. POLYISOCYANURATE	X	X		X	X	X
I. POLYURETHANE	X	X		X	X	X O
J. GYPSUM	X	X O	X O	X	X	X O
K. CONCRETE	X	X O	X O	S O	S O	X
L. WOOD PLANK	X		X O	X	X	X O
M. PLYWOOD	X	X O	X O	X	X	X O
N. EXISTING BUILT-UP MEMBRANE	X	X O	X O	S O	S O	X O
10. RESTRICTED REGIONS (refer to manufacturer's literature)	NONE	NONE	NONE	NONE	NONE	NONE
11. WORKABLE TEMPERATURE RANGE (degrees F)	40 - 120	55 - 120	55 - 120	-30 - 160	-30 - 160	0 - 120
12. FLASHING MATERIAL	SAME MATERIAL	SAME MATERIAL	SAME MATERIAL	ROOF MEMBRANE COATED METAL	ROOF MEMBRANE COATED METAL	ROOF MEMBRANE COATED METAL
13. FLASHING METHOD		STRAPPED METHOD	STRAPPED METHOD	MECH. ATTACH OR ADHERE	MECH. ATTACH OR ADHERE	HEAT WELD, WALL MASTIC, OR ADHESIVE
14. PREFORMED ACCESSORIES AVAILABLE (yes/no)	NO	YES	YES	YES	YES	YES
15. COUNTRY OF:						
A. ORIGIN	USA	USA	USA	USA	USA	USA
B. MANUFACTURE	USA	USA	USA	USA	USA	USA
16. YEAR OF FIRST COMMERCIAL USE						
A. OUTSIDE USA						1995
B. WITHIN USA	1987	1985	1985	1984	1984	1984
17. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )						
A. OUTSIDE USA						THOUSANDS
B. WITHIN USA	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
18. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
19. NUMBER OF REGIONAL LOCATIONS	20	20	20	3	3	20
20. LICENSED APPLICATOR AGREEMENT (yes/no)	YES	YES	YES	YES	YES	YES
21. FOR SALES INFORMATION, CONTACT:	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	SALES DEPT. JOE NUSSBAUM	J. NEWMAN	J. NEWMAN	800/927-8578
22. FOR TECHNICAL INFORMATION, CONTACT:	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	TECH. DEPT. JIM GANNON	T. NATHAN	T. NATHAN	800/927-8578
23. SEE MEMBRANE APPENDIX IF CHECKED						X

## Other Prefabricated Sheet-applied Membranes Part 1: General Information

SEAMAN CORP.	STEVENS ROOFING SYSTEMS	STEVENS ROOFING SYSTEMS	UNIROOF CORPORATION	UNIROOF CORPORATION	VERSICO INCORPO- RATED
FIBERTITE	STEVENS EP .045	STEVENS EP .060	TRAFFIGARD	FORMFLEX	VERSIWELD PREMIER .045, .060
REINFORCED POLYESTER	10 X 10 POLYESTER	10 X 10 POLYESTER	FIBERGLASS REINFORCED ACRYLIC VARIOUS	ACRYLIC  WHITE	GRAY, TAN, WHITE ON BLACK
LIGHT BEIGE	BLACK/WHITE/ GRAY/OTHERS	BLACK/WHITE/ GRAY/OTHERS			
< 0.25	0.21	0.30	0.125	0.125	0.22 - 0.32
NONE	NONE	NONE	NONE	NONE	NONE
X	X	X	X	X	X
X	X	X	X	X	X
HEAT WELD	HEAT WELD	HEAT WELD	SEAMLESS	SEAMLESS	HEAT WELD
10 MIN BONDING ADHS.	10 MECH. FAST.	10 MECH. FAST.			10-15 MECH. FAST.
BONDING ADHS.	CONT. ADHES.	CONT. ADHES.	SELF-ADHERNG	SELF-ADHERNG	CONT. ADHES.
X	X	X			X
NONE	NONE	NONE	1/8"	1/8"	NONE
X	X	X			O
X	X	X			
X S O	X O	X O	O	O	X
X S O	X O	X O			X
X	X O	X O	O	O	
X	X O	X O	X	X	X
X	X O	X O	X	X	X
X	X	X	O	O	X
X	X	X	O	O	X
X O	X	X	X	X	X
S	X	X	X	X	O
S	X	X	X	X	O
X S O	X	X	X	X	O
X S O	X O	X O	O	X	O
NONE	NONE	NONE	NONE	NONE	NONE
-30 - NO LIMIT	-15 - 140	-15 - 140	50 - 90	50 - 90	-25 - 180
ROOF MEMBRANE COATED METAL	REINFORCED & UNREINFORCED EP MEMBRANE	REINFORCED & UNREINFORCED EP MEMBRANE	SAME MATERIAL	SAME MATERIAL	VERSIWELD FLASHING OR COATED METAL
HEAT WELD, WALL MASTIC, OR ADHESIVE	CONTACT ADHESIVE & HEAT WELD	CONTACT ADHESIVE & HEAT WELD	ROLLER, SPRAY, OR BRUSH	ROLLER, SPRAY, OR BRUSH	CONTACT ADHESIVE AND HEAT WELD
YES	YES	YES	NO	NO	YES
USA USA	USA USA	USA USA	AUSTRALIA USA	ENGLAND USA	USA USA
1982 1978	1992 1992	1992 1992	1969 1980	1972 1985	
THOUSANDS >1,000,000	MILLIONS MILLIONS	MILLIONS MILLIONS			MILLIONS
DIRECT	DISTRIBUTORS	DISTRIBUTORS	DISTRs, DIRECT	DISTRs, DIRECT	DISTRIBUTORS
20	108	108	8	8	150
YES	YES	YES	YES	YES	YES
800/927-8578	B. ABBOTT J. PEAK	B. ABBOTT J. PEAK	D. KONSTAN 407/869-5110	D. KONSTAN 407/869-5110	M. MCAULEY 800/992-7663
800/927-8578	TECH. DEPT. 877/TPO-ROOF	TECH. DEPT. 877/TPO-ROOF	OFFICE 407/869-5110	OFFICE 407/869-5110	J. WOHL 800/992-7663
X					X



## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

1. COMPANY NAME		BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS
2. PRODUCT NAME		BONDCOTE 350 SERIES	BONDCOTE 400 SERIES	BONDCOTE 500 SERIES	BONDCOTE 600 SERIES
3. PRODUCT DESCRIPTION		ACRYLONITRILE BUTADIENE POLYMER BLEND (NBP)	ACRYLONITRILE BUTADIENE POLYMER BLEND (NBP)	ACRYLONITRILE BUTADIENE POLYMER BLEND (NBP)	ACRYLONITRILE BUTADIENE POLYMER BLEND (NBP)
4. THICKNESS	METHOD	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751
	RESULTS	35 MILS	40 MILS	50 MILS	60 MILS
5. TENSILE STRENGTH	METHOD	ASTM D 751 GRAB METHOD ASTM D 882	ASTM D 751 GRAB METHOD ASTM D 882	ASTM D 751 GRAB METHOD ASTM D 882	ASTM D 751 GRAB METHOD ASTM D 882
	RESULTS	390 X 300 LBS. 6000 PSI	390 X 300 LBS. 6000 PSI	450 X 330 LBS. 7500 PSI	465 X 350 LBS. 8000 PSI
6. LAP JOINT METHOD	METHOD	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751
	RESULTS	EXCEED PRODUCT STRENGTH	EXCEED PRODUCT STRENGTH	EXCEED PRODUCT STRENGTH	EXCEED PRODUCT STRENGTH
7. ELONGATION AT BREAK	METHOD	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751
	RESULTS	30 X 35%	30 X 35%	30 X 35%	30 X 35%
8. TENSILE SET	METHOD				
	RESULTS				
9. LOW TEMPERATURE FLEXIBILITY	METHOD	ASTM D 2136	ASTM D 2136	ASTM D 2136	ASTM D 2136
	RESULTS	-40 F, NO CRACKS	-40 F, NO CRACKS	-40 F, NO CRACKS	-40 F, NO CRACKS
10. WATER ABSORPTION	METHOD	ASTM D 570	ASTM D 570	ASTM D 570	ASTM D 570
	RESULTS	<3%	<3%	<3%	<3%
11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION	METHOD				
	RESULTS				
12. HEATING AGING	METHOD	ASTM D 3045	ASTM D 3045	ASTM D 3045	ASTM D 3045
	RESULTS	> 95% OF BREAKING STRENGTH > 90% OF ELONGATION	> 95% OF BREAKING STRENGTH > 90% OF ELONGATION	> 95% OF BREAKING STRENGTH > 90% OF ELONGATION	> 95% OF BREAKING STRENGTH > 90% OF ELONGATION
13. OZONE RESISTANCE	METHOD	ASTM D 1149, 100 PPHM, 104 F, 1/8" BENT LOOP	ASTM D 1149, 100 PPHM, 104 F, 1/8" BENT LOOP	ASTM D 1149, 100 PPHM, 104 F, 1/8" BENT LOOP	ASTM D 1149, 100 PPHM, 104 F, 1/8" BENT LOOP
	RESULTS	NO CRACKS, 7X MAGN.	NO CRACKS, 7X MAGN.	NO CRACKS, 7X MAGN.	NO CRACKS, 7X MAGN.
14. RESISTANCE TO ACCELERATED WEATHERING	METHOD	FS191, METHOD 5804, CARBON ASTM G 90 EMMAGUA	FS191, METHOD 5804, CARBON ASTM G 90 EMMAGUA	FS191, METHOD 5804, CARBON ASTM G 90 EMMAGUA	FS191, METHOD 5804, CARBON ASTM G 90 EMMAGUA
	RESULTS	NO CRACKING, 10,000 HOURS 4,000,000 LANGLEYS	NO CRACKING, 10,000 HOURS 4,000,000 LANGLEYS	NO CRACKING, 10,000 HOURS 4,000,000 LANGLEYS	NO CRACKING, 10,000 HOURS 4,000,000 LANGLEYS
15. DYNAMIC IMPACTING (PUNCTURING)	METHOD	FS 1018, METHOD 2031	FS 1018, METHOD 2031	FS 1018, METHOD 2031	FS101B, METHOD 2031
	RESULTS	290 LBS.	290 LBS.	325 LBS.	350 LBS.
16. TEAR RESISTANCE	METHOD				
	RESULTS				
17. TEARING STRENGTH	METHOD	ASTM D 751, 8" X 10" SAMPLE	ASTM D 751, 8" X 10" SAMPLE	ASTM D 751, 8" X 10" SAMPLE	ASTM D 751, 8" X 10" SAMPLE
	RESULTS	120 X 110 LBS.	125 X 115 LBS.	130 X 120 LBS.	140 X 130 LBS.
18. LOW TEMPERATURE IMPACT	METHOD				
	RESULTS				
19. PERMEABILITY	METHOD	ASTM E 96, METHOD A	ASTM E 96, METHOD A	ASTM E 96, METHOD A	ASTM E 96, METHOD A
	RESULTS	0.22 US PERMS	0.22 US PERMS	0.22 US PERMS	0.22 US PERMS
20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION	METHOD	ASTM D 1204	ASTM D 1204	ASTM D 1204	ASTM D 1204
	RESULTS	<0.5%	<0.5%	<0.5%	<0.5%
21. CONE PENETRATION	METHOD				
	RESULTS				
22. SEE MEMBRANE APPENDIX IF CHECKED		X	X		

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

BONDCOTE ROOFING SYSTEMS	BONDCOTE ROOFING SYSTEMS	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CONSOLIDATED COATINGS CORP.
BONDCOTE 800 SERIES	BONDCOTE FLEECEBOND 1000	SURE-WELD REINFORCED TPO	POLYEPICHLORHYDRIN ECO/CO	E-Z ROOF PREMIUM WHITE
ACRYLONITRILE BUTADIENE POLYMER BLEND (NBP)	ACRYLONITRILE BUTADIENE POLYMER BLEND (NBP)	REINFORCED THERMOPLASTIC POLYOLEFIN MEMBRANE	NONREINFORCED POLYEPICHLOROHYDRIN	
ASTM D 751  80 MILS	ASTM D 751  100 MILS	ASTM D 751  0.045 IN. , 0.060 IN. ±10%	ASTM D412 60 MIL ±10%	
ASTM D 751 GRAB METHOD ASTM D 882 490 X 400 LBS. 8500 PSI	ASTM D 751 GRAB METHOD ASTM D 882 390 X 300 LBS. 6000 PSI	ASTM D 751  310 LBF	ASTM D 412  1500 PSI (MIN)	
ASTM D 751  EXCEED PRODUCT STRENGTH	ASTM D 751  EXCEED PRODUCT STRENGTH	HEAT WELD  RUPTURE OUTSIDE SEAM OVERLAP		
ASTM D 751  30 X 35%	ASTM D 751  30 X 35%	ASTM D 751 (FABRIC RUPTURE)  25%	ASTM D 412  200% (MIN)	
ASTM D 2136  -40 F, NO CRACKS	ASTM D 2136  -40 F, NO CRACKS	ASTM D 2137  -50 F	ASTM D 746  -20F (MIN)	
ASTM D 570  <3%	ASTM D 570  <3%	ASTM D 471 (7 DAYS @ 158 F)  2.0%		
ASTM D 3045  > 95% OF BREAKING STRENGTH > 90% OF ELONGATION	ASTM D 3045  > 95% OF BREAKING STRENGTH > 90% OF ELONGATION	ASTM D 573 (28 DAYS @ 240 F)  TENSILE -310 LBF TEAR -100 LBF	ASTM D 573,168 HRS @240F  1500PSI (MIN) TENSILE 150% (MIN) ELONGATION	
ASTM D 1149, 100 PPHM, 104 F, 1/8" BENT LOOP NO CRACKS, 7X MAGN.	ASTM D 1149, 100 PPHM, 104 F, 1/8" BENT LOOP NO CRACKS, 7X MAGN.	ASTM D 1149 (168 HOURS @ 100 mPa) NO CRACKS	ASTM D 1149, 100 PPHM @ 50% STRAIN 168 HRS @104 F NO CRACKS	
FS191, METHOD 5804, CARBON ASTM G 90 EMMAGUA NO CRACKING, 10,000 HOURS 4,000,000 LANGLEYS	FS191, METHOD 5804, CARBON ASTM G 90 EMMAGUA NO CRACKING, 10,000 HOURS 4,000,000 LANGLEYS	ASTM G 26 (5040 KJ/M <sup>2</sup> , 176 F)  NO LOSS OF BREAKING OR TEARING STRENGTH, NO SURFACE CRACKS		
FS101B, METHOD 2031  400 LBS.	FS #1018 METHOD 2031  290 LBS.			
			ASTM D 624 (DIE C)  150 LBF/IN (MIN)	
ASTM D 751, 8" X 10" SAMPLE  150 X 140 LBS.	ASTM D 751, 8" X 10" SAMPLE  125 X 115 LBS.	ASTM D 751 (TONGUE TEAR)  100 LBF		
ASTM E 96, METHOD A  0.22 US PERMS	ASTM E 96, METHOD A  0.22 US PERMS	ASTM E 96 (PROC. B OR BW)  0.05 PERMS	ASTM E 96, PROC B OR BW  2.5 PERM-MILS (MAX)	
ASTM D 1204  <0.5%	ASTM D 1204  <0.5%			
	X			

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

1. COMPANY NAME		CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	COOLEY ENGINEERED MEMBRANE
2. PRODUCT NAME		E-Z ROOF PREMIUM BLACK	E-Z ROOF WS WHITE	E-Z ROOF WS BLACK	C3
3. PRODUCT DESCRIPTION					TRI-POLYMER ALLOY ELVALOY KEE
4. THICKNESS	METHOD				ASTM D 751
	RESULTS				40 MILS
5. TENSILE STRENGTH	METHOD				ASTM D 751, GRAB
	RESULTS				300 X 300 LBS.
6. LAP JOINT METHOD	METHOD				ASTM D 638
	RESULTS				90%
7. ELONGATION AT BREAK	METHOD				ASTM D 751
	RESULTS				17% X 19%
8. TENSILE SET	METHOD				
	RESULTS				
9. LOW TEMPERATURE FLEXIBILITY	METHOD				ASTM D 2136
	RESULTS				-40 F, PASS
10. WATER ABSORPTION	METHOD				ASTM D 570
	RESULTS				7 DAYS @ 158 F 1% MAX.
11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION	METHOD				
	RESULTS				
12. HEATING AGING	METHOD				ASTM D 3045
	RESULTS				80% X 80%
13. OZONE RESISTANCE	METHOD				ASTM D 1149
	RESULTS				PASS, NO CRACKS, 7X MAGNIFICATION
14. RESISTANCE TO ACCELERATED WEATHERING	METHOD				ASTM D 882, ASTM 838
	RESULTS				PASS (2 MILLION LANGLEYS)
15. DYNAMIC IMPACTING (PUNCTURING)	METHOD				FS 1018 METHOD 2031
	RESULTS				280 LB.
16. TEAR RESISTANCE	METHOD				ASTM D 751
	RESULTS				100 LB. X 100 LB.
17. TEARING STRENGTH	METHOD				ASTM D 751
	RESULTS				100 X 100 LBS.
18. LOW TEMPERATURE IMPACT	METHOD				CTM 028
	RESULTS				-20 F, NO CRACKS
19. PERMEABILITY	METHOD				ASTM E 96
	RESULTS				0.003 PERMS
20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION	METHOD				ASTM D 1204, 6 HRS @ 176 F
	RESULTS				0.3%
21. CONE PENETRATION	METHOD				
	RESULTS				
22. SEE MEMBRANE APPENDIX IF CHECKED					

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

COOLEY ENGINEERED MEMBRANE	DURO-LAST INC.	DURO-LAST INC.	ERSYSTEMS	ERSYSTEMS
RAM	DURO-LAST 40 MIL	DURO-LAST 50 MIL	PERMAWELD FLEECE-BACKED	PERMAWELD
TRI-POLYMER ALLOY ELVALOY KEE	PVC BLEND REINFORCED WITH POLYESTER FABRIC	PVC BLEND REINFORCED WITH POLYESTER FABRIC	CPA MEMBRANE REINFORCED W/ POLYESTER FLEECE FABRIC	POLYESTER-REINFORCED CPA
ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751
45 MILS	40 MILS NOMINAL	50 MILS	40 MILS NOM.	40 MIL NOM. AND 48 MIL NOM.
ASTM D 751, GRAB	ASTM D 751, GRAB METHOD	ASTM D 751, GRAB METHOD	ASTM D 882	ASTM D 751
350 X 325 LBS.	ASTM D882 435 X 350 LBS. 7,200 PSI	ASTM D882 450 X 380 LBS. 8,780 PSI	ASTM D 751 300 X 325 LBS. 8,000 PSI	ASTM D 882 315 X 325 LBS. 7,450 PSI
ASTM D 638	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751
90%	350 LBS. (MIN)	350 LBS. (MIN)	> 350 LBS.	> 350 LBS.
ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751
40% X 30%	35%	35%	35%	35% X 35%
ASTM D 2136	ASTM D 2136	ASTM D 2136	ASTM D 2136	ASTM D 2136 -30 F
-40 F, PASS	-40 F, NO CRACKS	-40 F, NO CRACKS	-40 F, PASS	NO CRACKS U
ASTM D 570 7 DAYS @ 158 F 1% MAX.			ASTM D 570 @ 70 F @ 122 F 48 HOURS 1.4%	ASTM D 570 @ 70 F @ 122 F 48 HOURS > 1%
	ASTM D 1204 < 0.1% CHANGE	ASTM D 1204 < 0.1% CHANGE	ASTM D 570 NO CHANGE	ASTM D 570 NO CHANGE
ASTM D 3045	ASTM D 3045	ASTM D-3045	14 DAYS @ 175 F	14 DAYS @ 175 F
80% X 80%	7 DAYS 194 F 90% BREAKING STRENGTH > 95% ELONGATION	7 DAYS 194 F 85% BREAKING STRENGTH > 90% ELONGATION	4,500,000 LANGLEYS OF TENSILE STRENGTH	100% STRENGTH RETENTION, NO CRACKING, CRAZING, BLISTERING
ASTM D 1149	ASTM D 1149, 100 PPHM, 1/8", 104 F-7 DAYS NO CRACKS,7X	ASTM D 1149, 100 PPHM, 1/8", 104 F-7 DAYS NO CRACKS,7X		
ASTM D882, ASTM 838	A. FS 191,MET 5804, CARBON A B. ASTM E 838 A. NO CRACKING 6000 HRS B. > 7 MILLION LANGLEYS	A. FS 191,MET 5804, CARBON A B. ASTM E 838 A. NO CRACKING 6000 HRS B. > 7 MILLION LANGLEYS	ASTM D 2565 ASTM E 838 20,000 HOURS 4.5 MILLION LANGLEYS	ASTM D 2565 ASTM E 838 15,000 HOURS 4 MILLION LANGLEYS
FS 1018 METHOD 2031	FS 1018, METHOD 2031	FS 1018, METHOD 2031	FS 101B, METHOD 2031	FS 101B, METHOD 2031
280 LB.	350 LBS.	375 LBS.	225 LBS.	250 LBS.
ASTM D 751	ASTM D 751, TONGUE 8 X 8 SPECIMEN 130 X 110 LBS.	ASTM D 751, TONGUE 8 X 8 SPECIMEN 140 X 100 LBS.	ASTM D 751	ASTM D 751, 8-IN. X 8-IN. SAMPLE
100 LB. X 100 LB.			90 X 120 LBS.	110 LBS.
ASTM D 751	ASTM D 751, TONGUE 8 X 8 SPECIMEN 130 X 110 LBS.	ASTM D 751, TONGUE 8 X 8 SPECIMEN 140 X 100 LBS.	ASTM D 751	ASTM D 751, 8-IN. X 8-IN. SAMPLE
100 X 100 LBS.			120 LBS.	110 LBS.
CTM 028	ASTM D 2136, -40 F	ASTM D 2136, -40 F	ASTM D 2136, -30 F	ASTM D 2136, -30 F
-20 F, NO CRACKS	NO CRACKING	NO CRACKING	NO CRACK	NO CRACK
ASTM E96	A. ASTM E 96, PRO BW B. ASTM E 96, WVT, PROC B, M, A A. 0.25 US PERMS B. 0.086 G/HR/MXM	A. ASTM E 96, PRO BW B. ASTM E 96, WVT, PROC B, M, A A. 0.22 PERMS B. 0.07 G/HR/MXM	ASTM E 96, PROC A	ASTM E 96, PROC A
0.003 PERMS			0.2 US PERMS	1.39 G/MXM/24
ASTM D 1204, 6 HRS @ 176 F			ASTM D 1204	
0.3%			0.2%	
			X	X

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

1. COMPANY NAME		FLEX MEMBRANE INT'L INC.	FLEX MEMBRANE INT'L INC.	FLEX MEMBRANE INT'L INC.	GENFLEX ROOFING SYSTEMS
2. PRODUCT NAME		FLEX FB 100	FLEX FB ELVALOY	FLEX MF/R ELVALOY	GENFLEX TPO .045
3. PRODUCT DESCRIPTION		POLYESTER REINFORCED WITH FLEECE, ELVALOY KEE	POLYESTER REINFORCED WITH FLEECE, ELVALOY KEE	POLYESTER REINFORCED WITH FLEECE, ELVALOY KEE	TPO THERMOPLASTIC OLEFIN
4. THICKNESS	METHOD	ASTM D 751	ASTM D 751	ASTM D 751, GRAB	ASTM D 751
	RESULTS	100 MIL NOM.	45 MIL NOM.	40 MIL NOM.	0.04 IN.
5. TENSILE STRENGTH	METHOD	ASTM D 638, PSI	ASTM D 751, GRAB	ASTM D 751	ASTM D 751
	RESULTS	MD 1844 TD 2111	> 340 LBS.	235 LBS.	225 LB./F
6. LAP JOINT METHOD	METHOD	ASTM D 638	ASTM D 638	ASTM D 751	HEAT WELD
	RESULTS	> 90%	90 %	> 400 LBS.	
7. ELONGATION AT BREAK	METHOD	ASTM D 638, %	ASTM D 751	ASTM D 751	ASTM D 412 DIEC
	RESULTS	MD 183 TD 108	> 28%	> 28%	500% ULTIMATE
8. TENSILE SET	METHOD				
	RESULTS				
9. LOW TEMPERATURE FLEXIBILITY	METHOD	ASTM D 2136	ASTM D 2136	ASTM D 2136	
	RESULTS	-40 F, PASS	-40 F, PASS	-40 F, PASS	
10. WATER ABSORPTION	METHOD	ASTM D 0573	ASTM D 570	ASTM D 570	ASTM D 471
	RESULTS	1.5 % MAX.	1.5% MAX.	1.5% MAX.	±4%
11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION	METHOD				
	RESULTS				
12. HEATING AGING	METHOD	ASTM D 0573	ASTM D 0573	ASTM D 3045	ASTM D 573
	RESULTS	90% STRENGTH RETENTION OF ORIGINAL	90% STRENGTH RETENTION OF ORIGINAL	90% STRENGTH RETENTION OF ORIGINAL	TENSILE STRENGTH 225 LB./F
13. OZONE RESISTANCE	METHOD	ASTM D 1149	ASTM D 1149	3 DAYS @ 100 PPHM - 100 F AND 3 DAYS @ 300 PPHM - 100 F	ASTM D 1149
	RESULTS	PASS, NO CRACKS, 7X MAGNIFICATION	PASS, NO CRACKS, 7X MAGNIFICATION	NO CRACKING	PASS
14. RESISTANCE TO ACCELERATED WEATHERING	METHOD	ASTM D 2565 (XENON ARC)	ASTM D 2565 (XENON ARC)	ASTM D 2565 (XENON ARC)	ASTM D 26 ASTM G 23
	RESULTS	10 M HRS., NO CHANGE	10 M HRS., NO CHANGE	10 M HRS., NO CHANGE	PASS
15. DYNAMIC IMPACTING (PUNCTURING)	METHOD	FS 1018, METHOD 2031	FS 1018, METHOD 2031	FS 1018, METHOD 2031	
	RESULTS	295 LBS.	260 LBS.	260 LBS.	
16. TEAR RESISTANCE	METHOD	ASTM D 751	ASTM D 751	ASTM D 751	
	RESULTS	110 X 100 LBS.	100 X 100 LBS.	120 X 120 LBS.	
17. TEARING STRENGTH	METHOD	ASTM D 751	ASTM D 751	ASTM D 751	ASTM D 751, PROCEDURE B
	RESULTS	120 X 110 LBS.	100 X 100 LBS.	120 X 120 LBS.	55 LB./F
18. LOW TEMPERATURE IMPACT	METHOD	ASTM D 2136	ASTM D 2136	ASTM D 2136	ASTM D 2137
	RESULTS	-40 F, NO CRACKS	-40 F, NO CRACKS	-40 F, NO CRACKS	-40 F
19. PERMEABILITY	METHOD	ASTM E 96 WATER VAPOR TRANSMISSION	ASTM E 96 WATER VAPOR TRANSMISSION	ASTM E 96 WATER VAPOR TRANSMISSION	
	RESULTS	3.5/M <sup>2</sup> /DAY	3.5/M <sup>2</sup> /DAY	3.5/M <sup>2</sup> /DAY	
20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION	METHOD	ASTM D 1204	ASTM D 1204	ASTM D 1204	ASTM D 1204
	RESULTS	< 0.5%	< 0.5%	< 0.5%	±2%
21. CONE PENETRATION	METHOD			37-GP-54	
	RESULTS			PASS	
22. SEE MEMBRANE APPENDIX IF CHECKED					

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

GENFLEX ROOFING SYSTEMS	HYLOAD, INC.	HYLOAD, INC.	HYLOAD, INC.	HYLOAD, INC.
GENFLEX TPO .060	HYLOAD 250	HYLOAD SAM	ALPROOF	ALPROOF CP
TPO THERMOPLASTIC OLEFIN	POLYESTER REINFORCED KEE	POLYESTER REINFORCED KEE	POLYESTER REINFORCED KEE	POLYESTER REINFORCED KEE
ASTM D 751	ASTM D 2083	ASTM D 2083	ASTM D 2083	ASTM D 2083
0.060 IN.	60 MIL	60 MIL	60 MIL	60 MIL
ASTM D 751	ASTM D 412	ASTM D 412	ASTM D 412	ASTM D 412
225 LB./F	1600 LB/SQ.IN	1500 LB/SQ.IN	1600 LB/SQ.IN	1600 LB/SQ.IN
HEAT WELD	HEAT WELD	SELF-ADHERED	HEAT WELD	HEAT WELD
ASTM D 412 DIEC	ASTM D 412	ASTM D 412	ASTM D 412	ASTM D 412
500% ULTIMATE	170%	170%	170%	170%
	CGSB 37GP56M	CGSB 37GP56M	CGSB 37GP56M	CGSB 37-GP56M
	PASS	PASS	PASS	PASS
ASTM D 471				
±4%				
ASTM D 573				
TENSILE STRENGTH 225 LB./F				
ASTM D 1149				
PASS				
ASTM D 26	CGSB37-GP56M	CGSB37-GP56M	CGSB37-GP56M	CGSB 37-GP56M
ASTM G 23	PASS	PASS	PASS	PASS
PASS				
	CGSB37-GP56M	CGSB37-GP56M	CGSB37-GP56M	CGSB 37-GP56M
	PASS	PASS	PASS	PASS
	ASTM D 624	ASTM D 624	ASTM D 624	ASTM D 624
	330 LBS.	270 LBS.	330 LBS.	330 LBS.
ASTM D 751, PROCEDURE B				
55 LB./F				
ASTM D 2137				
-40 F				
	WATER VAPOR TRANSMISSION ASTM E 96 PROC A 0.136/GRAINS/IN. HG. SQ. FT.	WATER VAPOR TRANSMISSION ASTM E 96 PROC A 0.136/GRAINS/IN. HG. SQ. FT.	WATER VAPOR TRANSMISSION ASTM E 96 PROC A 0.136/GRAINS/IN. HG. SQ. FT.	WATER VAPOR TRANSMISSION ASTM E 96 PROC A 0.136/GRAINS/IN. HG. SQ. FT.
ASTM D 1204				
±2%				

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

1. COMPANY NAME		HYLOAD, INC.	HYLOAD, INC.	HYLOAD, INC.	HYLOAD, INC.
2. PRODUCT NAME		HYLOAD 150E	ALPSAM WS	HYLOAD WS	ALPSAM
3. PRODUCT DESCRIPTION		POLYESTER REINFORCED KEE	POLYESTER REINFORCED KEE	POLYESTER REINFORCED KEE	POLYESTER REINFORCED KEE
4. THICKNESS	METHOD	ASTM D 2083	ASTM D 2083	ASTM D 2083	ASTM D 2083
	RESULTS	60 MIL	60 MIL	75 MIL	60 MIL
5. TENSILE STRENGTH	METHOD	ASTM D 412	ASTM D 412	ASTM D 412	ASTM D 412
	RESULTS	1600 LB/SQ.IN	1500 LB/SQ.IN	1500 LB/SQ.IN	1300 LB/SQ.IN
6. LAP JOINT METHOD	METHOD	HEAT WELD	HEAT WELD	HEAT WELD	SELF-ADHERED
	RESULTS				
7. ELONGATION AT BREAK	METHOD	ASTM D 412	ASTM D 412	ASTM D 412	ASTM D412
	RESULTS	170%	170%	170%	170%
8. TENSILE SET	METHOD				
	RESULTS				
9. LOW TEMPERATURE FLEXIBILITY	METHOD	CGSB 37-GP56M	CGSB 37-GP56M	CGSB 37-GP56M	CGSB 37-GP56M
	RESULTS	PASS	PASS	PASS	PASS
10. WATER ABSORPTION	METHOD				
	RESULTS				
11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION	METHOD				
	RESULTS				
12. HEATING AGING	METHOD				
	RESULTS				
13. OZONE RESISTANCE	METHOD				
	RESULTS				
14. RESISTANCE TO ACCELERATED WEATHERING	METHOD	CGSB 37-GP56M	CGSB 37-GP56M	CGSB 37-GP56M	CGSB 37-GP56M
	RESULTS	PASS	PASS	PASS	PASS
15. DYNAMIC IMPACTING (PUNCTURING)	METHOD	CGSB 37-GP56M	CGSB 37-GP56M	CGSB 37-GP56M	CGSB 37-GP56M
	RESULTS	PASS	PASS	PASS	PASS
16. TEAR RESISTANCE	METHOD	ASTM D 624	ASTM D 624	ASTM D 624	ASTM D 624
	RESULTS	330 LBS.	165 LBS.	165 LBS.	165 LBS.
17. TEARING STRENGTH	METHOD				
	RESULTS				
18. LOW TEMPERATURE IMPACT	METHOD				
	RESULTS				
19. PERMEABILITY	METHOD	WATER VAPOR TRANSMISSION ASTM E 96 PROC A	WATER VAPOR TRANSMISSION ASTM E 96 PROC A	WATER VAPOR TRANSMISSION ASTM E 96 PROC A	WATER VAPOR TRANSMISSION ASTM E 96 PROC A
	RESULTS	0.136/GRAINS/IN. HG. SQ. FT.	0.136/GRAINS/IN. HG. SQ. FT.	0.136/GRAINS/IN. HG. SQ. FT.	0.136/GRAINS/IN. HG. SQ. FT.
20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION	METHOD				
	RESULTS				
21. CONE PENETRATION	METHOD				
	RESULTS				
22. SEE MEMBRANE APPENDIX IF CHECKED					

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

HYLOAD, INC.	HYLOAD, INC.	HYLOAD, INC.	HYLOAD, INC.	SEAL-DRY/USA, INC.
HY BASE	HY BASE SAM	HY BASE SAM VR	PMVB	SEAL-DRY SYSTEM 5000
			POLYESTER REINFORCED KEE	POLYESTER REINFORCED CPA
			70 MIL	ASTM D 751 40 MIL NOM
			ASTM D 412 1500 LB/SQ.IN	A. ASTM D 751, GRAB METHOD B. ASTM D 882 A. 300 X 325 LBS. B. 8000 PSI
			SELF-ADHERED	ASTM D 751  >350 LBS.
			ASTM D 412 170%	ASTM D 751 35% X 35%
			CGSB 37-GP56M PASS	ASTM D 2136 -30 F NO CRACKS
				ASTM D 570 @ 70 F, @ 122 F, 48 HRS. < 1.0%
				ASTM D 570 NO CHANGE
				14 DAYS @ 175 F, 100% STRENGTH RETAINED NO CRACKING, CRAZING, BLIST
				ASTM D 1149 PASS, NO CRACKS, 7X
			CGSB37-GP56M PASS	A. ASTM D 2565 WEATHER MTR B. ASTM E 838 (DSET) A. 15,000 HRS. B. 4,500,000 LANGLEYS
			CGSB 37-GP56M PASS	FS 101B, METHOD 2031 225 LBS.
			ASTM D 624 165 LBS.	ASTM D 751, 8" X 8" SAMPLE 100 X 120 LBS.
				ASTM D 751, 8" X 8" SAMPLE 100 X 120 LBS.
				ASTM D 2136 -30 F NO CRACK
			WATER VAPOR TRANSMISSION ASTM E 96 PROC A 0.136/GRAINS/IN. HG. SQ. FT.	ASTM E 96, PROC A 1.39 G/MXM/24H



## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

1. COMPANY NAME	SEAL-DRY/USA, INC.	SEAMAN CORP.	SEAMAN CORP.	STEVENS ROOFING SYSTEMS
2. PRODUCT NAME	SEAL-DRY SYSTEM 3000	FIBERTITE FB	FIBERTITE	STEVENS EP .045
3. PRODUCT DESCRIPTION	POLYESTER REINFORCED CPA	POLYESTER REINFORCED EIP WITH FLEECE BACK	POLYESTER REINFORCED EIP	REINFORCED TPO
4. THICKNESS	METHOD ASTM D 751 RESULTS 40 MIL NOM	ASTM D 751 40 MIL	ASTM D 751 33 MILS NOM	ASTM D 751 0.045 IN.
5. TENSILE STRENGTH	METHOD A. ASTM D 751 B. ASTM D882 RESULTS A. 300 X 325 LBS. B. 8000 PSI	A. ASTM D 751 B. ASTM D 882 A. 375 X 300 LBS. B. 8500 PSI	A. ASTM D 882 B. ASTM D 751, GRAB METHOD A. 8500 PSI B. 450 LBS. X 450 LBS.	ASTM D 751 (BREAK STRENGTH) 310 LB./F
6. LAP JOINT METHOD	METHOD ASTM D 751 RESULTS >350 LBS.	ASTM D 751 > 400 LBS.	ASTM D 751 >400 LBS.	HEAT WELD RUPTURE OUTSIDE SEAM OVERLAP
7. ELONGATION AT BREAK	METHOD ASTM D 751 RESULTS 35% X 35%	ASTM D 751 15% WARP X 15% FILL	ASTM D 751 20% WARP, 30% FILL	ASTM D 412 700%
8. TENSILE SET	METHOD RESULTS			
9. LOW TEMPERATURE FLEXIBILITY	METHOD ASTM D 2136 -30 F RESULTS NO CRACKS	ASTM D 2146 -30 F, NO CRACKS	ASTM D 2136 -30 F, NO CRACKS	ASTM D 2137 -45 C
10. WATER ABSORPTION	METHOD ASTM D 570 @ 70 F, @ 122 F, 48 HRS. RESULTS <1.0%	ASTM D 471 14 DAYS @ 70 C 1%	ASTM D 471 14 DAYS @ 70 C 1%	ASTM D 471 (7 DAYS @ 158 F) 2%
11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION	METHOD ASTM D 570 RESULTS NO CHANGE			
12. HEATING AGING	METHOD 14 DAYS @ 175 F, 100% STRENGTH RETAINED RESULTS NO CRACKING, CRAZING, BLIST	ASTM D 3045 (160 F/7 DAYS) >90% STRENGTH RETENTION	ASTM D 3045 (160 F/7 DAYS) >90% STRENGTH RETENTION	ASTM D 573 (28 DAYS @ 212 F) BREAK: 275 LB./F
13. OZONE RESISTANCE	METHOD ASTM D 1149 RESULTS PASS, NO CRACKS, 7X	3 DAYS@100PPHM-100F & 3 DAYS@300PPHM-100 F NO CRACKING	3 DAYS@100PPHM-100 F & 3 DAYS@300PPHM-100 F NO CRACKING	ASTM D 1149 PASS
14. RESISTANCE TO ACCELERATED WEATHERING	METHOD A. ASTM D 2565 WEATHER MTR B. ASTM E 838 (DSET) RESULTS A. 15,000 HRS. B. 4,500,000 LANGLEYS	ASTM D 2565 5000 HRS., NO CRACKING	A. ASTM D 2565 B. ASTM E 838 A. 5,000 HOURS, NO CRACKING B. 3 MILLION LANGLEYS	ASTM G-26 (4000 HRS. @ 176 F) PASS
15. DYNAMIC IMPACTING (PUNCTURING)	METHOD FS 101B, METHOD 2031 RESULTS 225 LBS.	ASTM D 5635 20 JOULES	ASTM D 5635 20 JOULES	FTM 101 B 350 LB./F
16. TEAR RESISTANCE	METHOD ASTM D 751, 8" X 8" SAMPLE RESULTS 100 X 120 LBS.	ASTM D 751, 8" X 10" SAMPLE 100 X 100 LBS.	ASTM D 751, 8" X 10" SAMPLE 120 X 120	
17. TEARING STRENGTH	METHOD ASTM D 751, 8" X 8" SAMPLE RESULTS 100 X 120 LBS.	ASTM D 751, 8" X 10" SAMPLE 100 X 100 LBS.	ASTM D 751, 8" X 10" SAMPLE 120 X 120	ASTM D 751 (PROCEDURE B) 100 LB./F
18. LOW TEMPERATURE IMPACT	METHOD ASTM D 2136 -30 F RESULTS NO CRACK	ASTM D 2136, -30 F NO CRACKING	ASTM D 2136, -30 F NO CRACKING	
19. PERMEABILITY	METHOD ASTM E 96, PROC A RESULTS 1.39 G/MXM/24H	WATER VAPOR TRANSMISSION, ASTM E 96, PROC A 1.3 G/MXM/24H	WATER VAPOR TRANSMISSION, ASTM E 96, PROC A 1.3 G/MXM/24H	ASTM E 96 (PROCEDURE B) 0.035 PERMS
20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION	METHOD RESULTS	ASTM D 1204 0.50%	37-GP-54M SHALL NOT CHANGE MORE THAN 0.24	
21. CONE PENETRATION	METHOD RESULTS	37-GP-54M PASS	37-GP-54M PASS	
22. SEE MEMBRANE APPENDIX IF CHECKED		X	X	

## Other Prefabricated Sheet-applied Membranes Part 2: Test Results

STEVENS ROOFING SYSTEMS	UNIROOF CORPORATION	UNIROOF CORPORATION	VERSICO INCORPORATED
STEVENS EP .060	TRAFFIGARD	FORMFLEX	VERSIWELD PREMIER
REINFORCED TPO	FIBERGLASS REINFORCED ACRYLIC	ACRYLIC	TPO THERMOPLASTIC OLEFIN
ASTM D 751 0.060 IN.			ASTM D412 0.385 MM MIN 0.015 IN. MIN
ASTM D 751 (BREAK STRENGTH) 310 LB./F	ASTM D 2370 211 N		ASTM 0751 GRAB METHOD 1 KN 225 LBF
HEAT WELD RUPTURE OUTSIDE SEAM OVERLAP			HEAT WELD
ASTM D 412 700%	ASTM D 2370 740% (NONREINFORCED)		ASTM D 412 DIE C 15% MIN FOR REINFORCING FABRIC ONLY
ASTM D 2137 -45 C			
ASTM D 471 (7 DAYS @ 158 F) 2%			ASTM D471 at 70 C FOR 166 HRS +4, -4 ON EXPOSED SURFACE
ASTM D 573 (28 DAYS @ 212 F) BREAK: 275 LB./F			ASTM D 573 AGE BREAKING STRENGTH 1-0 KN 225 LBF
ASTM D 1149 PASS			ASTM D 1149 PASS
ASTM G-26 (4000 HRS. @ 176 F) PASS			
FTM 101 B 350 LB./F			
ASTM D 751 (PROCEDURE B) 100 LB./F			ASTM D751 PROCEDURE B 55 N 245 LBF
ASTM E 96 (PROCEDURE B) 0.035 PERMS			
			ASTM D1204 AT 212° F +2, -2

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	ALDO PRODUCTS CO. INC.	ALDO PRODUCTS CO. INC.	ALDO PRODUCTS CO. INC.	ALDO PRODUCTS CO. INC.	ANDEK CORP.
2. PRODUCT NAME	ALDOCOAT 374 BASE	ALDOCOAT 374 TOP	ALDOCOAT 384 BASE/TOP	ALDOCOAT 384 BASE/TOP	R.A.C.
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X			
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	YES	YES	YES	YES	NO
3.3 COLORS AVAILABLE	GRAY	WHITE		ALUMINUM	SILVER
4. NAME OF PRODUCT: BASE COATING	ALDOCOAT 374 GRAY		ALDOCOAT 384		R.A.C.
TOP COATING		ALDOCOAT 374 WHITE		ALDOCOAT 384	R.A.C.
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1	1	1 OPTIONAL	1 OPTIONAL	1 1 NO
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	13 – 15	13 – 15	13 – 15	13 – 15	15 15
7. FILM CURE TIME BASE COATING TOP COATING	8 HOURS	12 HOURS	6 HOURS	8 HOURS	8 HOURS 8 HOURS
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/8"	1/8"	1/8"	1/8"	NONE
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	X X X P X	X X X P X	X X X P X	X X X P X	X P X X X
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	40 – 85 10 15	40 – 85 10 15	40 – 85 10 15	40 – 85 10 15	30 – 100 10 15
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X ROLLER, BRUSH	X ROLLER, BRUSH	X ROLLER, BRUSH	X ROLLER, BRUSH	X ROLLER, BRUSH
13. RESTRICTED REGIONS (yes/no)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/no)	YES	YES	NONE	NONE	NONE
15. RECOMMENDED RECOATING SCHEDULE (years or none)	5	5	5	5	10
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	450 315 160  0.5 MAX	450 315 160  0.5 MAX	950 300 160 NO CHANGE 0.3 MAX	950 300 160 NO CHANGE 0.3 MAX	620 570 210 NO CHANGE NONE NONE
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft³) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.5 – 3.5 40 MIN. 90 MIN.	1 2.5 – 3.5 40 MIN. 90 MIN.	1 2.5 – 3.5 40 MIN. 90 MIN.	1 2.5 – 3.5 40 MIN. 90 MIN.	1 2.5 – 3.5 40 MIN. 90 MIN.
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	NO	NO	NO	NO	NO
20. YEAR OF FIRST COMMERCIAL USE	1980	1980	1980	1980	1978
21. NUMBER OF SQUARES INSTALLED (100 ft²)	100,000	100,000	100,000	100,000	220,000
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	YES	YES	YES	YES	YES
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	5	5			5
25. FOR SALES INFORMATION, CONTACT:	R. BRENK	R. BRENK	R. BRENK	R. BRENK	HARVEY LISS
FOR TECHNICAL INFORMATION, CONTACT:	W. KRAMER	W. KRAMER	W. KRAMER	W. KRAMER	NEIL SHEARER
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

ANDEK CORP.	ANDEK CORP.	ANDEK CORP.	CONKLIN CO. INC.	CONKLIN CO. INC.	CONKLIN CO. INC.	CONKLIN CO. INC.	CONKLIN CO. INC.	CONKLIN CO. INC.
R.A.C. OZ	POLAROOF NW	POLAROOF AC	RAPID ROOF III BASE COAT	RAPID ROOF III TOP COAT	POLYTUFF II BASE COAT	POLYTUFF II TOP COAT	BENCHMARK BASE COAT	BENCHMARK TOP COAT
		X	X	X		X	X	X
X					X			
ETHYLENE ELASTOMER								
NO SILVER	YES ANY COLOR	NO ANY COLOR	NO TAN	NO WHITE, TAN, GRAY	YES SILVER, GRAY	YES WHITE	YES BLUE	YES WHITE, GRAY
R.A.C. OZ	POLAROOF NW	POLAROOF AC	RAPID ROOF III BASE COAT	RAPID ROOF III TOP COAT	POLYTUFF II BASE COAT	POLYTUFF II TOP COAT	BENCHMARK BASE COAT	BENCHMARK TOP COAT
R.A.C. OZ	POLAROOF NW	POLAROOF AC						
1	1	1	1	1	1	1	1	1
1	1	1		OPTIONAL	NO	NO		OPTIONAL
NO	NO	NO						
15	12	15	13	12	16.0	4.0	13.5	13.5
15	12	15						
8 HOURS	14	2	2 – 8 HOURS		2 – 4 HOURS		2 – 8 HOURS	
8 HOURS	16	1		2 – 8 HOURS		30 MINS		2 – 8 HOURS
NONE	NONE	2	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
X	P	P	P	P	P	P	P	P
X	P	P	P	P	P	P	P	P
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X
SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
20 – 100	0 – 90	45 – 90	50 – 100	50 – 100	40 – 100	40 – 100	50 – 100	50 – 100
10	10	10	15	15	15	15	15	15
15	15	15	25	25	25	25	25	25
X	X	X	X	X	X	X	X	X
ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	ROLLER	ROLLER	ROLLER	ROLLER	ROLLER	ROLLER
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
NONE	YES	YES	YES	YES	NONE	NONE	NONE	NONE
10	10	10	10+	10+	10+	10+	10+	10+
1400	864	250	67	201	1400	1400	325	476
570	550	500	377	262	630	630	375	118
630	280	120	160	160	160	160	160	160
NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE
NONE	NONE	NONE						
NONE	NONE	1.3%					<12%	<12%
YES	NO	YES	YES	YES	YES	YES	YES	YES
1	2	1	1	1	1	1	1	1
2.5 – 3.5	2.5 – 3.5	2.5 – 3.5	2.5 – 3.0	2.5 – 3.0	2.5 – 3.0	2.5 – 3.0	2.5 – 3.0	2.5 – 3.0
40 MIN.	40 MIN.	40 MIN.	40 MIN.	40 MIN.	40 MIN.	40 MIN.	40 MIN.	40 MIN.
90 MIN.	90 MIN.	90 MIN.	90 MIN.	90 MIN.	90 MIN.	90 MIN.	90 MIN.	90 MIN.
NO	NO	NO	NO	NO	NO	NO	NO	NO
1988	1985	1996	1994	1994	1982	1982	1991	1991
45,000	52,000	15,000	>1,000,000	>1,000,000	> 150,000	> 150,000	>1,000,000	>1,000,000
YES	YES	YES	NO	NO	NO	NO	NO	NO
DISTRS. DIRECT	DISTRS. DIRECT	DISTRS. DIRECT	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS	DISTRIBUTORS
5	5	5	5	5	5	5	5	5
HARVEY LISS	HARVEY LISS	HARVEY LISS	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	0 800/888-8838	BUILD. PRODS. 800/888-8838
NEIL SHEARER	NEIL SHEARER	NEIL SHEARER	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838	BUILD. PRODS. 800/888-8838

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	DOW CORNING CORPORATION	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS
2. PRODUCT NAME	DOW CORNING 3-5000 SILICONE ROOF COATING	ERATHANE 300 BASE	ERATHANE 300	ERAGUARD 4000	ERATHANE 300
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X	X	X	X
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	NO				
3.3 COLORS AVAILABLE	DK GRAY, GRAY WHITE, BEIGE	GRAY	GRAY	GRAY AND WHITE	GRAY
4. NAME OF PRODUCT: BASE COATING	SAME	ERATHANE 300 BASE		ERAGUARD 4000	ERATHANE 300
TOP COATING	SAME		ERATHANE 300	ERAGUARD 4000	ERATHANE 300
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1 OPTIONAL	1	1 OPTIONAL	1 OPTIONAL	1 OPTIONAL
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	8 – 10 7 – 10	25	10	11 11	16 16
7. FILM CURE TIME BASE COATING TOP COATING	2 – 6 HOURS 2 – 6 HOURS	24 HRS @ 75F	12 HRS @ 75F	4 HRS @ 70F 4 HRS @ 70F	12 HRS @ 75F 12 HRS @ 75F
8. MINIMUM SLOPE REQUIRED (inches per foot)	NO PONDING	1/8"	1/8"	1/8"	1/8"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	P X X X X X	X X X X X X	X X X X X X	X X X P X X	X X X X X X
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	>32 10 25	40+ 7 25	40+ 7 25	40+ 5 25	40+ 7 25
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X	X	X	X	X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	YES	YES	YES	YES	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	NONE	NONE	NONE	NONE	NONE
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	400 150 NONE NO CHANGE 0.31	975 825 NO CHANGE	660 200 NO CHANGE	450 200 NO CHANGE	660 200 NO CHANGE
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft³) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.5 40 90	1 3 40 98		1 3 40 98	40 MIN.
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	NO	YES		YES	YES
20. YEAR OF FIRST COMMERCIAL USE	1974	1993	1979	1981	1979
21. NUMBER OF SQUARES INSTALLED (100 ft²)	MILLIONS	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	YES	YES		YES	YES
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DISTRS, DIRECT		DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	7	14		14	14
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	PROD INFORM. 517/496-6000 B. SWISHER 770/751-7979	T. LEONARD 800/403-7747 J. LEONARD 800/403-7747	T. LEONARD 800/403-7747 J. LEONARD 800/403-7747	T. LEONARD 800/403-7747 J. LEONARD 800/403-7747	T. LEONARD 800/403-7747 J. LEONARD 800/403-7747
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	FOAM ENTERPRISES	FOAM ENTERPRISES	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.
ERAGUARD 1000	ERATHANE 300 BASE	ERAKOTE	ROCK COAT #50	ROCK ASPHALT #30	FUTURA-THANE 5007	FUTURA-FLEX 550	FUTURA-THANE 5600	FUTURA-THANE 5650
X			X					
	X	X		X	X	X	X	X
WHITE AND CUSTOM	GRAY	WHITE AND CUSTOM	NO	NO	YES GRAY	YES WHITE, OTHER COLORS	YES BUFF	YES WHITE
ERAGUARD 1000 ERAGUARD 1000	ERATHANE 300 BASE	ERAKOTE	ROCK COAT #50 ROCK COAT #50	ROCK ASPHALT #30 NA	SAME FUTURA-FLEX 550	FUTURA-THANE 5007 SAME	SAME FUTURA-THANE 5650	FUTURA-THANE 5600 SAME
1 1 OPTIONAL	1	1 NO	1 1 NO	1 YES	1 NO	1 NO	1 – 2 NO	1 NO
16 MIN. 16 MIN.	25	7	15 15	5 MAX NONE	20 – 40	10	20 – 24	10 – 15
24 HRS @ 70F 24 HRS @ 70F	24 HRS. @ 75F	6 HRS. @ 75F	12 – 24 HOURS 12 – 24 HOURS	NA	<5 MINS @ 75F	6 – 8 HRS @ 75F	1 – 3 HRS @ 75F	1 – 3 HRS @ 75F
1/8"	1/8"	1/8"	PROP DRAINAGE	PROP DRAINAGE	1/8"	1/8"	1/8"	1/8"
X X X X X X	X X X X X X	X X X X X X	P P X X	X X X X	X P X P T X P X P X P	X P X P T X P X P X P	X P X P T X P X P X P	X P X P T X P X P X P
SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
40+ 7 25	40+ 7 25	40+ 7 25	45 15 30	30 15 30	30 – 120 10 15	40 – 110 10 15	32 – 120 10 15	32 – 120 10 15
X	X	X	X	X	X	X ROLLER, BRUSH	X ROLLER	X ROLLER
NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES 10 – 15	NONE YES NONE	NONE YES 8 – 10	NONE YES 8 – 10	NONE YES 8 – 10	NONE YES 8 – 10
250 300 NO CHANGE	975 825 NO CHANGE	1500 350 NO CHANGE	>150 >200 SLIGHT CHALK		3200±50 300±25 140 NO CHANGE NO CHANGE 1.5	2700±50 275±25 160 NO CHANGE NO CHANGE 1.5	1225 ± 50 310 ± 25 160 NO CHANGE NO CHANGE < 1.5	1800 ± 50 300 ± 25 NO CHANGE NO CHANGE < 1.5
YES	YES	YES	YES	YES	YES	YES	YES	YES
1 3 40 MIN. 98	1 3 40 MIN. 98	1 3 40 MIN. 98	1.5 2.7 40 >90		1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.	1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.	1 1/2 3.0 45 90 MIN.	1 1/2 3.0 45 90 MIN.
YES	YES	YES	YES	YES	NO	NO	NO	NO
1982 THOUSANDS	1993 THOUSANDS	1979 THOUSANDS	1988 THOUSANDS	1988 THOUSANDS	1983 3 MILLION+	1979 5 MILLION+	1986 500,000 +	1986 1 MILLION+
YES DISTR. DIRECT 14	YES DISTR. DIRECT 14	YES DISTR. DIRECT 14	NO DISTR. DIRECT 7	NO DISTR. DIRECT 7	YES DISTR. DIRECT 5	YES DISTR. DIRECT 5	YES DISTR. DIRECT 5	YES DISTR. DIRECT 5
T. LEONARD 800/403-7747 J. LEONARD 800/403-7747	T. LEONARD 800/403-7747 J. LEONARD 800/403-7747	T. LEONARD 800/403-7747 J. LEONARD 800/403-7747	J. ANDERSEN J. ANDERSEN	J. ANDERSEN J. ANDERSEN	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100
			X	X				

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.
2. PRODUCT NAME	FUTURA-THANE 5600	FUTURA-THANE 5625	FUTURA-THANE 516	ELASTO-BOND 801	FUTURA-FLEX 550
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)				X	
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	YES	YES	YES	YES	YES
3.3 COLORS AVAILABLE	BUFF	ALUMINUM	GRAY	BLACK, GRAY	WHITE, OTHER COLORS
4. NAME OF PRODUCT: BASE COATING	SAME	FUTURA-THANE 5600	SAME	SAME	ELASTO-BOND 801 (BASE)
TOP COATING	FUTURA-FLEX 5625	SAME	SAME	FUTURA-FLEX 550	FUTURA-THANE 550 (TOP) OR SAME
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1 – 2 NO	1 NO	1 – 2 OPTIONAL	1 – 3 NO	1 NO
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	20 – 26	10 – 20	30 – 40	20 – 35	10 – 15
7. FILM CURE TIME BASE COATING TOP COATING	1 – 3 HRS @ 75F	1 – 3 HRS @ 75F	6 – 12 HRS @ 75F	8 – 10 HRS @ 75F	6 – 8 HRS @ 75F
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/8"	1/8"	1/8"	1/8"	1/8"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	X P X P T X P X P P	X P X P T X P X P P	X P X P T X P X P P	X P X P T X P X P P	X P X P T X P X P P
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	32 – 120 10 15	32 – 120 10 15	40 – 110 10 15	40 – 110 10 15	40 – 110 10 15
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X ROLLER, BRUSH	X ROLLER, BRUSH	X ROLLER, BRUSH	X ROLLER, BRUSH	X ROLLER, BRUSH
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	YES	YES	YES	NO	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	5 – 10	5 – 10	5 – 10	5 – 10	5 – 10
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	1225±50 310±25 160 NO CHANGE NO CHANGE 1.5 MAX	850±50 300±25 NO CHANGE NO CHANGE 1.5 MAX	500±100 200±30 NO CHANGE NO CHANGE 1 MAX	375±25 180±25 NO CHANGE NO CHANGE 0.5	2700±50 275±25 NO CHANGE NO CHANGE 1.5
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft³) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.	1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.	1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.	1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.	1 – 1 1/2 2.5 – 3 40 MIN. 90 MIN.
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	NO	NO	NO	NO	NO
20. YEAR OF FIRST COMMERCIAL USE	1986	1986	1988	1980	1979
21. NUMBER OF SQUARES INSTALLED (100 ft²)	2 MILLION+	2.5 MILLION+	600,000+	1 MILLION+	5 MILLION+
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	YES	YES	YES	YES	YES
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	5	5	5	5	5
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	FUTURA COATINGS, INC.	GACO WESTERN INC.
ELASTO-BOND 820	ACRO-BOND 440	ACRO-BOND 442	ACRO-BOND 448	FUTURA-THANE 17060	FUTURA-FLEX 510	5615 BASE	5615 TOP	URECAP
	X	X	X					
X				X	X	X	X	X
NO DARK GRAY, LIGHT GRAY	NO LIGHT BLUE	NO WHITE	NO WHITE, GRAY, OTHERS	YES ALUMINUM	YES BLACK	YES GRAY	YES ALUMINUM	YES GRAYS, BLACK, ALUMINUM
ELASTO-BOND 820	SAME	ACRO-BOND 440	SAME	FUTURA-FLEX 510	SAME	SAME	5615 BASE	URECAP
ELASTO-BOND 820	ACRO-BOND 442	SAME	SAME	SAME	FUTURA-THANE 17060	5615 TOP		URECAP
1 1 OPTIONAL	1 NO	1 OPTIONAL	1 1 OPTIONAL	1 OPTIONAL	1 - 2 1 NO	1 - 2 OPTIONAL	1 OPTIONAL	2 1 NO
10 - 12 1/2 10 - 12 1/2	15 - 18	15 - 18	15 - 18 15 - 18	10 - 20	20 - 60	20 - 40	10 - 15	22 14
3 - 4 HRS @ 75F	1 1/2 - 3 HOURS		1 1/2 - 3 HOURS		4 - 6 HOURS	6 - 8 HRS @ 75F		12 HOURS
3 - 4 HRS @ 75F		1 1/2 - 3 HOURS	1 1/2 - 3 HOURS	6 - 8 HOURS			6 - 8 HRS @ 75F	12 HOURS
1/2"	1/2"	1/2"	1/2"	1/8"	1/8"	1/8"	1/8"	1/4"
X P X P T X P X P	X P X P T X P X P	X P X P T X P X P	X P X P X P X P	X P X P X P X P	X P X P X P X P	X P X P X P X P	X P X P X P X P	P P P X P
SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
40 - 110 10 15	50+ 10 15	50+ 10 15	50+ 10 15	32 - 120 10 15	45 - 110 10 15	32 - 120 10 15	32 - 120 10 15	40 - 100 15 25
X	X	X	X	X	X	X	X	X
ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	ROLLER, BRUSH	
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
YES	YES	YES	YES	YES	YES	YES	YES	YES
5 - 10	5 - 10	5 - 10	5 - 10	8 - 10	5 - 10	8 - 10	8 - 10	NONE
450-550 140±10	300 270 62	300 270 62	300 120	700 120	300 300	400	400	2200 350
NO CHANGE NO CHANGE 0.5±0.1	NO CHANGE NO CHANGE	NO CHANGE NO CHANGE	NO CHANGE NO CHANGE	NO CHANGE NO CHANGE 1.5% MAX.	NO CHANGE NO CHANGE .75 MAX.	NO CHANGE NO CHANGE	NO CHANGE NO CHANGE	
YES	YES	YES	YES	YES	YES	YES	YES	YES
1 - 1 1/2 2.5 - 3 40 MIN. 90 MIN.	1 - 1 1/2 2.5 - 3 40 MIN. 90 MIN.	1 - 1 1/2 2.5 - 3 40 MIN. 90 MIN.	1 - 1 1/2 2.5 - 3 40 MIN. 90 MIN.	1 - 1 1/2 2.5 - 3 40 MIN. 90 MIN.	1 - 1 1/2 2.5 - 3 40 MIN. 90 MIN.	1 - 1 1/2 2.5 40 MIN. 90	1 - 1 1/2 2.5 40 90	1 2.4 - 3.2 43 - 58 90 - 91
NO	NO	NO	NO	NO	NO	NO	NO	YES
1987 1.2 MILLION+	1979 2 MILLION+	1979 2 MILLION+	1988 1 MILLION+	1994 100,000+	1990 200,000+	1996	1996	1988
YES	YES	YES	YES	YES	YES	YES	YES	NO
DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 5	DISTRS. DIRECT 3
B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	B. SCHENKE 314/521-4100 B. SCHENKE 314/521-4100	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X



# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.
2. PRODUCT NAME	URESIELD	URECAP	URESIELD	URECAP	URECAP
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)					
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	YES	YES	YES	YES	YES
3.3 COLORS AVAILABLE	ALUMINUM	BLACK	ALUMINUM	BLACK	GRAYS, BLACK, ALUMINUM
4. NAME OF PRODUCT: BASE COATING	URESIELD	SAME	URECAP	SAME	URECAP
TOP COATING	URESIELD	URESIELD	SAME	URECAP	SAME
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	2 1 NO	1 NO	1 NO	1 NO	1 NO
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	22 14	22	10	22	14
7. FILM CURE TIME BASE COATING TOP COATING	12 HOURS 12 HOURS	12 HOURS	12 HOURS	12 HOURS	12 HOURS
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/4"	1/4"	1/4"	1/4"	1/4"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS					
	P	P	P	P	P
	P	P	P	P	P
	P	P	P	P	P
	X	X	X	X	X
	P	P	P	P	P
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	40 – 100 15 25	40 – 100 15 25	40 – 100 15 25	40 – 100 15 25	40 – 100 15 25
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X	X	X	X	X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	YES	YES	YES	YES	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	NONE	NONE	NONE	NONE	NONE
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	1600 400	1000 350	1600 400	1000 350	2200 350
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> ) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	YES	YES	YES
20. YEAR OF FIRST COMMERCIAL USE	1974	1989	1974	1989	1988
21. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )					
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	NO	NO	NO	NO	NO
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	3	3	3	3	3
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226
26. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.
A-5511	A-5500	URECAP	A-5500	UB-64	UA-6500	UB-64	A-5500	URECAP
X	X		X				X	
		X		X	X	X		X
NO GRAY	NO WHITE	YES BLACK	NO WHITE	YES GRAY	YES WHITE	YES GRAY	NO WHITE	YES BLACK
SAME A-5500	A-5511 SAME	SAME A-5500	URECAP SAME	SAME UA-6500	UB-64 SAME	SAME UA-5500	UB-64 SAME	SAME UA-6500
2 NO	1 NO	1 NO	1 NO	2 NO	1 NO	2 NO	1 NO	1 NO
22	9.5	22	9.5	22	12	22	9.5	22
18 HOURS	18 HOURS	12 HOURS	18 HOURS	12 HOURS	24 HOURS	12 HOURS	18 HOURS	12 HOURS
1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
P P P X P	P P P X P	P P P X P	P P P X P	P P P X P	P P P X P	P P P X P	P P P X P	P P P X P
SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
50 – 100 15 25	50 – 100 15 25	40 – 100 15 25	50 – 100 15 25	40 – 100 15 25	40 – 100 15 25	40 – 100 15 25	50 – 100 15 25	40 – 100 15 25
X	X	X	X	X X	X X	X X	X	X
NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE
225 200	225 200	1000 350	225 200	2500 450	2700 250	2500 450	225 200	1000 350
YES	YES	YES	YES	YES	YES	YES	YES	YES
1 2.4 – 3.2 43 – 58 90 – 91 YES 1978	1 2.4 – 3.2 43 – 58 90 – 91 YES 1978	1 2.4 – 3.2 43 – 58 90 – 91 YES 1989	1 2.4 – 3.2 43 – 58 90 – 91 YES 1978	1 2.4 – 3.2 43 – 58 90 – 91 YES 1984	1 2.4 – 3.2 43 – 58 90 – 91 YES 1977	1 2.4 – 3.2 43 – 58 90 – 91 YES 1984	1 2.4 – 3.2 43 – 58 90 – 91 YES 1978	1 2.4 – 3.2 43 – 58 90 – 91 YES 1989
NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3
J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.
2. PRODUCT NAME	UA-6500	UB-7050	URESIELD	UB-7050	UA-6500
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X	X	X	X
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	YES	YES	YES	YES	YES
3.3 COLORS AVAILABLE	WHITE	OLIVE	ALUMINUM	OLIVE	WHITE
4. NAME OF PRODUCT: BASE COATING	URECAP	SAME	UB-7050	SAME	UB-7050
TOP COATING	SAME	URESIELD	SAME	UA-6500	SAME
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1 NO	1 NO	1 NO	1 NO	1 NO
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	12	22	10	22	10
7. FILM CURE TIME BASE COATING TOP COATING	24 HOURS	0.50 HR	12 HOURS	0.50 HR	24 HOURS
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/4"	1/4"	1/4"	1/4"	1/4"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	X P P P P	X P P P P	X P P P P	X P P P P	X P P P P
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	40 – 100 15 25	50 – 100 15 25	40 – 100 15 25	50 – 100 15 25	40 – 100 15 25
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X X	X	X	X	X X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	YES	YES	YES	YES	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	NONE	NONE	NONE	NONE	NONE
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	2700 250    2.8	2900 190    2.5	1600 400    	2900 190    2.5	2700 250    2.8
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft³) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91	1 2.4 – 3.2 43 – 58 90 – 91
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	YES	YES	YES
20. YEAR OF FIRST COMMERCIAL USE	1977	1990	1974	1990	1977
21. NUMBER OF SQUARES INSTALLED (100 ft²)					
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	NO	YES	NO	YES	NO
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	3	3	3	3	3
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226
26. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X	X

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GARDNER ASPHALT CORP./ APOC DIVISION	GARDNER ASPHALT CORP./ APOC DIVISION	GARDNER ASPHALT CORP./ APOC DIVISION	G.C.S. COATINGS	G.C.S. COATINGS
UB-7050	A-5500	UB-64	U-66	APOC #252 SUN- WHITE ELASTO- MERIC RF COATING	GARDNER ELASTOMERIC ROOF COATING	APOC #337	VAP-O-LOC	TRI-COAT
				X	X			
				X				
X	X	X	X			X		
							BLEND OF POLYMERS	EPDM EMULSION
YES OLIVE	NO WHITE	YES GRAY	YES SIX STANDARD	YES WHITE, TAN, RED, GRAY	YES WHITE	YES BLACK	YES VARIOUS	NO VARIOUS
SAME	UB-7050	SAME	UB-64	APOC #252 ROOF COATING	GARDNER WHITE ROOF PATCH	APOC #337	VAP-O-LOC	TRI-COAT
A-5500	SAME	U-66	SAME	APOC #252 ROOF COATING	SAME	APOC #252	VAP-O-LOC	TRI-COAT
1	1	2	1	1	1	1	1	1
NO	NO	NO	NO	NO	NO	1	NO	NO
22	9.5	22	10	8 – 10 8 – 10	10 – 12 10 – 12	10 – 12 8 – 10		12 – 15 12 – 15
0.50 HR	18 HOURS	12 HOURS	18 HOURS	4 – 6 HOURS 4 – 6 HOURS	4 – 6 HOURS 4 – 6 HOURS	4 – 6 HOURS 4 – 6 HOURS	2 HOURS 2 HOURS	2 – 4 HOURS 2 – 4 HOURS
1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	NONE	1/8"
P P P X	P P P X	P P P X	P P P X	P T X P X	P T X P X	P T X P X	P P P X	P P P X
SELF	SELF	SELF	SELF	SELF	SELF		SELF	SELF
50 – 100 15 25	50 – 100 15 25	40 – 100 15 25	40 – 100 15 25	50 – 100 10 15	50 – 90 10 15	60 – 100 15 15	0 – 120 15 15	40 – 110 20 20
X	X	X	X	X	X	X	X	X
NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE YES NONE	NONE NONE 5	NONE NONE 5	NONE NONE 5	NONE NONE	NONE YES 10
2900 190	225 200	2600 300	1400 450	250 – 300 250 – 300	250 – 300 250 – 300	150 150 – 200	1500 600	500 300 28
				NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE
2.5		2.0	2.0	<20	<20	<20	0.2	0.4
YES	YES	YES	YES	YES	NO	YES	NO	YES
1 2.4 – 3.2 43 – 58 90 – 91 YES	1 2.4 – 3.2 43 – 58 90 – 91 YES	1 2.4 – 3.2 43 – 58 90 – 91 YES	1 2.4 – 3.2 43 – 58 90 – 91 YES				2.5 – 3.5 45 MIN. 90 MIN. NO	2.5 – 3.5 45 MIN. 90 MIN. NO
1990	1978	1984	1972	1984	1985	1984	1986	1989 25,000
YES DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTR. DIRECT 3	NO DISTRIBUTORS 13	NO DISTRIBUTORS 13	NO DISTRIBUTORS 13	NO 10	NO 10
J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226 X	T. HYER 800/237-1155 J. HUNTER 800/237-1155	T. HYER 800/237-1155 J. HUNTER 800/237-1155	T. HYER 800/237-1155 J. HUNTER 800/237-1155		

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	G.C.S. COATINGS	G.C.S. COATINGS	G.C.S. COATINGS	G.E. SILICONES DIVISION OF GENERAL ELECTRIC	G.E. SILICONES DIVISION OF GENERAL ELECTRIC
2. PRODUCT NAME	GENERIC ACRYLIC	GEO-THERM	SILICONE 70-W	SCM3308 BASE COAT	SCM3304 TOP COAT
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X	X	X	X
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	NO	NO		NO	NO
3.3 COLORS AVAILABLE	VARIOUS	VARIOUS		DARK GRAY	MED. GRAY
4. NAME OF PRODUCT: BASE COATING  TOP COATING	GENERIC ACRYLIC  GENERIC ACRYLIC	GEO-THERM  GEO-THERM	SILICONE 70-W  SILICONE 70-W	  SCM3304 TOP COAT	SCM3308 BASE COAT
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 YES	1 YES
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	12 – 15 12 – 15	12 – 15 12 – 15	15 15	10-12	10-12
7. FILM CURE TIME BASE COATING  TOP COATING	2 – 4 HOURS  2 – 4 HOURS	2 – 4 HOURS  2 – 4 HOURS	2 – 4 HOURS  2 – 4 HOURS	20 MINS.	1 HR
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/8"	NONE	NONE	1/8"	1/8"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	     X	     X	     X	     X	     X
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF		
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	40 – 110 20 20	40 – 110 20 20	40 – 110 20 20	40 MIN. 10 15	40 MIN. 10 15
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X	X	X	X	X
13. RESTRICTED REGIONS (yes/no)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/no)	YES	YES	YES	YES	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	5	10	10	NONE	NONE
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	400 200 25 NO CHANGE 50 0.8 MAX.	308 620 28 NO CHANGE 50 0.8 MAX.	1500 600 28 NO CHANGE 50 0.8 MAX.	500 – 600 100 – 150 NONE NONE 0.5 MAX	500 – 600 100 – 150 NONE NONE 0.5 MAX
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	NO	YES	NO	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> ) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.5 – 3.5 45 MIN. 90 MIN.	1 2.5 – 3.5 45 MIN. 90 MIN.	1 2.5 – 3.5 45 MIN. 90 MIN.	1 3.0 40 MIN. 90 MIN.	1 3.0 40 MIN. 90 MIN.
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	NO	NO	NO	NO	NO
20. YEAR OF FIRST COMMERCIAL USE	1987	1982	1987	1973	1973
21. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )	80,000	140,000		1,000,000+	1,000,000+
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	NO	NO	NO	YES	YES
23. METHODS OF DISTRIBUTION (distributors and/or direct)				DISTRS. DIRECT	DISTRS. DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	10	10	10	7	7
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:				W. BILINSKI 770/662-1083 J. LINDYBERG 518/233-2313	W. BILINSKI 770/662-1083 J. LINDYBERG 518/233-2313
26. SEE MEMBRANE APPENDIX IF CHECKED				X	X

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

G.E. SILICONES DIVISION OF GENERAL ELECTRIC	G.E. SILICONES DIVISION OF GENERAL ELECTRIC	NATIONAL COATINGS CORPORATION	NEOGARD, A DIVISION OF JONES-BLAIR CO.	NEOGARD, A DIVISION OF JONES-BLAIR CO.	NEOGARD, A DIVISION OF JONES-BLAIR CO.	NEOGARD, A DIVISION OF JONES-BLAIR CO.	NEOGARD, A DIVISION OF JONES-BLAIR CO.	NEOGARD, A DIVISION OF JONES-BLAIR CO.
SCM3408 BASE COAT	SCM 3404 TOP COAT	ACRYSHIELD	PERMATHANE II FR	PERMATHANE FR	PERMATHANE FR	ELASTACRYL FR	SILICONE FR	PERMA-SIL TC FR
		X				X		
X	X		X	X	X		X	X
NO DARK GRAY	NO MED. GRAY	NO GRAY, OFF-WHITE, WHITE, CUSTOM	NO GRAY, WHITE, TAN	NO GRAY, WHITE, TAN	NO GRAY, WHITE, TAN	NO GRAY, WHITE, TAN	NO GRAY, WHITE, TAN	NO GRAY, WHITE, TAN
SCM3404 TOP COAT	SCM3408 BASECOAT	ACRYSHIELD ACRYSHIELD	PERMATHANE II FR PERMATHANE II	PERMAGARD FR	URETHANE R	ELASTACRYL FR ELASTACRYL FR	SILICONE FR SILICONE FR	PERMAGARD TC FR
		1 1 OPTIONAL	1-2 1 OPTIONAL	2 OPTIONAL	2 OPTIONAL	2 - 3 OPTIONAL	1 OR 2 1 OR 2 OPTIONAL	1 - 2 OPTIONAL
10 - 12	10 - 12	12 12	38 AVG	26 AVG	12 AVG	27 AVG	20 MIN	20 AVG
.5 - 2 HOURS	.5 - 2 HOURS	2 - 8 HOURS 2 - 8 HOURS	24 HOURS	24 HOURS	24 HOURS	24 HOURS	6 - 8 HOURS	24 HOURS
1/8"	1/8"	1/8"	NONE	NONE	NONE	1/2"	1/2"	1/4"
		P P						
X	X	X P						
		SELF	SELF	SELF	SELF	SELF	SELF	SELF
40 MIN. 10 15	40 MIN. 10 15	50 - 110 15 25	40 - 110 15 25	40 - 110 15 25	40 - 110 15 25	60 - 110 15 25	40 - 110 15 25	40 - 110 15 25
X X NONE YES NONE	X X NONE YES NONE	X ROLLER NONE YES 10	X X NONE NONE 5 - 10	X X NONE NONE 5 - 10	X X NONE NONE 5 - 10	X X NONE NONE 5 - 10	X X NONE NONE 5 - 10	X X NONE NONE 5 - 10
200 400	200 400	646 402 NO CHANGE	1250 400 160 SLIGHT 3	400 500 160 SLIGHT 4	2500 450 160 SLIGHT 4	125 300 160 SLIGHT 20 MAX	450 200 160 SLIGHT 1	275 500 160 SLIGHT 3
YES	YES	YES	YES	YES	YES	YES	YES	YES
1 3.0 40 MIN. 90 MIN. NO	1 3.0 40 MIN. 90 MIN. NO	1 2.5 - 3.0 40 91 YES	1 2.7 - 3.2 50 90 NO	1 2.7 - 3.2 50 90 NO	1 2.7 - 3.2 50 90 NO	1 2.7 - 3.2 50 90 NO	1 2.7 - 3.2 50 90 NO	1 2.7 - 3.2 50 90 NO
1995 25,000	1995 25,000	1981 100,000	1984 > 100,000	1979 > 100,000	1979 > 100,000	1976 > 100,000	1984 > 50,000	1985 8,000
YES DISTR. DIRECT 10	YES DISTR. DIRECT 10	YES DISTR. DIRECT 5	YES DIRECT 8	YES DIRECT 8	YES DIRECT 8	YES DIRECT 8	YES DIRECT 8	YES DIRECT 8
W. BILINSKI 770/662-1083 J. LINDYBERG 518/233-2313	W. BILINSKI 770/662-1083 J. LINDYBERG 518/233-2313	D. VARAIS 805/388-7112 TECHNICAL DEPT. 805/388-7112	ROOFING SALES 800/321-6588 TECHNICAL DEPT. 800/321-6588	ROOFING SALES 800/321-6588 TECHNICAL DEPT. 800/321-6588	ROOFING SALES 800/321-6588 TECHNICAL DEPT. 800/321-6588	ROOFING SALES 800/321-6588 TECHNICAL DEPT. 800/321-6588	ROOFING SALES 800/321-6588 TECHNICAL DEPT. 800/321-6588	ROOFING SALES 800/321-6588 TECHNICAL DEPT. 800/321-6588
X	X							

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	NEOGARD, A DIVISION OF JONES-BLAIR CO.	PLASTIC COATINGS CORPORATION	PLASTIC COATINGS CORPORATION	PLASTIC COATINGS CORPORATION	POLYDYNE
2. PRODUCT NAME	PERMA-SIL TC FR	JAXSAN 600	JAXSAN 601	JAXSAN 607	AQUADYNE 50-0771
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X	X	X	MOISTURE CURE
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	NO	NO	BRITE WHITE	NO	GRAY
3.3 COLORS AVAILABLE	GRAY, WHITE, TAN				
4. NAME OF PRODUCT: BASE COATING		JAXSAN 600	JAXSAN 601	JAXSAN 607	SAME
TOP COATING	SILICONE FR	JAXSAN 600	JAXSAN 601	JAXSAN 607	UREDYNE 30-8000
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1 – 2 OPTIONAL	1 OR 2 OPTIONAL	1 OR 2 OPTIONAL	1 1 OPTIONAL	2
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	18 AVG	15 – 20 15 – 20	15 – 20 15 – 20	15 – 20 15 – 20	18-24
7. FILM CURE TIME BASE COATING TOP COATING	24 HOURS	1 – 3 HOURS 1 – 3 HOURS	2 – 4 HOURS 2 – 4 HOURS	1 – 4 HOURS 1 – 4 HOURS	6 HOURS
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/4"	NONPONDING	NONPONDING	NONPONDING	1/4"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPURRED BUILT-UP ROOFING E. OTHER COATINGS		X P P X X	X P P X X	P P X X X	P P P P P
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	40 – 110 15 25	50+ 15 25	50+ 15 25	50+ 15 25	75
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X	X	X	X X	X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	NONE	YES	YES	YES	NONE
15. RECOMMENDED RECOATING SCHEDULE (years or none)	5 – 10	10 +	10 +	10 – 15	
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	450 200 160 SLIGHT 1	375 200 + 98 NO CHANGE 9 MAX	375 200 + 98 NO CHANGE 9 MAX	320 240 NO CHANGE 10	450 – 600 300 – 400 D-471: 1.5
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES		YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> ) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.7 – 3.2 50 90	1 1 95	1 1 95	1 2.5	1 2.5 38 90
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	NO	NO	NO	NO	NO
20. YEAR OF FIRST COMMERCIAL USE	1984	1967	1968	1995	1986
21. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )	8,000	> 6 MILLION	> 6 MILLION		
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	YES	NO	NO	NO	NO
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	8	10	10	10	7
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	ROOFING SALES 800/321-6588  TECHNICAL DEPT. 800/321-6588	L. WIDDECOMBE III  G. WIDDECOMBE	L. WIDDECOMBE III  G. WIDDECOMBE	L. WIDDECOMBE II  G. WIDDECOMBE	R. EWALD  T. MEYER R. EWALD
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

POLYDYNE	POLYDYNE	POLYDYNE	POLYDYNE	POLYDYNE	POLYDYNE	POLYDYNE	POLYDYNE	POLYTHANE SYSTEMS, INC.
UREDINE 30-8000	UREDINE 30-0102	UREDINE 30-8000	UREDINE 30-0750	ACRYDYNE 40-0226	AQUADYNE 50-0771	POLY SIL 20-0200	POLY PERM 60-0003	GE SILICONES
				X	X		X	
X	X	X	X			X		X
YES AMBER	YES STRAW, GRAY	YES AMBER	BURGUNDY	WHITE	NO GRAY	NO WHITE, LIGHT/DARK GRAY	YES BLACK	NO ANY COLOR
AQUADYNE 50-0771 SAME	SAME UREDINE 30-8000	UREDINE 30-0102 UREDINE 30-8000	SAME ACRYDYNE 40-0216	UREDINE 30-0750 SAME	AQUADYNE 50-0771 AQUADYNE 50-0771	POLY SIL 0208 POLY SIL 0207	POLY PERM 60-0003 POLY PERM 60-0003	SCM3408 SCM3404
1	1	1	1	1	1 2	1 1 OPTIONAL	1 – 2 NA	1 1 YES
10-12	18 – 24	10 – 12	18 – 24	10 – 14	18 – 24 18 – 24	15 10	20+	20
4 HOURS	4 HOURS	4 HOURS	2 – 4 MIN.	4 1/2 HOURS	2 – 4 MIN. 6 HOURS	1 HR 1 HR	24 HOURS	1 HR 1 HR
1/4"	1/4"	1/4"	0	1"	1/4"	0	1" – 12"	NO PONDING
P	P	P	P	P	P	P	X	X
P	P	P	P	P	P	P	X	X
P	P	P	P	P	P	P	X	X
SELF	SELF	SELF	SELF	SELF	SELF	SELF	X	SELF
75	75	75	70	70	70	75 15 30	70 15 30	40 – 100 20 25
X	X	X	X	X	X	X	X	X
NONE	NONE	NONE	NONE	NONE	NONE	NONE	ROLLER, BRUSH	NONE
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE 10 – 20
2500 500	1700 300 – 350	2500 500	3200±200 125 300 – 400	200 280	450 – 600 300 – 400	700 150	200 180 NA NA NA	550 150 NONE
D-471: 1.5	1.5	1.5			D-471: 1.5	D-411:1.5	0.5%	0.5 MAX
YES	YES	YES	YES	YES	YES	YES	NO	
1 2.5 38 90	1 2.5 38 90	1 2.5 38 90	1 2.5 50 90	1 2.5 50 90	1 2.5 40 40	1 2.5 40 90	1 2.5 40 90	1 2.7 40 90
NO	NO	NO	NO	NO	NO	NO	NO	YES
1986	1986	1986	1986	1986	1986	1992	1992	1972
NO	NO	NO	NO	NO	NO	YES	YES	YES
DISTRS. DIRECT 7	DISTRS. DIRECT 7	DISTRS. DIRECT 7	DISTRS. DIRECT 7	DISTRS. DIRECT 7	DISTRS. DIRECT 7	DISTRS. DIRECT 7	DISTRS. DIRECT 7	DIRECT 9
R. EWALD	R. EWALD	R. EWALD	R. EWALD	R. EWALD	R. EWALD	R. EWALD	R. EWALD	R. STOCKDALE
T. MEYER R. EWALD	T. MEYER R. EWALD	T. MEYER R. EWALD	T. MEYER R. EWALD	T. MEYER R. EWALD	T. MEYER R. EWALD	T. MEYER R. EWALD	T. MEYER R. EWALD	R. STOCKDALE



# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	POLYTHANE SYSTEMS, INC.	POLYTHANE SYSTEMS, INC.	PREMIUM POLYMERS	PREMIUM POLYMERS	PREMIUM POLYMERS
2. PRODUCT NAME	EVEREST ACRYLIC	EVEREST HIGH PERFORMANCE ACRYLIC	URETHANE 2820	SILICONE 1620	BUTYL 5511
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X		X	X
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	NO	NO	NO	NO	YES
3.3 COLORS AVAILABLE	ANY COLOR	ANY COLOR	GRAY	GRAY, LIGHT GRAY	BLACK
4. NAME OF PRODUCT: BASE COATING	EVERCOAT 510	EVERCOAT 5410	2820 ALIPHATIC	1620	5511
TOP COATING	EVERCOAT 500	EVERCOAT 5400	2820 ALIPHATIC	1620	
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	1 1 OPTIONAL	1 1 OPTIONAL	1 1 NO	1 1 OPTIONAL	2
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	30	30	12 – 18 12 – 18	8 – 10 7 – 10	25 – 30
7. FILM CURE TIME BASE COATING TOP COATING	1 HR 1 HR	1 HR 1 HR	1 – 3 HOURS 1 – 3 HOURS	2 – 6 HOURS 2 – 6 HOURS	4 – 6 HOURS
8. MINIMUM SLOPE REQUIRED (inches per foot)	NO PONDING	NO PONDING	1/8"	1/8"	1/8"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	X X X X X	X X X X X	P P P P P	P P P P P	P P P P P
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	40 – 100 20 25	40 – 100 20 25	35 – 120 10 15	50 – 100 10 15	50 – 110 10 15
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X X X	X X X	X X X	X X X	X X X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	NONE	NONE	NONE	NONE	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	10 – 20	10 – 20	10	10	
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	279 502     	430 912    D 471, 8.62%	2300 125 NO CHANGE	500 170 NO CHANGE NO CHANGE	200 180    
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	NO
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> ) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 2.7 40 90	1 2.7 40 90	1.0 3.0 40 90	1.0 3.0 40 90	1.0 3.0 48 90
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	YES	YES	YES
20. YEAR OF FIRST COMMERCIAL USE	1981	1989	1984	1992	1987
21. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )			THOUSANDS	THOUSANDS	THOUSANDS
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	YES	YES	YES	YES	YES
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DISTRS. DIRECT	DISTRS. DIRECT	DISTRS. DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	9	9	6	6	6
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	M. CULLINS  M. CULLINS	M. CULLINS  M. CULLINS	ROOFING 800/756-3626 ROOFING 800/756-3626	ROOFING 800/756-3626 ROOFING 800/756-3626	ROOFING 800/756-3626 ROOFING 800/756-3626
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

PREMIUM POLYMERS	PREMIUM POLYMERS	PREMIUM POLYMERS	PREMIUM POLYMERS	PREMIUM POLYMERS	SWD URETHANE COMPANY	SWD URETHANE COMPANY	SWD URETHANE COMPANY	UCSC
ACRYLIC 4270	ACRYLIC 4200 SERIES	ACRYLIC 4300 SERIES	URETHANE 2857	ACRYLIC 4270	SWD 1929	SWD 1929 F	1929 H	DURASIL
X	X	X		X	X	X	X	
			X					X
NO WHITE	NO GRAY, WHITE	NO GRAY, WHITE	NO PURPLE	NO WHITE	NO WHITE, GRAY, BUFF	NO WHITE, GRAY, BUFF	NO WHITE, GRAY, BUFF	NO GRAY, WHITE
4270	4200 SERIES 4200 SERIES	4300 SERIES 4300 SERIES	2857 100% SOLIDS	4270	SWD 1929 SAME	SWD 1929 F SAME	1929 H SAME	DURASIL BASE DURASIL TOP
1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 NO	1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 – 2 1 – 2 OPTIONAL
12 – 15	12 – 15 12 – 15	12 – 15 12 – 15	30 – 45	12 – 15	15 8	36 12	36 12	10 – 15 10 – 15
4.5 HOURS	4.5 HOURS 4.5 HOURS	4.5 HOURS 4.5 HOURS	5 MINS.	4.5 HOURS	24 HOURS 24 HOURS	24 HOURS 24 HOURS	24 HOURS 24 HOURS	4 HOURS 24 HOURS
1/8"	1/8"	1/8"	1/8"	1/8"	1/4"	1/4"	1/4"	1/8"
P P P P	P P P P P	P P P P P	P P P P P	P P P P P	P P P P P	P P P P P	P P P P P	P P X X P
SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
50 – 110 10 15	50 – 110 10 15	50 – 110 10 15	35 – 120 10 15	50 – 110 10 15	< 50 15 25	< 50 15 25	<50 15 25	50 – 100 15 25
X X NONE 8	X X NONE 8	X X NONE 8	X NONE NONE 8	X NONE NONE 8	X NONE 5	X NONE 5	X NONE 5	X NONE NONE 10 – 15
250 280 NO CHANGE	250 280 NO CHANGE	250 280 NO CHANGE	2800 225	250 280 NO CHANGE	250 489 NO CHANGE	280 355 NO CHANGE		600±50 150±25 NONE
NO	NO	YES	YES	YES	YES	YES	YES	YES
1.0 3.0 40 90 YES	1.0 3.0 40 90 YES	1.0 3.0 40 90 YES	1.0 3.0 40 90 YES	1.0 3.0 40 90 YES	1 2.5 40 <90 YES	1 2.5 40 <90 YES	1 2.5 40 <90 YES	1 – 2 2.5 40 >90 YES
1986 THOUSANDS NO DISTR. DIRECT 6	1986 MILLIONS NO DISTR. DIRECT 6	1986 MILLIONS NO DISTR. DIRECT 6	1984 THOUSANDS YES DISTR. DIRECT 6	1986 MILLIONS NO DISTR. DIRECT 6	1972 MILLIONS YES DISTR. DIRECT 1	1972 MILLIONS YES DISTR. DIRECT 1	1972 MILLIONS YES DISTR. DIRECT 1	1981 YES DIRECT 9
ROOFING 800/756–3626 ROOFING 800/756–3626	ROOFING 800/756–3626 ROOFING 800/756–3626	ROOFING 800/756–3626 ROOFING 800/756–3626	ROOFING 800/756–3626 ROOFING 800/756–3626	ROOFING 800/756–3626 ROOFING 800/756–3626	D. RUDD 800/828–1394 D. RUDD 800/828–1394	D. RUDD 800/828–1394 D. RUDD 800/828–1394	D. RUDD 800/828–1394 D. RUDD 800/828–1394	L. WRIGHT 800/289–8272 L. WRIGHT 800/289–8272

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	UCSC	UCSC	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS
2. PRODUCT NAME	DURASHIELD	DURATHANE	DIATHON	DIATHON QUICK SET	DIATHON HIGH TENSILE
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)	X	X	X	X	X
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	YES	NO	NO	NO	NO
3.3 COLORS AVAILABLE	WHITE, TAN, CUSTOM	DARK GRAY	PEARL WHT, MED. GRAY, CUSTOM	PEARL WHT, MED. GRAY, CUSTOM	PEARL WHT, MED. GRAY, CUSTOM
4. NAME OF PRODUCT: BASE COATING	DURASHIELD	DURATHANE	DIATHON	DIATHON QS	DIATHON HT
TOP COATING	DURASHIELD	DURATHANE, DURASHIELD	DIATHON	DIATHON QS	DIATHON HT
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)	2 1 – 2 OPTIONAL	2 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	25 10	24 16	11 MIN. 11	11 MIN. 11 MIN.	11 MIN. 11 MIN.
7. FILM CURE TIME BASE COATING TOP COATING	4 – 8 HOURS 12 HOURS	12 – 16 HOURS 72 HOURS	3 HRS (MED GRAY) 4 1/2 HRS (WHITE)	3 HRS (MED GRAY) 4 1/2 HRS (WHITE)	3 HRS (MED GRAY) 4 1/2 HRS (WHITE)
8. MINIMUM SLOPE REQUIRED (inches per foot)	1/8"	1/8"	1/2"	1/2"	1/2"
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS	P P X X P	P P X X P	P X X X X	P X X X X	X
10. FLASHING MATERIAL (type or self-flashing)	SELF	SELF	SELF	SELF	SELF
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	50 – 100 15 25	50 – 100 15 25	50 – 110 12 20	50 – 110 12 20	12 20
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X	X	X X	X X	X X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	NONE	NONE	YES	YES	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)	10 – 15	10 – 15	5	5	5
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)	425 315 >160 10,000 HOURS 2.4	425±25 300±50 2.4	250 – 440 280 – 320 NO CHANGE	250 – 440 280 – 320 NO CHANGE	425 475 NO CHANGE
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)	YES	YES	YES	YES	YES
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft³) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)	1 – 2 2.5 40 > 90	1 – 2 2.5 40 > 90	1 2.5 – 3.0 40 MIN. 90 MIN.	1 2.5 – 3.0 40 MIN. 90 MIN.	2.5 – 3.0
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	NO	NO	NO
20. YEAR OF FIRST COMMERCIAL USE	1981	1981	1971	1995	1993
21. NUMBER OF SQUARES INSTALLED (100 ft²)	5 MILLION	5 MILLION	5 MILLION	5 MILLION	5 MILLION
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	YES	YES	NO	NO	NO
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DISTR. DIRECT	DISTR. DIRECT	DISTR. DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	9	9	8	8	8
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	L. WRIGHT 800/289-8272 L. WRIGHT 800/289-8272	L. WRIGHT 800/289-8272 L. WRIGHT 800/289-8272	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS
DIATHON SOLAR CURE	DIATHON 4500	ACRON 60	UNISIL 600	UNISIL	ELASTRON 858	ELASTUFF 101	ELASTUFF 102	BERM 600
X	X	X			X			X
			X	X		X	X	
NO WHITE	NO PEARL WHT, MED. GRAY, CUSTOM	NO	NO GRAY, LT. GRAY, WHITE	NO LT. GRAY, WHITE, CUSTOM	YES GRAY, TAN	NO MEDIUM GRAY	NO IVORY WHITE, LIMITED CUSTOM	NO LT. GRAY, TAN, CUSTOM
DIATHON SC	DIATHON 4500	ACRON 60	UNISIL 600	UN ISIL	SAME	SAME	ELASTUFF 101	BERM 500
DIATHON SC	DIATHON 4500	ACRON 60	UNISIL 600	UNISIL	DIATHON, ELASTUFF 102	ELASTUFF 102	SAME	DIATHON BERM 600
1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 1 OPTIONAL	1 NO	1 OPTIONAL	1 1 OPTIONAL
11 MIN. 11 MIN.	11 MIN. 11 MIN.	11 MIN. 11 MIN.	6 – 11 MIN. 11 MIN.	6 – 11 MIN. 11 MIN.	15 – 18 7 – 9	17	7	11 MIN. 11 MIN.
	3 HRS (MED GRAY)	3 HRS (MED GRAY)	2 – 3 HOURS	2 – 3 HOURS	4 – 6 HOURS	6 – 8 HOURS		1 1/2 – 2 HOURS
4 1/2 HRS (WHITE)	4 1/2 HRS (WHITE)	4 1/2 HRS (WHITE)	2 – 3 HOURS	2 – 3 HOURS			8 – 12 HOURS	1 1/2 – 2 HOURS
1/2"	1/2"	1/2"	1/2 "	1/2 "	1/2"	1/2"	1/2"	1/2"
X	X	X P	X P	X P	X P	X P	X P	X P
		X	X	X	X	X	X	X
		X	X	X	X	X	X	X
		X	X	X	X	X	X	X
SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
12 20	12 20	50 – 110 12 20	40 – 110 12 20	40 – 110 12 20	50 – 110 12 20	40 – 110 12 20	40 – 110 12 20	50 – 110 12 20
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X
YES	YES	NONE YES 5	NONE YES	NONE YES 5	NONE YES 5	NONE YES 5	NONE YES 5	NONE YES 5
250 300	240 145	200 180	650 150	650 150	300 75	1000 500	2500 400	250 240
NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE			NO CHANGE	NO CHANGE
YES	YES	YES	YES	YES	YES	YES	YES	YES
2.5 – 3.0	2.5 – 3.0	1 2.5 – 3.0 40 MIN. 90 MIN.	1 2.5 – 3.0 40 MIN. 90 MIN.	1 2.5 – 3.0 40 MIN. 90 MIN.	1 2.5 – 3.0 40 90	1 2.5 – 3.0 40 90	1 2.5 – 3.0 40 90	1 2.5 – 3.0 40 MIN. 90 MIN.
NO	NO	NO	NO	YES	NO	NO	NO	NO
1995	1986 20 MILLION	1989 50 MILLION	1994 3 MILLION	1987 20,000	1965 500,000	1989 3,000	1989 5,000	1990
DISTRS. DIRECT	DISTRS. DIRECT	DISTRS. DIRECT 8	DISTRS. DIRECT 8	DISTRS. DIRECT 4	DISTRS. DIRECT 4	DISTRS. DIRECT 4	DISTRS. DIRECT 4	DISTRS. DIRECT 8
B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383

# Spray-applied Polyurethane Foam-based Systems Part 1: Protective Coatings

1. COMPANY NAME	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS
2. PRODUCT NAME	UNISEAL EPOXY SEALER	UNI-TILE EPOXY SEALER	ACRILEX 300 ACRYLIC PRIMER	UNIBASE ACRYLIC ADHES/PRIMER	ADHERE-IT EPDM PRIMER
3.1 COATING DESCRIPTION A. ACRYLIC B. BUTYL C. HYPALON D. NEOPRENE E. SILICONE F. URETHANE G. VINYL H. MODIFIED ASPHALT I. OTHER (type)			X	X	X
3.2 VAPOR RETARDER (yes, perm rating <1.0) (no, perm rating >1.0)	NO	NO	NO	NO	NO
3.3 COLORS AVAILABLE	CLEAR, BLACK	CLEAR, BLACK	LT. GRAY	TRANSPARENT GREEN	CLEAR
4. NAME OF PRODUCT: BASE COATING  TOP COATING					
5. NUMBER OF COATING APPLICATIONS REQUIRED BASE COATINGS TOP COATINGS GRANULES REQUIRED (yes, no, or optional)					
6. REQUIRED DRY FILM THICKNESS: (mils) BASE COATING TOP COATING	1/2 – 2 MIN.	1/2 – 2 MIN.	1/2 – 2 MIN.		
7. FILM CURE TIME BASE COATING  TOP COATING	8 HOURS	3 HOURS	1 – 24	1 – 2	1/2 – 1
8. MINIMUM SLOPE REQUIRED (inches per foot)					
9. REQUIREMENTS FOR USE OVER: (X=direct application permitted) (P=primer required) (T=thermal barrier required) A. CONCRETE DECKS B. PLYWOOD DECKS C. METAL DECKS D. EXISTING SPUDDED BUILT-UP ROOFING E. OTHER COATINGS					X
10. FLASHING MATERIAL (type or self-flashing)	SELF				
11. APPLICATION CONDITIONS RECOMMENDED AMBIENT AIR TEMPERATURE RANGE (degrees F) MAXIMUM PERMITTED WIND VELOCITY WITHOUT SCREEN (mph) MAXIMUM PERMITTED WIND VELOCITY WITH WIND SCREEN (mph)	50 – 110 12 20	50 – 110 12 20	50 – 110 12 20	50 – 110 12 20	50 – 110 12 20
12. APPLICATION EQUIPMENT REQUIREMENTS SINGLE-COMPONENT AIRLESS SPRAY MULTIPLE-COMPONENT AIRLESS SPRAY OTHER (roller, brush, etc.)	X X X	X X X	X X X	X X X	X X X
13. RESTRICTED REGIONS (yes/none)	NONE	NONE	NONE	NONE	NONE
14. RESTRICTED BUILDING USES (yes/none)	YES	YES	YES	YES	YES
15. RECOMMENDED RECOATING SCHEDULE (years or none)					
16. PHYSICAL PROPERTIES OF THE COATING TENSILE STRENGTH PER ASTM D 412 OR OTHER (psi) ELONGATION PER ASTM D 412 OR OTHER (%) IMPACT RESISTANCE PER ASTM D 2794 OR OTHER (inch lbs) ACCELERATED WEATHERING PER ASTM D 822 OR OTHER (color change) HEAT AGING PER ASTM D 573 OR OTHER (%) WATER ABSORPTION PER ASTM D 570 OR OTHER (%)				1000 650	
17. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM (yes/no)					
18. FOAM INSULATION REQUIREMENTS MINIMUM THICKNESS (inches) NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> ) COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi) CLOSED CELL CONTENT PER ASTM D 2856 OR OTHER (%)					
19. FOAM AVAILABLE FROM MANUFACTURER (yes/no)					
20. YEAR OF FIRST COMMERCIAL USE	1995	1970	1993	1996	1995
21. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )					
22. MANUFACTURER-QUALIFIED APPLICATOR REQUIRED (yes/no)	NO	NO	NO	NO	NO
23. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT	DISTRS, DIRECT
24. NUMBER OF REGIONAL SERVICE LOCATIONS	8	8	8	8	8
25. FOR SALES INFORMATION, CONTACT:  FOR TECHNICAL INFORMATION, CONTACT:	B. MANN 800/541-4383  B. MANN 800/541-4383	B. MANN 800/541-4383  B. MANN 800/541-4383	B. MANN 800/541-4383  B. MANN 800/541-4383	B. MANN 800/541-4383  B. MANN 800/541-4383	B. MANN 800/541-4383  B. MANN 800/541-4383
26. SEE MEMBRANE APPENDIX IF CHECKED					

NA=not applicable

# Spray-applied Polyurethane Foam-based Roof Systems Part 2: Insulation

1. COMPANY NAME	ERSYSTEMS	FOAM ENTERPRISES INC.	FOAM ENTERPRISES INC.	FOAM ENTERPRISES INC.	FOAM ENTERPRISES INC.	FOAM ENTERPRISES INC.
2. PRODUCT NAME	ER FOAM 3.0	FE 303-2.5	FE 303-2.7	FE 303-3.0	FE 314-3.0	FE 302-2.5
3. RECOMMENDED TYPES OF PROTECTIVE COVERINGS						
A. ACRYLIC	X	X	X	X	X	X
B. BUTYL	X	X	X	X	X	X
C. HYPALONS	X	X	X	X	X	X
D. NEOPRENE	X	X	X	X	X	X
E. SILICONES	X	X	X	X	X	X
F. URETHANES	X	X	X	X	X	X
G. VINYL	X	X	X	X	X	X
H. MODIFIED ASPHALTS	X	X	X	X	X	X
I. AGGREGATE	X	X	X	X	X	X
4. SYSTEM COATING AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	YES	YES	YES	YES
5. REQUIRED APPLICATION CONDITIONS						
AMBIENT AIR TEMPERATURE RANGES (degrees F)	40 – 50	40	40	40	40	40
MAXIMUM AMBIENT RELATIVE HUMIDITY (%)	80 – 85	80	80	80	80	80
MAXIMUM ALLOWABLE WIND VELOCITY WITHOUT WIND SCREEN (mph)	15	15	15	15	15	15
MAXIMUM ALLOWABLE WIND VELOCITY WITH WIND SCREEN (mph)	25 – 30	30	30	30	30	30
6. PHYSICAL PROPERTIES OF THE FOAM						
NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> )	3 – 3.2	2.5 – 2.65	2.65 – 2.80	2.8 – 3.0	3.0 – 3.45	2.5 – 2.65
COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	50	30 – 45	41 – 55	45 – 60	45 – 55	45
CLOSED-CELL CONTENT PER ASTM D 2856 OR OTHER (% min)	90	88 – 95	88 – 95	88 – 95	87 – 96	>90
THERMAL RESISTANCE R-VALUE AT:						
1 inch	6.25	6.25	6.25	6.25		6.66
2 inches	12.5	12.5	12.5	12.5		13.33
3 inches	18.75	18.75	18.75	18.75		19.98
7. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM(yes/no)	YES	YES	YES	YES	YES	YES
8. YEAR OF FIRST COMMERCIAL USE	1996	1989	1984	1984	1990	1984
9. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )	THOUSANDS	THOUSANDS	THOUSANDS	THOUSANDS	HUNDREDS	THOUSANDS
10. MANUFACTURER-QUALIFIED APPLICATORS REQUIRED (yes/no)	NO	NO	NO	NO	NO	NO
11. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
12. NUMBER OF REGIONAL SERVICE LOCATIONS	14	7	7	7	7	7
13. FOR SALES INFORMATION, CONTACT:	J. LEONARD 800/403-7747	J.L. ANDERSEN	J.L. ANDERSEN	J.L. ANDERSEN	J.L. ANDERSEN	J.L. ANDERSEN
FOR TECHNICAL INFORMATION, CONTACT:	J. LEONARD 800/403-7747	W. STANSKY	W. STANSKY	W. STANSKY	W. STANSKY	W. STANSKY
14. SEE MEMBRANE APPENDIX IF CHECKED		X	X	X	X	

1. COMPANY NAME	FOAM ENTERPRISES INC.	FOAM ENTERPRISES INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.
2. PRODUCT NAME	FE 302-2.7	FE 302-3.0	POLYFOAM 251 WINTER SPEED	POLYFOAM 251 REGULAR SPEED	POLYFOAM 251 SUMMER SPEED	POLYFOAM 303 WINTER SPEED
3. RECOMMENDED TYPES OF PROTECTIVE COVERINGS						
A. ACRYLIC	X	X	X	X	X	X
B. BUTYL	X	X	X	X	X	X
C. HYPALONS	X	X	X	X	X	X
D. NEOPRENE	X	X	X	X	X	X
E. SILICONES	X	X	X	X	X	X
F. URETHANES	X	X	X	X	X	X
G. VINYL	X	X	X	X	X	X
H. MODIFIED ASPHALTS	X	X	X	X	X	X
I. AGGREGATE	X	X	X	X	X	X
4. SYSTEM COATING AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	YES	YES	YES	YES
5. REQUIRED APPLICATION CONDITIONS						
AMBIENT AIR TEMPERATURE RANGES (degrees F)	40	40	40 – 55	55 – 80	80 – 120	40 – 55
MAXIMUM AMBIENT RELATIVE HUMIDITY (%)	80	80	85	85	85	85
MAXIMUM ALLOWABLE WIND VELOCITY WITHOUT WIND SCREEN (mph)	15	15	10	15	15	10
MAXIMUM ALLOWABLE WIND VELOCITY WITH WIND SCREEN (mph)	30	30	20	25	25	20
6. PHYSICAL PROPERTIES OF THE FOAM						
NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> )	2.65 – 2.70	3.0 – 3.4	2.5	2.5	2.5	3.0
COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	55	43 – 53	44	44	44	52
CLOSED-CELL CONTENT PER ASTM D 2856 OR OTHER (% min)	>90	86 – 96	95	95	95	95
THERMAL RESISTANCE R-VALUE AT:						
1 inch	6.25	6.25	7	7	7	7
2 inches	12.5	12.5	14	14	14	14
3 inches	18.75	18.75	21	21	21	21
7. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM(yes/no)	YES	YES	YES	YES	YES	YES
8. YEAR OF FIRST COMMERCIAL USE	1984	1984	1986	1986	1986	1986
9. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )	THOUSANDS	THOUSANDS	3,750	13,500	7,000	11,500
10. MANUFACTURER-QUALIFIED APPLICATORS REQUIRED (yes/no)	NO	NO	YES	YES	YES	YES
11. METHODS OF DISTRIBUTION (distributors and/or direct)	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT	DISTRS,DIRECT
12. NUMBER OF REGIONAL SERVICE LOCATIONS	7	7	3	3	3	3
13. FOR SALES INFORMATION, CONTACT:	J.L. ANDERSEN	J.L. ANDERSEN	J. FREEMESSER	J. FREEMESSER	J. FREEMESSER	J. FREEMESSER
FOR TECHNICAL INFORMATION, CONTACT:	W. STANSKY	W. STANSKY	800/869-0958 A. JENKINS 800/456-4226	800/869-0958 A. JENKINS 800/456-4226	800/869-0958 A. JENKINS 800/456-4226	800/869-0958 A. JENKINS 800/456-4226
14. SEE MEMBRANE APPENDIX IF CHECKED		X				

NA=not applicable

# Spray-applied Polyurethane Foam-based Roof Systems Part 2: Insulation

GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	GACO WESTERN INC.	G.C.S. COATINGS	NATIONAL COATINGS	NORTH CARO- LINA FOAM INDUSTRIES	NORTH CARO- LINA FOAM INDUSTRIES	NORTH CARO- LINA FOAM INDUSTRIES
POLYFOAM 303 REGULAR SPEED	POLYFOAM 303 SUMMER SPEED	POLYFOAM 275 WINTER SPEED	POLYFOAM 275 REGULAR SPEED	POLYFOAM 275 SUMMER SPEED	GEO-FOAM NF 0250 SB	SPRAY FOAM	NCFI SYSTEM 591-2.5	NCFI SYSTEM 591-2.8	NCFI SYSTEM 692-2.5
X	X	X	X	X	X	X	X	X	
X	X	X	X	X			X	X	
X	X	X	X	X			X	X	
X	X	X	X	X			X	X	
X	X	X	X	X	X		X	X	
X	X	X	X	X			X	X	
X	X	X	X	X			X	X	
X	X	X	X	X			X	X	
X	X	X	X	X			X	X	X
YES	YES	YES	YES	YES	YES	YES	NO	NO	NO
55 – 80	80 – 120	50 – 70	70 – 90	90 – 120	40 – 85	50 – 110	50 MIN.	50 MIN.	50 MIN
85	85	85	85	85	80	95			
15	15	10	15	15	15	15	15	15	15
25	25	20	25	25	15	25			
3.0	3.0	2.75	2.75	2.75	2.5	2.5 – 3.0	2.7	3.0	2.7
52	52	42	42	42	45	42+	35	45	35
95	95	94	94	94	90	91	90	90	90
7	7	7	7	7	5.1	7	6.7	6.7	6.7
14	14	14	14	14	10.2	14	13.0	13.0	13.0
21	21	21	21	21	15.3	21	20.0	20.0	20.0
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
1986	1986	1995	1995	1995	1991	1981	1991	1991	1992
16,000	5,700	14,400	67,800	45,000		50,000			
YES	YES	YES	YES	YES	YES	YES	NO	NO	YES
DISTR,S,DIRECT 3	DISTR,S,DIRECT 3	DISTR,S,DIRECT 3	DISTR,S,DIRECT 3	DISTR,S,DIRECT 3		DIRECT 5	DIRECT 1	DIRECT 1	DIRECT 1
J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226	J. FREEMESSER 800/869-0958 A. JENKINS 800/456-4226		D. VARVAIS 805/388-7112 TECH. DEPT 805/388-7112	S. RIDDLE 336/789-9161 C. TOLBERT 336/789-9161	S. RIDDLE 336/789-9161 C. TOLBERT 336/789-9161	S. RIDDLE 336/789-9161 C. TOLBERT 336/789-9161
					X		X	X	X

NORTH CARO- LINA FOAM INDUSTRIES	POLYTHANE SYSTEMS, INC.	POLYTHANE SYSTEMS, INC.	POLYTHANE SYSTEMS, INC.	PREMIUM POLYMERS, INC.	SWD URETHANE COMPANY	SWD URETHANE COMPANY	SWD URETHANE COMPANY	UCSC	UCSC
NCFI SYSTEM 692-2.8	PSI-SH200-25	PSI-SH200-27	PSI-SH200-30	PREMIUM 241-30	SWD 525-2.0	SWD 525-2.5	SWD 525-3.0	UCSC 1.5	UCSC 1.7
	X	X	X	X	X	X	X	X	X
	X	X	X	X				X	X
	X	X	X	X				X	X
	X	X	X	X					
	X	X	X	X				X	X
	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
50 MIN	50 – 110	50 – 110	50 – 110	40 – 95	55	55	55	40 – 110	40 – 110
15	10	10	10	15	80	80	80	85	85
	20	20	20	20	15	15	15	15	15
					25	25	25	25	25
3.0	2.5	2.7	3.0	3.0	1.8 – 2.1	2.3 – 2.6	2.8 – 3.2	1.5	1.5
45	40	45	50	47	25 – 30	35 – 40	50 – 55	19	22
90	90	90	90	95	90 – 95	90 – 95	90 – 95	<90	<90
6.7	6.7	6.7	6.7	6.5	6.7	6.7	6.7	6.25	6.25
13.0	13.4	13.4	13.4	13	13.4	13.4	13.4	12.5	12.5
20.0	20.1	20.1	20.1	19.5	20.1	20.1	20.1	18.75	18.75
YES	YES	YES	YES	YES	NO	YES	YES	YES	YES
1992	1981	1981	1981	1991	1972	1972	1972	1981	1981
	300,000	300,000	300,000		HUNDREDS	THOUSANDS	THOUSANDS		
YES	YES	YES	YES	YES	NO	NO	NO	YES	YES
DIRECT 1	DIRECT 15	DIRECT 15	DIRECT 15	DISTR,S,DIRECT 9	DISTR,S,DIRECT 1	DISTR,S,DIRECT 1	DISTR,S,DIRECT 1	DIRECT 9	DIRECT 9
S. RIDDLE 336/789-9161 C. TOLBERT 336/789-9161	R. STOCKDALE 713/350-9000 R. STOCKDALE 713/350-9000	R. STOCKDALE 713/350-9000 R. STOCKDALE 713/350-9000	R. STOCKDALE 713/350-9000 R. STOCKDALE 713/350-9000	SALES 800/756-3626 TECH. SERVICE 800/756-3626	D. RUDD 800/828-1394 D. RUDD 800/828-1394	D. RUDD 800/828-1394 D. RUDD 800/828-1394	D. RUDD 800/828-1394 D. RUDD 800/828-1394	L. WRIGHT 800/289-8272 L. WRIGHT 800/289-8272	L. WRIGHT 800/289-8272 L. WRIGHT 800/289-8272
X									

## Spray-applied Polyurethane Foam-based Roof Systems Part 2: Insulation

1. COMPANY NAME	UCSC	UCSC	UCSC
2. PRODUCT NAME	UCSC 2.0	UCSC 2.5	UCSC 3.0
3. RECOMMENDED TYPES OF PROTECTIVE COVERINGS			
A. ACRYLIC	X	X	X
B. BUTYL	X		X
C. HYPALONS	X		X
D. NEOPRENE			
E. SILICONES	X	X	X
F. URETHANES	X	X	X
G. VINYLs			
H. MODIFIED ASPHALTS			
I. AGGREGATE	X	X	X
4. SYSTEM COATING AVAILABLE FROM MANUFACTURER (yes/no)	YES	YES	YES
5. REQUIRED APPLICATION CONDITIONS			
AMBIENT AIR TEMPERATURE RANGES (degrees F)	40 – 110	40 – 110	40 – 110
MAXIMUM AMBIENT RELATIVE HUMIDITY (%)	85	85	85
MAXIMUM ALLOWABLE WIND VELOCITY WITHOUT WIND SCREEN (mph)	15	15	15
MAXIMUM ALLOWABLE WIND VELOCITY WITH WIND SCREEN (mph)	25	25	25
6. PHYSICAL PROPERTIES OF THE FOAM			
NOMINAL DENSITY PER ASTM D 1622 OR OTHER (lbs/ft <sup>3</sup> )	2.0	2.5	3.0
COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	29	40	50
CLOSED-CELL CONTENT PER ASTM D 2856 OR OTHER (% min)	<90	<90	<90
THERMAL RESISTANCE R-VALUE AT:			
1 inch	6.25	6.25	6.25
2 inches	12.5	12.5	12.5
3 inches	18.75	18.75	18.75
7. UL 790 FLAMMABILITY CLASS A RATING IN ANY SYSTEM(yes/no)	YES	YES	YES
8. YEAR OF FIRST COMMERCIAL USE	1981	1981	1981
9. NUMBER OF SQUARES INSTALLED (100 ft <sup>2</sup> )			
10. MANUFACTURER-QUALIFIED APPLICATORS REQUIRED (yes/no)	YES	YES	YES
11. METHODS OF DISTRIBUTION (distributors and/or direct)	DIRECT	DIRECT	DIRECT
12. NUMBER OF REGIONAL SERVICE LOCATIONS	9	9	9
13. FOR SALES INFORMATION, CONTACT:	L. WRIGHT 800/289-8272	L. WRIGHT 800/289-8272	L. WRIGHT 800/289-8272
FOR TECHNICAL INFORMATION, CONTACT:	L. WRIGHT 800/289-8272	L. WRIGHT 800/289-8272	L. WRIGHT 800/289-8272
14. SEE MEMBRANE APPENDIX IF CHECKED			



# Metal Roof Panels

1. COMPANY NAME	AEP-SPAN		AEP-SPAN	
2. PRODUCT NAME	SPAN-LOK (SL)		SNAP-SEAM (SN)	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION			STANDING SEAM	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)				
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24	KYNAR, UNFINISHED	22, 24	KYNAR
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)	0.032, 0.040	KYNAR	0.032	KYNAR
COPPER (oz.)			16, 20	
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	45		45	
D. PANEL WIDTHS (in.)	16, 18		10, 12, 18, 24	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/4:12		2:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	NA		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG	X			
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED	2, 3	F		
CRIMPED (45 degrees)	2, 3	F		
ROLL FORMED (180 degrees)	2, 3	F		
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP			1 3/4	F
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED	X		X	
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)	1			
9. SPECIALTY APPLICATIONS				
CURVED			X	
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1993		1985	
B. NUMBER OF SQUARES INSTALLED	50,000+		50,000+	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)	DIRECT		DIRECT	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	40		40	
FOR SALES INFORMATION, CONTACT	J. SMITH		J. SMITH	
FOR TECHNICAL INFORMATION, CONTACT	T. SHINGLER		T. SHINGLER	
11. ASTM E331 WATER INFILTRATION	0/6.24 PSF		0 @ 6.24 PSF	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	0.013/6.24 PSF		0.059 @ 6.24 PSF	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

AEP-SPAN		AEP-SPAN		AEP-SPAN	
STRUCTURAL BATTEN SEAM SN (SBS)		HIGH-SEAM (HS)		CAP-SEAM (CS)	
YES		YES		YES	
YES		YES		YES	
STRUCTURAL BATTEN		STANDING SEAM		STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24	KYNAR	22, 24	KYNAR	22, 24	KYNAR
0.032	KYNAR	0.032, 0.040	KYNAR	0.032	KYNAR
16, 20		16, 20		16, 20	
45		45		45	
10, 12, 18, 24		12, 20		12, 20	
2:12 OPTIONAL 30-LB. FELT		3:12 REQUIRED 30-LB. FELT		3:12 REQUIRED 30-LB. FELT	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2	F	1 1/2	F	1	F
X		X		X	
X		X		X	
X		X		X	
1985					
YES DIRECT 40		YES DIRECT 40		YES DIRECT 40	
J. SMITH T. SHINGLER		J. SMITH T. SHINGLER		J. SMITH T. SHINGLER	
0 @ 6.24 PSF		NONE		0 @ 6.24 PSF	
0.059 @ 6.24 PSF		NONE		0.059 @ 6.24 PSF	
UL-90		UL-90		UL-90	

# Metal Roof Panels

1. COMPANY NAME	AEP-SPAN		AEP-SPAN	
2. PRODUCT NAME	BATTEN SEAM (BS)		BERMUDA	
3. ARCHITECTURAL APPLICATIONS (yes/no) STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	BATTEN SEAM		BERMUDA	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES GALVANIZED STEEL (ga.)	THICKNESSES	FINISHES	THICKNESSES	FINISHES
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24	KYNAR	22, 24	KYNAR
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)	0.032, 0.040	KYNAR	0.032, 0.040	KYNAR
COPPER (oz.)	16, 20			
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	45		30	
D. PANEL WIDTHS (in.)	16, 24		9.5	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	4:12		4:12	
B. SOLID DECKING (required, optional, or not used)	REQUIRED		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		40-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN	X			
OTHER (specify)			HORIZONTAL	
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK			1	
SNAP-ON CAP				
SNAP TOGETHER	2	F		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED	X		X	
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X		X	
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1978		1975	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)	DIRECT		DIRECT	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	40		40	
FOR SALES INFORMATION, CONTACT	J. SMITH		J. SMITH	
FOR TECHNICAL INFORMATION, CONTACT	T. SHINGLER		T. SHINGLER	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NONE		NONE	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

## Metal Roof Panels

AEP-SPAN		AEP-SPAN		AMERICAN BUILDINGS ROOFING AND ARCH. PRODUCTS	
SQUARE BATTEN (SB)		STANDING SEAM (SS)		STANDING SEAM II PANELS	
YES				YES YES	
STANDING SEAM		STANDING SEAM		FIELD-LOCKED STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24	KYNAR	24	KYNAR	24, 22	UNFINISHED, KYNAR 500
12		12		60	
1		1		24	
4:12 REQUIRED 30-LB. FELT		4:12 REQUIRED 30-LB. FELT		1/4:12 OPTIONAL	
				X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1	N	1	N	3	F
				X X 1 1/4, 2 1/2	
1975 YES DIRECT 40		1975 YES DIRECT 40		1977 YES	
J. SMITH T. SHINGLER		J. SMITH T. SHINGLER		W. BURROWS J. SAVAGE	NONE
					NONE
					UL-90
					X

# Metal Roof Panels

1. COMPANY NAME	AMERICAN BUILDINGS ROOFING AND ARCH. PRODUCTS		AMERICAN BUILDINGS ROOFING AND ARCH. PRODUCTS	
2. PRODUCT NAME	STANDING SEAM 360		LONG SPAN PANELS	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION	FIELD FORMED STANDING SEAM		LAPPED SEAMS	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)				
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24, 22	UNFINISHED, KYNAR 500	24, 26	UNFINISHED, KYNAR 500
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	60		45	
D. PANEL WIDTHS (in.)	24		36	
5. SYSTEMS REQUIREMENTS	1/4:12		1/2:12	
A. MINIMUM SLOPE (in. per ft.)	OPTIONAL		OPTIONAL	
B. SOLID DECKING (required, optional, or not used)				
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED			1 1/4	E
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)	3	F		
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD			X	
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X			
MOVEABLE CLIP (designed allowable movement, inches)	2			
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA	1996		1973	
A. YEAR OF FIRST COMMERCIAL USE				
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	W. BURROWS		W. BURROWS	
FOR TECHNICAL INFORMATION, CONTACT	J. SAVAGE		J. SAVAGE	
11. ASTM E331 WATER INFILTRATION	NONE		NONE	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	NONE		NONE	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED	X		X	

NA=not applicable

## Metal Roof Panels

AMERICAN BUILDINGS ROOFING AND ARCH. PRODUCTS		AMERICAN BUILDINGS ROOFING AND ARCH. PRODUCTS		AMERICAN BUILDINGS ROOFING AND ARCH. PRODUCTS	
MANSARD FASCIA		LOC-SEAM PANEL		MULTI-RIB PANEL	
YES		YES		YES	
NO		YES		YES	
FLAT PANEL		FIELD-FORMED STANDING SEAM		LAPPED SEAMS	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24	UNFINISHED, KYNAR 500	22, 24	UNFINISHED, KYNAR 500	26, 24	UNFINISHED, KYNAR 500
30		64		45	
10,18		12,16		36	
3:12		1/4:12		1/2:12	
REQUIRED		OPTIONAL			
30-LB. FELT					
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
		2, 3	F	3/4	E
1	F				
				X	
X		X			
		X			
1989		1989		1985	
YES		YES		YES	
W. BURROWS J. SAVAGE		W. BURROWS J. SAVAGE		W. BURROWS J. SAVAGE	
NONE		NO LEAKAGE @ 20 PSF		NONE	
NONE		0.009 SCFM/SF @ 20 PSF		NONE	
NONE		UL-90		UL-90	
X		X		X	

# Metal Roof Panels

1. COMPANY NAME	AMERICAN STEEL BUILDING CO., INC.		ARS INDUSTRIES	
2. PRODUCT NAME	EXPANDEK STANDING SEAM		SSB	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	HINGE LOCKED STANDING SEAM		LOCK FORM BATTEN SEAM	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	22, 24, 26	DEXSTAR 850, UNFINISHED	22, 24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED
STAINLESS STEEL (ga.)			22, 24	
GALVALUME (ga.)	22, 24, 26	DEXSTAR 850, UNFINISHED	22, 24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED
ALUMINIZED STEEL (ga.)			22, 24	
ALUMINUM (in.)			0.032, 0.040	KYNAR 500, SILICON POLYESTER, ANODIZED
COPPER (oz.)			16, 20	
TERNE METAL (ga.)			24	
ZINC (ga.)			24	
C. MAXIMUM LENGTH (lf.)	60		60	
D. PANEL WIDTHS (in.)	18, 20, 24		8, 12, 16, 18, 20, 24	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/4:12		1/4:12	
B. SOLID DECKING (required, optional, or not used)	NOT USED		OPTIONAL	
C. UNDERLAYMENT (type or NA)	NA		30-LB. FELT OR EQUIVALENT	
6. PANEL PROFILE				
VERTICAL LEG	X		X	
TRAPEZOIDAL				
BATTEN			X	
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)			1 1/2	F, E
ROLL FORMED (180 degrees)			1 1/2	F, E
DOUBLE ROLL FORMED (two 180 degrees)			1 1/2	F, E
ROLL AND LOCK			2 1/2	F, E
SNAP-ON CAP			1 1/2	N
SNAP TOGETHER	3	E	1 3/4	F, E
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED			X	
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED			X	
FIXED CLIP	X		X	
SLIP CLIP	X		X	
MOVEABLE CLIP (designed allowable movement, inches)	1		1 1/2	
9. SPECIALTY APPLICATIONS				
CURVED			X	
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA	WALLS AND FACADES			
A. YEAR OF FIRST COMMERCIAL USE	1984		1984	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)			YES	
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	G. VEILLEUX		205/836-6777	
FOR TECHNICAL INFORMATION, CONTACT	S. HALVORSON		205/836-6777	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NO PENETRATION AT 20 PSF FOR 15 MINUTES	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		LEAKAGE AT SEAM NOT TO EXCEED 0.005 CFM PSF OF PANEL AT 10 PSF DIFFERENTIAL PRESSURE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

ARS INDUSTRIES		ARS INDUSTRIES		ARS INDUSTRIES	
SSC		SS LB		SS 1.5	
YES		YES		YES	
NO		NO		YES	
SNAP-ON BATTEN		BATTEN SEAM		LOCK FORM STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24	KYNAR 500, SILICON POLYESTER, UNFINISHED	24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED	22, 24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED
26		24, 26		22, 24	
24, 26	KYNAR 500, SILICON POLYESTER, MILL	24, 26	KYNAR 500, SILICON POLYESTER, MILL	22, 24, 26	KYNAR 500, SILICON POLYESTER, MILL
24, 26		24, 26		22, 24	
0.032	KYNAR 500, SILICON POLYESTER, ANODIZED	0.032, 0.040	KYNAR 500, SILICON POLYESTER, ANODIZED	0.032, 0.040	KYNAR 500, SILICON POLYESTER, ANODIZED
16, 20		16, 20		16, 20	
24, 26		24		24	
24, 26		24		24	
60		60		60	
12, 16, 18, 20, 24		8, 12, 16, 18, 20, 24		8, 12, 16, 18, 20, 24	
3:12 REQUIRED 30-LB. FELT OR EQUIVALENT		3:12 REQUIRED 30-LB. FELT OR EQUIVALENT		1/4:12 OPTIONAL 30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1	F	1 1/2	N	1 1/2 1 1/2	F, E F, E
X		X		X 1 1/2	
X X					
1984 YES YES		1984 YES		1984 YES	
205/836-6777 205/836-6777		205/591-5105 205/591-1010		205/591-5105 205/591-1010	
NONE		NONE		NO PENETRATION AT 20 PSF FOR 15 MINUTES	
NONE		NONE		LEAKAGE AT SEAM NOT TO EXCEED 0.005 CFM PSF OF PANEL AT 10 PSF DIFFERENTIAL PRESSURE	
NONE		NONE		UL-90	



# Metal Roof Panels

1. COMPANY NAME	ARS INDUSTRIES		ATAS INTERNATIONAL, INC.	
2. PRODUCT NAME	SS 2.5		MONARCH ROOF PANEL	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	SNAP-ON BATTEN		INTEGRAL STANDING AND BATTEN SEAM	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED	22, 24	KYNAR 500, UNFINISHED
STAINLESS STEEL (ga.)	24, 26			
GALVALUME (ga.)	24, 26	KYNAR 500, SILICON POLYESTER, MILL	22, 24	KYNAR 500, UNFINISHED
ALUMINIZED STEEL (ga.)	24, 26			
ALUMINUM (in.)	0.032, 0.040	KYNAR 500, SILICON POLYESTER, ANODIZED	0.032, 0.040, 0.050	KYNAR 500
COPPER (oz.)	16, 20		16, 20	
TERNE METAL (ga.)	24			
ZINC (ga.)	24			
C. MAXIMUM LENGTH (lf.)	60		70	
D. PANEL WIDTHS (in.)	12, 16, 18		12, 16	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/4:12		2:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	30-LB. FELT OR EQUIVALENT		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG				
TRAPEZOIDAL			X	
BATTEN	X			
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK	2 1/2	F, E		
SNAP-ON CAP	2 1/2			
SNAP TOGETHER			2, 2 1/2	F
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)	2 1/2			
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED	X			
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1984		1981	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)			DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS			2	
FOR SALES INFORMATION, CONTACT	205/591-5105		J. BUSH (610/395-8445)	
FOR TECHNICAL INFORMATION, CONTACT	205/591-1010		J. BUSH (610/395-8445)	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO PENETRATION AT 20 PSF FOR 15 MINUTES		NO LEAKAGE AT 10 PSF	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	LEAKAGE AT SEAM NOT TO EXCEED 0.005 CFM PSF OF PANEL AT 10 PSF DIFFERENTIAL PRESSURE		0.13 CFM PER SQ. FT. AT 4.00 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED			X	

NA=not applicable

# Metal Roof Panels

ATAS INTERNATIONAL, INC.		ATAS INTERNATIONAL, INC.		ATAS INTERNATIONAL, INC.	
MULTI-PURPOSE PANEL		PC SNAP-ON SYSTEM		PC SNAP-ON SYSTEM	
YES		YES		YES	
YES		NO		NO	
STRUCTURAL STANDING AND BATTEN SEAM		SNAP-ON SEAM		SNAP-ON BATTEN	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24	KYNAR 500, UNFINISHED	24	KYNAR 500, UNFINISHED	24	KYNAR 500, UNFINISHED
24	KYNAR 500, UNFINISHED	24	KYNAR 500, UNFINISHED	24	KYNAR 500, UNFINISHED
0.032, 0.040	KYNAR 500, ANODIZED	0.032, 0.040	KYNAR 500, ANODIZED	0.032, 0.040	KYNAR 500, ANODIZED
16, 20		16, 20		16, 20	
40		65		65	
12, 16		12 5/8, 15 1/4		12 1/2, 16 1/2	
3:12		3:12		3:12	
OPTIONAL		OPTIONAL		OPTIONAL	
30-LB. FELT		30-LB. FELT		30-LB. FELT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 1/4	N	1 1/4	N	1 1/2	N
X		X		X	
X		X		X	
X		X		X	
1977		1984		1984	
NO		NO		NO	
DISTRIBUTORS		DISTRIBUTORS		DISTRIBUTORS	
2		2		2	
J. BUSH (610/395-8445)		J. BUSH (610/395-8445)		J. BUSH (610/395-8445)	
J. BUSH (610/395-8445)		J. BUSH (610/395-8445)		J. BUSH (610/395-8445)	
NO LEAKAGE AT 9.75 PSF		NONE		NONE	
0.11 CFM PER SQ. FT. AT 4.00 PSF		NONE		NONE	
UL-90		UL-90			
X		X		X	

# Metal Roof Panels

1. COMPANY NAME	ATAS INTERNATIONAL, INC.		ATAS INTERNATIONAL, INC.	
2. PRODUCT NAME	METAFOR		DUTCH SEAM	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION	CORRUGATED		STRUCTURAL STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)			22, 24	KYNAR 500, UNFINISHED
STAINLESS STEEL (ga.)				
GALVALUME (ga.)			22, 24	KYNAR 500, UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)	0.032, 0.040	KYNAR 500	0.032, 0.040	KYNAR 500, ANODIZED
COPPER (oz.)			16, 20	
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		65	
D. PANEL WIDTHS (in.)	12		11, 15, 1- 1/4	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		2:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL				
BATTEN				
OTHER (specify)	SQUARE CORRUGATIONS			
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	5/8	N	1 5/8	F
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED	X			
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED	X			
TAPERED			X	
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1981		1981	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DISTRIBUTORS		DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	2		2	
FOR SALES INFORMATION, CONTACT	J. BUSH (610/395-8445)		J. BUSH (610/395-8445)	
FOR TECHNICAL INFORMATION, CONTACT	J. BUSH (610/395-8445)		J. BUSH (610/395-8445)	
11. ASTM E331 WATER INFILTRATION	NONE		NO LEAKAGE @12.0 PSF(69 MPH)	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	NONE		0.08 CFM/FE 2 @1.57 PSF(25 MPH)	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NONE		UL-90	
14. SEE APPENDIX IF CHECKED	X		X	

NA=not applicable

# Metal Roof Panels

BERRIDGE MANUFACTURING CO.		BERRIDGE MANUFACTURING CO.		BERRIDGE MANUFACTURING CO.	
TEE-PANEL		HIGH SEAM TEE-PANEL		BATTEN SEAM PANEL	
YES		YES		YES	
NO		YES		YES	
SNAP-ON STANDING SEAM		SNAP-ON CAP STANDING SEAM		BATTEN STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000
24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000
16		16		16	
12 3/4		18 1/4		16	
1:12 REQUIRED 30-LB. FELT OR EQUIVALENT		1:12 REQUIRED 30-LB. FELT OR EQUIVALENT		1:12 OPTIONAL 30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1	F	1, 1 1/2	F	1 3/4	F
X		X		X	
X		X		X	
FREE-FORM COMPOUND CURVED					
1969		1970		1970	
NO		NO		NO	
D. DOYLE (800/231-8127) R. MARKS		D. DOYLE (800/231-8127) R. MARKS		D. DOYLE (800/231-8127) R. MARKS	
NO MEASURABLE INFILTRATION AT 5 GALLONS PSF AT STATIC PRESSURE OF 2.86 PSF DIFFERENTIAL		NO MEASURABLE INFILTRATION AT 5 GALLONS PSF AT STATIC PRESSURE OF 2.86 PSF DIFFERENTIAL		NONE	
NO MEASURABLE INFILTRATION AT STATIC PRESSURE DIFFERENTIAL OF 1.57 PSF		NO MEASURABLE INFILTRATION AT STATIC PRESSURE DIFFERENTIAL OF 1.57 PSF		NONE	
UL-90		UL-90		UL-90	
X		X		X	

# Metal Roof Panels

1. COMPANY NAME	BERRIDGE MANUFACTURING CO.		BERRIDGE MANUFACTURING CO.	
2. PRODUCT NAME	ZEE-LOCK		DOUBLE-LOCK DL-1, DL-1.5	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION	LOCK-FORMED STANDING SEAM		LOCK-FORMED STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)	16		16	
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)				
D. PANEL WIDTHS (in.)	16		17, 18	
5. SYSTEMS REQUIREMENTS	1/2:12		1/2:12	
A. MINIMUM SLOPE (in. per ft.)	OPTIONAL		OPTIONAL	
B. SOLID DECKING (required, optional, or not used)				
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)	2	F	1, 1 1/2	N
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X		X	
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1989		1987	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	D. DOYLE (800/231-8127)		D. DOYLE (800/231-8127)	
FOR TECHNICAL INFORMATION, CONTACT	R. MARKS		R. MARKS	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO MEASURABLE INFILTRATION AT 5 GALLONS PSF AT STATIC PRESSURE OF 20.00 PSF		NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NO MEASURABLE INFILTRATION AT STATIC PRESSURE DIFFERENTIAL OF 6.24 PSF		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90, FM I-60, FM I-120		NONE	
14. SEE APPENDIX IF CHECKED	X		X	

NA=not applicable

# Metal Roof Panels

BERRIDGE MANUFACTURING CO.		BERRIDGE MANUFACTURING CO.		BERRIDGE MANUFACTURING CO.	
CEE-LOCK PANEL		"R" PANEL		"M" PANEL	
YES		YES		YES	
YES		YES		YES	
SNAP-ON STANDING SEAM		CORRUGATED ROOF PANEL		CORRUGATED ROOF PANEL	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000
24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000	24	KYNAR 500, HYLAR 5000
16					
40		40		40	
16 1/2		36		36	
1:12 OPTIONAL 30-LB. FELT OR EQUIVALENT		1:12 NOT USED NA		1:12 NOT USED NA	
X		X			
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
		1 1/4	E	3/4	E
1 1/2	F				
		X		X	
X		X		X	
1989 NO		1989 NO		1988 NO	
D. DOYLE (800/231-8127) R. MARKS		D. DOYLE (800/231-8127) R. MARKS		D. DOYLE (800/231-8127) R. MARKS	
NO MEASURABLE INFILTRATION AT 5 GALLONS PSF AT STATIC PRESSURE OF 20.00 PSF		NONE		NONE	
NO MEASURABLE INFILTRATION AT STATIC PRESSURE DIFFERENTIAL OF 6.24 PSF		NONE		NONE	
UL-90		UL-90		NONE	
X					

# Metal Roof Panels

1. COMPANY NAME	BERRIDGE MANUFACTURING CO.		BHP STEEL BUILDING PRODUCTS USA INC.	
2. PRODUCT NAME	BERMUDA ROOF		DESIGN SPAN BATTEN	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		NO	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	HORIZONTAL PLANK ROOF SYSTEM		ARCHITECTURAL BATTEN	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24	KYNAR 500, HYLAR 5000	22, 24	PVF, UNFINISHED
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24	KYNAR 500, HYLAR 5000	22, 24	PVF, UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)	16		16, 20	
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		45	
D. PANEL WIDTHS (in.)			17 1/2, 22 1/2	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		3:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
6. PANEL PROFILE				
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)	HORIZONTAL PLANK		X	
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	1	F	1 7/8	N
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED			X	
OTHER			MANSARD, FASCIA	
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1991		1972	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	D. DOYLE (800/231-8127)		800/726-2727	
FOR TECHNICAL INFORMATION, CONTACT	R. MARKS		800/726-2727	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED	X			

NA=not applicable

# Metal Roof Panels

BHP STEEL BUILDING PRODUCTS USA INC.		BHP STEEL BUILDING PRODUCTS USA INC.		BHP STEEL BUILDING PRODUCTS USA INC.	
SKYLINE ROOFING		KLIP RIB		WEATHER SEAM-24	
YES		YES		YES	
NO		YES		YES	
ARCHITECTURAL STANDING SEAM		CONCEALED FASTENER TRAPEZOIDAL RIB		FLOATING-CLIP STRUCTURAL STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24, 22	PVF, UNFINISHED	22, 24, 26	PVF, SMP, UNFINISHED	22, 24	Poly, SMP, PVF, UNFINISHED
22, 24	PVF, UNFINISHED	22, 24, 26	PVF, SMP, UNFINISHED	22, 24	Poly, SMP, PVF, UNFINISHED
16, 20					
45		100		55	
16 1/4, 21 1/4				24	
3:12 REQUIRED		1:12 OPTIONAL		1/4:12 OPTIONAL	
30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT		NA	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1	E	1 5/8	F	3	F
X		X		2 1/8	
X X MANSARD, FASCIA		MANSARD, FASCIA			
1993		1965		1985	
NO		NO		NO	
800/726-2727 800/726-2727		800/726-2727 800/726-2727		800/726-2727 800/726-2727	
NO LEAKAGE @ 25 PSF		NO LEAKAGE @ 20 PSF		NO LEAKAGE ON 24 HR. 6" STANDING WATER TEST	
LESS THAN 0.02 CFM/LF SEAM		0.009 CFM/SQ. FT. @ 20 PSF			
UL-90		UL-90		UL-90	



# Metal Roof Panels

1. COMPANY NAME	BHP STEEL BUILDING PRODUCTS USA INC.		BHP STEEL BUILDING PRODUCTS USA INC.	
2. PRODUCT NAME	DESIGN SPAN		SKYLINE ROOFING	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION	KNIFE-EDGE STANDING SEAM		ARCHITECTURAL STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	22, 24	PVF, SMP, UNFINISHED	24, 26	PVF, SMP
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24	PVF, SMP, UNFINISHED	24, 26	PVF, SMP
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)	16,20			
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	55		45	
D. PANEL WIDTHS (in.)	12, 17, 18, 24		12, 16, 18	
5. SYSTEMS REQUIREMENTS	3:12		3:12	
A. MINIMUM SLOPE (in. per ft.)	OPTIONAL		REQUIRED	
B. SOLID DECKING (required, optional, or not used)	30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	1 3/4	F	1	E
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED			X	
C. CLIP, CONCEALED				
FIXED CLIP	X			
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS			MANARD, FASCIA	
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA	1991		1992	
A. YEAR OF FIRST COMMERCIAL USE				
B. NUMBER OF SQUARES INSTALLED	NO		NO	
C. LICENSED APPLICATOR AGREEMENT (yes/no)				
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	800/726-2727		800/726-2727	
FOR TECHNICAL INFORMATION, CONTACT	800/726-2727		800/400-3867	
11. ASTM E331 WATER INFILTRATION	NO LEAKAGE @ 20 PSF		NO LEAKAGE @ 20 PSF (24 GAUGE ONLY)	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	0.14 CFM/LF @ 20 PSF		LESS THAN 0.02 CFM/LF @ 20 PSF (24 GAUGE ONLY)	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-60 (24 GAUGE ONLY)	
14. SEE APPENDIX IF CHECKED	X			

NA=not applicable

Metal Roof Panels
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BUTLER ROOF DIVISION SEAM		BUTLER ROOF DIVISION SEAM		BUTLER ROOF DIVISION SEAM	
MR-24		VSR		CMR-24	
YES		YES		YES	
YES		YES		YES	
DOUBLE LOCK STANDING SEAM		CRIMPED STANDING SEAM		DOUBLE LOCK STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24	KYNAR 500/HYLAR 5000	22, 24	KYNAR 500/HYLAR 5000	22, 24, 26	KYNAR 500/HYLAR 5000
22, 24	UNFINISHED	22, 24	UNFINISHED	22, 24, 26	UNFINISHED
60		45		60	
24		16		24	
1/4:12		1/2:12		1/4:12	
NOT USED		OPTIONAL		REQUIRED	
NA					
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2 3/4	F	2	F	2 3/4	F
2 1/2		2		2 1/2	
1969		1988		1974	
> 1 BILLION		YES		YES	
YES		6		6	
816/968-2370		816/968-2370		816/968-2370	
816/968-2396		816/968-2377		816/968-2396	
NONE		NONE		NONE	
NONE		NONE		NONE	
UL-90, FM I-90		UL-90		UL-90, FM I-90	
X				X	

# Metal Roof Panels

1. COMPANY NAME	BUTLER ROOF DIVISION		CARLISLE ENGINEERED METALS	
2. PRODUCT NAME	BUTLERIB II		STANDING SEAM ROOFING WITH VERSALOK	
3. ARCHITECTURAL APPLICATIONS (yes/no)	NO		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION	ROLL FORMED MULTI-RIB		ROLL FORMED INTEGRAL RIB STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24, 26, 28	KYNAR 500/HYLAR 5000	22, 24, 26	KYNAR 500, SILICON POLYESTER
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24, 26, 28	UNFINISHED	22, 24, 26	KYNAR 500, SILICON POLYESTER UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		50	
D. PANEL WIDTHS (in.)	36		24	
5. SYSTEMS REQUIREMENTS	1/2:12		1/4:12	
A. MINIMUM SLOPE (in. per ft.)	NOT USED		OPTIONAL	
B. SOLID DECKING (required, optional, or not used)	NA		30-LB. FELT	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED	1 1/2	E		
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)			2 7/8	F
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP			2 7/8	F
SNAP TOGETHER				
8. FASTENING METHOD	X			
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)			2	
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA	1969		1986	
A. YEAR OF FIRST COMMERCIAL USE				
B. NUMBER OF SQUARES INSTALLED	YES		NO	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	6			
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	816/968-2370		V.P. SALES	
FOR TECHNICAL INFORMATION, CONTACT	816/968-2377		R. GAMBLE	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NO LEAKAGE AT 0.55 WATER DIFFERENTIAL PRESSURE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		NO LEAKAGE AT 0.030 WATER DIFFERENTIAL PRESSURE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90, FM I-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

Metal Roof Panels
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CARLISLE ENGINEERED METALS		CARLISLE ENGINEERED METALS		CARLISLE ENGINEERED METALS	
R-PANEL ROOFING		IR-PANEL ROOFING		RWP ROOFING PANEL	
YES YES		YES YES		YES YES	
ROLL FORMED MULTI-RIB		ROLL FORMED MULTI-RIB		PREINSULATED ROLLFORMED MULTI-RIE	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24, 26	KYNAR 500, SILICON POLYESTER	18, 20, 22, 24, 26	KYNAR 500, SILICON POLYESTER, PLASTISOL	22, 24, 26	KYNAR 500, SILICON POLYESTER
22, 24, 26	KYNAR 500, SILICON POLYESTER UNFINISHED	18, 20, 22, 24, 26	KYNAR 500, SILICON POLYESTER, PLASTISOL, UNFINISHED	22, 24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED
0.032	KYNAR 500, SILICON POLYESTER UNFINISHED				
40		40		48	
36		36		36	
1:12		1:12		1:12	
OPTIONAL 30-LB. FELT		OPTIONAL 30-LB. FELT		NOT USED NA	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 1/4	E	1 1/2	E	1 1/4	
X		X			
				1/2	
				X	
1969		1983		1981	
NO		NO		NO	
V.P. SALES R. GAMBLE		V.P. SALES R. GAMBLE		V.P. SALES R. WILMER	
NONE		NO LEAKAGE AT 13.24 PSF DIFFERENTIAL PRESSURE		NO LEAKAGE AT 20 PSF DIFFERENTIAL PRESSURE	
NONE		NO LEAKAGE AT 6.24 PSF DIFFERENTIAL PRESSURE		NO LEAKAGE AT 20 PSF DIFFERENTIAL PRESSURE	
UL-30, UL-60, UL-90		UL-90			

# Metal Roof Panels

1. COMPANY NAME	CARLISLE ENGINEERED METALS		CARLISLE ENGINEERED METALS	
2. PRODUCT NAME	SSP ROOFING PANEL		R-SERIES ROOFING PANELS	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION	PREINSULATED ROLLFORMED STANDING SEAM		ROLL FORMED INTEGRAL SLIM RIB STANDING SEAM	
A. PANEL DESCRIPTION	THICKNESSES		THICKNESSES	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	FINISHES		FINISHES	
GALVANIZED STEEL (ga.)	22, 24, 26	KYNAR 500, SILICON POLYESTER	24, 26	KYNAR 500, SILICON POLYESTER
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED	24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)			0.032	KYNAR 500, SILICON POLYESTER, UNFINISHED
COPPER (oz.)			16	
TERNE METAL (ga.)			26	TERNE-COATED STAINLESS STEEL
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	48		40	
D. PANEL WIDTHS (in.)	36		12,15,18	
5. SYSTEMS REQUIREMENTS	1/4:12		3:12	
A. MINIMUM SLOPE (in. per ft.)	NOT USED		REQUIRED	
B. SOLID DECKING (required, optional, or not used)	NA		30-LB. FELT	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)	2 7/8	E	1 3/4	N
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	2 7/8	E		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)	1/2		X	
9. SPECIALTY APPLICATIONS	X			
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA	1986		1981	
A. YEAR OF FIRST COMMERCIAL USE				
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	V.P. SALES		V.P. SALES	
FOR TECHNICAL INFORMATION, CONTACT	R. WILMER		R. GAMBLE	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO LEAKAGE AT 20 PSF DIFFERENTIAL PRESSURE		NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NO LEAKAGE AT 20 PSF DIFFERENTIAL PRESSURE		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

CARLISLE ENGINEERED METALS		CARLISLE ENGINEERED METALS		CARLISLE ENGINEERED METALS	
R-SERIES ROOFING PANELS		R-SERIES ROOFING PANELS		TR-SERIES ROOFING PANELS	
YES		YES		YES	
NO		NO		NO	
ROLL FORMED INTEGRAL TAPERED RIB STANDING SEAM		ROLL FORMED INTEGRAL BOX RIB STANDING SEAM		ROLL FORMED SNAP-ON BATTEN STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24, 26	KYNAR 500, SILICON POLYESTER	24, 26	KYNAR 500, SILICON POLYESTER	24, 26	KYNAR 500, SILICON POLYESTER
24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED	24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED	24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED
0.032	KYNAR 500, SILICON POLYESTER, UNFINISHED	0.032	KYNAR 500, SILICON POLYESTER, UNFINISHED	0.032	KYNAR 500, SILICON POLYESTER, UNFINISHED
16		16		16	
26	TERNE-COATED STAINLESS STEEL	26	TERNE-COATED STAINLESS STEEL	26	TERNE-COATED STAINLESS STEEL
40		40		40	
12 3/4, 15 3/4, 18 3/4		12, 15, 18		12	
3:12		3:12		3:12	
REQUIRED		REQUIRED		REQUIRED	
30-LB. FELT		30-LB. FELT		30-LB. FELT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=factory applied; E=field applied; APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=factory applied; E=field applied; APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 3/4	N	1 3/4	N	1	F
X		X		X	
1981		1981		1982	
NO		NO		NO	
V.P. SALES R. GAMBLE		V.P. SALES R. GAMBLE		V.P. SALES R. GAMBLE	
NONE		NONE		NONE	
NONE		NONE		NONE	
UL-90		UL-90		UL-90	

# Metal Roof Panels

1. COMPANY NAME	CARLISLE ENGINEERED METALS		CARLISLE ENGINEERED METALS	
2. PRODUCT NAME	TRB-SERIES ROOFING PANELS		STRUCTURAL/ARCHITECTURAL PANEL SA-SERIES	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		YES	
4. PANEL CONFIGURATION	ROLL FORMED SNAP-ON BATTEN STANDING SEAM		ROLL FORMED STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24, 26	KYNAR 500, SILICON POLYESTER	22, 24	KYNAR 500, SILICON POLYESTER
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24, 26	KYNAR 500, SILICON POLYESTER, UNFINISHED	22, 24	KYNAR 500, SILICON POLYESTER, UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)	0.032	KYNAR 500, SILICON POLYESTER, UNFINISHED		
COPPER (oz.)	18			
TERNE METAL (ga.)	26	TERNE-COATED STAINLESS STEEL		
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		40	
D. PANEL WIDTHS (in.)	13 1/4, 20, 24		12, 16, 18, 24	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		1:12	
B. SOLID DECKING (required, optional, or not used)	REQUIRED		OPTIONAL	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL				
BATTEN	X			
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)			1 1/4, 2, 2 3/4	F
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP	1 7/8	N		
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP			X	
SLIP CLIP	X			
MOVEABLE CLIP (designed allowable movement, inches)			2	
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED	X			
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1983		1991	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	V.P. SALES		V.P. SALES	
FOR TECHNICAL INFORMATION, CONTACT	R. GAMBLE		R. GAMBLE	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NO LEAKAGE AT 13.24 PSF DIFFERENTIAL PRESSURE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		NO LEAKAGE AT 6.24 PSF DIFFERENTIAL PRESSURE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

Metal Roof Panels
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[illegible]



# Metal Roof Panels

1. COMPANY NAME	CURVELINE INC.		ENGLERT INC.	
2. PRODUCT NAME	CURVELINE		SERIES 2500	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION	CURVED TRAPEZOIDAL PANELS		MECHANICAL SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	18, 26	SILICON POLYESTER, CORRESTAN, DEXSTAR 850, KYNAR 500, UNFIN.	22, 24	KYNAR 500/HYLAR 5000, MILL
STAINLESS STEEL (ga.)	22, 26			
GALVALUME (ga.)	18, 26	UNFINISHED	22, 24	KYNAR 500/HYLAR 5000, MILL
ALUMINIZED STEEL (ga.)	18, 26	UNFINISHED		
ALUMINUM (in.)	0.032, 0.040	UNFINISHED, ANODIZED	0.032, 0.040	KYNAR 500/HYLAR 5000
COPPER (oz.)			16, 20	
TERNE METAL (ga.)			26	
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	30		TO 200	
D. PANEL WIDTHS (in.)	18, 24, 36, 40		12, 16, 18	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1:12		1/4:12	
B. SOLID DECKING (required, optional, or not used)	NOT USED		OPTIONAL	
C. UNDERLAYMENT (type or NA)	NA		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL	X			
BATTEN				
OTHER (specify)	SNAP LOCK			
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)	3/4, 1 1/2, 3, 4	E	2	F
DOUBLE ROLL FORMED (two 180 degrees)	3/4, 1 1/2, 3, 4	E		
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	1 1/2, 3	E		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED	X			
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)			X	
9. SPECIALTY APPLICATIONS				
CURVED	X			
TAPERED				
OTHER	MITERED			
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1985		1993	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)			DIRECT	
E. NUMBER OF REGIONAL SERVICE LOCATIONS			10	
FOR SALES INFORMATION, CONTACT	T. HOLMAN, D. KLOCEK		K. CORCORAN	
FOR TECHNICAL INFORMATION, CONTACT	D. KLOCEK		J. TRIPOD	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	13.24 PSF/15 MIN.=0			
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	20 PSF = MAX. 0.003 CFM/SQ. FT.			
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NO		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

ENGLERT INC.		ENGLERT INC.		FABRAL	
SERIES 1000		SERIES 2000		COT-R-CAP	
YES		YES		YES	
NO		YES		YES	
SNAP-LOCK		SNAP-LOCK		STRUCTURAL SNAP-ON BATTEN SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24	KYNAR 500/HYLAR 5000, MILL	22, 24	KYNAR 500/HYLAR 5000, MILL	22, 24	KYNAR 500
22, 24	KYNAR 500/HYLAR 5000, MILL	22, 24	KYNAR 500/HYLAR 5000, MILL	22	KYNAR 500, UNPAINTED
0.032	KYNAR 500/HYLAR 5000	0.032, 0.040	KYNAR 500/HYLAR 5000	0.032, 0.040	KYNAR 500
16		16, 20		16, 20	
		26			
TO 200		TO 200		150	
12, 16, 20		12, 16, 18		16	
3:12 REQUIRED		3:12 OPTIONAL		1/2:12 OPTIONAL	
30-LB. FELT		30-LB. FELT		30-LB. FELT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 1/2	N	1 3/4	F	2 1/2	
X		X		X	
1993		1991		1979	
NO DIRECT		YES DIRECT		NO	
10		10			
K. CORCORAN J. TRIPOD		K. CORCORAN J. TRIPOD		L. REESE M. CROUCHER, JR.	
				NO PENETRATION UNDER 5 GAL.-PER-HOUR SPRAY AT 6.4 PSF PRESSURE DIFFERENTIAL	
				MAXIMUM OF 0.01 CU. FT. PER MINUTE PER SQ. FT. AT 6.4 PSF	
UL-90		UL-90		UL-90	
				X	

# Metal Roof Panels

1. COMPANY NAME	FABRAL		FABRAL	
2. PRODUCT NAME	SLIM SEAM		DECOR-RIB	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	INTEGRAL STANDING SEAM		INTEGRAL BATTEN SEAM	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)	THICKNESSES	FINISHES	THICKNESSES	FINISHES
STAINLESS STEEL (ga.)	24	KYNAR 500	22, 24	KYNAR 500
GALVALUME (ga.)	24	KYNAR 500, UNPAINTED	22, 24	KYNAR 500, UNPAINTED
ALUMINIZED STEEL (ga.)	0.032, 0.040	KYNAR 500	0.032, 0.040	KYNAR 500
ALUMINUM (in.)	18, 20			
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		40	
D. PANEL WIDTHS (in.)	12, 16		12, 16	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1:12		3:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG	X			
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK			1 1/2	N
SNAP-ON CAP				
SNAP TOGETHER	1 1/2	F		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X		X	
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED	X			
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1987		1982	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	L. REESE		L. REESE	
FOR TECHNICAL INFORMATION, CONTACT	M. CROUCHER, JR.		M. CROUCHER, JR.	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO PENETRATION UNDER 5 GAL.-PER-HOUR SPRAY AT 25 PSF PRESSURE DIFFERENTIAL		NO PENETRATION UNDER 5 GAL.-PER-HOUR SPRAY AT 4 PSF PRESSURE DIFFERENTIAL	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	MAXIMUM OF 0.09 CU. FT. PER MINUTE PER SQ. FT. AT 1.57 PSF		MAXIMUM OF 0.01 CU. FT. PER MINUTE PER SQ. FT. AT 4 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-60	
14. SEE APPENDIX IF CHECKED	X		X	

NA=not applicable

Metal Roof Panels
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FABRAL		FABRAL		FABRAL	
2 1/2" SSR		1 1/2" SSR		STAND'N SEAM	
YES		YES		YES	
YES		YES		YES	
STANDING SEAM ROOF PANEL		STANDING SEAM		STRUCTURAL DOUBLE-LOCK STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
18, 20, 22, 24, 26	UNFINISHED, S.P., KYNAR, VP	24	SUPER ALURITE	22, 24	KYNAR 500
18, 20, 22, 24, 26	MILL				
18, 20, 22, 24, 26	MILL, SP, KYNAR			22	KYNAR 500, UNPAINTED
18, 20, 22, 24, 26	UNFINISHED, S.P., KYNAR, VP				
0.032, 0.04, 0.05	PLAIN WITH STUCCO EMBOSING, SP, KYNAR W/WO STUCCO EMBOSS.			0.032, 0.040	KYNAR 500
16				16; 20	
42		40		150	
18		16		12, 16	
1/2:12		1/2: 12		1/2: 12	
OPTIONAL		OPTIONAL		OPTIONAL	
				30-LB. FELT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2 1/2	F	1 1/2	F	2 1/2	F
X		X		X	
1980		1987		1987	
NO		NO		NO	
L. REESE M. CROUCHER, JR.		L. REESE M. CROUCHER, JR.		L. REESE M. CROUCHER, JR.	
5 GAL./HR. PER SQ. FT. PRESSURE DIFFERENTIAL 20 PSF, 15 MIN WATER PENETRATION, NONE		NO PENETRATION AT 25 PSF		NO PENETRATION UNDER 5 GAL-PER-HOUR SPRAY AT 20 PSF DIFFERENTIAL	
0.0 CU. FT./MIN PER SQ. FT. W/ 20 PSF PRES.		0.09 AT 1.57 PSF		MAXIMUM OF 0.008 CU. FT. PER MINUTE PER SQ. FT. AT 20 PSF	
UL-90		UL-90		UL-90	
X		X		X	

# Metal Roof Panels

1. COMPANY NAME	FABRAL		FOLLANSBEE STEEL	
2. PRODUCT NAME	3" SNAP-RIB SSR		VIROTIN	
3. ARCHITECTURAL APPLICATIONS (yes/no)	NO		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION	STANDING SEAM			
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24, 26	SILICONIZED POLYESTER, KYNAR		
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24, 26	SILICONIZED POLYESTER, KYNAR, PLAIN		
ALUMINIZED STEEL (ga.)	24, 26	PLAIN, S.P., KYNAR		
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)			28, 30	GILSINITE
C. MAXIMUM LENGTH (lf.)	42		20	
D. PANEL WIDTHS (in.)	24		17, 21	
5. SYSTEMS REQUIREMENTS	1/2:12		3:12	
A. MINIMUM SLOPE (in. per ft.)	NOT USED		REQUIRED	
B. SOLID DECKING (required, optional, or not used)	NA		ROSIN SIZED PAPER	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	3	F		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP			X	
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)	2			
9. SPECIALTY APPLICATIONS			X	
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1989		1997	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)			DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT	P. O'CONNOR		J. BONAR	
FOR TECHNICAL INFORMATION, CONTACT	M. CROUCHER, JR.		E. THOMAS	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-60, UL-90		NONE	
14. SEE APPENDIX IF CHECKED	X			

NA=not applicable

# Metal Roof Panels

FOLLANSBEE STEEL		FOLLANSBEE STEEL		FOLLANSBEE STEEL	
VIROMET		TERNE METAL		TERNE METAL	
YES		YES		YES	
NO		NO		NO	
		DOUBLE LOCK STANDING SEAM		DOUBLE LOCK STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
26, 28	PREWEATHER WASH COAT OR UNFINISHED	28, 30	GILSINITE OR UNFINISHED	28, 30	GILSINITE OR UNFINISHED
20		20		20	
17, 21		17, 21		17, 21	
3:12 REQUIRED ROSIN SIZED PAPER		3:12 REQUIRED ROSIN SIZED PAPER		3:12 REQUIRED ROSIN SIZED PAPER	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1	N	1	N	1	N
X		X		X	
X		X		X	
X		X		X	
1997		1894		1894	
NO DISTRIBUTORS		NO		NO	
J. BONAR E. THOMAS		J. BONAR E. THOMAS		J. BONAR E. THOMAS	
NONE		NONE		NONE	
NONE		NONE		NONE	
NONE		NONE		NONE	

# Metal Roof Panels

1. COMPANY NAME	FOLLANSBEE STEEL		GALVAMET, S.A. DE C.V.	
2. PRODUCT NAME	TERNE COATED STAINLESS		GALVALOK I	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		YES	
4. PANEL CONFIGURATION	DOUBLE LOCK STANDING SEAM		STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)			22, 24, 26	BARE, MODIFIED POLYESTER AND KYNAR 500
STAINLESS STEEL (ga.)	26, 28	PREWEATHER WASH COAT OR UNFINISHED		
GALVALUME (ga.)				
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	20		45	
D. PANEL WIDTHS (in.)	17, 21		12, 18, 24	
5. SYSTEMS REQUIREMENTS	3:12 REQUIRED		1/4:12 OPTIONAL	
A. MINIMUM SLOPE (in. per ft.)				
B. SOLID DECKING (required, optional, or not used)	ROBIN SIZED PAPER		RIGID BOARD, ISO, FLEXIBLE FIBERGLASS	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)	1	N		
ROLL AND LOCK				
SNAP-ON CAP			3	F
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)	X		2 1/2	
9. SPECIALTY APPLICATIONS	X			
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1967		1995	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO			
D. METHOD OF DISTRIBUTION (distributors, direct)			DIRECT	
E. NUMBER OF REGIONAL SERVICE LOCATIONS			22	
FOR SALES INFORMATION, CONTACT: J. BONAR			A. BONSON	
FOR TECHNICAL INFORMATION, CONTACT: E. THOMAS			F. DIAZ	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NO LEAKAGE AT 4 PSF	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		0.043 CFM; 0.029 CFM; 0.022 CFM AT 4 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NONE		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

## Metal Roof Panels

[illegible]



# Metal Roof Panels

1. COMPANY NAME	H.H. ROBERTSON		H.H. ROBERTSON	
2. PRODUCT NAME	SR-3 TOTAL PERFORMANCE ROOF SYSTEM		ROBERTSON STANDING SEAM	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	FACTORY FORMED ROOF PANEL			
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	22, 24	VERSACOR HF2 & PF, PUDF	22, 24	VERSACOR HF2 & PF, PUDF
STAINLESS STEEL (ga.)	22, 24	304-2D	22, 24	MILL, 3004-2B
GALVALUME (ga.)	22, 24	UNFINISHED	22, 24	MILL, PAINTED
ALUMINIZED STEEL (ga.)	22, 24	UNFINISHED		
ALUMINUM (in.)			0.032, 0.040	MILL, PAINTED
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	50		50	
D. PANEL WIDTHS (in.)	36		10, 12, 18, 24	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/2:12		3:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	NA		NA	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL	X			
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	1.7	E	1 3/4	F
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)	1/2		1/2	
9. SPECIALTY APPLICATIONS				
CURVED	X		X	
TAPERED			X	
OTHER	WALL PANEL, SOFFIT			
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1979		1984	
B. NUMBER OF SQUARES INSTALLED	150,000		150,000	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DIRECT		DIRECT	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	16		16	
FOR SALES INFORMATION, CONTACT:	J. BROMAN (412/928-7500)		J. BROMAN (412/928-7500)	
FOR TECHNICAL INFORMATION, CONTACT:	J. BROMAN (412/928-7500)		J. BROMAN (412/928-7500)	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	FM I-90, UL-90		FM I-90, UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

H.H. ROBERTSON		INNOVATIVE METALS COMPANY, INC.		INNOVATIVE METALS COMPANY, INC.	
ROBERTSON LOW SLOPE		SERIES 300 PANELS		SNAP-LOK STANDING SEAM	
YES		YES		YES	
YES		YES		YES	
		STRUCTURAL STANDING SEAM		ARCHITECTURAL STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24	VERSACOR HF2 & PF, PUDF				
22, 24	3004-2D				
22, 24	MILL, PAINTED	22, 24	KYNAR, UNFINISHED	22, 24	KYNAR, UNFINISHED
0.032, 0.040	MILL, PAINTED	.032, .040	KYNAR	.032, .040	KYNAR
		16, 20	UNFINISHED	16, 20	UNFINISHED
65		45		45	
16, 18		12, 16, 18		10, 12, 16, 18	
1/4:12 OPTIONAL		1/4:12 OPTIONAL NA		1 1/2:12 OPTIONAL 30-LB. FELT	
X		X		X	
HEIGHT(S) (inches)		HEIGHT(S) (inches)		HEIGHT(S) (inches)	
SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE		SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE		SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	
2, 3	F	2 3/8 2 3/8	F F	1 3/4	F
		X		X	
1/2		X		X	
		X			
		X		X	
		FIELD ROLL			
1993		1985		1991	
500		50,000+		50,000+	
NO		YES		YES	
DIRECT		DIRECT		DIRECT	
16		30		30	
J. BROMAN (412/928-7500)		H.C. HOLLISTER		H.C. HOLLISTER	
J. BROMAN (412/928-7500)		G.R. JONES		G.R. JONES	
		0/20 PSF		0/20 PSF	
		.0036 SCFM/20 PSF		.0022 SCFM/20 PSF	
FM I-90, UL-90		UL-90, FM 1-120		UL-90	

# Metal Roof Panels

1. COMPANY NAME	INNOVATIVE METALS COMPANY, INC.		INNOVATIVE METALS COMPANY, INC.	
2. PRODUCT NAME	PERM-LOC STANDING SEAM		55 PANEL SYSTEM	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		NO	
4. PANEL CONFIGURATION	ARCHITECTURAL STANDING SEAM		ARCHITECTURAL STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)				
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	24	KYNAR, UNFINISHED	24	KYNAR, UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)	0.032	KYNAR	0.032	KYNAR
COPPER (oz.)	16, 20	UNFINISHED		
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	45		45	
D. PANEL WIDTHS (in.)	13, 21		14 1/2, 22 1/2	
5. SYSTEMS REQUIREMENTS	3:12		3:12	
A. MINIMUM SLOPE (in. per ft.)	REQUIRED		REQUIRED	
B. SOLID DECKING (required, optional, or not used)	30-LB. FELT		30-LB. FELT	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	7/8	F	1	F
8. FASTENING METHOD	X		X	
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X		X	
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS	X		X	
CURVED	X		X	
TAPERED	X		X	
OTHER				
10. MANUFACTURER/PRODUCT DATA	1986		1981	
A. YEAR OF FIRST COMMERCIAL USE	50,000+		50,000+	
B. NUMBER OF SQUARES INSTALLED	YES		YES	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	DIRECT		DIRECT	
D. METHOD OF DISTRIBUTION (distributors, direct)	30		30	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	H.C. HOLLISTER		H.C. HOLLISTER	
FOR SALES INFORMATION, CONTACT:	G.R. JONES		G.R. JONES	
FOR TECHNICAL INFORMATION, CONTACT:				
11. ASTM E331 WATER INFILTRATION				
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS				
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

MBCI		MBCI		MBCI	
ULTRA-DEK 124		DOUBLE-LOK 124		TRADITIONAL SERIES-ROUND PROFILE	
YES		YES		YES	
YES		YES		NO	
STANDING SEAM		STANDING SEAM		INTEGRAL BATTEN	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR	22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR	22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR
50		50		50	
12, 18, 24		12, 18, 24		12, 15, 18	
1/4:12 OPTIONAL		1/4:12 OPTIONAL		3:12 REQUIRED 30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
3	F	3	F	1 7/8	F
X		2 1/2		X	
TRANSITION, ROOF TO FASCIA, MANSARD TO SOFFIT					
1983		1983		1983	
NO DIRECT 16		NO DIRECT 16		NO DIRECT 16	
W. DICKINSON T. WOLFE		W. DICKINSON T. WOLFE		W. DICKINSON T. WOLFE	
NONE		NONE		NONE	
NONE		NONE		NONE	
UL-90		UL-90		UL-90	

# Metal Roof Panels

1. COMPANY NAME	MBCI		MBCI	
2. PRODUCT NAME	TRADITIONAL SERIES-SQUARE PROFILE		TRADITIONAL SERIES-BEVELED PROFILE	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		NO	
4. PANEL CONFIGURATION	INTEGRAL BATTEN		INTEGRAL BATTEN	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR	22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR
STAINLESS STEEL (ga.)				
GALVALUME (ga.)				
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	50		50	
D. PANEL WIDTHS (in.)	12, 15, 18		12, 15, 18	
5. SYSTEMS REQUIREMENTS	3:12 REQUIRED		3:12 REQUIRED	
A. MINIMUM SLOPE (in. per ft.)	30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
B. SOLID DECKING (required, optional, or not used)				
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		SQUARE	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP	2	E	1 5/8	E
SNAP TOGETHER				
8. FASTENING METHOD	X		X	
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS	TRANSITION, ROOF TO FASCIA, MANSARD TO SOFFIT		TRANSITION, ROOF TO FASCIA, MANSARD TO SOFFIT	
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA	1983		1983	
A. YEAR OF FIRST COMMERCIAL USE	NO		NO	
B. NUMBER OF SQUARES INSTALLED	DIRECT		DIRECT	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	16		16	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS	W. DICKINSON		W. DICKINSON	
FOR SALES INFORMATION, CONTACT:	T. WOLFE		T. WOLFE	
FOR TECHNICAL INFORMATION, CONTACT:				
11. ASTM E331 WATER INFILTRATION	NONE		NONE	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	NONE		NONE	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

MBCI		MBCI		MBCI	
CRAFTSMAN SERIES HIGH BATTEN		CRAFTSMAN SERIES LARGE BATTEN		CRAFTSMAN SERIES SMALL BATTEN	
YES		YES		YES	
NO		NO		NO	
LOCK FORM SEPARATE BATTEN		LOCK FORM SEPARATE BATTEN		LOCK FORM SEPARATE BATTEN	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR	22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR	22, 24, 26	BARE, COLOR BOND, SIGNATURE 200, 300 (KYNAR), 400 (KYNAR), HYLAR
50		50		50	
12, 16 1/2		12, 16 1/2		12, 16 1/2	
3:12 REQUIRED		3:12 REQUIRED		3:12 REQUIRED	
30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2	F	2	F	1	F
X		X		X	
TRANSITION, ROOF TO FASCIA, MANSARD TO SOFFIT		TRANSITION, ROOF TO FASCIA, MANSARD TO SOFFIT		TRANSITION, ROOF TO FASCIA, MANSARD TO SOFFIT	
1983		1983		1983	
NO		NO		NO	
DIRECT		DIRECT		DIRECT	
16		16		16	
W. DICKINSON T. WOLFE		W. DICKINSON T. WOLFE		W. DICKINSON T. WOLFE	
NO LEAKAGE AT 4 PSF		NONE		NONE	
0.048 CFM/ SQ. FT. AT 4 PSF; 0.045 CFM/SQ. FT.		NONE		NONE	
UL-90		UL-90		UL-90	

# Metal Roof Panels

1. COMPANY NAME	MBCI		MBCI	
2. PRODUCT NAME	LOKSEAM		BATTENLOK	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)				
STAINLESS STEEL (ga.)				
GALVALUME (ga.)				
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	50		50	
D. PANEL WIDTHS (in.)	10, 12, 18		12, 16	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		1/4:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE				
VERTICAL LEG	X		X	
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT				
SEAM PROCESSING	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)			2	F
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER	1 3/4	F		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1991		1991	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DIRECT		DIRECT	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	16		16	
FOR SALES INFORMATION, CONTACT: W. DICKINSON			W. DICKINSON	
FOR TECHNICAL INFORMATION, CONTACT: T. WOLFE			T. WOLFE	
11. ASTM E331 WATER INFILTRATION	NONE		NONE	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	NONE		NONE	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

MBCI		MBCI		MBCI	
SL-16		S-36		P-36	
YES		YES		YES	
NO		YES		YES	
1 x 16 INTERLOCKING ARCH. STANDING SEAM ROOF		1 1/2 X 12 X 36 EXPOSED FASTENER PANEL		5/8 X 9 X 36 EXPOSED FASTENER PANEL	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
26, 24	SMP, KYNAR, SIGNATURE 200, 300	26, 24	SMP, KYNAR, SIGNATURE 200, 300	26, 29, 30	SMP, UNFINISHED
50		55		45	
16		36		36	
3:12 REQUIRED 15-LB. FELT		1/2:12 OPTIONAL 15-LB. FELT		3:12 OPTIONAL 15-LB. FELT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
		1 1/2	F	5/8	F
1	N				
X		X		X	
		X			
1989		1982		1987	
NO		NO		NO	
16		16		16	
W. DICKINSON T. WOLFE		W. DICKINSON T. WOLFE		W. DICKINSON T. WOLFE	
NONE		NONE		NONE	
NONE		NONE		NONE	
NONE		UL-90		NONE	



# Metal Roof Panels

1. COMPANY NAME	MBCI		MBCI	
2. PRODUCT NAME	PBR-36		MASTERLINE	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	1 1/4 X 12 X 36 EXPOSED FASTENER PANEL		1 3/4 X 18-12-10 STRUT SSR	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	26, 29, 30	SMP, UNFINISHED		
STAINLESS STEEL (ga.)			24	
GALVALUME (ga.)	26	UNFINISHED	24, 26	SIGNATURE 200, 300, 400
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)			16	
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	56		55	
D. PANEL WIDTHS (in.)	36		10, 12, 18	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/2:12		3:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	15-LB. FELT		NA	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL	X			
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)	1 1/2	F		
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP			1 3/4	F
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED	X			
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1977		1991	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS	16		16	
FOR SALES INFORMATION, CONTACT: W. DICKINSON			W. DICKINSON	
FOR TECHNICAL INFORMATION, CONTACT: T. WOLFE			T. WOLFE	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NO PENETRATION AT 6.24 PSF WITH 5 GAL/HR/SF 8-IN./HR	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		10-IN.=0.0143 CFM/SF @ 6.24 PSF; 12-IN.=0.0215 CFM/SF @ 6.24 PSF; 18-IN.=0.0257 CFM/SF @ 6.24 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

Metal Roof Panels
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MBCI		MCELROY METAL INC.		MCELROY METAL INC.	
SUPRA-RIB		MASTERLOK-90		MEDALLION I & II	
YES		YES		YES	
YES		YES		NO	
1 1/2 X 7.2 X 36		SNAP-ON STANDING SEAM		BATTEN CAP	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24, 26	SIGNATURE 200, 300, 400	22, 24, 26	KYNAR, UNFINISHED	22, 24, 26	KYNAR, UNFINISHED
0.034	SIGNATURE 200, 300, 400				
55		50		40	
36		12, 18, 24		12	
1/4:12 OPTIONAL		1/4:12 OPTIONAL 30-LB. FELT		3:12 REQUIRED 30-LB. FELT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
		3	F	1, 1 1/2	N
X		X		X	
		X		X	
1991		1986		1990	
NO		NO		NO	
16					
W. DICKINSON T. WOLFE		J. DARRAH E. OSTEN		J. DARRAH E. OSTEN	
NO PENETRATION AT 12 PSF WITH 5 GALLONS/HOUR (8"/HOUR)		NO LEAKAGE		NO LEAKAGE	
YES		0.02 @ 1.57 PSF		0.005 @ 1.57 PSF	
UL-90		UL-90		NONE	

# Metal Roof Panels

1. COMPANY NAME	MCELROY METAL INC.		MCELROY METAL INC.	
2. PRODUCT NAME	MEGA-RIB		MULTI-RIB	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)	18, 20, 22	KYNAR, DEXSTAR 850, UNFINISHED		
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24, 26	KYNAR, UNFINISHED	22, 24, 26, 29	KYNAR, SILICONIZE POLYESTER, UNFINISHED
ALUMINIZED STEEL (ga.)			0.024, 0.032	MILL, STUCCO EMBOSSED
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		40	
D. PANEL WIDTHS (in.)	36		36	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1:12		1:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		30-LB. FELT	
6. PANEL PROFILE				
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN	X		X	
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED	1 1/2	E	1 1/4	E
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED	X		X	
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1990		1965	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT: J. DARRAH			J. DARRAH	
FOR TECHNICAL INFORMATION, CONTACT: E. OSTEN			E. OSTEN	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NONE		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NONE		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

Metal Roof Panels
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MCELROY METAL INC.		MCELROY METAL INC.		MCELROY METAL INC.	
MAX-RIB		MULTI-COR		M-COR	
YES		NO		NO	
YES		YES		YES	
OVERLAPPING		OVERLAPPING		OVERLAPPING	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
29	KYNAR, DEXSTAR 850, UNFINISHED	24, 26	KYNAR, SILICONIZE POLYESTER, UNFINISHED		
22, 24, 26, 29	KYNAR, SILICONIZE POLYESTER, UNFINISHED	24, 26	KYNAR, DEXSTAR 850, UNFINISHED	22, 24, 26, 29	KYNAR, DEXSTAR 850, UNFINISHED
0.024, 0.032	MILL, STUCCO EMBOSSED	0.024, 0.032	MILL, STUCCO EMBOSSED	0.024, 0.032	MILL, STUCCO EMBOSSED
40		40		40	
36		29 1/4, 32		24, 32, 34 1/4, 37 3/8	
1:12 OPTIONAL 30-LB. FELT		1:12 OPTIONAL 30-LB. FELT		1:12 OPTIONAL 30-LB. FELT	
X					
		CORRUGATED		CORRUGATED	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
3/4	E	7/8	E	7/8	E
X		X		X	
1976		1983		1983	
NO		NO		NO	
J. DARRAH E. OSTEN		J. DARRAH E. OSTEN		J. DARRAH E. OSTEN	
NONE		NONE		NONE	
NONE		NONE		NONE	
NONE		NONE		NONE	

# Metal Roof Panels

1. COMPANY NAME	MCELROY METAL INC.		MERCHANT & EVANS, INC.	
2. PRODUCT NAME	MEDALLION-LOK		INTERLOCK-18	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION			INTERLOCKING	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)			22, 24	KYNAR 500
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24	KYNAR 500, BARE	22, 24	KYNAR 500, MILL
ALUMINIZED STEEL (ga.)			22, 24	KYNAR 500, MILL
ALUMINUM (in.)			0.032, 0.040	KYNAR 500, MILL, ANODIZED
COPPER (oz.)			16,20	MILL
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		60	
D. PANEL WIDTHS (in.)	16, 18		10, 18	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		1:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		NA	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK			2	F
SNAP-ON CAP				
SNAP TOGETHER	1 3/4	F		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)			UNLIMITED	
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED			X	
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1993		1991	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	9			
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT: J. DARRAH			D. BROWN	
FOR TECHNICAL INFORMATION, CONTACT: E. OSTEN			T. THOMPSON	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO LEAKAGE		NO PENETRATION AT 15 PSF FOR 15 MINUTES	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)			0.005 CFM PER SQ. FT. AT 6.24 PSF DIFFERENTIAL	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION			UL-90	
14. SEE APPENDIX IF CHECKED			X	

NA=not applicable

# Metal Roof Panels

MERCHANT & EVANS, INC.		MERCHANT & EVANS, INC.		MERCHANT & EVANS, INC.	
ZIP RIB		B 1515 R		# 114 R	
YES		YES		YES	
YES		NO		NO	
INTERLOCKING, MECHANICALLY SEAMED		BATTEN SEAM		INTEGRAL BATTEN SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
18, 20, 22, 24	KYNAR 500	22, 24	KYNAR 500	22, 24	KYNAR 500
24	MILL				
18, 20, 22, 24	KYNAR 500, MILL	22, 24	KYNAR 500	22, 24	KYNAR 500
18, 20, 22, 24	KYNAR 500, MILL	22, 24	KYNAR 500	22, 24	KYNAR 500
0.032, 0.040, 0.050	KYNAR 500, MILL, ANODIZED	0.032, 0.040	KYNAR 500, MILL, ANODIZED	0.032, 0.040	KYNAR 500, MILL, ANODIZED
16,20	MILL	16,20	MILL	16,20	MILL
24	MILL (TCSS)				
0.027	MILL	0.027	MILL	0.027	MILL
105		60		60	
12, 16		11, 15, 18, 22		9 3/4, 13, 17	
1/4:12 OPTIONAL NA		2:12 REQUIRED 30-LB. FELT OR EQUIVALENT		2:12 REQUIRED 30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2 1/2	F	1 1/2	N	1 1/4	N
X		X		X	
X		X		X	
2 5/8					
X		X			
X		X			
1964		1971		1968	
YES		NO		NO	
D. BROWN T. THOMPSON		D. BROWN T. THOMPSON		D. BROWN T. THOMPSON	
NO PENETRATION AT 15 PSF FOR 15 MINUTES		NONE		NONE	
0.005 CFM PER SQ. FT. AT 6.24 PSF DIFFERENTIAL		NONE		NONE	
UL-90		NONE		NONE	
X					

# Metal Roof Panels

1. COMPANY NAME	MERCHANT & EVANS, INC.		MERCHANT & EVANS, INC.	
2. PRODUCT NAME	# 305		# 306	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		NO	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)	22, 24	KYNAR 500	22, 24	KYNAR 500
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	22, 24	KYNAR 500	22, 24	KYNAR 500, MILL
ALUMINIZED STEEL (ga.)	22, 24	KYNAR 500	22, 24	KYNAR 500
ALUMINUM (in.)	0.032, 0.040	KYNAR 500, MILL, ANODIZED	0.032, 0.040	KYNAR 500, MILL, ANODIZED
COPPER (oz.)	16,20	MILL	16,20	MILL
TERNE METAL (ga.)				
ZINC (ga.)	0.027	MILL	0.027	MILL
C. MAXIMUM LENGTH (lf.)	60		45	
D. PANEL WIDTHS (in.)	12, 15 1/4, 19 1/4		10 1/8, 14, 17 1/2, 21 1/2, 22	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	2:12		2:12	
B. SOLID DECKING (required, optional, or not used)	REQUIRED		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
6. PANEL PROFILE				
VERTICAL LEG	X			
TRAPEZOIDAL				
BATTEN			X	
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP			1, 1 1/4, 1 1/2, 2	F
SNAP TOGETHER	1 3/8	F		
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X		X	
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED			X	
TAPERED			X	
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1984		1989	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT: D. BROWN			D. BROWN	
FOR TECHNICAL INFORMATION, CONTACT: T. THOMPSON			T. THOMPSON	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO PENETRATION AT 15 PSF FOR 15 MINUTES		NO PENETRATION AT 15 PSF FOR 15 MINUTES	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	0 CFM @ 6.24 PSF		0 CFM @ 6.24 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

MERCHANT & EVANS, INC.		METAL SALES MANUFACTURING CORP.		METAL SALES MANUFACTURING CORP.	
DOME ROOF SYSTEM (BD 1520)		MASTER-SPAN		SEAM-LOC 24	
YES		YES		YES	
NO		YES		YES	
BATTEN SEAM		STANDING SEAM		STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
0.032, 0.040	KYNAR 500, MILL, ANODIZED	22, 24	KYNAR 500 (PVF2), BARE	22, 24	KYNAR 500 (PVF2), BARE
16,20	MILL				
24	MILL (TCSS)				
0.027	MILL				
45		45		45	
UP TO 46 1/2		16		24	
1/4:12 REQUIRED 30-LB. FELT OR EQUIVALENT		1/4:12 OPTIONAL		1/4:12 OPTIONAL	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2	N	2	F	2 11/16	F
X		2		2	
X X DOME					
1990 NO		1993 YES DIRECT 12		1979 YES DIRECT 12	
D. BROWN T. THOMPSON		D. CUNNINGHAM J. GIANACAKES		D. CUNNINGHAM J. GIANACAKES	
NO PENETRATION AT 15 PSF FOR 15 MINUTES		NO LEAKAGE		NO LEAKAGE	
NONE		0.060 CFM/SQ. FT.		0.060 CFM/SQ.FT.	
UL-90		UL-90		UL-90	



# Metal Roof Panels

1. COMPANY NAME	PETERSEN ALUMINUM CORP		PETERSEN ALUMINUM CORP	
2. PRODUCT NAME	INTEGRAL BATTEN		REDI-ROOF STANDING SEAM	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		NO	
4. PANEL CONFIGURATION	BATTEN STANDING SEAM		STANDING SEAM	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)			24	KYNAR 500
STAINLESS STEEL (ga.)				
GALVALUME (ga.)				
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)			0.032	KYNAR 500
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	45		45	
D. PANEL WIDTHS (in.)	11, 18, 19		12, 18	
5. SYSTEMS REQUIREMENTS	3:12		3:12	
A. MINIMUM SLOPE (in. per ft.)	REQUIRED		REQUIRED	
B. SOLID DECKING (required, optional, or not used)	30-LB FELT		30-LB FELT	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE				
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK	1 1/2	N	1 1/2	N
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X			
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS			X	
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1979		1990	
B. NUMBER OF SQUARES INSTALLED	> 100,000		> 100,000	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DIRECT, DISTRIBUTORS		DIRECT, DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	4		4	
FOR SALES INFORMATION, CONTACT:	800/323-1960		800/323-1960	
FOR TECHNICAL INFORMATION, CONTACT:	800/323-1960		800/323-1960	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO LEAKAGE @12 PSF		NO LEAKAGE @12 PSF	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	0.008 CFM/SQ. FT @1.57 PSF		0.004 CFM/SQ. FT @1.57 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

PETERSEN ALUMINUM CORP SNAP-ON STANDING SEAM		PETERSEN ALUMINUM CORP HIGH SNAP-ON STANDING SEAM		PETERSEN ALUMINUM CORP INTEGRAL STANDING SEAM	
YES		YES		YES	
NO		NO		NO	
STANDING SEAM		STANDING SEAM		STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24	KYNAR 500	24	KYNAR 500	24	KYNAR 500
0.032	KYNAR 500	0.032	KYNAR 500	0.032	KYNAR 500
		45		45	
		11, 18, 19		11, 18, 19	
3:12 REQUIRED 30-LB FELT		3:12 REQUIRED 30-LB FELT		3:12 REQUIRED 30-LB FELT	
		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1	N	1 1/2	N	1 1/2	N
X		X		X	
X		X		X	
X		X		X	
1979 > 100,000 NO DIRECT, DISTRIBUTORS 4		1979 > 100,000 NO DIRECT, DISTRIBUTORS 4		1979 > 100,000 NO DIRECT, DISTRIBUTORS 4	
800/323-1960		800/323-1960		800/323-1960	
800/323-1960		800/323-1960		800/323-1960	
NO LEAKAGE @12 PSF		NO LEAKAGE @12 PSF		NO LEAKAGE @12 PSF	
0.006 CFM/SQ. FT @1.57 PSF		0.005 CFM/SQ. FT @1.57 PSF		0.02 CFM/SQ. FT @1.57 PSF	
UL-90		UL-90		UL-90	

# Metal Roof Panels

1. COMPANY NAME	PETERSEN ALUMINUM CORP		PETERSEN ALUMINUM CORP	
2. PRODUCT NAME	SNAP-ON BATTEN		REDI-ROOF BATTEN	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		NO	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)	24	KYNAR 500	24	KYNAR 500
STAINLESS STEEL (ga.)				
GALVALUME (ga.)				
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)	0.032	KYNAR 500	0.032	KYNAR 500
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	45		45	
D. PANEL WIDTHS (in.)	11, 12, 18		12	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		3:12	
B. SOLID DECKING (required, optional, or not used)	REQUIRED		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB FELT		30-LB FELT	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL				
BATTEN	X			
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP	1 1/2	N	1 1/2	N
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED			X	
TAPERED	X			
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1979		1989	
B. NUMBER OF SQUARES INSTALLED	> 100,000		> 100,000	
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DIRECT, DISTRIBUTORS		DIRECT, DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	4			
FOR SALES INFORMATION, CONTACT:	800/323-1960		800/323-1960	
FOR TECHNICAL INFORMATION, CONTACT:	800/323-1960		800/323-1960	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO LEAKAGE @12 PSF		NO LEAKAGE @12 PSF	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	0.02 CFM/SQ. FT @1.57 PSF		0.03 CFM/SQ. FT @1.57 PSF	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NONE		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

PETERSEN ALUMINUM CORP		ROYAL ALUMINUM, INC.		ROYAL ALUMINUM, INC.	
SNAP-CLAD		ROYAL "SUPER PAN"		W-PAN	
YES		YES		YES	
YES		YES		YES	
STANDING SEAM					
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24	KYNAR 500				
0.032	KYNAR 500	0.022, 0.028, 0.030, 0.036	KYNAR/NUBELAR, POLYESTER	0.030, 0.034	KYNAR/NUBELAR, POLYESTER
45		65		45	
10, 12, 16, 18		12		12.5	
2:12 OPTIONAL 30-LB FELT		1/2:12 OPTIONAL NA		1/2:12 NOT USED NA	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 3/4	F				
X		X		X	
X		X			
1993 > 100,000 NO DIRECT, DISTRIBUTORS		1989 NO DIRECT 2		1985 NO DIRECT 2	
800/323-1960		A. APPLEBEE (800/874-9065)		A. APPLEBEE (800/874-9065)	
800/323-1960		A. APPLEBEE (800/874-9065)		A. APPLEBEE (800/874-9065)	
NO LEAKAGE @ 12 PSF		NONE		NONE	
0.04 CFM/SQ. FT @ 1.57 PSF		NONE		NONE	
UL-90		UL-90		UL-90	
		X		X	

# Metal Roof Panels

1. COMPANY NAME	SMITH STEELITE		SOUTHEASTERN METALS MANUFACTURING CO., INC.	
2. PRODUCT NAME	SRS STANDING SEAM ROOF		5V-CRIMP	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION	VERTICAL LEG "T" RIB BATTEN		V WITH FLATS	
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	20, 22, 24	KYNAR 500, CORRSTAN, MILL, DURAGARD, DURAGARD XL	24, 26, 29	UNFINISHED, PAINTED
STAINLESS STEEL (ga.)				
GALVALUME (ga.)	20, 22, 24	SPM, KYNAR 500, UNFINISHED, RIGIDIZED, PLAIN	24, 26	UNFINISHED
ALUMINIZED STEEL (ga.)	20, 22, 24	MILL		
ALUMINUM (in.)	0.032, 0.040, 0.050	KYNAR 500, CORRSTAN, MILL, DURAGARD, DURAGARD XL		
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	225		16	
D. PANEL WIDTHS (in.)	12, 14, 16, 18, 20		24	
5. SYSTEMS REQUIREMENTS	1/2:12		3:12	
A. MINIMUM SLOPE (in. per ft.)	OPTIONAL		OPTIONAL	
B. SOLID DECKING (required, optional, or not used)	NA		30-LB. FELT	
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		TRIANGLE	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)	3	F	1/2	E
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD			X	
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP	X			
MOVEABLE CLIP (designed allowable movement, inches)	3			
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED	X			
OTHER				
10. MANUFACTURER/PRODUCT DATA	1960			
A. YEAR OF FIRST COMMERCIAL USE				
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DISTRIBUTORS, DIRECT		DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT: J. URSO			METAL ROOFING	
FOR TECHNICAL INFORMATION, CONTACT: K. BOYER			ENGINEERING	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO PENETRATION AT 20 PSF FOR 15 MINUTES			
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	NO MORE THAN 0.0156 CFM PER SQ. FT. AT 20 PSF		NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90		NONE	
14. SEE APPENDIX IF CHECKED	X			

NA=not applicable

Metal Roof Panels
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SOUTHEASTERN METALS MANUFACTURING CO., INC.		SOUTHEASTERN METALS MANUFACTURING CO., INC.		SOUTHEASTERN METALS MANUFACTURING CO., INC.	
SM-RIB		PBR & R PANEL		CORRUGATED	
YES		YES		YES	
NO		YES		NO	
3/4-IN. RIBS ON 9-IN. CENTERS		1 1/8-IN. RIBS ON 12-IN. CENTERS		2 1/2 IN. X 1 1/2 IN X 1 1.4 X 1/4 IN	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
29	UNFINISHED, PAINTED	26, 29	UNFINISHED, PAINTED	26, 29	UNFINISHED, PAINTED
29	UNFINISHED	26	UNFINISHED		
40		40		16	
36		36		24	
3:12 OPTIONAL NA		1 1/2:12 NOT USED NA		3:12 OPTIONAL NA	
X		X			
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
3/4	E	1 1/8	E	1/4, 1/2	E
X		X		X	
NO DISTRIBUTORS		NO DISTRIBUTORS		NO DISTRIBUTORS	
METAL ROOFING ENGINEERING		METAL ROOFING ENGINEERING		METAL ROOFING ENGINEERING	
NONE		NONE		NONE	
NONE		NONE		NONE	

# Metal Roof Panels

1. COMPANY NAME	STEELOX SYSTEMS INC.		ULTRA SEAM	
2. PRODUCT NAME	STEELOX ROOF SYSTEM		US-150A	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION	VERTICAL RIB STANDING SEAM		DOUBLE INTERLOCK STANDING SEAM	
B. PANEL MATERIALS, THICKNESSES, AND FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)			24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY
STAINLESS STEEL (ga.)			26, 28	UNFINISHED
GALVALUME (ga.)	22, 24	70% KYNAR, UNPAINTED	24, 26, 28, 29	KYNAR 500, UNFINISHED
ALUMINIZED STEEL (ga.)			24, 26, 28	KYNAR 500, UNFINISHED
ALUMINUM (in.)			0.027, 0.032	KYNAR 500, UNFINISHED
COPPER (oz.)			12, 16, 20	UNFINISHED
TERNE METAL (ga.)			26, 28, 30	UNFINISHED
ZINC (ga.)			0.020, 0.027	UNFINISHED
C. MAXIMUM LENGTH (lf.)	65		150	
D. PANEL WIDTHS (in.)	16		8, 12, 16, 20, 24	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/4:12		1/2:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB. FELT		30-LB. FELT OR EQUIVALENT	
6. PANEL PROFILE				
VERTICAL LEG	X		X	
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)	2	F		
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK			1 1/2	E
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED	X			
B. THROUGH-FASTENED, CONCEALED	X			
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)	2		1 1/2	
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED	X			
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1934		1960	
B. NUMBER OF SQUARES INSTALLED	10 MILLION			
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)			DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS			10	
FOR SALES INFORMATION, CONTACT:	513/573-5200		L. PRIDE	
FOR TECHNICAL INFORMATION, CONTACT:	513/573-5200		L. PRIDE	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO INFILTRATION		NO LEAKAGE, 15 MINUTES AT 9 PSF	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	0.012 CFM/FT <sup>2</sup> @ 6.24PSF		0.004 CFM PER SQ. FT.	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL CLASS 90		UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

ULTRA SEAM		ULTRA SEAM		ULTRA SEAM	
US-150S		US-200A		US-200S	
YES		YES		YES	
YES		YES		YES	
SINGLE INTERLOCK STANDING SEAM		DOUBLE LOCK STANDING SEAM		SINGLE LOCK STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY	24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY	24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY
26, 28	UNFINISHED	24, 26, 28	UNFINISHED	24, 26, 28	UNFINISHED
24, 26, 28, 29	KYNAR 500, UNFINISHED	24, 26, 28, 29	KYNAR 500, UNFINISHED	20, 22, 24, 26, 29	KYNAR 500, UNFINISHED
22, 24	KYNAR 500, UNFINISHED	22, 24	KYNAR 500, UNFINISHED	22, 24, 26, 28	KYNAR 500, UNFINISHED
0.027, 0.032, 0.040	KYNAR 500, UNFINISHED	0.032, 0.040	KYNAR 500, UNFINISHED	0.032, 0.040	KYNAR 500, UNFINISHED
12, 16, 20	UNFINISHED	12, 16, 20	UNFINISHED	12, 16, 20	UNFINISHED
26, 28, 30	UNFINISHED	26, 28, 30	UNFINISHED	26, 28, 30	UNFINISHED
0.020, 0.027	UNFINISHED	0.020, 0.027	UNFINISHED	0.020, 0.027	UNFINISHED
150		150		150	
8, 12, 16, 20, 24		35423		35423	
1/2:12 OPTIONAL 30-LB. FELT OR EQUIVALENT		1/4:12 REQUIRED 30-LB. FELT OR EQUIVALENT		1/4:12 OPTIONAL 30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 1/2	E	2	E	2	E
X		X		X	
1 1/2		1 1/2		1 1/2	
X		X		X	
1982 YES DISTRIBUTORS 10		1988 YES DISTRIBUTORS 10		1988 YES DISTRIBUTORS 10	
L. PRIDE L. PRIDE		L. PRIDE L. PRIDE		L. PRIDE L. PRIDE	
NO LEAKAGE, 15 MINUTES AT 9 PSF		NO LEAKAGE, 15 MINUTES AT 9 PSF		NO LEAKAGE, 15 MINUTES AT 9 PSF	
0.004 CFM PER SQ. FT.		0.004 CFM PER SQ. FT.		0.004 CFM PER SQ. FT.	
UL-90		UL-90		UL-90	



# Metal Roof Panels

1. COMPANY NAME	ULTRA SEAM		ULTRA SEAM	
2. PRODUCT NAME	US-200B		US-100SS SNAP SEAM	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		NO	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)				
STAINLESS STEEL (ga.)				
GALVALUME (ga.)				
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)				
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	150		50	
D. PANEL WIDTHS (in.)	8, 12, 16, 20, 24		12, 16	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	1/4:12		4:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		REQUIRED	
C. UNDERLAYMENT (type or NA)	30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
6. PANEL PROFILE				
VERTICAL LEG			X	
TRAPEZOIDAL				
BATTEN	X			
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)	2	N		
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP			1	E
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X			
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)	1 1/2			
9. SPECIALTY APPLICATIONS				
CURVED			X	
TAPERED			X	
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1985		1986	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		YES	
D. METHOD OF DISTRIBUTION (distributors, direct)	DISTRIBUTORS		DISTRIBUTORS	
E. NUMBER OF REGIONAL SERVICE LOCATIONS	10		10	
FOR SALES INFORMATION, CONTACT: L. PRIDE			L. PRIDE	
FOR TECHNICAL INFORMATION, CONTACT: L. PRIDE			L. PRIDE	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)	NO LEAKAGE, 15 MINUTES AT 9 PSF			
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)	0.004 CFM PER SQ. FT.			
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	UL-90			
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

ULTRA SEAM		ULTRA SEAM		ULTRA SEAM	
US-200SS SNAP SEAM		US-150SL LOCK SEAM		US-175SL LOCK SEAM	
YES		YES		YES	
NO		NO		YES	
SNAP ON CAP STANDING SEAM		SNAP LOCK STANDING SEAM		SNAP LOCK STANDING SEAM	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY	22, 24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY	22, 24, 26, 28, 29	KYNAR 500, POLYESTER, SPECIALTY
26, 28	UNFINISHED	26, 28	UNFINISHED	26, 28	UNFINISHED
22, 24, 26, 28, 29	KYNAR 500, UNFINISHED	22, 24, 26, 28, 29	KYNAR 500, UNFINISHED	22, 24, 26, 28, 29	KYNAR 500, UNFINISHED
24, 26, 28	KYNAR 500, UNFINISHED	24, 26, 28	KYNAR 500, UNFINISHED	24, 26, 28	KYNAR 500, UNFINISHED
0.027, 0.032	KYNAR 500, UNFINISHED	0.027, 0.032	KYNAR 500, UNFINISHED	0.027, 0.032	KYNAR 500, UNFINISHED
12, 16, 20	UNFINISHED	12, 16, 20	UNFINISHED	12, 16, 20	UNFINISHED
26, 28, 30	UNFINISHED	26, 28, 30	UNFINISHED	26, 28, 30	UNFINISHED
0.020, 0.027	UNFINISHED	0.020, 0.027	UNFINISHED	0.020, 0.027	UNFINISHED
50		150		150	
12, 16		12.75, 14.75, 18.75		12.75, 14.75, 18.75	
4:12 REQUIRED		3:12 OPTIONAL		3:12 OPTIONAL	
30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
2	E	1 1/2	E	1 3/4	E
X		X		X	
X					
1991		1991		1991	
YES		YES		YES	
DISTRIBUTORS		DISTRIBUTORS		DISTRIBUTORS	
10		10		10	
L. PRIDE		L. PRIDE		L. PRIDE	
L. PRIDE		L. PRIDE		L. PRIDE	
				UL-90	

# Metal Roof Panels

1. COMPANY NAME	ULTRA SEAM		UNITED STEEL DECK, INC.	
2. PRODUCT NAME	US-150WB CLASSIC BATTEN		UNI-LOK	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	NO		YES	
4. PANEL CONFIGURATION	BATTEN SEAM W/ WOOD BATTENS		SNAP-TOGETHER STANDING SEAM	
A. PANEL DESCRIPTION	THICKNESSES	FINISHES	THICKNESSES	FINISHES
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
GALVANIZED STEEL (ga.)	24, 26, 28	KYNAR 500, POLYESTER, SPECIALTY	22, 24, 26	SILICONIZED POLYESTER, FLUOROCARBON, PLASTISOL
STAINLESS STEEL (ga.)	26, 28	UNFINISHED		
GALVALUME (ga.)	24, 26	KYNAR 500	22, 24, 26	UNFINISHED
ALUMINIZED STEEL (ga.)	24, 26	KYNAR 500	22, 24, 26	UNFINISHED
ALUMINUM (in.)	0.027, 0.032	KYNAR 500, UNFINISHED		
COPPER (oz.)	12, 16, 20	UNFINISHED		
TERNE METAL (ga.)	26, 28, 30	UNFINISHED		
ZINC (ga.)	0.020, 0.027	UNFINISHED		
C. MAXIMUM LENGTH (lf.)			60	
D. PANEL WIDTHS (in.)			24	
5. SYSTEMS REQUIREMENTS	1:12 OPTIONAL 30-LB. FELT OR EQUIVALENT		1/4:12 OPTIONAL 30-LB. FELT OR EQUIVALENT	
A. MINIMUM SLOPE (in. per ft.)				
B. SOLID DECKING (required, optional, or not used)				
C. UNDERLAYMENT (type or NA)				
6. PANEL PROFILE	X		X	
VERTICAL LEG				
TRAPEZOIDAL				
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)	1 1/2	E		
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER			3	F
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED				
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP	X		X	
SLIP CLIP			X	
MOVEABLE CLIP (designed allowable movement, inches)	1 1/2		2	
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1982		1984	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	YES		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)	DISTRIBUTORS			
E. NUMBER OF REGIONAL SERVICE LOCATIONS	10			
FOR SALES INFORMATION, CONTACT:	R. STEYER		908/277-1617	
FOR TECHNICAL INFORMATION, CONTACT:	R. STEYER		J. MATTINGLY	
11. ASTM E331 WATER INFILTRATION TEST RESULTS (results or none)			NONE	
12. ASTM E283 AIR INFILTRATION TEST RESULTS (results or none)			NONE	
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION			UL-90	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

Metal Roof Panels
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UNITED STEEL DECK, INC.		UNITED STEEL DECK, INC.		UNITED STEEL DECK, INC.	
UNILINE RP		UNIRIB C36		SS18 STANDING SEAM	
YES		YES		YES	
YES		YES		YES	
EXTERIOR EXPOSED FASTENER		EXTERIOR EXPOSED FASTENER		EXTERIOR EXPOSED FASTENER	
THICKNESSES	FINISHES	THICKNESSES	FINISHES	THICKNESSES	FINISHES
22, 24, 26	SILICONIZED POLYESTER, FLUOROCARBON, PLASTISOL	18, 20, 22, 24	SILICONIZED POLYESTER, FLUOROCARBON, PLASTISOL	18, 20, 22, 24	SILICONIZED POLYESTER, FLUOROCARBON, PLASTISOL
22, 24, 26	UNFINISHED	22, 24	UNFINISHED	22, 24	UNFINISHED
22, 24, 26	UNFINISHED				
0.032, 0.04, 0.05	UNFINISHED	0.032, 0.04, 0.05	UNFINISHED	0.032, 0.04, 0.05	UNFINISHED
40		40		40	
36		36		18	
1:12 OPTIONAL 30-LB. FELT OR EQUIVALENT		1:12 OPTIONAL 30-LB. FELT OR EQUIVALENT		1/2:12 OPTIONAL 30-LB. FELT OR EQUIVALENT	
X		X		X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1 1/4	E	1 1/2	E	2 5/16	E
X		X		X	
1978		1978		1987	
NO		NO		NO	
908/277-1617 J. MATTINGLY		908/277-1617 J. MATTINGLY		908/277-1617 J. MATTINGLY	
NONE		NO LEAKAGE AT 6.24 PSF		NONE	
NONE		0.012 CFM PER SQ. FT. AT 1.57 PSF		NONE	
UL-90		NONE		NONE	

# Metal Roof Panels

1. COMPANY NAME	UNITED STEEL DECK, INC.		UNITED STEEL DECK, INC.	
2. PRODUCT NAME	UTILITY RIB		U230	
3. ARCHITECTURAL APPLICATIONS (yes/no)	YES		YES	
STRUCTURAL APPLICATIONS (yes/no)	YES		YES	
4. PANEL CONFIGURATION				
A. PANEL DESCRIPTION				
B. PANEL MATERIALS, THICKNESSES, AND FINISHES				
	THICKNESSES	FINISHES	THICKNESSES	FINISHES
GALVANIZED STEEL (ga.)	24, 26	SILICONIZED POLYESTER, FLUOROCARBON, PLASTISOL	18, 20, 22, 24	SILICONIZED POLYESTER, FLUOROCARBON, PLASTISOL
STAINLESS STEEL (ga.)				
GALVALUME (ga.)			22, 24	UNFINISHED
ALUMINIZED STEEL (ga.)				
ALUMINUM (in.)			0.032, 0.04, 0.05	UNFINISHED
COPPER (oz.)				
TERNE METAL (ga.)				
ZINC (ga.)				
C. MAXIMUM LENGTH (lf.)	40		40	
D. PANEL WIDTHS (in.)	30		30	
5. SYSTEMS REQUIREMENTS				
A. MINIMUM SLOPE (in. per ft.)	3:12		1:12	
B. SOLID DECKING (required, optional, or not used)	OPTIONAL		OPTIONAL	
C. UNDERLAYMENT (type or NA)	30-LB. FELT OR EQUIVALENT		30-LB. FELT OR EQUIVALENT	
6. PANEL PROFILE				
VERTICAL LEG				
TRAPEZOIDAL	X		X	
BATTEN				
OTHER (specify)				
7. SEAM PROCESSING, HEIGHT, AND SEALANT	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE	HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
SEAM PROCESSING				
OVERLAPPED				
CRIMPED (45 degrees)				
ROLL FORMED (180 degrees)				
DOUBLE ROLL FORMED (two 180 degrees)				
ROLL AND LOCK				
SNAP-ON CAP				
SNAP TOGETHER				
8. FASTENING METHOD				
A. THROUGH-FASTENED, EXPOSED	X		X	
B. THROUGH-FASTENED, CONCEALED				
C. CLIP, CONCEALED				
FIXED CLIP				
SLIP CLIP				
MOVEABLE CLIP (designed allowable movement, inches)				
9. SPECIALTY APPLICATIONS				
CURVED				
TAPERED				
OTHER				
10. MANUFACTURER/PRODUCT DATA				
A. YEAR OF FIRST COMMERCIAL USE	1978		1989	
B. NUMBER OF SQUARES INSTALLED				
C. LICENSED APPLICATOR AGREEMENT (yes/no)	NO		NO	
D. METHOD OF DISTRIBUTION (distributors, direct)				
E. NUMBER OF REGIONAL SERVICE LOCATIONS				
FOR SALES INFORMATION, CONTACT:	908/277-1617		908/277-1617	
FOR TECHNICAL INFORMATION, CONTACT:	J. MATTINGLY		J. MATTINGLY	
11. ASTM E331 WATER INFILTRATION	NONE		NONE	
TEST RESULTS (results or none)				
12. ASTM E283 AIR INFILTRATION TEST RESULTS	NONE		NONE	
(results or none)				
13. FM/UL WIND UPLIFT RATINGS FOR ANY SPECIFICATION	NONE		NONE	
14. SEE APPENDIX IF CHECKED				

NA=not applicable

# Metal Roof Panels

VINCENT METAL GOODS	
COLORKLAD SYSTEM 1	
YES	
NO	
SNAP SEAM STANDING SEAM	
THICKNESSES	FINISHES
24	KYNAR 500, UNFINISHED
24	UNFINISHED
0.032	KYNAR 500
16	
40	
12, 16, 18, 22	
3:12	
REQUIRED	
30-LB. FELT OR EQUIVALENT	
X	
HEIGHT(S) (inches)	SEAM SEALANT F=FACTORY APPLIED; E = FIELD APPLIED; N = NONE
1, 1 1/2	E
X	
X	
1970	
NO	
R. OEHME	
R. OEHME	
NONE	
NONE	
NONE	

## Appendix, Roof Membranes

### ALLIEDSIGNAL

Selected AlliedSignal roof membrane specifications are available with a protected roof membrane assembly thermal overlay incorporating extruded polystyrene insulation board with aggregate surfacing.

### AMERICAN BUILDINGS ROOFING AND ARCHITECTURAL PRODUCTS

All American Buildings Company's roof systems are available in a proprietary Premium 70 Plus paint finish, which has a Kynar 500 resin. It has a proprietary high-build primer and special long-life ceramic pigments. It has a chalk rating no lower than 9 and a fade no higher than 4 NBS over 20 years. It is warranted for 25 years based on actual field testing. It is maintenance-free and graffiti-proof.

### ATAS INTERNATIONAL, INC.

Atas International, Inc. offers metal roofing systems in a wide variety of panel profiles, from standing seam and batten seam to tile configuration. Presently it has over twenty standard colors available in a fluoropolymer Kynar 500 coating, in 24-gauge galvanized steel, and 0.032, 0.040, and 0.050 aluminum. Contact Atas International, Inc. at 610-395-8445 for further information on its products and applicable warranties.

### BARRETT COMPANY

The Barrett Ram-Tough Elastomeric Built-up Roofing System uniquely combines the elastomeric properties of single-ply with the application techniques of built-up roofing. The modified asphalt bitumens are engineered from a select blend of highly refined unoxidized asphalt and Shell Kraton block copolymer rubber. Conventional asphalt bitumens and cold process mastics are available options. The "felts," or fabric reinforcement, are either polyester, fiberglass, modified bitumen, or a combination thereof depending upon specification used. Unlike other rubberized asphalts, the Ram-Tough KLB-100 and K-312 bitumens can be melted in conventional direct-fired roofing kettles without degradation, they are pumpable, and can be applied with conventional hot dispensers and mops. Flashing details are standard built-up roofing details generally in conformance with NRCA standard detail specification plates. A base sheet is required on uninsulated nailable decks.

Utilizing the Ram-Tough Elastomeric Built-up Roofing Systems, the approved roofing contractor, in effect, "manufacturers" in the field his own monolithic, modified-bitumen sheet without the laps and seams traditionally associated with preformed modified bitumen sheets. The completed polyester-reinforced systems afford high elongation, exceptional usable stress/strain properties, high puncture resistance, "self-curing" cold flow, crack bridging capabilities, exceptional low-temperature flexibility, and other performance features normally associated with elastoplastic single plies.

Because of the uniqueness of each individual reroofing project, Barrett should be consulted before writing specifications for actual use in a reroofing application. Unusual roof situations are also encountered from time to time and design and specification assistance is available to the contractor, architect, engineer, or owner upon request for freezer and cold-storage warehouses, high interior humidity conditions, temporary roofing, and most other unusual roofing problems.

Barrett does not endorse BSS #55 and encourages adoption of "strain energy" load-elongation test criteria (in conformance with NBS-IR 86-3418, Rossiter & Bentz; NBS-IR 86-3347, Busching, Rossiter & Mathey) as being more relevant to actual in-situ field conditions.

Elastomeric interply adhesive meets ASTM 6152-97.

### BERRIDGE MANUFACTURING CO.

Berridge Tee-Panel, High Seam Tee-Lock, Batten Seam, Zee-Lock, Double-Lock, Cee-Lock, and Bermuda Roof may be roll-formed on site in continuous lengths with a Berridge portable roll former.

### BITEC, INC.

BITEC Mineral Design MDA and MDS are APP and SBS pattern design products available in eight different designs with a variety of color combinations. MDA, an APP product, can be used when APM-4T is used for torch application. MDS, an SBS product, can be used when SPM-4H is used and may be applied with hot asphalt or SBS modified cold adhesive.

### BONDCOTE ROOFING SYSTEMS

The newest additions to BondCote's product line are the 500, 600, and 800 Series membranes, which combine the time-proven thermoplastic NBP formulation with the same weft-inserted high-tenacity polyester base fabric. They are designed for the most demanding roofing environment.

BondCote FleeceBond 1000 membrane combines the proven 350 Series membrane with a high-strength polyester fleece fabric in the factory. FleeceBond 1000 is designed to be installed directly over roof insulation or smooth rigid substrates, such as BUR or plywood when mechanically fastened. FleeceBond may also be fully adhered with contact adhesive or hot asphalt to a variety of BondCote-approved substrates.

All BondCote membranes are available in a variety of custom colors under the BondCote Spectrum product category. Underwriters Laboratories Class A and B fire ratings are available with a number of standard colors.

### BUTLER MANUFACTURING COMPANY

MR-24 is factory prepunched and is applied only to prepunched- or field-drilled structurals. A layer of faced blanket insulation is placed between the purlins and MR-24 for energy conservation and to eliminate condensation.

CMR-24 utilizes a continuous corrugated metal liner panel (decking) with rigid insulation board and the double lock standing seam roof system (MR-24). CMR-24 is factory prepunched and is applied only to prepunched or field-drilled structures. A vapor retarder is placed between the corrugated liner and the rigid board insulation.

VSR can be used structurally (over bar joists or purlins 5 feet on center) or directly over decking (steel or wood) with clip spacing at 30 inches on center. Blanket insulation should be used when VSR is used without decking over structural members. Rigid board insulation (Thermax by Celotex) is preferred over decking.

Genesis 360 is an architectural panel to be used primarily over wood or metal deck. It is a weathertight standing seam panel system utilizing a "Pittsburgh" double-lock seam. Genesis 360 can be installed on slopes as low as 1/2:12" with a weathertightness warranty offered. Clip spacing to 32". SMACNA details available.

### **THE CELOTEX CORP.**

Built-up roofing specs: All Celotex built-up roofing specs are published with prefix letters AGS (e.g., AGS-4-C-G) indicating use of Celo-Glass AGS Ply Sheet, a premium glass ply sheet with properties exceeding ASTM D-2178 Type VI and NBS-BSS #55 recommendations. Use of Celotex Celo-Glass AGS Ply Sheet is required to qualify for Celotex "Specification" Warranty. Celotex APP and Celotex SBS modified bitumen products exceed the tensile strength recommendations of NBS-BSS #55. Other built-up roofing specs are prefixed with the letters G/A and qualify for warranties other than the specification warranty.

Celotex base sheets are interchangeable when used in modified bitumen mopped systems, depending upon the substrate.

Celotex also has available cold process modified bitumen systems using Celotex SBS mineral surface cap sheet with SBS modified bitumen adhesive.

Celotex Hydro Stop Vapor Barrier/Venting Base Sheet is designed for use over lightweight insulating concrete decks (see specs indicated by "H+..."). Refer to Celotex literature for details.

### **CONKLIN COMPANY INC.**

Benchmark, Rapid Roof III and Polytuff II coating systems are recommended over spray foam systems. Only Benchmark is approved when applications require compliance with ICBO, Factory Mutual and Metro Dade County Florida. For specific details contact Conklin Building Products Division.

### **COOLEY ROOFING SYSTEMS, INC.**

Fiberboard may be used for certain applications. Contact CRSI for further information.

### **DERMABIT, WATERPROOFING INDUSTRIES, INC.**

Dermabit roofing and waterproofing modified bitumen membranes are manufactured using state-of-the-art

technology. Dermabit membranes consist of two plies of APP or SBS modified asphalt reinforced with a one-ply polyester mat. All APP products are sold under the Dermabit name. SBS products are sold under the Elaspalt name. The product number designates the thickness of the membrane and weight of the reinforcing mat. Thus 4170 indicates a 4mm membrane with a 170 gram polyester mat.

Dermabit also manufactures and sells on a special-order basis self-adhering modified bitumen peel and stick as well as membranes with different thicknesses, ranging from 1mm to 5mm, different types of reinforcements, such as fiberglass, fleece, or polyester film or any combination of the above, depending upon the application requirement.

Dermabit membranes can be torched, hot mopped, cold applied, or self-adhered to all roof decks, including metal, wood, or concrete. All Dermabit membranes need to be applied over an asphalt-saturated base sheet or asphalt base primer. Specification manuals can be ordered free of charge by calling George Jermstad at 703/739-2801, FAX 703/739-2802.

All Dermabit and Elaspalt 4170 series modified bitumen membranes have successfully passed material tests conducted by Underwriters Laboratories (UL) and Factory Mutual (FM). Please refer to the appropriate UL and FM guide manuals for specific designs and ratings.

### **DIBITEN**

Dibiten modified bitumen roofing membranes are APP modified bitumen bonded to a tough, resilient nonwoven polyester core material. They are available in both smooth-surfaced (Dibiten Poly/4 and Dibiten Poly/5) and slate flake-finished (Dibiten Poly/4.5 Granular) varieties. Surface color for Dibiten Poly/4 and Dibiten Poly/5 is black; Dibiten Poly/4.5 Granular is available in a wide range of colors. Also available is Dibiten Black Granite, surfaced with fine black slag particles, and Dibiten Mineral, just like Poly/4.5 Granular except surfaced with mineral granules instead of slate flakes. All the Dibiten APP products are torch applied. Dibiten modified bitumen membranes are well suited for most types of roofing applications, and the smooth surfaced membrane is used in a variety of waterproofing applications as well. Dibiten recommends their specifications manual be consulted for application requirements and details prior to application of product. Specifications are available for single- or double-layer applications. Some specifications require application of roof coatings. UL-listed specifications may be obtained by consulting the most current edition of the Dibiten specifications manual, and, because these specifications are subject to continuous change, the technical department should be consulted for verification of current status. Dibiten membranes have been used successfully in Europe since the late '60s, and in the U.S. since 1978. Dibiten encourages technical inquiries at their toll free number 800/DIBITEN or by calling 303-978-2867 from outside these areas.

### **ERSYSTEMS**

ERSystems manufactures and distributes a complete line of



elastomeric roof systems.

**Single Ply:** The single-ply systems include Permaweld CPA heat-welded and EPDM membrane roof systems, accessories, and sealants. PolyBond EPDM and Permaweld CPA Fleece Back Membranes have a non-woven polyester fleece backing making each ideal for cushioning irregular surfaces. PermaVac EPDM and CPA are vacuum adhesion methods of fastening single-ply membranes to an airtight substrate utilizing vacuum air vents and air distribution strips.

**Coatings:** The elastomeric coatings include acrylic, urethane, silicone and Hypalon® coatings for metal, concrete and foam roof and metal and concrete wall systems.

The Metal Roof Restoration System is designed to renew a metal roof - protect it from rusting, waterproof all seams, fasteners and roof penetrations without fabric or tapes, and restore the metallic finish for long term preservation. Available as a water-based acrylic system or polyurethane system.

The Single Ply Restoration System addresses the limitations of the original single-ply system (i.e., weak EPDM seams and flashings) and then provides for coating the membrane to reduce the temperature of the roof and deterioration against the elements.

**Spray-Applied Polyurethane Foam:** The ER Foam System consists of sprayed -in-place polyurethane foam used in conjunction with ERSystems elastomeric coatings. 2.7# and 3.0# roofing foam and 2.0# residential foam is available. ER Foam is typified with high density high compressive foam with good yield and smooth texture. Foam is protected for the UV and weather with acrylic elastomers (Eraguard 1000), polyurethane elastomers (Erathane 300), or silicone elastomers (Eraguard 4000).

**Slo-Low Rise Adhesive:** Used for rapid means of fully adhering the board stock to the deck and can be easily applied with the ERSprayer. Perfect for adhering insulation board to the hard-to-fasten to decks.

## **FABRAL**

FABRAL's metal roofing panels are offered in a wide array of standard Kynar 500 colors, siliconized polyester, and vinyl plastisol. A limited 20-year nonprorated finish warranty is available, covering material and labor on replacement. Contact FABRAL at Lancaster, Pa. (717) 397-2741, Jackson, Ga. (770) 775-4484, Gridley, Ill. (309) 747-2937, Idabel, Okla. (405) 286-7521, or Cedar City, Utah (801) 586-1215.

## **FIRESTONE BUILDING PRODUCTS CO.**

For information concerning acceptable substrates for Rubbergard .090 EPDM, contact Firestone for specifications.

## **FOAM ENTERPRISES, INC.**

FE 303-2.5, 2.7, 3.0; FE 302-2.5, 2.7, 3.0; and FE 304-3.0. Spray application techniques and conditions can reflect upon the physical properties of sprayed-in-place foams. These listings show ranges that are obtained from spraying the compounds per our application instructions. Please consult

our instructions for further application details.

FE 314.3.0 This system uses new "blowing agents" and long-term insulation figures are not available at this time. Initial R-values show 6.25.

## **GACO WESTERN, INC.**

For products A-5511, Urecap, Ureshield, UB-64, U-66, UA-6500, and UB-7050, the number of coating applications, along with required dry film thickness, can be increased or decreased to achieve desired mil thickness and guarantee requirements.

Products UB-64, U-66, UA-6500, and UB-7050 can be applied by single (batch mix) or multiple-component airless spray; water absorption per ASTM D-471 24 hours R.T.

## **G. E. SILICONES division of GENERAL ELECTRIC**

Answers to questions 9 and 10 are not applicable to the coating requirement because our coating is applied to the urethane foam. Our specifications do require that concrete and plywood be primed prior to the application of the urethane foam. Thermal barriers are required to satisfy UL and FM ratings. Priming is optional when spraying urethane to metal or to an existing BUR. The base coat and top coat are identical except for color, and they may be used in reverse if a darker top coat is requested.

## **GS ROOFING PRODUCTS COMPANY, INC.**

Privately owned by its management, GS Roofing is a full-line roofing manufacturer. It has nine roofing plants, four granule plants, and its own state-of-the-art fiberglass mat plant. For additional information contact GS at: Western Region 925/606-7434; Eastern Region 972/580-5604; Corporate HQ 972/580-5660; website: [www.gsroof.com](http://www.gsroof.com).

## **HENRY COMPANY**

Henry Company has been a manufacturer of roofing products for the western states since 1933 specializing in cold-applied and smooth-surface BUR.

The three-ply membrane, with cold-applied cement or hot asphalt, under Type G2 fiberglass sheets or asphalt emulsions under polyester ply sheets, is generally surfaced with nine gallons of emulsion and three pounds of chopped glass fiber per square, and reflective coating. Called the Henry Monolithic System, this basic membrane concept has been time-tested for over 30 years in the U.V.-intense western states. It is a UL Class A system. Customized specifications are available; call Jim Hay or Ken Jacobs at (213) 583-5000 ext 263 for further information.

## **ICA, INC.**

ICA, Inc. provides roofing materials and systems to roofing contractors who have met specified criteria for financial and professional stability and integrity, and therefore, qualify to participate in ICA's building owner referral program. ICA roofing materials are manufactured to ICA's stringent quality specifications and are available exclusively to ICA approved

contractors. It is the goal of ICA to control both the level of material quality and installation workmanship in order to offer the highest possible quality roofing system to the building owner community.

## **IMPER ITALIA S.P.A.**

New roofing and reroofing: Imper Italia membranes are well suited to all new roofing and most reroofing applications. In every circumstance the specifier or the roofing contractor must take into consideration the following requirements: type and condition of the surfacing, insulation and, most important, ensuring proper drainage. To ensure a good bonding, use a proper primer, such as Impertene Primer or one approved by Imper Italia S.P.A.

Protection: When the black membranes Paralon NT4 or Triplene are applied over an insulation, a lightweight protection with Elastomul G or Parwenol 4822 Alluminio is recommended. Elastomul G is an acrylic modified paint with a water base available in different colors, white Parwenol 4822 Alluminio is a solvent-based aluminum paint. Other membranes are already self-protected.

Special instructions: The rolls should be stored in covered warehouses and in a vertical position, and, if possible, not stacked. It is recommended that they be stored at a temperature of not less than 41 F. They should be unloaded at the worksite or in the warehouse with care.

Note: All membranes are treated with Termotene. Termotene is a patented treatment in which a thin film of thermoplastic resins is applied to the undersurface during the manufacturing process. Under normal circumstances, the Termotene treatment performs as a separating layer between the different turns of the roll, but when heated by flame, it becomes a high-power adhesive. The advantages one obtains with Termotene include a reduced gas consumption and a greater speed of application. It is preferable that the flame of the torch be directed to the substrate as well as to the membrane being applied.

## **KOPPERS**

BUR: Other: Felts for Spec #410 and #420 incorporate coal-tar-impregnated glass fiber felts (Tar-Glas), ASTM D4490, which is similar to ASTM D2178 Type IV, except that the felts are coal-tar impregnated. Felts for spec #490 and #495 incorporate coal-tar-impregnated glass fiber felts (Premium Tar-Glas), ASTM D4490, which is similar to ASTM D2178 Type VI, except that the felts are coal-tar-impregnated.

Koppers IR Series represents a joint agreement between and Dow Chemical Co. for an insulated roof membrane assembly incorporating Koppers coal-tar built-up roofing membrane and Dow Chemical Co. Styrofoam.

Modified Bitumen: Koppers modified bitumen  
Contact Walt Mullen at 610/933-8888 or 800/523-0268, or Don Taylor at 905/890-4800, Fax 905/890-4866 or 800/387-9598. Distribution/rep network in most states.

## **NORTH CAROLINA FOAM INDUSTRIES**

Figures for nominal density per ASTM D 1622 are in-place values; core values are: System 591-2.5, 2.5; System 591-

specifications require a base ply. Multiple plies of Type IV or Type VI asphalt glass reinforced in asphalt is also acceptable under SBS membranes in lieu of a base sheet.

Contact Koppers Sales and Service Center at 1-800-558-2706 for additional information.

## **MERCHANT & EVANS INC.**

Zip Rib structural standing seam roofing has been in use for over 30 years, with installations from Adak, Alaska to the coast of the Caribbean. It is available in steel and aluminum in both 12-and 16-inch widths. The system utilizes allowable load spans in accordance with ASTM E-1592 test procedures, which conservatively depict field service capabilities, not calculated values that may yield nonconservative allowable load ranges. We offer design and engineering assistance for all of our products. In addition to our standard offerings listed, we can offer custom profiles and custom cornices to meet specific aesthetic requirements. All of our products are offered in multiple gauges and in various materials, including aluminum, copper, stainless steel, and zinc, as well as steel. For further information, call 1-800-257-6215.

## **MODBIT CORPORATION**

Complete information on the Modbit Corp. Line of Bitutak MB and Bitutak MB Mineral APP polymer modified bitumen roofing products and their application is provided in the Bitutak MB APP bitumen membranes product and application brochure. For additional information contact MODBIT Corp. business development manager at 888/MOD-BITT (663-2488).

## **MONSEY BAKOR**

Application: Modified Plus modified bitumen systems consist of two plies of SBS modified bitumen or one ply of coated base sheet and one ply of modified bitumen. Modified Plus is flexible at temperatures of -30F and lower. Membranes may be applied on any slope from diad level to vertical. Good roofing practice calls for a minimum of 1/4 inch in slope. The substrate includes most common decks, concrete, steel and wood as well as all commercial insulation. Assemblies include both conventional and protected membrane applications. Modified Plus systems offer many choices in method of application including hot-roofing asphalt, torch-welding, cold adhesives and self-adhesion. Membranes are lapped 3 inches on the side and 6 inches on the end. The cap sheet is surfaced with granules to provide a finished surface on application.

2.8, 2.8; and System 692-2.5, 2.5. Systems 591 and 692 are formulated with HCFC 141B as the blowing agent.

North Carolina Foam Industries offers ten-year warranties for the NCFI Graveledfoam Roofing System (aggregate-covered polyurethane foam) when installed according to specifications by NCFI qualified applicators. The maximum ambient relative humidity varies with the ambient temperature. NCFI offers a chart indicating maximum wet bulb

temperatures and maximum relative humidity for ambient temperatures between 50 and 100 F. The maximum allowable wind velocity with screen depends on the type of wind screen and degree of enclosure. Thermal resistance (R) value varies with the age and condition of all insulating materials.

#### **PERFORMANCE ROOF SYSTEMS, INC.**

Complete information on the Performance Roof Systems line of Derbigum APP and Permax SBS polymer modified bitumen roofing products and their application is provided in the Derbigum specifications and detail book. A video is available to roofing professionals describing the application of Derbigum and Permax membranes with Permastic cold adhesive, a system with a 20-year track record.

#### **PLASTIC COATINGS CORPORATION**

Jaxsan products include Jaxsan 600, an acrylic elastomer fibered for extra toughness and to enhance film build potential without mudcracking. Jaxsan 607 is not fibered and may be applied by smaller spray pumps. Jaxsan 607 may also be applied by roller and the Jaxsan 600 is not recommended for that application technique.

#### **SARNAFIL INC.**

G 410: Only Sarnafil G 410 membrane should be used in fully adhered applications. Reinforced with nonwoven fiberglass mat, the 410 membrane has excellent dimensional stability, and a very low coefficient of thermal expansion, making total adhesion possible without shear stresses causing loss of adhesion. The 410 membrane is available in a variety of stable colors in addition to the standard white and gray. Adhesives are: Sarnacol 2170, a solvent-based adhesive and Sarnacol 2121, a water-based adhesive that is restricted for use during temperatures above 40 F and over horizontal water-absorbent substrate only. Compatibility of the membrane with the substrate must be assured; only approved insulations and substrates provide the code approvals required. All seams shall be hot-air welded. Sarnafil membranes require no fire coatings.

G 476: Sarnafil G 476 membrane should be used in inverted roof membrane assemblies and plaza deck waterproofing applications. It is reinforced with a nonwoven fiberglass mat that provides excellent dimensional stability. The membrane is formulated with excellent alkaline resistance. Its integral reinforcement and hot-air-welded seam provide the protection against wicking and seam degradation needed in inverted applications, where moisture is constantly present on the membrane surface.

S 327: Sarnafil S 327 membranes should be used for mechanically fastened applications. Reinforced with polyester fabric, the S 327 membrane is specifically designed to provide the necessary characteristics of elongation and tensile strength to control the stressing of the membrane that occurs as a result of dynamic wind loading. The fastening technique is determined for each individual job, and is calculated based on building height, ground roughness, and wind zone. The fastening method is special

20-gauge corrosive-resistant plates or 14-gauge perforated U-shaped galvanized steel bar secured to deck with corrosion-resistant screws or concrete anchors. Depending on wind uplift conditions, plates are installed in membrane overlaps and overlaps are hot-air welded, or the U-shaped bar is placed on top of membrane at calculated spacings and sealed with membrane cover strip hot-air welded. Sarnafil membranes require no fire coating.

#### **SEAMAN CORPORATION**

FiberTite roofing systems are made with a proprietary formulation based on DuPont Elvaloy KEE chemically bonded to a dense weft inserted fabric, made of DuPont Dacron polyester fibers. The membrane is manufactured in standard 28-in. and 56-in. conventional rolls, along with a variety of prefabricated, standard, and custom rolls up to 20-ft. X 102-ft. (2,040 square feet). FiberTite roofing systems are installed by authorized applicators, either mechanically fastening the membrane through an unexposed tab in the prefabricated system, attaching the membrane in a conventional roll goods type application or by fully adhering to approved substrates, or by applying ballast. All membrane seams are hot-air welded.

The FiberTite technical customer service department provides specification and design assistance to contractors, architects, consultants, and owners. Training, project start-ups, and inspections are provided free of charge to authorized applicators by regional technical service representatives. For additional information, contact Seaman Corporation at 800/927-8578.

#### **SIPLAST**

For over thirty years, Siplast has developed and manufactured advanced roofing and waterproofing materials and has pioneered major developments in modified asphalt and foil-faced roofing systems through a continuing research and development program. Siplast developed SBS (Styrene-Butadiene-Styrene) modified bitumens in 1968, which has exceptional elongation/recovery properties over a wide range of temperatures. Many Siplast roofs applied in the early years of the SBS blend are still in service today.

Siplast is part of the Icopal Group, a multi-national industrial corporation. The Siplast product line includes systems developed specifically for the varied design and field requirements of modern construction. These systems have been applied over all types of deck constructions in the widely varying climates of over forty countries, from Canada to Saudi Arabia. Domestically, all Siplast roofing products are manufactured at its plant in Arkadelphia, Arkansas and are stocked at nine warehouse locations across the country.

Siplast assists owners, architects, and engineers in the selection and proper use of Siplast materials, which are applied by qualified, approved roofing contractors. Siplast's field staff monitors the projects.

#### **TAMKO ROOFING PRODUCTS INC.**

Awaplan Premium was the first SBS modified asphalt polyester base roll roofing produced in America. Since 1977

Awaplan Premium has been applied on different types of roofs all over the country. Awaplan Premium is manufactured in Joplin, MO using the latest in statistical quality-control methods to insure the roofing contractor a consistent product. Introduced in June of 1986, Awaplan 170 is a variation of Awaplan Premium produced on a 180 gram-per-square-meter polyester mat. And now introducing Awaplan VersaFlex, Awaflex, and AwaFlex FR. These products are Tamko's newest addition to the Awaplan family. Tamko produces a complete specification manual and technical literature for your use. If you need further details, contact the Technical Services Division in Joplin, MO at (417) 624-6644.

## **TRI-PLY**

TP-4, Karifalt 308, 307, 306: Coal-tar pitch roofs: When reroofing over an existing coal-tar pitch roof, the old roof must be isolated from the new roof. This can be accomplished by mechanically fastening an approved base sheet over a minimum 1-in. rigid insulation board. Be sure to install one-way moisture vents. Cold weather application: Modified bitumen may be installed in practically any temperature, although there are several precautions that should be observed. Tri-Ply's recommendations for cold weather applications are as follows: (1) Rolls may be installed without any precautions to approximately 40 degrees F; (2) Below 40 degrees F; (a) rolls should be kept in heated area; (b) rolls should be lifted onto the roof and installed quickly without allowing them to become brittle from freezing temperatures; (c) rolls should never be handled when frozen—always thaw membrane before handling; (3) If cracking does occur: (a) stop installing the membrane immediately (please notify manufacturer); (b) the rolls should continue to be heated and installed again when warmer weather permits. Cold weather precautions notice: The following guidelines and precautions should be taken for installing an APP modified bitumen membrane in cold weather: Rolls must be stored in an enclosed warehouse. Warm rolls should be lifted onto the roof and installed quickly without allowing membrane to freeze and become brittle. Rolls should never be handled when frozen, or allowed to be dropped. Always thaw membrane before handling. Cold weather application may lead to surface cracking if not installed and/or prepared properly. If this cracking occurs, stop installation immediately.

Tri-Ply membrane protection: Note: Prior to applying any type of surfacing to the Tri-Ply membrane, the membrane must weather a minimum of 30 days. After a minimum of 30 days, apply roof surfacing when weather permits, as per manufacturer's recommendations.

## *Section 2*

# *Roofing Cements and Coatings*

# Information on Roofing Cements and Coatings

## General Information

This section provides a comprehensive listing of cements and coatings used in low-slope commercial roofing. At the same time, it provides information on cold-applied roof systems that employ coatings or cements as the primary waterproofing medium, and, in many instances, that have stabilizing components as well. Some of the systems components will be listed elsewhere in the *Guide*, for example in the Built-up Roofing or Modified Bitumen sections. Coating and/or cements used primarily for polyurethane foam roof systems are not included; these may be found in Part 1 Protective Coatings of the Spray-applied Polyurethane Foam Roof Systems section.

All listed cements and coatings are categorized, as follows: (1) asphalt primer, (2) asphalt/coal tar coating, (3) asphalt/coal tar cement, (4) asphalt emulsion, (5) modified bitumen coating or cement, or (6) elastomeric coating or cement, with type specified. No other categories were permitted, and duplication of categories was also not allowed. In some instances, manufacturers were not satisfied that these categories were sufficiently comprehensive to encompass their particular cements or coatings. Their observations will be taken into account for the next issue of the *Guide*.

Many cements and coatings are made in both asbestos-containing and asbestos-free forms. Data concerning asbestos was not specifically requested in Part 1 of the section; where it is not evident from the product name, the information can generally be ascertained in Part 2 by noting the nature of the ASTM standard with which the cement or coating complies.

## Notes on the Roofing Cements and Coatings Section

### Part 1: General Information

**Item 3.1 Product Description, General Category** Item 3.1 is where the general category of the product is indicated. Only one category is permitted for a product. Where manufacturers selected more than one category (e.g., asphalt emulsion and asphalt coating), the category that appeared more informative was used. For item 3.1G, an X can be placed in the space provided or additional information, such as *urethane* or *acrylic*.

**Item 3.2 Product Description, General Features** Item 3.2A provides information concerning whether the product is fibrated or unfibrated. Item 3.2B requests the specific colors in which the product is available. Items

3.2C and D provide for information concerning the solid content of the coating or cement and also its weight per gallon. In 3.2E should be indicated the drying time in hours, or fractions thereof, at 70 F and 50 percent relative humidity. Item 3.2F provides data concerning coverage normally obtained per square from a gallon of the product.

**Item 4 Uses** This part provides information concerning the intended uses that a product has in the roofing operation and the kind of systems that it is generally used with. Only X's may be placed next to the selections.

**Item 6 Roof System Description** Item 6 provides information concerning the roof system or systems offered by a manufacturer in which a particular coating or cement is used and, if appropriate, what the components of the system are. After 6A and 6B is space for the manufacturer to indicate whether the system or any of its components are listed in the *Guide* in either the Built-up Roofing or Modified Bitumen sections. Item 6C is for indicating the components of systems that are exclusively liquid applied—that is, where no reinforcement is employed, such as polyester felts.

### Part 2: Technical Data

**Item 4 Complies with:** In this portion of Part 2 are listed the ASTM standards that are applicable to cement and coating products. The full name of each of the standards follows, as well as the complete description of each type, class, or grade referenced in the standard.

- A. ASTM D 41-94 *Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing*
- B. ASTM D 43-94 *Standard Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing*
- C. ASTM D 1227-95 *Standard Specification for Emulsified Asphalt Used as a Protective Coating For Roofing*
  - Type I Emulsified Asphalt Prepared with Mineral Colloid Emulsifying Agents and Containing Asbestos Fibers
  - Type II Emulsified Asphalt Prepared with Chemical Emulsifying Agents and Containing Mineral Fillers
  - Type III Emulsified Asphalt Prepared with Mineral Colloid Emulsifying Agents, Without Fibrous Reinforcement
  - Type IV Emulsified Asphalt Prepared with Mineral

Colloid Emulsifying Agents and Containing Fibers Other Than Asbestos

- D. *ASTM D 2823-90 Standard Specification for Asphalt Roof Coatings*  
Type I Made from Asphalts Characterized as Self-Healing, Adhesive, and Ductile, and Conforming to the Requirements of Specification D 312, Type I; Specification D 449, Types I or II; or Specification D 946  
Type II Made from Asphalts Characterized by High Softening Point and Relatively Low Ductility, and Conforming to the Requirements of Specification D 312, Type II or III; or Specification D 449, Type III
- E. *ASTM D 4479-93 Standard Specification for Asphalt Roof Coatings--Asbestos-Free*  
Type I Made from Asphalts Characterized as Self-Healing, Adhesive, and Ductile, and Conforming to the Requirements of Specification D 312, Type I; Specification D 449, Types I or II; or Specification D 946  
Type II Made from Asphalts Characterized by High Softening Points and Relatively Low Ductility, and Conforming to the Requirements of Specification D 312, Type II or III; or Specification D 449, Type III
- F. *ASTM D 2824-94 Standard Specification for Aluminum-pigmented Asphalt Roof Coatings, Non-Fibered, Asbestos Fibered, and Fibered without Asbestos*  
Type I Nonfibrated, Containing No Asbestos Fiber  
Type II Fibrated, Containing Asbestos Fiber  
Type III Fibrated, Containing No Asbestos Fiber
- G. *ASTM D 2822-91 Standard Specification for Asphalt Roof Cement*  
Type I Made from Asphalts Characterized as Self-Healing, Adhesive, and Ductile, and Conforming to the Requirements of Specification D 312, Type I; Specification D 449, Types I or II; or Specification D 946  
Class I Used for Application to Essentially Dry Surfaces  
Class II Used for Application to Damp, Wet, or Underwater Surfaces  
Type II Made from Asphalts Characterized by High Softening Points and Relatively Low Ductility, and Conforming to the Requirements of Specification D 312, Type II or III; or Specification D 449, Type III  
Class I Used for Application to Essentially Dry Surfaces  
Class II Used for Application to Damp, Wet, or Underwater Surfaces
- H. *ASTM D 4586-93 Standard Specification for Asphalt Roof Cement, Asbestos Free*  
Type I Made from Asphalts Characterized as Self-healing, Adhesive, and Ductile, and Conforming to the Requirements of Specification D 312, Type I; Specification D 449, Types I or II; or Specification D 946  
Type II Made from Asphalts Characterized by High Softening Points and Relatively Low Ductility, and Conforming to the Requirements of Specification D 312, Type II or III; or Specification D 449, Type III
- I. *ASTM D 3019-94 Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos Fibered, and Non-Asbestos Fibered*  
Type I Brushing Consistency Lap Cement Intended for Use in the Exposed-Method of Roll Roofing Application; Contains No Mineral or Other Stabilizers  
Grade 1 Made with Air-Blown Asphalt  
Grade 2 Made with a Vacuum-Reduced or Steam-Refined Asphalt  
Type II Heavy Brushing or Light Troweling Consistency Lap Cement Intended for Use in the Concealed-Nailing Method of Roll Roofing Application  
Type III Heavy Brushing or Light Troweling Consistency Lap Cement Intended for Use in the Concealed-Nailing Method of Roll Roofing Application; Contains a Quantity of Mineral or other Stabilizers, or Both, but Contains No Asbestos
- J. *ASTM D 3409-93 Standard Test Method for Adhesion of Asphalt Roof Cement to Damp, Wet, or Underwater Surfaces*
- K. *ASTM D 4022-94 Standard Specification for Coal Tar Roof Cement, Asbestos Containing*
- L. *ASTM D 3747-79 (1995) Standard Specification for Emulsified Asphalt Adhesive for Adhering Roof Insulation*  
Type I Suitable for Use at Temperatures above 40°F  
Type II Suitable for Use at Temperatures above 20°F
- M. *ASTM D 1187-95 Standard Specification for Asphalt-Base Emulsion Used as Protective Coatings for Metal*  
Type I Quick-Setting Emulsified Asphalt Suitable Continuous Exposure to Water Within a Few Days after Application and Drying  
Type II Quick-Setting Emulsified Asphalt Suitable Continuous Exposure to the Weather Only after Application and Drying
- N. *ASTM D 3468-90 Standard Specification for Liquid-applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing*  
Type I Neoprene Synthetic Rubber Solutions for Use Alone or in Combination with Chlorosulfonated Polyethylene Used in Roofing and Waterproofing  
Grade 1 Neoprene Rubber Solution  
Grade 2 Fiber-Modified Neoprene Rubber Solution  
Type II Chlorosulfonated Polyethylene Synthetic Rubber Solutions

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.	ALCO-NVC, INC	ALCO-NVC, INC
2. PRODUCT NAME	ACRYMAX AF-130	ACRYMAX AF-130 FR	ACRYMAX ACM 9000	ACRYMAX AF-130 XT	ACRYMAX AF-130 BC	#216 AF FLASHING CEMENT	#269T AF SBS TROWEL GR
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT			X			X	
G. ELASTOMERIC COATING OR CEMENT (specify type)							X
	ACRYLIC	ACRYLIC		ACRYLIC	ACRYLIC		
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED	FIBRATED
B. COLOR(S) AVAILABLE	UNLIMITED	WHT, GRAY, TAN	BLACK	UNLIMITED	GRAY	BLACK	BLACK
C. SOLIDS CONTENT (% by volume)	51.0	51.0	50.0	51	51	68 ±2	68
D. WEIGHT PER GALLON (lbs.)	12.1	12.1	8.5	11.4	12.1	9.5	9
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	1-2	1-2	1-2	1-2	1-2	48-72	
F. COVERAGE (gals./square)	2-5	2-5	2-6	2-5	2-3	8	8
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COMPOSITE ROOFING	X	X	X	X	X	X	X
3. MODIFIED BITUMEN ROOFING	X	X	X	X	X		X
4. SINGLE-PLY ROOFING				X	X		
5. OTHER ROOFING				X	X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COMPOSITE ROOFING	X	X	X	X	X	X	X
3. METAL ROOFING	X	X	X	X	X	X	X
4. OTHER ROOFING	X	X	X	X	X	X	X
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COMPOSITE ROOFING	X	X	X	X	X	X	X
3. METAL ROOFING	X	X	X	X	X	X	X
4. OTHER ROOFING				X	X	X	X
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X	X	X		
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X	X	X	X		
4. OTHER ROOFING				X	X		
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS						X	
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING	X	X		X	X	X	X
2. REROOFING/MAINTENANCE	X	X	X	X	X	X	X
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	TROWEL	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA			NA	NA		
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA			NA	NA		
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	ACRYMAX + POLY-1 REIN-FORCEMENT	ACRYMAX + POLY-1 REIN-FORCEMENT	ACRYMAX + POLY-1 REIN-FORCEMENT	ACRYMAX + POLY-1 REIN-FORCEMENT	ACRYMAX + POLY-1 REIN-FORCEMENT		
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1979	1985	1989	1991	1979	1984	1986
8.1 FOR SALES INFORMATION, CONTACT:	S. BENNING 800/553-0523	S. BENNING 800/553-0523	S. BENNING 800/553-0523	S. BENNING 800/553-0523	S. BENNING 800/553-0523	SALES 800/323-0029	SALES 800/323-0029
8.2 FOR TECHNICAL INFORMATION, CONTACT:	S. BENNING 800/553-0523	S. BENNING 800/553-0523	S. BENNING 800/553-0523	S. BENNING 800/553-0523	S. BENNING 800/553-0523	TECH. DEPT.	TECH. DEPT.
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



## Roofing Cements and Coatings Part 1: General Information

[illegible]

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS
2. PRODUCT NAME	BUTYL LASTIC	ROOF EMULSION FIBERED	NO FIBER ROOF ROOF EMULSION	ASPHALT RESATURANT	ASPHALT PRIMER	COLD- PROCESS ADHESIVE	PLASTIC CEMENT
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER					X		
B. ASPHALT/COAL TAR COATING				X		X	
C. ASPHALT/COAL TAR CEMENT							X
D. ASPHALT EMULSION		X	X				
F. MODIFIED BITUMEN COATING OR CEMENT	X						
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED BLACK	FIBRATED BLACK	NONFIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK
B. COLOR(S) AVAILABLE	70	46	45	70	48	64	70
C. SOLIDS CONTENT (% by volume)	8.2	8.2	8.6	7.8	7.4	8.0	9.5
D. WEIGHT PER GALLON (lbs.)	24	12	12	24	4	24	24
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	3-7	2-3	2-3	5-7	0.5-1	1.5-3	4-8
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X		X	
2. COMPOSITE ROOFING	X						
3. MODIFIED BITUMEN ROOFING							
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING							
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							X
2. COMPOSITE ROOFING							X
3. METAL ROOFING							
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING					X		
2. CONCRETE/WOOD DECKS					X		
3. METAL					X		
D. FLASHING							
1. BUILT-UP ROOFING							X
2. COMPOSITE ROOFING							X
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X	X			
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X	X				
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING						X	
2. COLD-PROCESS MODIFIED BITUMEN ROOFING						X	
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY	BRUSH, SPRAY, SQUEEGEE	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	BUTYL LASTIC + POLYESTER MAT	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1972	1967	1967	1967	1967	1967	1967
8.1 FOR SALES INFORMATION, CONTACT:	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030
8.2 FOR TECHNICAL INFORMATION, CONTACT:	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS
WET/DRY CEMENT	FLASHTITE	GLAS-MASTIC	NEOPRENE RUBBER ROOF CEMENT	RUBBERIZED CEMENT	ASPHALT MASTIC TROWEL GRADE	ASPHALT MASTIC BRUSH GRADE	M.B.A. ADHESIVE	SEAL-A-SAVE ALUMINUM FIBERED	1.3# ALUMINUM FIBERED
X	X	X		X	X	X		X	X
			CEMENT				X		
FIBRATED BLACK 70 9.5 24 4-8	FIBRATED BLACK 70 9.5 24 4-8	FIBRATED BLACK 68 9.3 24 4-8	FIBRATED BLACK 66 9.1 24 4-8	FIBRATED BLACK 66 9.3 24 4-8	FIBRATED BLACK 68 7.7 24 4-8	FIBRATED BLACK 75 7.7 24 2-3	FIBRATED BLACK 60 8.0 24 2	FIBRATED BLACK 65 9.8 24 1.5-3	FIBRATED ALUMINUM 63 9.5 24 1.5-3
						X		X	X
							X		X
X	X	X	X	X	X				
X	X	X	X	X	X		X		
X	X	X	X	X	X				
X	X	X	X	X	X				
						X		X	X
						X		X	X
TROWEL, CAULK	TROWEL	TROWEL	TROWEL	TROWEL	TROWEL	BRUSH, SPRAY, SQUEEGEE	BRUSH, TROWEL	BRUSH, SPRAY	BRUSH, SPRAY
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA 1967	USA 1967	USA 1991	USA 1994	USA 1991	USA 1967	USA 1967	USA 1985	USA 1967	USA 1967
R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030	R. KAPLAN 800/556-8030 C. FRATIANNE 800/556-8030

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS
2. PRODUCT NAME	2.0# ALUMINUM FIBERED	3.0# ALUMINUM FIBERED	1.2# ALUMINUM NO FIBER	2.0# ALUMINUM NO FIBER	SNOW-BRITE WHITE ELASTOMERIC	CHROME ALUMINUM PAINT	MBA ADHESIVE BRUSH GRADE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER	X	X	X	X			
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							X
G. ELASTOMERIC COATING OR CEMENT (specify type)					COATING		
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED ALUMINUM	FIBRATED ALUMINUM	NONFIBRATED ALUMINUM	NONFIBRATED ALUMINUM	NONFIBRATED WHITE	NONFIBRATED ALUMINUM	FIBRATED BLACK
B. COLOR(S) AVAILABLE	61	60	42	44	46	23	72
C. SOLIDS CONTENT (% by volume)	8.8	9.0	7.6	7.9	8.9	7.9	8.6
D. WEIGHT PER GALLON (lbs.)	24	24	24	24	4	4	24
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	1.5-3	1.5-3	0.5-1	0.5-1	1.5-2.5	0.5-0.75	2
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X	X		
2. COMPOSITE ROOFING							
3. MODIFIED BITUMEN ROOFING	X	X			X		
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING					X	X	
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING		X	X	X	X		
2. COAL TAR BUILT-UP ROOFING							X
3. METAL ROOFING		X	X	X	X	X	
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SQUEEGEE
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	YES
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1967	1967	1967		1984	1967	1988
8.1 FOR SALES INFORMATION, CONTACT:	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030	R. KAPLAN 800/556-8030
8.2 FOR TECHNICAL INFORMATION, CONTACT:	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030	C. FRATIANNE 800/556-8030
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## Roofing Cements and Coatings Part 1: General Information

[illegible]

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY
2. PRODUCT NAME	# 1860 ALUMINUM ASPHALT COATING	# 1864 ATCOSHIELD2	# 1866 PREM. FIBERED ALUMINUM COATING	# 1868 PREMIUM ALUMINUM COATING	# 1870 SILVER SEAL	# 1931 ATCOPRIME	# 4200 ATCOWHITE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING	X	X	X	X		X	
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)					ALYKO RESIN		ACRYLIC LATEX
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED ALUMINUM	FIBRATED ALUMINUM	FIBRATED ALUMINUM	NONFIBRATED ALUMINUM	FIBRATED ALUMINUM	NONFIBRATED BLACK	
B. COLOR(S) AVAILABLE							
C. SOLIDS CONTENT (% by volume)							
D. WEIGHT PER GALLON (lbs.)	7.8	8.2	8.8	8.4	8.2	7	11.5
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	8-24	8-24	8-24	8-24	8-24	4-8	8-24
F. COVERAGE (gals./square)	0.75-1.5	0.75-1.5	0.75-1.5	0.75-1.5	1.3-2.0	0.5-1	1.5-2
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X	X		X
2. COMPOSITE ROOFING	X	X	X	X			X
3. MODIFIED BITUMEN ROOFING	X	X	X	X			X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X	X	X	X		X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING					X		
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING						X	
2. CONCRETE/WOOD DECKS						X	
3. METAL						X	
D. FLASHING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X	X	X	X		X
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	SURFACING FIELDS GLASS AND POLYESTER	SURFACING FIELDS GLASS AND POLYESTER	SURFACING FIELDS GLASS AND POLYESTER	SURFACING FIELDS GLASS AND POLYESTER	NA	NA	SURFACING FIELDS GLASS AND POLYESTER
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	SURFACING FIELDS GLASS SEBS AND POLYESTER	SURFACING FIELDS GLASS SEBS AND POLYESTER	SURFACING FIELDS GLASS SEBS AND POLYESTER	SURFACING FIELDS GLASS SEBS AND POLYESTER	NA	NA	SURFACING FIELDS GLASS SEBS AND POLYESTER
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1926	1926	1926	1926	1926	1926	1926
8.1 FOR SALES INFORMATION, CONTACT:	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## Roofing Cements and Coatings Part 1: General Information

[illegible]

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	ANDEK CORP.	ANDEK CORP.	ANDEK CORP.	AVARD PRODUCTS CO.	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
2. PRODUCT NAME	ANDEK RUBBERCOAT 1047	ANDEK BUILDCOTE	ANDEK SILVER FILM	SNO-HIDE ROOF SHIELD	FORTRESS FLASHING CEMENT	FORTRESS WET SURFACE ROOF CEMENT	FORTRESS PLASTIC ROOF CEMENT
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY A. ASPHALT PRIMER B. ASPHALT/COAL TAR COATING C. ASPHALT/COAL TAR CEMENT D. ASPHALT EMULSION F. MODIFIED BITUMEN COATING OR CEMENT G. ELASTOMERIC COATING OR CEMENT (specify type)					X	X	X
	RESIN	X	RESIN				
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES A. FIBRATED/NONFIBRATED B. COLOR(S) AVAILABLE C. SOLIDS CONTENT (% by volume) D. WEIGHT PER GALLON (lbs.) E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry) F. COVERAGE (gals./square)	FIBRATED GRAY 62 9.1 24 1.5-2.5	NONFIBRATED BLACK 65 8.3 24 3-4	NONFIBRATED SILVER 75 8.7 24 0.25-0.33	NONFIBRATED WHITE 8.5 8 4.5	FIBRATED BLACK 71 8.5 4 8	FIBRATED BLACK 75 8.2 4 8	FIBRATED BLACK 75 8.2 4 8
4. USES A. SURFACING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. MODIFIED BITUMEN ROOFING 4. SINGLE-PLY ROOFING 5. OTHER ROOFING B. PATCHING/REPAIRING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. METAL ROOFING 4. OTHER ROOFING C. PRIMING 1. BUILT-UP ROOFING 2. CONCRETE/WOOD DECKS 3. METAL D. FLASHING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. METAL ROOFING 4. OTHER ROOFING E. RESATURATION/RESURFACING 1. ASPHALT BUILT-UP ROOFING 2. COAL TAR BUILT-UP ROOFING 3. METAL ROOFING 4. OTHER ROOFING F. COLD-PROCESS ADHESIVE/LAP CEMENT 1. COLD-PROCESS BUILT-UP ROOFING 2. COLD-PROCESS MODIFIED BITUMEN ROOFING 3. ROLL ROOFING (COATED SHEETS) 4. SHINGLES, TILE, OTHER STEEP PRODUCTS G. LIQUID-APPLIED MEMBRANE 1. NEW ROOFING 2. REROOFING/MAINTENANCE	X X X   X X X X   X X X X      X X	X X X   X X X X      X X	X X X   X X X X      X X	X X X   X X X X      X X	X X X   X X X X      X X	X X X   X X X X      X X	
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, ROLLER	BRUSH, SPRAY, ROLLER	SPRAY	TROWEL	TROWEL	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA) A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS  SEE BUILT-UP ROOFING SECTION IF CHECKED B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS  SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1993	1985	1984	1938	1992	1992	1992
8.1 FOR SALES INFORMATION, CONTACT:	H. LISS 800/800-2844	H. LISS 800/800-2844	H. LISS 800/800-2844	R. AVARD 714/839-4494	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086
8.2 FOR TECHNICAL INFORMATION, CONTACT:	N. SHEARER 800/800-2844	N. SHEARER 800/800-2844	N. SHEARER 800/800-2844	R. AVARD 714/839-4494	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086
9. SEE MEMBRANE APPENDIX IF CHECKED				X			

NA=not applicable



# Roofing Cements and Coatings Part 1: General Information

THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
FORTRESS TAR ROOF CEMENT	FORTRESS MODIFIED BITUMINOUS ADHESIVE	FORTRESS MODIFIED BITUMINOUS CEMENT	FORTRESS FIBERED ASPHALT ROOF COATING	FORTRESS COLD PROCESS ADHESIVE	FORTRESS ASPHALT PRIMER	FORTRESS TAR COATING RESATURANT	FORTRESS ASPHALT RESATURANT	FORTRESS ACRYLIC PRIMER	FORTRESS HEAVY DUTY NONFIBERED ASPH. EMULSION
X	X	X	X	X	X		X		X
FIBRATED BLACK 85 10.0 8 8	FIBRATED BLACK 63 8.2 8 1-4	FIBRATED BLACK 67 8.2 4 8	FIBRATED BLACK 67 8.1 4 1-6	FIBRATED BLACK 77 8.4 6 1-4	FIBRATED BLACK 52 7.4 2 0.5-1	FIBRATED BLACK 80 9.1 8 1-8	FIBRATED BLACK 75 8.7 24 4-8	NONFIBRATED BLACK 48 8.5 1 0.5-1	NONFIBRATED BLACK 50 8.5 6 2-4
	X X		X X	X X		X X			X X
	X		X	X		X			X
X		X X X X							
X									
					X X X		X X		
X		X X X X							
	X		X	X			X		X
	X X X		X X X	X X X		X X X			X X X
	X X X			X X X					
TROWEL	BRUSH, SPRAY, SQUEEGEE	TROWEL	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE
NA	NA	NA	NA		NA	NA	NA	NA	
NA	NA		NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA 1992	USA 1992	USA 1992	USA 1992	USA 1992	USA 1992	USA 1992	USA 1992	USA 1992	USA 1992
M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
2. PRODUCT NAME	FORTRESS HEAVY DUTY FIBERED ASPH. EMULSION	FORTRESS ACRYLIC MOD. ASPHALT EMULSION	FORTRESS TROWEL-GRADE ASPH. EMULSION	FORTRESS WHITE ACRYLIC CEMENT	FORTRESS HEAVY DUTY FIBERED ALUM. ROOF COATING	FORTRESS HEAVY DUTY NONFIB. ALUM. ROOF COATING	FORTRESS FIBERED ALUMINUM ROOF COATING
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING					X	X	X
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION	X	X	X				
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)				ACRYLIC			
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED	NONFIBRATED	FIBRATED	NONFIBRATED	FIBRATED
B. COLOR(S) AVAILABLE	BLACK	BLACK	BLACK	WHITE	ALUMINUM	ALUMINUM	ALUMINUM
C. SOLIDS CONTENT (% by volume)	50	50	52	49	70	59	70
D. WEIGHT PER GALLON (lbs.)	8.5	8.5	8.5	11.4	9.1	8.4	8.9
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	6	6	6	6	4	4	4
F. COVERAGE (gals./square)	2-4	2-4	8	8	1-2	0.5-1	1-2
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X			X	X	X
2. COMPOSITE ROOFING	X	X			X	X	X
3. MODIFIED BITUMEN ROOFING		X			X	X	X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X			X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING			X				
2. COMPOSITE ROOFING			X	X			
3. METAL ROOFING			X	X			
4. OTHER ROOFING			X	X			
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING			X				
2. COMPOSITE ROOFING			X	X			
3. METAL ROOFING			X	X			
4. OTHER ROOFING			X	X			
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X			X		X
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X			X		X
4. OTHER ROOFING	X	X			X		X
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	TROWEL	TROWEL	BRUSH, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS							
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1992	1992	1992	1992	1992	1992	1992
8.1 FOR SALES INFORMATION, CONTACT:	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
FORTRESS NONFIBERED ALUM. ROOF COATING	FORTRESS WHITE ELASTOMERIC COATING	ROOFERS PRIDE PLASTIC CEMENT 1000	ROOFERS PRIDE ALL WEATHER ROOF CEMENT 2000	ROOFERS PRIDE NEOPRENE FLASHING CEMENT 1500	ROOFERS PRIDE FIBERED ROOF & FOUNDATION COATING 3000	ROOFERS PRIDE NONFIBR. ROOF & FOUNDATION COATING 6000	ROOFERS PRIDE ALL ASPHALT PRIMER 7000	ROOFERS PRIDE COLD PROCESS ADHESIVE 8000	ROOFERS PRIDE NONFIBERED EMULSION 4000
X		X	X	X	X	X	X	X	X
	ACRYLIC								
NONFIBRATED ALUMINUM 54 8.0 4 0.5-1	FIBRATED WHITE 50 11.9 6 1-2	FIBRATED BLACK 75 8.2 4 8	FIBRATED BLACK 75 8.2 4 8	FIBRATED BLACK 65 9.1 4 8	FIBRATED BLACK 67 8.1 4 8	NONFIBRATED BLACK 62 7.8 4 0.5-1.5	NONFIBRATED BLACK 52 7.4 2 0.5-1	FIBRATED BLACK 77 8.4 6 1-4	NONFIBRATED BLACK 50 8.5 6 2-4
X	X				X	X		X	X
X	X				X	X		X	X
X	X				X	X		X	X
		X	X	X					
		X	X	X					
		X	X	X					
							X		
							X		
							X		
		X	X	X					
		X	X	X					
		X	X	X					
					X	X		X	
					X	X		X	
					X	X		X	
								X	X
								X	X
								X	X
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	TROWEL	TROWEL	CAULK	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE
NA	NA	NA	NA		NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA 1992	USA 1992	USA 1992	USA 1992	USA 1995	USA 1992	USA 1992	USA 1992	USA 1992	USA 1992
M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086	M. MCCARTY 800/394-0086 J. FOGEL 800/394-0086

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	THE BREWER COMPANY	THE BREWER COMPANY	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.
2. PRODUCT NAME	ROOFERS PRIDE FIBERED ALUM- INUM ROOF COATING 5000	FORTRESS TAR PRIMER	ELASTIGUM ROOFER'S CEMENT	NOAH'S PITCH PLASTIC COMPOUND	S.I.S. ADHESIVE	AWP ALL WEATHER PLASTIC CEMENT	SBS MODIFIED BITUMEN ADHESIVE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER	X						
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT			X	X	X	X	
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							X
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED ALUMINUM	NONFIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK
B. COLOR(S) AVAILABLE	60	70					
C. SOLIDS CONTENT (% by volume)	8.6	9.0					
D. WEIGHT PER GALLON (lbs.)	4	2					
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	1-2	0.5-1			1.5		1.5
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X						
2. COMPOSITE ROOFING	X						
3. MODIFIED BITUMEN ROOFING	X						
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X						
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING			X	X		X	
2. COMPOSITE ROOFING			X	X		X	
3. METAL ROOFING							
4. OTHER ROOFING			X	X		X	
C. PRIMING							
1. BUILT-UP ROOFING		X					
2. CONCRETE/WOOD DECKS		X					
3. METAL		X					
D. FLASHING							
1. BUILT-UP ROOFING			X	X		X	
2. COMPOSITE ROOFING			X	X		X	
3. METAL ROOFING							
4. OTHER ROOFING			X	X		X	
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING							
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING	X				X	X	
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)	X		X		X	X	X
4. SHINGLES, TILE, OTHER STEEP PRODUCTS	X		X		X	X	
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY	BRUSH, SPRAY, ROLLER	TROWEL	TROWEL	BRUSH, SQUEEGEE	TROWEL	BRUSH, SQUEEGEE
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS			NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1992	1992					
8.1 FOR SALES INFORMATION, CONTACT:	M. MCCARTY 800/394-0086	M. MCCARTY 800/394-0086	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. FOGEL 800/394-0086	J. FOGEL 800/394-0086					
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CONKLIN CO. INC.	CONKLIN CO. INC.	CONKLIN CO. INC.
SBS MODIFIED BITUMEN FLASHING CEMENT	ALUMINUM ROOF COATING (FIBRATED)	ALUMINUM ROOF COATING (NONFIBRATED)	ELASTIGUM ROOF COATING	ASPHALT PRIMER	FLAT TOP EMULSION	SNO-TOP ELASTOMERIC ROOF COATING	RAPID ROOF HV	RAPID ROOF III	BENCHMARK
				X					
X	X	X	X		X				
						ACRYLIC	ACRYLIC	ACRYLIC	ACRYLIC
FIBRATED BLACK	FIBRATED ALUMINUM	NONFIBRATED ALUMINUM	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED WHITE	NONFIBRATED WHITE 50.0-53.1 12.0-11.4 2-8 3-4	NONFIBRATED WHITE/TAN/GRAY 51.3-54.5 11.3 2-8 3-4	NONFIBRATED WHITE/GRAY 54.0-55.0 10.4-10.8 2-8 3-4
	1.5	1.5	1.5	1.5	3	1.5			
	X X X X	X X X X	X X X X		X X X X	X X X X	X	X	X
					X X X		X X X X	X X X X	X X X X
				X X X					
X X X		X X X							
	X X X	X X X	X X X		X X X				
X					X X				
							X X	X X	X X
TROWEL	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA	USA	USA	USA	USA	USA	USA	USA 1990	USA 1994	USA 1991
CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	CELOTEX REGIONAL SALES OFFICE	BLDG PROD DIV 800/888-8838 BLDG PROD DIV 800/888-8838	BLDG PROD DIV 800/888-8838 BLDG PROD DIV 800/888-8838	BLDG PROD DIV 800/888-8838 BLDG PROD DIV 800/888-8838

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.
2. PRODUCT NAME	GOODYEAR CONSO-LASTIC RUBBERIZED COATING	GOODYEAR ALUMA-TEK	GOODYEAR D.L.A.	GOODYEAR CONSO-LASTIC CEMENT	GOODYEAR PLASTI-GLAS CEMENT	GOODYEAR RUBBER-KOTE GRAY	GOODYEAR RUBBER-KOTE WHITE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING		X	X		X		
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION	X			X			
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)						URETHANE	URETHANE
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED	FIBRATED		FIBRATED		NONFIBRATED	NONFIBRATED
B. COLOR(S) AVAILABLE	BLACK	ALUMINUM	BLACK	BLACK	BLACK	GRAY	WHITE
C. SOLIDS CONTENT (% by volume)	65	47		30	64	65	51
D. WEIGHT PER GALLON (lbs.)	8.7	8.8	9.5	8.9	8.3	11	8.8
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	24	24	4-7 DAYS	4	2 DAYS	24	16
F. COVERAGE (gals./square)	2-4	3-4	6-8		5	3-4	1
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X			X	X
2. COMPOSITE ROOFING			X				
3. MODIFIED BITUMEN ROOFING		X				X	X
4. SINGLE-PLY ROOFING						X	X
5. OTHER ROOFING		X				X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING				X	X		
2. COMPOSITE ROOFING				X	X		
3. METAL ROOFING				X	X		
4. OTHER ROOFING				X	X		
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING					X		
2. COMPOSITE ROOFING					X		
3. METAL ROOFING				X	X		
4. OTHER ROOFING				X	X		
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING							
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE	X	X	X			X	X
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	SPRAY	TROWEL	TROWEL	BRUSH, SPRAY, ROLLER, SQUEEGEE	BRUSH, SPRAY, ROLLER, SQUEEGEE
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS							
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS							
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS							
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1984	1984				1983	1983
8.1 FOR SALES INFORMATION, CONTACT:	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886
8.2 FOR TECHNICAL INFORMATION, CONTACT:	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886	T. COULTON 800/321-7886
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

CONSOLIDATED COATINGS CORP.	CONSOLIDATED COATINGS CORP.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.
GOODYEAR BARRON-KOTE PLUS	GOODYEAR CONSO-FLEX ALUMINUM COATING	PRO FLASH FLASHING CEMENT	PRO WET/ STICK FLASH- ING CEMENT WET/DRY	PRO COAT FIBER ROOF COATING	PRO PRIMER ASPHALT	PRO RESATURANT ASPHALT	PRO ASPHALT EMULSION (FIBRE)	PRO ASPHALT EMULSION (NO FIBRE)	PRO LAP CEMENT
X		X	X	X	X	X			X
	POLYURETHANE						X	X	
FIBRATED BLACK 53 7.9 24 3-7	NONFIBRATED ALUMINUM 80 10 24 2-3	FIBRATED BLACK 72.9 9.0 48-72 0.7-1	FIBRATED BLACK 74.4 9.0 48-72 0.7-1	FIBRATED BLACK 70.9 8.2 8 5	FIBRATED BLACK 72.1 7.7 4 10	FIBRATED BLACK 76.3 8.3 8 2-3	FIBRATED BLACK 48.5 9.0 5 2.5	NONFIBRATED BLACK 47.4 9.0 5 2.5	FIBRATED BLACK 71.3 81.5 5
X	X	X	X	X	X	X	X	X	X
	X				X		X	X	
X		X	X	X			X	X	X
		X	X	X	X				
		X	X	X	X				
					X				
					X				
					X				
		X	X						
		X	X						
		X	X						
				X		X			
				X		X			
									X
									X
		X	X						
X	X			X	X		X	X	
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER, SQUEEGEE	TROWEL	TROWEL	SPRAY, SQUEEGEE, BRUSH	SPRAY, SQUEEGEE, ROLLER	SPRAY, SQUEEGEE, BRUSH	SPRAY, SQUEEGEE, ROLLER	SPRAY, SQUEEGEE, ROLLER	SPRAY, SQUEEGEE
					NA	NA	NA	NA	NA
						NA	NA	NA	NA
						NA	NA	NA	NA
USA 1983	USA	USA 1931	USA 1951	USA 1931	USA 1931	USA 1992	USA 1991	USA 1991	USA 1991
T. COULTON 800/321-7886	T. COULTON 800/321-7886	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599
T. COULTON 800/321-7886	T. COULTON 800/321-7886	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.
2. PRODUCT NAME	PRO SBS ADHESIVE	PRO SBS FLASHING CEMENT	PRO NEO-SEAL NEOPRENE ROOF CEMENT	PRO ROOFLOX 300 ALUMINUM FIBRE COATING	PRO BRITE 200 ALUMINUM FIBRE COATING	PRO SILVER SHIELD 300 AL- UMINUM COAT- ING NO FIBRE	PRO SILVER SHIELD 200 AL- UMINUM COAT- ING NO FIBRE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING				X	X	X	X
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT	X	X					
G. ELASTOMERIC COATING OR CEMENT (specify type)			ELASTO CEMENT				
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED	FIBRATED	FIBRATED	FIBRATED	FIBRATED	NONFIBRATED	NONFIBRATED
B. COLOR(S) AVAILABLE	BLACK	BLACK	BLACK	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
C. SOLIDS CONTENT (% by volume)	69.6	70.9	60.2	54.5	54.8	30.5	30.5
D. WEIGHT PER GALLON (lbs.)	7.9	9.0	9.56	9.5	8.7	8.2	8.2
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)		48-72	8	8	8	8	8
F. COVERAGE (gals./square)	5	07-1	5	5	5	15	15
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COMPOSITE ROOFING	X	X	X	X	X	X	X
3. MODIFIED BITUMEN ROOFING	X	X				X	X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X	X	X	X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING		X					X
2. COMPOSITE ROOFING		X					X
3. METAL ROOFING		X					X
4. OTHER ROOFING		X					X
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING		X					X
2. COMPOSITE ROOFING		X					X
3. METAL ROOFING							
4. OTHER ROOFING		X					X
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING							
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING					X		
2. COLD-PROCESS MODIFIED BITUMEN ROOFING	X					X	
3. ROLL ROOFING (COATED SHEETS)					X		
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING			X	X			X
2. REROOFING/MAINTENANCE			X	X			X
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	SPRAY, SQUEEGEE	TROWEL	SPRAY, SQUEEGEE, ROLLER	SPRAY, SQUEEGEE, ROLLER	SPRAY, SQUEEGEE	SPRAY, SQUEEGEE	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA						
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1987	1987	1991	1991	1931	1987	1987
8.1 FOR SALES INFORMATION, CONTACT:	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599	D. MCCLELLAN 800/962-8599
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599	J. MCCLELLAN 800/962-8599
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



## Roofing Cements and Coatings Part 1: General Information

DEWITT PRODUCTS CO.	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS
SNOW WHITE ELASTO-COAT	PRIMER/ SURFACER	HER 202 FG	ERATHANE 300	ERAKOTE	ERATHANE 300 BASE COAT	ERAGUARD 2000	ERAGUARD 1000	ERAGUARD 1100	ERAGUARD 1001
COATING	URETHANE	URETHANE	URETHANE	URETHANE	URETHANE	MOD. ACRYLIC	ACRYLIC	ACRYLIC	ACRYLIC
FIBRATED WHITE	NONFIBRATED ALUM GRAY	NONFIBRATED ALUM GRAY	NONFIBRATED ALUM GRAY	NONFIBRATED GRAY, WHITE	NONFIBRATED GRAY	NONFIBRATED GRAY	NONFIBRATED GRAY, WHITE	FIBRATED GRAY, WHITE	NONFIBRATED UNLIMITED
70	51	89	65	65	83	36	52	55	39
9	8.8	10.0	9.0	9.5	9.3	9.1	12.0	11.8	9.0
4	2	24	24	24	15	1	6	10	3
8	0.5	0.5	1.0	1.0-1.5	1.0-2.0	0.5	1.0-4.0	1.0-4.0	0.75-1.0
X			X	X	X		X	X	
X			X	X	X		X	X	
X			X	X	X		X	X	
X			X	X	X		X	X	
X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	
		X	X	X	X		X	X	
	X					X			
		X			X				
		X							
		X			X				
		X							
					X		X	X	
			X	X			X		X
				X	X		X	X	
	X	X	X	X	X	X	X	X	X
SPRAY, SQUEEGEE, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH	SPRAY, ROLLER	SPRAY, ROLLER	SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	PRIMER/ SURFACER, HER 202, ERATHANE 300	PRIMER/ SURFACER, HER 202, ERATHANE 300	PRIMER/ SURFACER, HER 202, ERATHANE 300	PRIMER/ SURFACER, HER 202, ERAKOTE	ERATHANE 300 BASECOAT, ERATHANE 300	ERAGUARD 2000, HER 202, ERAGUARD 1000	ERAGUARD 2000, HER 202, ERAGUARD 1000		
USA 1990	USA 1979	USA 1977	USA 1977	USA 1985	USA 1992	USA 1992	USA 1990	USA 1995	USA 1995
D. MCCLELLAN 800/962-8599	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747
J. MCCLELLAN 800/962-8599	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747
	X	X	X	X	X	X	X	X	X

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	ERSYSTEMS	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION
2. PRODUCT NAME	ERAGUARD 4000	ERAGUARD 6000	ERAGUARD 500	ERATHANE 300 BASECOAT BRUSHABLE	F100 POWRCOAT	C100 ROOFCOAT	M100 RUBRCOAT
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER					X	X	
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							X
G. ELASTOMERIC COATING OR CEMENT (specify type)	SILICONE	HYPALON	ACRYLIC	POLYURETHANE			
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBERED	NONFIBRATED	FIBRATED	FIBRATED	FIBRATED
B. COLOR(S) AVAILABLE	GRAY, WHITE	WHITE	GRAY, WHITE	GRAY	BLACK	BLACK	BLACK
C. SOLIDS CONTENT (% by volume)	65	29	50	83			
D. WEIGHT PER GALLON (lbs.)	11	10	12	9.4	7.8	7.3	7.6
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	2-4	24	6	15	24-144	24-144	24-144
F. COVERAGE (gals./square)	3.0	1.0-3.0	1.0-4.0	1.0-2.0	2-6	2-6	2-6
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING			X	X	X	X	X
2. COMPOSITE ROOFING			X	X			
3. MODIFIED BITUMEN ROOFING			X	X			X
4. SINGLE-PLY ROOFING		X	X	X			
5. OTHER ROOFING	X	X	X	X	X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING			X	X	X	X	X
2. COMPOSITE ROOFING			X	X			
3. METAL ROOFING			X		X	X	X
4. OTHER ROOFING			X	X	X	X	X
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING				X			
2. COMPOSITE ROOFING							
3. METAL ROOFING				X			
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING			X	X	X	X	X
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING		X	X		X	X	X
4. OTHER ROOFING	X	X	X	X	X	X	X
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING					X	X	X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING					X	X	X
3. ROLL ROOFING (COATED SHEETS)					X	X	X
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING	X						
2. REROOFING/MAINTENANCE	X	X	X	X			
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, ROLLER	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	ADHESIVE, FIELDS GLASS & POLYESTER	ADHESIVE, FIELDS GLASS & POLYESTER	ADHESIVE, FIELDS GLASS & POLYESTER
SEE BUILT-UP ROOFING SECTION IF CHECKED					X	X	
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	ADHESIVE, FIELDS GLASS SEBS & POLYESTER	ADHESIVE, FIELDS GLASS SEBS & POLYESTER	ADHESIVE, FIELDS GLASS SEBS & POLYESTER
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS					NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1990	1990	1995	1996	1975	1975	1994
8.1 FOR SALES INFORMATION, CONTACT:	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. LEONARD 800/403-7747	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. LEONARD 800/403-7747	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098
9. SEE MEMBRANE APPENDIX IF CHECKED	X	X	X	X			

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION
F150 POWRSEAL	F110 POWRLAP	F400 POWRPRIME	F540, F550 ALUMINUM COATING	F630, F640, F650 FIBERED ALUMINUM COATING	F600 FLAMEBLOC	F670 MOBLSHIELD	M860 POLRBRITE	M850 POLRSHIELD	F700 POWRGUARD
		X							
X	X		X	X	X	X			X
							ACRYLIC LATEX	ACRYLIC LATEX	
FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED BLACK	NONFIBRATED ALUMINUM	FIBRATED ALUMINUM	FIBRATED ALUMINUM	FIBRATED ALUMINUM	NONFIBRATED WHITE	NONFIBRATED WHITE	NONFIBRATED BLACK
7.8 24-144 2-6	8.0 24-144 2-6	7.0 4-8 0.5-1	7.5-8.0 8-24 0.75-1.50	7.5-8.2 8-24 0.75-1.50	8.0 8-24 0.75-1.50	7.7 8-24 0.75-1.50	12.0 8-24 1.50-2.0	11.5 8-24 1.50-2.0	8 6-48 3-12
X	X		X	X	X	X	X	X	X
			X	X	X	X	X	X	X
X	X		X	X	X	X	X	X	X
X	X								
X	X								
X	X								
		X							
		X							
		X							
X			X	X	X	X	X	X	X
X			X	X	X	X	X	X	X
X									
X	X								
X	X								
X	X								
BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	ROLLER, SPRAY	BRUSH, SPRAY
ADHESIVE, FIELDS GLASS & POLYESTER	ADHESIVE, FIELDS GLASS & POLYESTER	NA	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER
X	X		X	X	X	X	X	X	X
ADHESIVE, FIELDS GLASS SEBS & POLYESTER	ADHESIVE, FIELDS GLASS (SBS) & POLYESTER	NA	SURFACING, FIELDS GLASS (SBS) & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA 1975	USA 1975	USA 1975	USA 1975	USA 1975	USA 1975	USA 1975	USA 1975	USA 1975	USA 1975
T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098
J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION
2. PRODUCT NAME	M700 RUBRGARD	F750 RAINGARD	M800 RUBRSTAR	F880 SUNGARD	F200 POWRBOND	C200 ROOFBOND	C250 ROOFFLASH
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION	X	X	X	X	X	X	X
F. MODIFIED BITUMEN COATING OR CEMENT			X				
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	FIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED	FIBRATED	FIBRATED
B. COLOR(S) AVAILABLE	BLACK	BLACK	GRAY	ALUMINUM	BLACK	BLACK	BLACK
C. SOLIDS CONTENT (% by volume)	8.4	8.3	9.6	8.8	8.8	8.1	8.2
D. WEIGHT PER GALLON (lbs.)	6-48	6-48	6-18	6-48	6-12	6-12	6-12
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	3-4	3-12	2-4	2-3			
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X			
2. COMPOSITE ROOFING			X	X			
3. MODIFIED BITUMEN ROOFING	X	X	X	X			
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X	X	X			
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING					X	X	X
2. COMPOSITE ROOFING					X	X	X
3. METAL ROOFING					X	X	X
4. OTHER ROOFING					X	X	X
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING					X	X	X
2. COMPOSITE ROOFING					X	X	X
3. METAL ROOFING					X	X	X
4. OTHER ROOFING					X	X	X
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X	X			
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X	X	X			
4. OTHER ROOFING			X				
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING	X						
2. COLD-PROCESS MODIFIED BITUMEN ROOFING	X						
3. ROLL ROOFING (COATED SHEETS)	X						
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	TROWEL	TROWEL	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	ADHESIVE, FIELDS GLASS POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	ADHESIVE, FIELDS SEBS POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	SURFACING, FIELDS GLASS SEBS & POLYESTER	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1975	1975	1975	1975	1975	1975	1975
8.1 FOR SALES INFORMATION, CONTACT:	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098	T. VANDERLINDA 800/627-4098
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098	J. SCARLETT 800/627-4098
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION
F300 POWRMASTIC	M300 RUBRMASTIC	C240 TILEBOND	M620 SILVRMASTIC	M200 RUBRBOND	C300 ROOFMASTIC	M400 RUBRPRIME	F460 WATRSTOP	M150 RUBRSEAL	M600 FIBREBLOC
X		X			X	X	X		X
	X			X				X	
			ALKYD RESIN						
FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED ALUMINUM	FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED BLACK	NONFIBRATED BLACK	FIBRATED BLACK	FIBRATED ALUMINUM
8.2 6-12	8.3 6-12	8.1 6-12	9.3 6-12	8.3 6-12	8.0 6-12	7.0 4-8	7.2 4-8	7.6 24-144	8.0 8-24 .75-1.5
								X	X
								X	X
								X	X
X	X	X	X	X	X			X	
X	X	X	X	X	X			X	
X	X	X	X	X	X			X	
						X	X		
						X	X		
						X	X		
X	X	X	X	X	X				
X	X	X	X	X	X				
X	X	X	X	X	X				
						X	X	X	X
								X	X
								X	X
								X	
								X	
								X	
TROWEL, CAULK	TROWEL, CAULK	TROWEL	TROWEL	TROWEL	TROWEL	ROLLER, SPRAY	ROLLER, SPRAY	BRUSH, SPRAY, SQUEEGEE	ROLLER, SPRAY
NA	NA	NA	NA	NA	NA	NA	NA	ADHESIVE, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER
NA	NA	NA	NA	NA	NA	NA	NA	ADHESIVE, FIELDS GLASS & POLYESTER	SURFACING, FIELDS GLASS & POLYESTER
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA 1975	USA 1975	USA 1975	USA 1975	USA 1975	USA 1975		USA 1975	USA 1975	USA 1975
T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098	T. VANDERLINDA 800/627-4098 J. SCARLETT 800/627-4098

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	FIELDS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION
2. PRODUCT NAME	M630 SILVRSHIELD3	GAF PREMIUM FIBERED ALUMINUM ROOF COATING	GAF ALUMINUM ROOF PAINT	GAF ASPHALT/ CONCRETE PRIMER	GAF ALUMINUM EMULSION	GAF WEATHERCOAT EMULSION	RUBEROID MODIFIED BITUMEN ADHESIVE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER	X	X	X	X			
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION					X	X	
F. MODIFIED BITUMEN COATING OR CEMENT							X
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED ALUMINUM	FIBRATED ALUMINUM	NONFIBRATED ALUMINUM	NONFIBRATED BLACK	NONFIBRATED ALUMINUM	FIBRATED BLACK	FIBRATED BLACK
B. COLOR(S) AVAILABLE							
C. SOLIDS CONTENT (% by volume)		52-56	48-52	61	45	49	58
D. WEIGHT PER GALLON (lbs.)	8.1	8.1-8.5	7.8-8.2	7.4	9.0	9.0	8-8.4
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	8-24	8	4	4	24	5	24
F. COVERAGE (gals./square)	75-1.5	1.5-2.0	0.5	0.5	1-1.5	3-5	1.5
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X		X	X	
2. COMPOSITE ROOFING	X	X	X		X	X	
3. MODIFIED BITUMEN ROOFING	X	X	X			X	
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X	X				
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING				X			
2. CONCRETE/WOOD DECKS				X			
3. METAL				X			
D. FLASHING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X						
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X						
4. OTHER ROOFING	X						
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							X
3. ROLL ROOFING (COATED SHEETS)							X
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	ROLLER, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, NOTCH, SQUEEGEE
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	SURFACING, FIELDS GLASS & POLYESTER	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	SURFACING, FIELDS GLASS & POLYESTER	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1975						
8.1 FOR SALES INFORMATION, CONTACT:	T. VANDERLINDA 800/627-4098	REGIONAL SALES OFFICE 800/ROOF-411	REGIONAL SALES OFFICE 800/ROOF-411	REGIONAL SALES OFFICE 800/ROOF-411	REGIONAL SALES OFFICE 800/ROOF-411	REGIONAL SALES OFFICE 800/ROOF-411	REGIONAL SALES OFFICE 800/ROOF-411
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. SCARLETT 800/627-4098						
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY
RUBEROID MODIFIED BIT- UMEN FLASH- ING CEMENT	GAF JETBLAK PREMIUM FLASHING CEMENT	VITAPLY	GRAVITOP	GARLA-SHIELD	ENERGIZER K PLUS FR	WEATHERKING FR TOPCOAT	WEATHER KING	GARLA BOND	FLASHING BOND
	X	X	X	X		X	X	X	X
X					X				
FIBRATED BLACK 76-80 10.1-10.5 6 8.0	FIBRATED BLACK 75-78 8.6-9.0 6-8 8.0	NONFIBERED BLACK 63 + 8.2-8.5 7-9	NONFIBERED BLACK 70 + 8.6 7-9	FIBERED BLACK 52 + 8.6 1-2 3-5	FIBERED BLACK 75 9 4 3	FIBERED BLACK 75 + 9.1 36 3-5	NONFIBERED BLACK 70 + 7.9 2-4	FIBERED BLACK 73 + 10 48	FIBERED BLACK 80 + 8.3 36
		X X	X X	X	X	X	X X		
X X X X	X X X X			X		X	X	X X	X X
X X X X	X X X X			X X X		X		X X	X X
		X X	X	X	X	X			
							X X X		
TROWEL, CAULK	TROWEL, CAULK	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	TROWEL	TROWEL
NA									
NA	NA								
NA	NA								
USA	USA	USA 1986	USA 1974	USA 1974	USA 1,997	USA 1994	USA 1986	USA 1975	USA 1990
REGIONAL SALES OFFICE 800/ROOF-411	REGIONAL SALES OFFICE 800/ROOF-411	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS	D. SOKOL R. JUSTUS

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY
2. PRODUCT NAME	EMERGENCY MASTIC	GARLA FLEX	GARLAPRIME	GARLABRITE	SILVER SHIELD	RUST GO	PYRAMIC
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER			X				
B. ASPHALT/COAL TAR COATING				X		X	
C. ASPHALT/COAL TAR CEMENT	X				X		
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT		X					
G. ELASTOMERIC COATING OR CEMENT (specify type)							X
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBERED	NONFIBERED	NONFIBERED	NONFIBERED	FIBERED	NONFIBERED	NONFIBERED
B. COLOR(S) AVAILABLE	BLACK	BLACK	BLACK	ALUMINUM	ALUMINUM	ALUMINUM	WHITE
C. SOLIDS CONTENT (% by volume)	75 +	63 +	50 +	40 +	60 +	55 +	55 +
D. WEIGHT PER GALLON (lbs.)	11	8.0	7.8	8.9	8.2	8.5	8.5
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	36	36	2	12	12	5	4
F. COVERAGE (gals./square)			0.5-1.0	.50	2	0.25	2
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING				X	X		X
2. COMPOSITE ROOFING				X	X		X
3. MODIFIED BITUMEN ROOFING				X	X		X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING						X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X	X					
2. COMPOSITE ROOFING	X	X					
3. METAL ROOFING		X					
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING			X				
2. CONCRETE/WOOD DECKS			X				
3. METAL			X				
D. FLASHING							
1. BUILT-UP ROOFING		X					
2. COMPOSITE ROOFING		X					
3. METAL ROOFING		X					
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING							
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	TROWEL	TROWEL, CAULK	BRUSH, ROLLER, SPRAY	BRUSH, ROLLER	BRUSH, SPRAY	BRUSH, ROLLER	BRUSH, ROLLER, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS							
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS							
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS							
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1974	1976	1974	1974	1976	1968	1984
8.1 FOR SALES INFORMATION, CONTACT:	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL	D. SOKOL
8.2 FOR TECHNICAL INFORMATION, CONTACT:	R. JUSTUS	R. JUSTUS	R. JUSTUS	R. JUSTUS	R. JUSTUS	R. JUSTUS	R. JUSTUS
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



## Roofing Cements and Coatings Part 1: General Information

[illegible]

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.
2. PRODUCT NAME	GRUNDY PLASTIC CEMENT	GRUNDY PLASTIC CEMENT (AF)	GRUNDY PLASTIC CEMENT WET SURFACE	GRUNDY PLASTIC CEMENT WET SURFACE (AF)	GRUNDY FLASHING CEMENT	GRUNDY NO. 22 FLASHING CEMENT (AF)	GRUNDY NO. 22 ELASTOMERIC CEMENT (AF)
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY A. ASPHALT PRIMER B. ASPHALT/COAL TAR COATING C. ASPHALT/COAL TAR CEMENT D. ASPHALT EMULSION F. MODIFIED BITUMEN COATING OR CEMENT G. ELASTOMERIC COATING OR CEMENT (specify type)	X	X	X	X	X	X	X
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES A. FIBRATED/NONFIBRATED B. COLOR(S) AVAILABLE C. SOLIDS CONTENT (% by volume) D. WEIGHT PER GALLON (lbs.) E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry) F. COVERAGE (gals./square)	FIBRATED BLACK 70 ± 2 9.5 6 8	FIBRATED BLACK 78 ± 2 9.5 6 8	FIBRATED BLACK 70 ± 2 9.5 6 8	FIBRATED BLACK 78 ± 2 9.5 6 8	FIBRATED BLACK 68 ± 2 9.5 6 8	FIBRATED BLACK 76 ± 2 8.5 6 8	FIBRATED BLACK 78 ± 2 9.0 6 8
4. USES A. SURFACING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. MODIFIED BITUMEN ROOFING 4. SINGLE-PLY ROOFING 5. OTHER ROOFING B. PATCHING/REPAIRING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. METAL ROOFING 4. OTHER ROOFING C. PRIMING 1. BUILT-UP ROOFING 2. CONCRETE/WOOD DECKS 3. METAL D. FLASHING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. METAL ROOFING 4. OTHER ROOFING E. RESATURATION/RESURFACING 1. ASPHALT BUILT-UP ROOFING 2. COAL TAR BUILT-UP ROOFING 3. METAL ROOFING 4. OTHER ROOFING F. COLD-PROCESS ADHESIVE/LAP CEMENT 1. COLD-PROCESS BUILT-UP ROOFING 2. COLD-PROCESS MODIFIED BITUMEN ROOFING 3. ROLL ROOFING (COATED SHEETS) 4. SHINGLES, TILE, OTHER STEEP PRODUCTS G. LIQUID-APPLIED MEMBRANE 1. NEW ROOFING 2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	TROWEL	TROWEL	TROWEL	TROWEL	TROWEL	TROWEL	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA) A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS  SEE BUILT-UP ROOFING SECTION IF CHECKED B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS  SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1967	1967	1967	1967	1967	1990	1990
8.1 FOR SALES INFORMATION, CONTACT:	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210
8.2 FOR TECHNICAL INFORMATION, CONTACT:	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.
GRUNDY COLD-APPLICATION CEMENT	GRUNDY COLD-APPLICATION CEMENT (AF)	GRUNDY FIBRE ROOF COATING	GRUNDY FIBRE ROOF COATING (AF)	GRUNDY NONFIBRE ROOF COATING	GRUNDY ASPHALT CONCRETE PRIMER	GRUNDY ASPHALT BU 68 RESATURANT	GRUNDY ASPHALT BU 68 RESATURANT (AF)	GRUNDY FIBRE ROOF MASTIC TYPE II	GRUNDY FIBRE ROOF MASTIC TYPE II (AF)
X	X	X	X	X	X	X	X	X	X
FIBRATED BLACK 67 ± 2 8.5 6 2	FIBRATED BLACK 73 ± 2 8.5 6 2	FIBRATED BLACK 72 ± 2 8.0 2 1.5	FIBRATED BLACK 77 ± 2 8.0 2 1.5	NONFIBRATED BLACK 68 ± 2 7.5 2 1	NONFIBRATED BLACK 60 ± 2 7.0 1 1	FIBRATED BLACK 68 ± 2 8.0 6 1.5-3.0	FIBRATED BLACK 71 ± 2 8.0 6 1.5-3.0	FIBRATED BLACK 54 ± 2 8.0 6 1.5	FIBRATED BLACK 60 ± 2 8.0 6 1.5
		X	X	X					
		X	X	X					
		X	X	X					
					X				
					X				
					X				
		X	X	X		X	X	X	X
		X	X	X		X	X	X	X
X	X							X	X
X	X							X	X
BRUSH, SQUEEGEE	BRUSH, SQUEEGEE	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA 1967	USA 1985	USA 1967	USA 1985	USA 1967	USA 1967	USA 1967	USA 1985	USA 1967	USA 1985
J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210	J. VAN PELT 800/435-1210 C MIDDLEBROOKS 800/435-1210

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.	GRUNDY INDUSTRIES, INC.
2. PRODUCT NAME	GRUNDY PLYGRIP M.B. ADHESIVE	GRUNDY a1MB-AF ALUMINUM COATING	GRUNDY #200 FIBRE ALUMINUM ROOF COATING	GRUNDY #220 NONFIBERED ALUMINUM ROOF COATING	GRUNDY NO. 20 F AF EMULSION	GRUNDY NO. 20 NF EMULSION	GRUNDY NO. 120 ALUMINUM ROOF EMULSION
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION					X	X	X
F. MODIFIED BITUMEN COATING OR CEMENT	X	X	X	X			
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED	FIBRATED	FIBRATED	NONFIBRATED	FIBRATED	NONFIBRATED	NONFIBRATED
B. COLOR(S) AVAILABLE	BLACK	SILVER	SILVER	SILVER	BLACK	BLACK	SILVER
C. SOLIDS CONTENT (% by volume)	59 ± 2	65 ± 2	65 ± 2	64 ± 2	48 ± 2	48 ± 2	30 ± 2
D. WEIGHT PER GALLON (lbs.)	8.0	9.4	9.2	9.0	9.0	9.0	9.0
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	2	2	2	2	2	2	2
F. COVERAGE (gals./square)	1.5	1.5	1.5	1	3 NOM.	3 NOM.	1.5
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING		X	X	X	X	X	X
2. COMPOSITE ROOFING		X	X	X	X	X	X
3. MODIFIED BITUMEN ROOFING		X	X	X	X	X	X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING		X	X	X	X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING							
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING	X						
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY	BRUSH, SQUEEGEE, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1990	1988	1967	1967	1967	1967	1992
8.1 FOR SALES INFORMATION, CONTACT:	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210	J. VAN PELT 800/435-1210
8.2 FOR TECHNICAL INFORMATION, CONTACT:	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210	C MIDDLEBROOKS 800/435-1210
9. SEE MEMBRANE APPENDIX IF CHECKED	X	X					

NA=not applicable

## Roofing Cements and Coatings Part 1: General Information

[illegible]

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	HENRY CO.	HENRY CO.	HENRY CO.	HENRY CO.	HENRY CO.	HENRY CO.	HENRY CO.
2. PRODUCT NAME	#307 FIBRATED ASPHALT EMULSION	#120 PREMIUM ALUMINUM	#201 FIBERED ASPHALT COATING	#220 FIBERED ALUMINUM COATING	#229 ALUMINUM EMULSION	#520 FIBERED ALUMINUM COATING	#280 PREMIUM WHITE ELASTOMERIC
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING		X	X	X			
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION	X				X	X	
F. MODIFIED BITUMEN COATING OR CEMENT							X
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED	FIBRATED	NONFIBRATED	FIBRATED	NONFIBRATED
B. COLOR(S) AVAILABLE	BLACK	SILVER	BLACK	SILVER	SILVER	SILVER	WHT/TAN/GRAY
C. SOLIDS CONTENT (% by volume)	50	45	30	50	50	50	50
D. WEIGHT PER GALLON (lbs.)	9	8.5	8.5	9.5	9.5	11	11
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	8-24	1	12	4	4	4	2
F. COVERAGE (gals./square)	4	5	1.3	1.5	1.5	1.5	1
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X		X	X	X	X
2. COMPOSITE ROOFING	X	X	X	X	X	X	X
3. MODIFIED BITUMEN ROOFING	X	X		X	X	X	X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X		X	X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X	X	X	X	X	
4. OTHER ROOFING	X	X	X	X	X	X	
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING			X				
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)			X				
4. SHINGLES, TILE, OTHER STEEP PRODUCTS	X	X					
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	3-PLY COLD-AP ROOF SYSTEM	3-PLY COLD-AP ROOF SYSTEM	3-PLY COLD-AP ROOF SYSTEM	3-PLY COLD-AP ROOF SYSTEM	3-PLY COLD-AP ROOF SYSTEM	3-PLY COLD-AP ROOF SYSTEM	3-PLY COLD-AP ROOF SYSTEM
SEE BUILT-UP ROOFING SECTION IF CHECKED			X		X		X
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS							
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS							
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1945	1950	1944	1965	1987	1989	1983
8.1 FOR SALES INFORMATION, CONTACT:	SALES DEPT 800/598-7663	SALES DEPT 800/598-7663	SALES DEPT 800/598-7663	SALES DEPT 800/598-7663	SALES DEPT 800/598-7663	SALES DEPT 800/598-7663	SALES DEPT 800/598-7663
8.2 FOR TECHNICAL INFORMATION, CONTACT:	J. SMERNOFF 800/598-7663	J. SMERNOFF 800/598-7663	J. SMERNOFF 800/598-7663	J. SMERNOFF 800/598-7663	J. SMERNOFF 800/598-7663	J. SMERNOFF 800/598-7663	J. SMERNOFF 800/598-7663
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

HENRY CO.	HENRY CO.	HENRY CO.	INSULATING COATINGS CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION
#287 SOLARFLEX	#104 ASPHALT PRIMER	#111 INSULBOND	ASTEC	# 19 FLASHING CEMENT	# 19AF FLASHING CEMENT	# 19 ULTRA RUBBERIZED FLASHING CEMENT	#66AF MODIFIED BITUMEN ADHESIVE	# 71AF ROOF COATING	# 78AF COLD ADHESIVE CEMENT
	X								
				X	X			X	X
X		X	COATING			X	X		
FIBRATED WHITE/TAN 60 11 1 2	NONFIBRATED BLACK 60 7.5 0.5 0.5	NONFIBRATED BLACK 60 8.5 2 1.5	NONFIBRATED ALL 60 10 8 1.33	FIBERED BLACK 8	FIBERED BLACK 8	FIBERED BLACK 8	NONFIBERED BLACK 8.65 24-48 1-2	FIBERED BLACK 4	FIBERED BLACK 2-4
X X X X				X X	X X	X X	X	X X	X X
			X					X	X
				X X X X	X X X X	X X X X	X	X X	X X
			X						X
	X X X		X						
				X X X X	X X X X	X X X X			X X X
X								X	X
X								X	X
									X
				X	X			X X	X
			X	X X	X X			X	X X
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, RAG	BRUSH, SPRAY, ROLLER, TROWEL	BRUSH, ROLLER, SPRAY	TROWEL	TROWEL	TROWEL	TROWEL, BRUSH	BRUSH, SPRAY	BRUSH, SPRAY
			NA						COLD-PROCESS SYSTEM + POLY-MAT + ALUMINUM
			NA						
USA 1988	USA 1970	USA 1989	USA 1980	USA 1945	USA 1982	USA 1,998	USA 1989	USA 1948	USA 1977
SALES DEPT 800/598-7663 J. SMERNOFF 800/598-7663	SALES DEPT 800/598-7663 J. SMERNOFF 800/598-7663	SALES DEPT 800/598-7663 J. SMERNOFF 800/598-7663	D. ZIEBARTH 800/223-8494 D. ZIEBARTH 800/223-8494	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION
2. PRODUCT NAME	# 81AF MODIFIED BITUMEN ADHESIVE	# 96 AF ELASTOMERIC PRIMER	# 97 FIBERED ALUMINUM	# 97AF NONFIBERED ALUMINUM	# 100AF NONFIBERED EMULSION	#107AF VELVET ROOF COATING	# 155 AMPHIBIKOTE WET/DRY
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER		X				X	
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							X
F. MODIFIED BITUMEN COATING OR CEMENT	X		X	X	X		
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBERED BLACK	NONFIBERED CLEAR	FIBERED ALUMINUM	FIBERED ALUMINUM	NONFIBERED BLACK	NONFIBERED BLACK	FIBERED BLACK
B. COLOR(S) AVAILABLE							
C. SOLIDS CONTENT (% by volume)	8.65				58		
D. WEIGHT PER GALLON (lbs.)	24-48				8.5		
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	1-2	3-4	1-1.5	1-1.5	4-6	1-2	
F. COVERAGE (gals./square)		0.5-1			4-6		
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING			X	X	X		X
2. COMPOSITE ROOFING			X	X	X		X
3. MODIFIED BITUMEN ROOFING			X	X	X		
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING			X	X	X		
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X						X
2. COMPOSITE ROOFING							X
3. METAL ROOFING							
4. OTHER ROOFING	X						
C. PRIMING							
1. BUILT-UP ROOFING					X	X	
2. CONCRETE/WOOD DECKS					X	X	
3. METAL		X					
D. FLASHING							
1. BUILT-UP ROOFING							X
2. COMPOSITE ROOFING							X
3. METAL ROOFING							
4. OTHER ROOFING	X						
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING			X	X		X	
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING			X	X	X		
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING	X						
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING			X	X			
2. REROOFING/MAINTENANCE			X	X			
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, TROWEL, SQUEEGEE	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY	BRUSH, TROWEL, SPRAY	TROWEL
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS		NA					NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS		NA					NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS		METAL ROOFING MAINTENANCE SYSTEM					NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1981	1978	1948	1984	1954	1947	1952
8.1 FOR SALES INFORMATION, CONTACT:	SALES DEPT 800/526-4236	SALES DEPT 800/526-4236	SALES DEPT 800/526-4236	SALES DEPT 800/526-4236	SALES DEPT 800/526-4236	SALES DEPT 800/526-4236	SALES DEPT 800/526-4236
8.2 FOR TECHNICAL INFORMATION, CONTACT:	TECH DEPT 800/526-4236	TECH DEPT 800/526-4236	TECH DEPT 800/526-4236	TECH DEPT 800/526-4236	TECH DEPT 800/526-4236	TECH DEPT 800/526-4236	TECH DEPT 800/526-4236
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



# Roofing Cements and Coatings Part 1: General Information

KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KEMPER SYSTEMS, INC
# 155AF AMPHIBIKOTE WET/DRY	# 169AF NF ALUMINUM	# 170AF TAR CEMENT	# 220AF FIBERED BRUSH EMULSION	# 229AF AR ELASTOMERIC	# 297AF AQUA-LUM EMULSION ALUMINUM	# 298AF ALUMIN-R ELASTOMERIC ALUMINUM	#501AF ELASTO-BRITE	# 505AF ELASTO- BRITE-M	KEMPEROL
X	X	X	X		X				
				CEMENT/COATING		COATING	COATING	COATING	COATING
FIBERED BLACK	NONFIBRATED ALUMINUM	FIBERED BLACK 66 9.59	FIBERED BLACK	FIBERED BLACK 65 8.6	FIBERED ALUMINUM	NONFIBERED SILVER	NONFIBERED VARIOUS	NONFIBERED VARIOUS 50 12.5 48 2	NONFIBRATED VARIETY 99 9.5 3 6.3
	24-48 1-1.5	4	24-48 4	4-15	24-48 1-1.5	8.5 24-48 1.5-2.0	24-48 2		
X X	X X X	X X	X X X	X	X X X	X X X	X		
	X				X	X	X	X	X X
X X		X X		X X X X					X
			X						
X X				X X X X					X
			X			X	X		X
	X		X	X	X	X X		X	
			X						
	X X		X X	X X			X X	X X	X X
TROWEL	BRUSH, SPRAY, ROLLER	TROWEL	BRUSH, SPRAY	BRUSH,ROLLER, TROWEL, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, ROLLER, SPRAY
NA	NA	NA	COLD- PROCESS SYSTEM	NA	NA	NA		NA	
NA	NA	NA	NA	NA	NA	NA		NA	
NA	SURFACING	NA	COLD- PROCESS SYSTEM	COLD- PROCESS SYSTEM		ELASTOMERIC SYSTEM	ARCHITEC- TURAL COATING SYSTEM	METAL ROOFING MAINTENANCE SYSTEM	POLYESTER RESIN, POLYESTER REINFORCMNT
USA 1952	USA 1947	USA 1958	USA 1954	USA 1973	USA 1982	USA 1979	USA 1978	USA 1978	GERMANY 1960
SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	SALES DEPT 800/526-4236 TECH DEPT 800/526-4236	R. WAILES 800/541-5455 TECH DEPT 800/541-5455

## Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	KOKEM PRODUCTS, INC.	KOKEM PRODUCTS, INC.	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS
2. PRODUCT NAME	SUNGUARD	SUNGUARD-R	PRIMER	GEL	BASE	ACRYLIC WHITE	ACRYLIC GRAY
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)	ELAS. ACRY. LTX.	COATING	ADHESIVE	ACRYLIC MASTIC		COATING	COATING
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED		X	NONFIBRATED BLACK, CLEAR	NONFIBRATED WHITE	NONFIBRATED GRAY	NONFIBRATED WHITE	NONFIBRATED GRAY
B. COLOR(S) AVAILABLE	60 ± 2		26	67	65	67	67
C. SOLIDS CONTENT (% by volume)	11.8		8.5	12	12	12	12
D. WEIGHT PER GALLON (lbs.)	6-10		1-24	24	24-48	24-48	24-48
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	0.75-1		0.33-1.5	9	5-7	1-4	1-4
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X	X	X	X
2. COMPOSITE ROOFING	X	X	X	X		X	X
3. MODIFIED BITUMEN ROOFING	X	X	X	X		X	X
4. SINGLE-PLY ROOFING	X	X	X	X	X	X	X
5. OTHER ROOFING	X	X	X	X	X	X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING			X	X		X	X
2. COMPOSITE ROOFING			X	X		X	X
3. METAL ROOFING			X	X		X	X
4. OTHER ROOFING			X	X		X	X
C. PRIMING							
1. BUILT-UP ROOFING			X				
2. CONCRETE/WOOD DECKS			X				
3. METAL			X				
D. FLASHING							
1. BUILT-UP ROOFING			X	X		X	X
2. COMPOSITE ROOFING			X	X		X	X
3. METAL ROOFING			X	X		X	X
4. OTHER ROOFING			X	X		X	X
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING			X	X	X	X	X
2. COAL TAR BUILT-UP ROOFING			X	X	X	X	X
3. METAL ROOFING			X	X		X	X
4. OTHER ROOFING			X	X	X	X	X
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING			X	X	X	X	X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING			X				
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING			X	X	X	X	X
2. REROOFING/MAINTENANCE			X	X	X	X	X
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, TROWEL, RUBBER GLOVE	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS							
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS							
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS			PRIMER + BASE + WHITE+ FABRIC		PRIMER + BASE + WHITE+ FABRIC	PRIMER + BASE + WHITE+ FABRIC	PRIMER + BASE + GRAY+ FABRIC
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1979	1979	1972	1981	1981	1981	1981
8.1 FOR SALES INFORMATION, CONTACT:	R. KO 503/235-9206	R. KO 503/235-9206	M. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733
8.2 FOR TECHNICAL INFORMATION, CONTACT:	R. KO 503/235-9206	R. KO 503/235-9206	L. ANTHENIEN 408/280-7733	L. ANTHENIEN 408/280-7733	L. ANTHENIEN 408/280-7733	L. ANTHENIEN 408/280-7733	L. ANTHENIEN 408/280-7733
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS	METACRYLICS
ACRYLIC STORM CLOUD	ACRYLIC BEIGE	ACRYLIC DESERT SAND	ACRYLIC BRICK RED	ACRYLIC CUSTOM	ACRYLIC PRIMER	ACRYLIC BASE	ACRYLIC WHITE	ACRYLIC COLORS	ACRYLIC GEL
					X				
COATING	COATING	COATING	COATING	COATING		COATING	COATING	COATING	MASTIC
NONFIBRATED STORM CLOUD 67 12 24-48 1-4	NONFIBRATED BEIGE 67 12 24-48 1-4	NONFIBRATED DESERT SAND 67 12 24-48 1-4	NONFIBRATED BRICK RED 67 12 24-48 1-4	NONFIBRATED CUSTOM 67 12 24-48 1-4	NONFIBRATED BLK, WHT, CLR 25 8.5 4 1	NONFIBRATED GRAY 65 12.1 24 5	NONFIBRATED WHITE 67 12.1 12 4	NONFIBRATED ANY COLOR 67 12.1 12 4	NONFIBRATED WHITE, GRAY 66 12.1 24 9
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
	X			X	X	X	X	X	X
	X			X	X	X	X	X	X
	X			X	X	X	X	X	X
	X			X	X	X	X	X	X
	X								X
	X								X
	X								X
	X								X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, TROWEL, RUBBER GLOVE
					NA	NA	NA	NA	NA
					NA	NA	NA	NA	NA
PRIMER+BASE + STORM CLOUD + FABRIC	PRIMER+BASE + BEIGE + FABRIC	PRIMER+BASE + DESERT SAND + FABRIC	PRIMER+BASE + BRICK RED + FABRIC	PRIMER+BASE + CUSTOM + FABRIC					
USA 1981	USA 1981	USA 1981	USA 1981	USA 1981	USA 1974	USA 1974	USA 1974	USA 1974	USA 1974
M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 L. ANTHENIEN 408/280-7733	M. ANTHENIEN 408/280-7733 M. ANTHENIEN 408/280-7733

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR
2. PRODUCT NAME	METALSHIELD PRIMER	METALSHIELD ELASTOMERIC ROOF COATING GRAY	METALSHIELD ELASTOMERIC ROOF COATING WHITE	METALSHIELD FLASHING COMPOUND	PREMIUM UNFIBERED ROOF COATING	PREMIUM FIBERED ROOF COATING	BLIND NAILING/ COLD METHOD CEMENT/ROOF ADHESIVE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER					X	X	X
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)	COATING	COATING	COATING	COATING			
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED	FIBRATED
B. COLOR(S) AVAILABLE	WHITE	GRAY	WHITE	WHITE	BLACK	BLACK	BLACK
C. SOLIDS CONTENT (% by volume)	43.7	44.7	44.7	78.2	56	62	66
D. WEIGHT PER GALLON (lbs.)	10.8	11.6	11.6	11.3	7.6-7.9	8.3	8.0
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	2	2.5	2.5	2.5	4	6	
F. COVERAGE (gals./square)	0.5	1.5	1.5	7-8	1.4-2.0	2.0	2.0
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING		X	X		X	X	
2. COMPOSITE ROOFING					X	X	
3. MODIFIED BITUMEN ROOFING		X	X				
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X	X	X	X		
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING					X		
2. CONCRETE/WOOD DECKS					X		
3. METAL					X		
D. FLASHING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING					X	X	
2. COAL TAR BUILT-UP ROOFING						X	
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							X
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, TROWEL	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE							
8.1 FOR SALES INFORMATION, CONTACT:	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268
8.2 FOR TECHNICAL INFORMATION, CONTACT:	D. TAYLOR 800/523-0268	D. TAYLOR 800/523-0268	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR
ELASTIC ROOF SEALER	#227 PRO GRADE ASBESTOS- FREE FLASH- ING CEMENT	#226 PRO GRADE ASBESTOS- FREE PLASTIC ROOF CEMENT	#300 PREMIUM ALUMINUM ROOF COATING	ASBESTOS- FREE ALUMINUM ROOF COATING	#842 PRO GRADE ASBESTOS-FREE ALUMINUM ROOF COATING	#300 ASBES- TOS-FREE ALUMINUM ROOF COATING	#832 ALUMINUM ROOF PAINT UNFIBERED	#113 PRO GRADE ASPHALT PRIMER	#818 AQUA-BRIGHT ASPHALT EMUL- SION ALUMINUM ROOF COATING
X	X	X	X	X	X	X	X	X	X
FIBRATED BLACK 63 8.6 6 8	FIBRATED BLACK 71 8.9 6 8	FIBRATED BLACK 70 10.6 6 8	FIBRATED ALUMINUM 42 8.2 2 1.0-1.3	FIBRATED ALUMINUM 42 8.2 2 1.0-1.3	FIBRATED ALUMINUM 42 8.2 2 1.0-1.3	FIBRATED ALUMINUM 42 8.2 2 1.0-1.3	NONFIBRATED ALUMINUM 42 8.2 1 0.5-1.0	NONFIBRATED BLACK 56 7.4 4 0.5-1.0	NONFIBRATED ALUMINUM 37 9.0 2 1.5
			X	X	X	X	X		X
			X	X	X	X	X		X
			X	X	X	X	X		
X	X	X							
X	X	X							
X	X	X							
X	X	X							
								X	
								X	
								X	
X	X	X							
X	X	X							
X	X	X							
		X	X	X	X	X	X		X
			X	X	X	X	X		
TROWEL, CAULK	TROWEL, CAULK	TROWEL, CAULK	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
USA	USA	USA	USA	USA	USA	USA	USA	USA	USA
W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598	W. MULLEN 800/523-0268 D. TAYLOR 800/387-9598

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR
2. PRODUCT NAME	#164 PRO GRADE RUBBERIZED ASP. CLAY EMUL. (R.A.C.E.)	ASPHALT FIBERED EMULSION ROOF COATING	MBA GOLD MOD. BITUMEN MEMBRANE ASHESIVE	SPRAY MASTIC COATING ASBESTOS- FREE	LONG-LIFE PREMIUM FIBERED ROOF COATING	#27 PRO GRADE FLASHING CEMENT	LONG-LIFE ASBESTOS- FREE ALL WEA- THER CEMENT
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING				X	X		
C. ASPHALT/COAL TAR CEMENT						X	X
D. ASPHALT EMULSION	X	X					
F. MODIFIED BITUMEN COATING OR CEMENT			X				
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	FIBRATED	FIBRATED	FIBRATED	FIBRATED	FIBRATED	FIBRATED
B. COLOR(S) AVAILABLE	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
C. SOLIDS CONTENT (% by volume)	44	50	62	66	66	68	71
D. WEIGHT PER GALLON (lbs.)	8.5	9.0	8.2 ±2	7.8	8.2	8.6	10.0
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	2	2		6		6	6
F. COVERAGE (gals./square)	1.5	2	1.5	1.5-2.0	2.0	8.0	8.0
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X		X	X		
2. COMPOSITE ROOFING	X	X		X	X		
3. MODIFIED BITUMEN ROOFING	X						
4. SINGLE-PLY ROOFING		X					
5. OTHER ROOFING							
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING						X	X
2. COMPOSITE ROOFING						X	X
3. METAL ROOFING						X	X
4. OTHER ROOFING						X	X
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING						X	X
2. COMPOSITE ROOFING						X	X
3. METAL ROOFING						X	X
4. OTHER ROOFING						X	X
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X		X	X	X	X
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING			X				
2. COLD-PROCESS MODIFIED BITUMEN ROOFING			X				
3. ROLL ROOFING (COATED SHEETS)			X				
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY	BRUSH, SPRAY, NOTCH SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY	TROWEL, CAULK	TROWEL, CAULK
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE							
8.1 FOR SALES INFORMATION, CONTACT:	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268	W. MULLEN 800/523-0268
8.2 FOR TECHNICAL INFORMATION, CONTACT:	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598	D. TAYLOR 800/387-9598
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## Roofing Cements and Coatings Part 1: General Information

[illegible]

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	REPUBLIC POWDERED METALS INC.	REPUBLIC POWDERED METALS INC.	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO
2. PRODUCT NAME	GEOGARD	GEOGARD ALUMINUM	NO. 748 2 LB. ALUMINUM ROOF COATING- AF FIBERATED	NO. 779 ASPHALT PLASTIC ROOF CEMENT WET SURFACE-AF	NO. 301 FIBRATED LIQUID ROOF COATING	NO. 714 FIBRATED LIQUID ROOF COATING AF	NO. 302 ASPHALT LIQUID ROOF COATING
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER			X		X	X	X
B. ASPHALT/COAL TAR COATING				X			
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)	URETHANE	URETHANE					
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED		FIBRATED	FIBRATED	NONFIBRATED
B. COLOR(S) AVAILABLE	GRAY	ALUMINUM	ALUMINUM	BLACK	BLACK	BLACK	BLACK
C. SOLIDS CONTENT (% by volume)	65	80	62		57	67	56
D. WEIGHT PER GALLON (lbs.)	11.0	10	8.6	8.4	7.7	8.0	7.7
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	24	24					
F. COVERAGE (gals./square)	3-5	2-3	1.5	8	3	3	2
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X	X	X	
2. COMPOSITE ROOFING			X	X			
3. MODIFIED BITUMEN ROOFING	X	X	X	X			
4. SINGLE-PLY ROOFING	X						
5. OTHER ROOFING	X		X	X			
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X	X		X	X	X	X
2. COMPOSITE ROOFING				X			
3. METAL ROOFING				X	X	X	X
4. OTHER ROOFING				X			
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING	X	X		X			
2. COMPOSITE ROOFING				X			
3. METAL ROOFING				X			
4. OTHER ROOFING				X			
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING			X		X	X	X
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING			X				
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS				X			
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING	X	X					
2. REROOFING/MAINTENANCE	X	X					
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER, SQUEEGEE	BRUSH, SPRAY, ROLLER, SQUEEGEE	BRUSH, SPRAY	TROWEL, CAULK	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA			NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA			NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA			NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1983	1983	1990	1990	1912	1989	1912
8.1 FOR SALES INFORMATION, CONTACT:	J. MILLIKEN 800/255-1136	J. MILLIKEN 800/255-1136	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300
8.2 FOR TECHNICAL INFORMATION, CONTACT:	D. BATKE 800/255-1136	D. BATKE 800/255-1136	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



# Roofing Cements and Coatings Part 1: General Information

R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO
NO. 713 ASPHALT BITUMEN RESATURANT AF	NO. 315 ASPHALT ROOF PRIMER	NO. 721 ASPHALT EMUL- SION ROOF COATING AF	NO. 351 KWI-K-SET CEMENT	NO. 753 POLYESTER MASTIC AF	NO. 751 KWI-K-SET CEMENT AF	NO. 758 ALUMINUM ROOF COATING AF (FIBRATED)	NO. 608 ALUMINUM ROOF COATING (NONFIBRATED)	NO. 718 3-LB ALUMINUM ROOF COATING AF (FIBRATED)	NO. 618 3-LB ALUMINUM ROOF COATING (NONFIBRATED)
X	X	X	X	X	X	X	X	X	X
FIBRATED BLACK 67 8.0 8	NONFIBRATED BLACK 36 7.3 0.75	FIBRATED BLACK 45 8.6 4	FIBRATED BLACK 63 8.2 3	FIBRATED BLACK 58 7.7 7	FIBRATED BLACK 67 8.1 2-3	FIBRATED ALUMINUM 60 8.4 1.5	NONFIBRATED ALUMINUM 44 7.9 0.75	FIBRATED ALUMINUM 65 8.8 1.5	NONFIBRATED ALUMINUM 48 8.4 1
X		X		X	X	X	X	X	X
					X	X	X	X	X
						X	X	X	X
X		X	X	X	X				
		X	X		X				
	X X								
		X	X	X	X				
X		X		X		X	X	X	X
		X		X		X	X	X	X
			X	X	X				
			X		X				
X				X					
BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH	BRUSH, SPRAY	BRUSH	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY	BRUSH, SPRAY
NA	NA	NA	NA	POLYESTER FABRIC	NA	NA	NA	NA	NA
NA	NA	NA	NA		NA	NA	NA	NA	NA
NA	NA	NA	NA		NA	NA	NA	NA	NA
USA 1977	USA 1959	USA 1959	USA 1954	USA 1982	USA 1990	USA 1990	USA 1954	USA 1990	USA 1975
J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO	R.M. LUCAS CO
2. PRODUCT NAME	NO. 371 ASPHALT PLASTIC ROOF CEMENT	NO. 771 ASPHALT PLASTIC ROOF CEMENT AF	NO. 379 ASPHALT PLASTIC WET SURFACE	NO. 010 TAR-BASE RESATURANT	NO. 071 TAR-BASE PLASTIC ROOF CEMENT	NO. 079 TAR-BASE PLASTIC WET SURFACE	NO. 736 ELASTOMERIC MOD. BIT. ADHES BRUSH
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT	X	X	X	X	X	X	
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							X
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK
B. COLOR(S) AVAILABLE							
C. SOLIDS CONTENT (% by volume)	65	8.4	8.0	9.0	9.6	9.6	8.0
D. WEIGHT PER GALLON (lbs.)	7.7						24-48
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)							1-2
F. COVERAGE (gals./square)	8	8	8	7	8	8	
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING							
2. COMPOSITE ROOFING							
3. MODIFIED BITUMEN ROOFING							
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING							
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X	X	X		X	X	
2. COMPOSITE ROOFING	X	X	X				
3. METAL ROOFING	X	X	X				
4. OTHER ROOFING	X	X	X				
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING	X	X	X		X		
2. COMPOSITE ROOFING	X	X	X				
3. METAL ROOFING	X	X	X				
4. OTHER ROOFING	X	X	X				
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING				X			
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING							
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							X
3. ROLL ROOFING (COATED SHEETS)							X
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE				X			X
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	TROWEL	TROWEL	TROWEL	BRUSH, SPRAY	TROWEL	TROWEL	BRUSH, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1912	1989	1959	1937	1956	1956	1995
8.1 FOR SALES INFORMATION, CONTACT:	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300	J. BARRY 773/523-4300
8.2 FOR TECHNICAL INFORMATION, CONTACT:	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545	R. BARRY 773/523-0545
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

R.M. LUCAS CO	R M LUCAS CO	SOMAY PRODUCTS, INC.	SOMAY PRODUCTS, INC.	SOMAY PRODUCTS, INC.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.
NO. 766 ELAS- TOMERIC MOD. BIT. CEMENT TROWEL	LIQUID MODIFIED COATING	#842-01 ROOF MASTIC	#7751 PRIME & SEAL	#992 PATCH & SEAL	HEAVY DUTY ROOF COATING	HEAVY DUTY PRIMER	HEAVY DUTY PATCHING COMPOUND	HEAVY DUTY GRAVEL ROOF PRESERVATIVE (ASPHALT)	HEAVY DUTY GRAVEL ROOF PRESERVATIVE (COAL TAR)
					X	X		X	X
							X		
X	X								
		COATING	ACRYLIC	SEALANT					
FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED WHITE, RED 53.1	NONFIBRATED CLEAR 11.02	NONFIBRATED WHITE 69.95	FIBRATED BLACK	NON-FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED BLACK	NONFIBRATED BLACK
7.9		11.21	6.9	9.1	8.3	7.2	9.24	8.09	9.75
24-48		1	1	1	1-2	1-2	1-2		
2-4		2	3		2.0-5.0	0.5-2.0	10	7	7
	X				X				
	X				X				
		X	X	X	X				
	X						X		
	X						X		
	X	X	X	X			X		
		X	X	X		X			
						X			
						X			
		X	X	X					
	X				X			X	
	X				X				X
	X	X	X	X	X				
X									
X	X								
X		X	X	X					
X		X	X	X					
		X	X	X					
	X	X	X	X					
TROWEL, CAULK	BRUSH, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	TROWEL, CAULK	BRUSH, SPRAY	BRUSH, SPRAY
NA		NA	NA	NA					
					X	X	X		
NA		NA	NA	NA					
					X	X	X		
NA									
USA 1995	USA 1997	USA 1966	USA 1986	USA 1985	USA 1933	USA 1933	USA 1933	USA 1980	USA 1980
J. BARRY 773/523-4300 R. BARRY 773/523-0545	J. BARRY 773/523-4300 R. BARRY 773/523-0545	G. PARKER 305/633-6333 W. HARPER 305/633-6333	G. PARKER 305/633-6333 W. HARPER 305/633-6333	G. PARKER 305/633-6333 W. HARPER 305/633-6333	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.
2. PRODUCT NAME	FLEX-SHIELD ROOF COATING	FLEX-SHIELD PRIMER	FLEX-SHIELD PATCHING COMPOUND	FLEX-SHIELD "EM" ROOF COATING	FLEX-SHIELD "EM" PATCHING COMPOUND	ALUMINUM ROOF COATING	ADHESIVE #9
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING						X	
C. ASPHALT/COAL TAR CEMENT							X
D. ASPHALT EMULSION	X	X	X				
F. MODIFIED BITUMEN COATING OR CEMENT				X	X		
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED BLACK	NONFIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED SILVER-GREEN	BLACK
B. COLOR(S) AVAILABLE							
C. SOLIDS CONTENT (% by volume)	8.5	8.41	9.57	8.7	8.8	9.69	8.4
D. WEIGHT PER GALLON (lbs.)	2-4	2-4	2-4	2-4	2-4	1-2	1-2
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	1.75-9.0	0.25-1.5	10	2.5-6.0	10	1.0-1.5	1.5-4.0
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X			X		X	
2. COMPOSITE ROOFING	X			X		X	
3. MODIFIED BITUMEN ROOFING	X			X		X	
4. SINGLE-PLY ROOFING	X			X		X	
5. OTHER ROOFING	X			X		X	
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING			X		X		X
2. COMPOSITE ROOFING			X		X		
3. METAL ROOFING			X		X		
4. OTHER ROOFING			X		X		
C. PRIMING							
1. BUILT-UP ROOFING		X					
2. CONCRETE/WOOD DECKS		X					
3. METAL		X					
D. FLASHING							
1. BUILT-UP ROOFING			X		X		
2. COMPOSITE ROOFING			X		X		
3. METAL ROOFING			X		X		
4. OTHER ROOFING			X		X		
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X			X		X	
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X			X		X	
4. OTHER ROOFING	X			X		X	
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							X
3. ROLL ROOFING (COATED SHEETS)							X
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER, SQUEEGEE	TROWEL	BRUSH, SPRAY, ROLLER	TROWEL	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER, SQUEEGEE
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS							
SEE BUILT-UP ROOFING SECTION IF CHECKED	X	X	X	X	X	X	X
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS							
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED	X	X	X	X	X	X	X
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS							
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1970	1970	1970	1994	1994	1933	1933
8.1 FOR SALES INFORMATION, CONTACT:	SALES DEPT. 800/877-9372	SALES DEPT. 800/877-9372	SALES DEPT. 800/877-9372	SALES DEPT. 800/877-9372	SALES DEPT. 800/877-9372	SALES DEPT. 800/877-9372	SALES DEPT. 800/877-9372
8.2 FOR TECHNICAL INFORMATION, CONTACT:	TECH. DEPT.	TECH. DEPT.	TECH. DEPT.	TECH. DEPT.	TECH. DEPT.	TECH. DEPT.	TECH. DEPT.
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SOUTHWESTERN PETROLEUM CORP.	SPM THERMO- SHIELD INC.	SPM THERMO- SHIELD INC.	SUNGUARD MARKETING CORP.	TAMKO ROOFING PRODUCTS INC
ALUMINUM ROOF SHIELD	WHITE ACRYLIC COATING	ANTI-RUST COATING	GUARDIAN SEAMLESS ROOF COATING	GUARDIAN GENERAL PURPOSE PRIMER	GUARDIAN EPDM CLEANER/ PRIMER	THERMO SHIELD ROOF COATING	THERMO SHIELD ROOF COATING	CORP. SEAL	TAM-PRO FIBERED EMULSION COATING
X		X							X
	X		HYBRID	ACRYLIC	ACRYLIC	X	ACRYLIC	X	
NONFIBRATED SILVER	NONFIBRATED WHITE	NONFIBRATED RED, GRAY, GRN	85	25	25	SEVERAL			FIBRATED BLACK
8.6 1-2 0.3-0.67	10.6 2 1.0-2.0	11.6 2 0.25-0.4	8 0.5 2.5-3.5	8.46 1-2 0.5-1.5	8.43 0.5-1 0.25	10		0.25	50 ±5 8.5 8-24 3
X	X		X			X	X	X	X
X	X		X			X	X	X	X
X	X		X			X	X	X	X
X	X		X			X	X	X	X
			X			X	X		
			X			X	X		
			X			X	X		
				X		X			
		X		X		X			
			X			X			
			X			X			
			X			X			
X	X					X	X		X
X	X	X				X	X		X
X	X					X	X		X
						X			
						X			
						X			
			X			X	X		
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	SQUEEGEE, ROLLER			BRUSH, SPRAY, ROLLER	ROLLER, SPRAY	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, SQUEEGEE
								NA	
X	X							NA	
								NA	
X	X					ACRYLIC UNDER- COAT, POLY- FORCE CLOTH, TOPCOAT	CAN BE USED WITH- WITHOUT POLY- ESTER REINFORC- ING FABRIC	NA	
USA 1933	USA 1975	USA 1950	USA 1996	USA 1996	USA 1996	USA 1984	USA 1984	USA	USA 1990
SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 800/877-9372 TECH. DEPT.	SALES DEPT. 605/673-3201 TECH. DEPT.	SALES DEPT. 800/538-2955 TECH DEPT	R. KO 503/235-9206 R. KO 503/235-9206	DISTRICT OFF. TECH SERVICE 800/641-4691

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC
2. PRODUCT NAME	TAM-PRO Q-15 ELASTOMERIC FLASHING CEMENT	TAM-PRO PLASTIC ROOFING CEMENT	TAM-PRO FIBERED ROOF COATING	TAM-PRO COLD- APPLICATION CEMENT	TAM-PRO WET OR DRY SUR- FACE PLASTIC ROOF. CEMENT	TAM-PRO HEAVY-BODIED FLASHING CEMENT	TAM-PRO FIBERED ALUMINUM ROOF COATING
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING			X				X
C. ASPHALT/COAL TAR CEMENT	X	X		X	X	X	
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED BLACK	FIBRATED SILVER
B. COLOR(S) AVAILABLE	70	80 ±5	50	60 ±5	80 ±5	75 ±5	40
C. SOLIDS CONTENT (% by volume)	9	9.5	84	8.4	9.5	9.0	8.4
D. WEIGHT PER GALLON (lbs.)	8	8	8-12	12-24	8	8	2-4
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	8	8	1-4	2	8	8	1.5
F. COVERAGE (gals./square)							
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING			X				X
2. COMPOSITE ROOFING			X				X
3. MODIFIED BITUMEN ROOFING			X				X
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING			X				X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X	X		X	X	X	
2. COMPOSITE ROOFING	X	X		X	X	X	
3. METAL ROOFING	X	X		X	X	X	
4. OTHER ROOFING	X	X		X	X	X	
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING	X	X			X	X	X
2. COMPOSITE ROOFING	X	X			X	X	X
3. METAL ROOFING	X	X			X	X	X
4. OTHER ROOFING	X	X			X	X	X
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING			X				
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING			X				
4. OTHER ROOFING			X				
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING	X	X		X	X	X	
2. COLD-PROCESS MODIFIED BITUMEN ROOFING	X	X		X	X	X	
3. ROLL ROOFING (COATED SHEETS)	X	X		X	X	X	
4. SHINGLES, TILE, OTHER STEEP PRODUCTS	X	X		X	X	X	
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	TROWEL	TROWEL	BRUSH, SPRAY, ROLLER, SQUEEGEE	BRUSH	TROWEL, CAULK	TROWEL	BRUSH, SPRAY
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS							
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS							
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS							
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1990	1990	1990	1990	1990	1990	1990
8.1 FOR SALES INFORMATION, CONTACT:	DISTRICT OFF.	DISTRICT OFF.	DISTRICT OFF.	DISTRICT OFF.	DISTRICT OFF.	DISTRICT OFF.	DISTRICT OFF.
8.2 FOR TECHNICAL INFORMATION, CONTACT:	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691	TECH SERVICE 800/641-4691
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.
TAM-PRO NONFIBERED ALUMINUM ROOF COATING	TAM-PRO FIRE- RATED (FR) FI- BERED ALUM. ROOF COATING	TAM-PRO CPA SBS ADHESIVE	TAM-PRO CPA SBS FLASHING CEMENT	TAM-PRO ASPHALT PRIMER	ALUMINUM ROOF COATING	TEXOTROPIC	QUICK-DRY ANTIOXIDENE	ALUMINUM METAL SEAL CEMENT	ALUMINUM METAL SEAL COATING
X	X			X	X	X	X		
		X	X					X	X
NONFIBRATED SILVER 40 7.6 2-4 1	FIBRATED SILVER 42 8.6 2-4 1.5	FIBRATED BLACK 58 ±2 8.5 1-4 1.5	FIBRATED BLACK 68 ±2 9.0 8	NONFIBRATED BLACK 50 ±5 7.6 1-2 1	NONFIBRATED ALUMINUM 46 8.17	FIBRATED ALUMINUM 64 8.16	NONFIBRATED BLACK 7.15 0.33	FIBRATED ALUMINUM 39 ±2 7.2-7.6 24	NONFIBRATED ALUMINUM 34 ±2 7.2-7.6 24 1
X X X X	X X X X				X X	X X		X	X
		X X	X X					X	X
				X X X			X		
X X X X	X X X X		X X X					X	
					X	X	X	X	X
		X X X X							
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY	BRUSH, SPRAY, SQUEEGEE	TROWEL, CAULK	BRUSH, SPRAY, ROLLER	SPRAY, ROLLER	SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	TROWEL	ROLLER, BRUSH
					MIGHTYPLY TYPE II GLAS-BASE POLY-MAT	MIGHTYPLY TYPE II GLAS-BASE POLY-MAT	NA	NA	NA
					MIGHTYPLATE SINGLE-PLY	MIGHTYPLATE SINGLE-PLY	NA	NA	NA
					NA	NA	NA	NA	NA
USA 1990	USA 1990	USA 1990	USA 1990	USA 1990	USA	USA	USA	USA	USA
DISTRICT OFF. TECH SERVICE 800/641-4691	DISTRICT OFF. TECH SERVICE 800/641-4691	DISTRICT OFF. TECH SERVICE 800/641-4691	DISTRICT OFF. TECH SERVICE 800/641-4691	DISTRICT OFF. TECH SERVICE 800/641-4691	J. MCGEE 800/827-0711 TECH SERVICE 800/827-0711	J. MCGEE 800/827-0711 TECH SERVICE 800/827-0711	J. MCGEE 800/827-0711 TECH SERVICE 800/827-0711	J. MCGEE 800/827-0711 TECH SERVICE 800/827-0711	J. MCGEE 800/827-0711 TECH SERVICE 800/827-0711

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.	TEXAS REFINERY CORP.
2. PRODUCT NAME	MIGHTYPLATE ROOF COATING	MIGHTYPLATE II	MIGHTYPLATE PRIMER	MIGHTYPLATE PLASTIC CEMENT	MIGHTYPLATE WINTER PATCH	BEIGE METAL SEAL COATING	WHITE METAL SEAL COATING
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER			X				
B. ASPHALT/COAL TAR COATING	X	X		X	X		
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT						X	X
G. ELASTOMERIC COATING OR CEMENT (specify type)							
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED	FIBRATED	NONFIBRATED	FIBRATED	FIBRATED	NONFIBRATED	NONFIBRATED
B. COLOR(S) AVAILABLE	BLACK	BLACK	BLACK	BLACK	BLACK	BEIGE	WHITE
C. SOLIDS CONTENT (% by volume)	71.5	73.5	70	79	74.7	40.2	40.2
D. WEIGHT PER GALLON (lbs.)	7.83	8.33	7.79	9.6	8.92	7.8-8.4	7.8-8.4
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)						4	4
F. COVERAGE (gals./square)						1	1
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X				
2. COMPOSITE ROOFING							
3. MODIFIED BITUMEN ROOFING							
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING						X	X
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING	X	X		X	X		
2. COMPOSITE ROOFING				X	X		
3. METAL ROOFING				X	X	X	X
4. OTHER ROOFING							
C. PRIMING							
1. BUILT-UP ROOFING	X	X	X				
2. CONCRETE/WOOD DECKS			X				
3. METAL			X				
D. FLASHING							
1. BUILT-UP ROOFING				X	X		
2. COMPOSITE ROOFING				X	X		
3. METAL ROOFING				X	X		
4. OTHER ROOFING							
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X				
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING						X	X
4. OTHER ROOFING							
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING	X	X		X	X		
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)				X	X		
4. SHINGLES, TILE, OTHER STEEP PRODUCTS				X	X		
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	BRUSH, SPRAY, SQUEEGEE	TROWEL	TROWEL	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	MIGHTYPLY TYPE II GLAS-BASE POLY-MAT	MIGHTYPLY TYPE II GLAS-BASE POLY-MAT	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE							
8.1 FOR SALES INFORMATION, CONTACT:	J. MCGEE 800/827-0711	J. MCGEE 800/827-0711	J. MCGEE 800/827-0711	J. MCGEE 800/827-0711	J. MCGEE 800/827-0711	J. MCGEE 800/827-0711	J. MCGEE 800/827-0711
8.2 FOR TECHNICAL INFORMATION, CONTACT:	TECH SERVICE 800/827-0711	TECH SERVICE 800/827-0711	TECH SERVICE 800/827-0711	TECH SERVICE 800/827-0711	TECH SERVICE 800/827-0711	TECH SERVICE 800/827-0711	TECH SERVICE 800/827-0711
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable



# Roofing Cements and Coatings Part 1: General Information

TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TREMCO, INC.	TREMCO, INC.
TOPCOAT MEMBRANE	FLASHING GRADE	MP-300	MB-PRIMING SYSTEM	FLEXSEAL	SB-900 FLASHING GRADE	SKYLITE	ONESTEP PRIMECOAT	ELS	POLYROOF L.V.
			X					X	
			X						
			X						
SYN. RUBBER	SYN. RUBBER			SYN RUBBER	SYN. RUBBER	SYN RUBBER			CEMENT
NONFIBRATED UNLIMITED	NONFIBRATED LT. GRAY, WHITE	NONFIBRATED LT. BLUE	NONFIBRATED WHITE	NONFIBRATED WHITE	NONFIBRATED WHITE	NONFIBRATED CLEAR	NONFIBRATED UNLIMITED	FIBRATED BLACK	NONFIBRATED BLACK
58	56	42	51	76	78	40	50		
12.5	12	10	11.5	10	10.5	7.5	10	9.3	8.1
2	2	1	1	1	1	0.5	1		
1.5-3		1	2			2	1.5	8	8
			X						
X							X		
								X	X
X	X		X	X	X	X			
	X								
		X					X		
								X	X
	X			X	X				
	X								
X							X		
X						X			
X									
X									
SPRAY	BRUSH, CAULK	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, TROWEL	BRUSH,CAULK, TROWEL	BRUSH, ROLLER	SPRAY, ROLLER	TROWEL	TROWEL
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MEMBRANE COMPONENT OF ROOF SYSTEM	FLASHING COMPONENT OF ROOF SYSTEM	RUST INHIBITOR COMPONENT OF ROOF SYSTEM	ASPHALT PATCH SEALANT COM- PONENT OF ROOF SYSTEM	INTERNAL GUTTER LINER COMPONENT OF ROOF SYSTEM	SOLVENT- BASE FLASHING COMPONENT	FIBERGLASS SKYLIGHT SEALER	RUST- INHIBITING MAINTENANCE PAINT	NA	NA
USA	USA	USA	USA	USA	USA	USA	USA	USA	CANADA
1979	1979	1980	1983	1993	1984	1989	1994		
M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	M. FORTSON 800/323-0009 C. LEIBY 800/323-0009	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.
2. PRODUCT NAME	TREMFIX	FIBERMAT	SHEETING BOND	SHEETING BOND	TREMPRIME W.B.	DOUBLE DUTY ALUMINUM L.V.	POLARCOTE
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY A. ASPHALT PRIMER B. ASPHALT/COAL TAR COATING C. ASPHALT/COAL TAR CEMENT D. ASPHALT EMULSION F. MODIFIED BITUMEN COATING OR CEMENT G. ELASTOMERIC COATING OR CEMENT (specify type)	X	X			X	X	
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES A. FIBRATED/NONFIBRATED B. COLOR(S) AVAILABLE C. SOLIDS CONTENT (% by volume) D. WEIGHT PER GALLON (lbs.) E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry) F. COVERAGE (gals./square)	FIBRATED BLACK 9.1 8	FIBRATED BLACK 10.1 8	NONFIBRATED BLACK 8.7 4	NONFIBRATED WHITE 8.7 4	NONFIBRATED BLACK 8.8 0.5	NONFIBRATED ALUMINUM 9.1 0.5	NONFIBRATED WHITE ACRYLIC
4. USES A. SURFACING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. MODIFIED BITUMEN ROOFING 4. SINGLE-PLY ROOFING 5. OTHER ROOFING B. PATCHING/REPAIRING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. METAL ROOFING 4. OTHER ROOFING C. PRIMING 1. BUILT-UP ROOFING 2. CONCRETE/WOOD DECKS 3. METAL D. FLASHING 1. BUILT-UP ROOFING 2. COMPOSITE ROOFING 3. METAL ROOFING 4. OTHER ROOFING E. RESATURATION/RESURFACING 1. ASPHALT BUILT-UP ROOFING 2. COAL TAR BUILT-UP ROOFING 3. METAL ROOFING 4. OTHER ROOFING F. COLD-PROCESS ADHESIVE/LAP CEMENT 1. COLD-PROCESS BUILT-UP ROOFING 2. COLD-PROCESS MODIFIED BITUMEN ROOFING 3. ROLL ROOFING (COATED SHEETS) 4. SHINGLES, TILE, OTHER STEEP PRODUCTS G. LIQUID-APPLIED MEMBRANE 1. NEW ROOFING 2. REROOFING/MAINTENANCE							
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	TROWEL	TROWEL	TROWEL	TROWEL	BRUSH, SPRAY, ROLLER	ROLLER, BRUSH	BRUSH, SPRAY, ROLLER
6. ROOF SYSTEM DESCRIPTION (or NA) A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS  SEE BUILT-UP ROOFING SECTION IF CHECKED B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS  SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA	NA  NA  NA
7.1 COUNTRY OF MANUFACTURE	CANADA	USA	CANADA	CANADA	CANADA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE							
8.1 FOR SALES INFORMATION, CONTACT:	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE	SALES OFFICE
8.2 FOR TECHNICAL INFORMATION, CONTACT:	TECHNICAL DEPARTMENT	TECHNICAL DEPARTMENT	TECHNICAL DEPARTMENT	TECHNICAL DEPARTMENT	TECHNICAL DEPARTMENT	TECHNICAL DEPARTMENT	TECHNICAL DEPARTMENT
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

# Roofing Cements and Coatings Part 1: General Information

TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	TREMCO, INC.	UNIFLEX
TREMLASTIC	ECOLASTIC	TREMLAR LRM-H	TREMLAR LRM-V	TREMLITE METAL PRIMER WB	TREMLITE MASTIC	TREMLITE COATING	POLARCOTE FR	TREMLASTIC S	ELASTOMERIC (10 YEAR)
X	X	X	X					X	
				ACRYLIC	ACRYLIC	ACRYLIC	ACRYLIC		COATING
FIBRATED BLACK	FIBRATED BLACK	NONFIBRATED BLACK	NONFIBRATED BLACK	NONFIBRATED GRAY	NONFIBRATED WHITE	NONFIBRATED WHITE	NONFIBRATED WHITE 67	NONFIBRATED BLACK 50	
8.4	8.6	8.8	9.1	9.9	10.3	11.7	12.2	8.4	52 ± 2
4	7	4	4	0.2	6	0.75	1/COAT	4	11.7
									1
									2.5-3.0
X							X	X	
X							X	X	
						X			X
				X	X				
				X		X			
				X		X			
X	X								
X	X								X
X									X
									X
ROLLER, BRUSH	ROLLER, BRUSH	SQUEEGEE	TROWEL	BRUSH, SPRAY, ROLLER	TROWEL	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA			NA	NA	NA	NA	NA	NA
USA	USA	CANADA	CANADA	USA	USA	USA	CANADA	USA	USA 1987
SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES OFFICE TECHNICAL DEPARTMENT	SALES 800/321-0572 D. DESTRO

# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	UNIFLEX	UNIFLEX	UNIFLEX	UNIFLEX	UNIFLEX	UNIFLEX	UNIFLEX
2. PRODUCT NAME	UNIFLEX 500 ALUMINUM (10 YEAR)	UNIFLEX 300 ALUMINUM (5 YEAR)	UNIFLEX 100 ALUMINUM	LO-VOC ALUMINUM (10 YEAR)	SEAM SEALER	ACRYLIC PATCH CEMENT	ALUMINUM PATCH CEMENT
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER	X	X	X	X			
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							X
D. ASPHALT EMULSION							
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)					POLY JNT SEALANT	CEMENT	
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED	FIBRATED	FIBRATED	FIBRATED	FIBRATED	NONFIBRATED	NONFIBRATED	FIBRATED
B. COLOR(S) AVAILABLE						WHITE, GRAY	
C. SOLIDS CONTENT (% by volume)	42 ± 2	41.5 ± 2	44 ± 2	61 ± 2	95 MIN.	50 ± 2	
D. WEIGHT PER GALLON (lbs.)	8.75	8.60	8.60	9.6	13	10.5	8.4
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	4-6	4-6	4-6	4-6	2-3	1-2	4-6
F. COVERAGE (gals./square)	2.0-2.5	2.0-2.5	1.5-2.5	2.0-3.0		0.5	0.25
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING	X	X	X	X			
2. COMPOSITE ROOFING	X	X	X	X			
3. MODIFIED BITUMEN ROOFING	X	X	X	X			
4. SINGLE-PLY ROOFING							
5. OTHER ROOFING	X	X	X	X		X	
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING							X
2. COMPOSITE ROOFING							X
3. METAL ROOFING					X	X	X
4. OTHER ROOFING						X	X
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS							
3. METAL							
D. FLASHING							
1. BUILT-UP ROOFING						X	
2. COMPOSITE ROOFING						X	
3. METAL ROOFING				X	X	X	
4. OTHER ROOFING				X		X	
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING	X	X	X	X			
2. COAL TAR BUILT-UP ROOFING							
3. METAL ROOFING	X	X	X	X			
4. OTHER ROOFING	X	X	X	X			
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							X
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							X
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING							
2. REROOFING/MAINTENANCE	X	X	X	X			
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, TROWEL, CAULK	TROWEL, BRUSH	TROWEL, BRUSH
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1946	1946	1946	1984	1987	1984	1984
8.1 FOR SALES INFORMATION, CONTACT:	SALES 800/321-0572	SALES 800/321-0572	SALES 800/321-0572	SALES 800/321-0572	SALES 800/321-0572	SALES 800/321-0572	SALES 800/321-0572
8.2 FOR TECHNICAL INFORMATION, CONTACT:	D. DESTRO	D. DESTRO	D. DESTRO	D. DESTRO	D. DESTRO	D. DESTRO	D. DESTRO
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## Roofing Cements and Coatings Part 1: General Information

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# Roofing Cements and Coatings Part 1: General Information

1. COMPANY NAME	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS	UNITED COATINGS
2. PRODUCT NAME	ACRYLEX 300	ROOF SHIELD 60	BERM 500	BERM 600/ UNITED 600	ELASTRON 858	UNI-TILE SEALER	ALUMISEAL PRIMER
3.1 PRODUCT DESCRIPTION, GENERAL CATEGORY							
A. ASPHALT PRIMER							
B. ASPHALT/COAL TAR COATING							
C. ASPHALT/COAL TAR CEMENT							
D. ASPHALT EMULSION			X				
F. MODIFIED BITUMEN COATING OR CEMENT							
G. ELASTOMERIC COATING OR CEMENT (specify type)	ACRYLIC	ACRYLIC		ACRYLIC	BUTYL	EPOXY	URETHANE
3.2 PRODUCT DESCRIPTION, GENERAL FEATURES							
A. FIBRATED/NONFIBRATED					TAN		
B. COLOR(S) AVAILABLE					60	15	55
C. SOLIDS CONTENT (% by volume)	38	60	60	55			
D. WEIGHT PER GALLON (lbs.)	10.2	11.5	12	11.5			8.6-9.2
E. DRYING TIME (hours, 50% R.H. at 70° F, touch dry)	0.50	2	4	2	4-6	30 MIN.	1-2
F. COVERAGE (gals./square)	0.40	2-3	3-5	1.5-2	3	0.25-0.5	0.33
4. USES							
A. SURFACING							
1. BUILT-UP ROOFING		X					
2. COMPOSITE ROOFING		X		X			
3. MODIFIED BITUMEN ROOFING		X	X	X			
4. SINGLE-PLY ROOFING		X	X	X			
5. OTHER ROOFING		X	X		X	X	
B. PATCHING/REPAIRING							
1. BUILT-UP ROOFING			X				
2. COMPOSITE ROOFING							
3. METAL ROOFING			X		X	X	
4. OTHER ROOFING			X		X	X	
C. PRIMING							
1. BUILT-UP ROOFING							
2. CONCRETE/WOOD DECKS						X	
3. METAL	X					X	X
D. FLASHING							
1. BUILT-UP ROOFING			X				
2. COMPOSITE ROOFING							
3. METAL ROOFING			X				
4. OTHER ROOFING			X				
E. RESATURATION/RESURFACING							
1. ASPHALT BUILT-UP ROOFING			X				
2. COAL TAR BUILT-UP ROOFING			X				
3. METAL ROOFING			X		X	X	X
4. OTHER ROOFING			X		X	X	X
F. COLD-PROCESS ADHESIVE/LAP CEMENT							
1. COLD-PROCESS BUILT-UP ROOFING							
2. COLD-PROCESS MODIFIED BITUMEN ROOFING							
3. ROLL ROOFING (COATED SHEETS)							
4. SHINGLES, TILE, OTHER STEEP PRODUCTS							
G. LIQUID-APPLIED MEMBRANE							
1. NEW ROOFING				X			
2. REROOFING/MAINTENANCE			X	X			
5. APPLICATION METHOD(S) (BRUSH, CAULK, ROLLER, SPRAY, SQUEEGEE, TROWEL)	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
6. ROOF SYSTEM DESCRIPTION (or NA)							
A. ASPHALT BUILT-UP ROOF MEMBRANE COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE BUILT-UP ROOFING SECTION IF CHECKED							
B. MODIFIED BITUMEN MEMBRANE ROOF COMPONENTS	NA	NA	NA	NA	NA	NA	NA
SEE MODIFIED BITUMEN ROOFING SECTION IF CHECKED							
C. LIQUID-APPLIED MEMBRANE ROOF COMPONENTS	NA	ROOF MATE BASE COAT, TOP COAT, & POLY- ESTER FABRIC	BERM 500, BERM 600, & POLYESTER FABRIC	BERM 500, BERM 600, & POLYESTER FABRIC	ELASTRON 858	UNI-TILE SEALER	ALUMISEAL
7.1 COUNTRY OF MANUFACTURE	USA	USA	USA	USA	USA	USA	USA
7.2 YEAR OF FIRST COMMERCIAL USE	1993	1988	1990	1990	1965	1970	
8.1 FOR SALES INFORMATION, CONTACT:	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383
8.2 FOR TECHNICAL INFORMATION, CONTACT:	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383	B. MANN 800/541-4383
9. SEE MEMBRANE APPENDIX IF CHECKED							

NA=not applicable

## Roofing Cements and Coatings Part 1: General Information

UNITED COATINGS	UNITED COATINGS
ADHERE-IT EPDM PRIMER	UNIBASE PRIMER
URETHANE	ACRYLIC
55 8.9 1 0.33-0.5	TRANS. GREEN  1 0.5-1
	X X X
X	X X X
BRUSH, SPRAY, ROLLER	BRUSH, SPRAY, ROLLER
NA	NA
NA	NA
ADHERE-IT	UNIBASE
USA 1995	USA 1996
B. MANN 800/541-4383 B. MANN 800/541-4383	B. MANN 800/541-4383 B. MANN 800/541-4383

# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.	ACRYMAX TECHNOLOGIES INC.
2. PRODUCT NAME	ACRYMAX AF-130	ACRYMAX AF-130 FR	ACRYMAX ACM 9000	ACRYMAX AF-130 XT
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	NO	YES	NO	
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)			TYPE III	
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)				
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)				
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)				
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)				
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)				
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	ACRYMAX TECHNOLOGIES INC.	ALCO-NVC, INC.	ALCO-NVC, INC.	ALCO-NVC, INC.
2. PRODUCT NAME	ACRYMAX AF-130 BC	#216 AF FLASHING CEMENT	#269T AF SBS TROWEL GR	#269 AF SBS PLUS ADHESIVE
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				CLASS A
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)				
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)				
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)				
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)		TYPE I	TYPE I	
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)				
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)				
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				



## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS
2. PRODUCT NAME	WET/DRY CEMENT, ASBESTOS FREE	FLASHTITE	FLASHTITE, ASBESTOS FREE	GLAS-MASTIC
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		TYPE I, CLASS II		
5. SEE MEMBRANE APPENDIX IF CHECKED	TYPE I		TYPE I	TYPE I

1. COMPANY NAME	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS	ALUMINUM COATING MANU- FACTURERS
2. PRODUCT NAME	NEOPRENE RUBBER ROOF CEMENT	RUBBERIZED CEMENT	ASPHALT MASTIC TROWEL GRADE	ASPHALT MASTIC BRUSH GRADE
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		TYPE II, CLASS II		
5. SEE MEMBRANE APPENDIX IF CHECKED		TYPE I		

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY
2. PRODUCT NAME	# 1866 PREMIUM FIBERED ALUMINUM	# 1868 PREMIUM ALUMINUM	# 1870 SILVER SEAL	# 1931 ATCOPRIME
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO		
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY	AMERICAN TAR COMPANY
2. PRODUCT NAME	# 1860 ALUMINUM ASPHALT COATING	# 1864 ATCOSHIELD2	# 4200 ATCOWHITE	# 5000 ATCOBRITE
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
2. PRODUCT NAME	FORTRESS TAR COATING RESATURANT	FORTRESS ASPHALT RESATURANT	FORTRESS ACRYLIC PRIMER	FORTRESS HEAVY DUTY NONFIBERED ASPH. EMULSION
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				TYPE III
5. SEE MEMBRANE APPENDIX IF CHECKED				TYPE I

1. COMPANY NAME	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
2. PRODUCT NAME	FORTRESS COLD PROCESS ADHESIVE	FORTRESS ASPHALT PRIMER	FORTRESS HEAVY DUTY FIBERED ASPH. EMULSION	FORTRESS ACRYLIC MOD. ASPHALT EMULSION
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		YES	TYPE IV	
5. SEE MEMBRANE APPENDIX IF CHECKED	TYPE III		TYPE I	

## Roofing Cements and Coatings Part 2: Technical Data

THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY
FORTRESS HEAVY DUTY FIBERED ALUM. ROOF COATING	FORTRESS HEAVY DUTY NONFIBR. ALUM. ROOF COATING	FORTRESS FIBERED ALUMINUM ROOF COATING	FORTRESS NONFIBERED ALUM. ROOF COATING	FORTRESS WHITE ELASTOMERIC COATING	ROOFERS PRIDE PLASTIC CEMENT 1000	ROOFERS PRIDE ALL WEATHER ROOF CEMENT 2000	ROOFERS PRIDE NEOPRENE FLASHING CEMENT 1500	ROOFERS PRIDE FIBERED ROOF & FOUNDATION COATING 3000	ROOFERS PRIDE NONFIBR. ROOF & FOUNDATION COATING 6000
								TYPE I	
TYPE III	TYPE I	TYPE III	TYPE I						
					TYPE I	TYPE I	TYPE I		
					YES	YES			

THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	THE BREWER COMPANY	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.
FORTRESS TROWEL-GRADE ASPH. EMULSION	FORTRESS WHITE ACRYLIC CEMENT	ROOFERS PRIDE ALL ASPHALT PRIMER 7000	ROOFERS PRIDE COLD PROCESS ADHESIVE 8000	ROOFERS PRIDE NONFIBERED EMULSION 4000	ROOFERS PRIDE FIBERED ALUMINUM ROOF COATING 5000	FORTRESS TAR PRIMER	ELASTIGUM ROOFER'S CEMENT	NOAH'S PITCH PLASTIC COMPOUND	S.I.S. ADHESIVE
							CLASS A, B, C CLASS A, B, C YES	CLASS A, B, C CLASS A, B, C YES	CLASS A, B, C CLASS A, B, C YES
		YES							
						YES			
TYPE IV				TYPE III					
					TYPE III				
							TYPE I, II		
			TYPE III						TYPE III
								YES	
				TYPE I					

# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.
2. PRODUCT NAME	SBS MODIFIED BITUMEN FLASHING CEMENT	ALUMINUM ROOF COATING (FIBRATED)	ALUMINUM ROOF COATING (NONFIBRATED)	ELASTIGUM ROOF COATING
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A, B, C CLASS A, B, C YES	CLASS A, B, C CLASS A, B, C YES		CLASS A, B, C CLASS A, B, C YES
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				TYPE I, II  TYPE I  TYPE III
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.	CELOTEX CORP.
2. PRODUCT NAME	AWP ALL WEATHER PLASTIC CEMENT	SBS MODIFIED BITUMEN ADHESIVE	ASPHALT PRIMER	FLAT TOP EMULSION
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A, B, C CLASS A, B, C YES	CLASS A, B, C CLASS A, B, C YES	CLASS A, B, C CLASS A, B, C YES	CLASS A, B, C CLASS A, B, C YES
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		YES       TYPE I, II  TYPE III		TYPE IV
5. SEE MEMBRANE APPENDIX IF CHECKED				



## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.
2. PRODUCT NAME	PRO SBS FLASHING CEMENT	PRO NEO-SEAL NEOPRENE ROOF CEMENT	PRO ROOFLOX 300 ALUMINUM FIBRE COATING	PRO BRITE 200 ALUMINUM FIBRE COATING
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)				
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)			TYPE III	TYPE III
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)				
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)				
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)	TYPE II, III			
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)				
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.	DEWITT PRODUCTS CO.
2. PRODUCT NAME	PRO LAP CEMENT	PRO SBS ADHESIVE	PRO SILVER SHIELD 300 ALUMINUM COATING NO FIBRE	PRO SILVER SHIELD 200 ALUMINUM COATING NO FIBRE
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)				
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)			TYPE I	TYPE I
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)				
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)				
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)	TYPE II, III	TYPE II, III		
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)				
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION
2. PRODUCT NAME	F670 MOBLSHIELD	M860 POLRBRITE	M850 POLRSHIELD	F700 POWRGARD
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				TYPE III
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION	FIELDS CORPORATION
2. PRODUCT NAME	F630, F640, F650 FIBERED ALUMINUM COATING	F600 FLAMEBLOC	M700 RUBRGARD	F750 RAINGARD
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO	CLASS A, B CLASS A, B NO
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)			TYPE III	TYPE IV
5. SEE MEMBRANE APPENDIX IF CHECKED				

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION
2. PRODUCT NAME	GAF WEATHERCOAT EMULSION	RUBEROID MODIFIED BITUMEN ASHESIVE	RUBEROID MODIFIED BITUMEN FLASHING CEMENT	GAF JETBLAK PREMIUM FLASHING CEMENT
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A			
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)	TYPE IV			
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	GAF MATERIALS CORPORATION	THE GARLAND COMPANY	THE GARLAND COMPANY	THE GARLAND COMPANY
2. PRODUCT NAME	GAF ALUMINUM EMULSION	VITAPLY	GRAVITOP	GARLA-SHIELD
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A			
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	GMX, INC.	GMX, INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.
2. PRODUCT NAME	ULTRA-SHIELD FIBERED ALUMINUM	ULTRA-SHIELD NONFIBERED ALUMINUM	GRUNDY PLASTIC CEMENT	GRUNDY ROOF CEMENT (AF)
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)				
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)		TYPE I		
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)			TYPE I, CLASS I	
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)				TYPE I
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)				
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)				
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.
2. PRODUCT NAME	GRUNDY PLASTIC CEMENT WET SURFACE (AF)	GRUNDY FLASHING CEMENT	GRUNDY NO. 22 FLASHING CEMENT (AF)	GRUNDY NO. 22 ELASTOMERIC CEMENT (AF)
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)				
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)				
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)		TYPE I, CLASS I		
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)	TYPE I		TYPE I	TYPE I
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)				
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)	YES		YES	YES
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				



## Roofing Cements and Coatings Part 2: Technical Data

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GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.	GRUNDY INDUSTRIES INC.
GRUNDY PLYGRIP M.B. ADHESIVE	GRUNDY a1MB-AF ALUMINUM COATING	GRUNDY #200 FIBRE ALUMINUM ROOF COATING	GRUNDY #220 NONFIBERED ALUMINUM ROOF COATING	GRUNDY NO. 20 F AF EMULSION	GRUNDY NO. 20 NF EMULSION	GRUNDY NO. 120 ALUMINUM ROOF EMULSION	GRUNDY NO. 2415 WHITE ROOF COATING	GRUNDY FIBRE ROOF (AF) MASTIC TYPE II	BOARDLOCK #222
CLASS A	CLASS A CLASS B			CLASS A	CLASS A	CLASS A			
					TYPE III				
				TYPE IV					
TYPE II								TYPE II	
	TYPE III	TYPE III	TYPE I						
									TYPE I
X	X			X					

# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	HENRY CO.	HENRY CO.	HENRY CO.	HENRY CO.
2. PRODUCT NAME	#209 ELASTOMASTIC	#289 ELASTOCAULK	#203 COLD-AP	#120 PREMIUM ALUMINUM
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)			CLASS A	
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				TYPE I
5. SEE MEMBRANE APPENDIX IF CHECKED			TYPE III	

1. COMPANY NAME	HENRY CO.	HENRY CO.	HENRY CO.	HENRY CO.
2. PRODUCT NAME	#902 PERMANENT BOND ADHESIVE	#204 PLASTIC ROOF CEMENT	#403 SPRAY-GRADE COLD-AP	#100 ELASTO- MULSION
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A		CLASS A	
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		TYPE I, CLASS I		
5. SEE MEMBRANE APPENDIX IF CHECKED	TYPE III		TYPE III	

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION
2. PRODUCT NAME	#501AF ELASTO-BRITE	# 505AF ELASTO-BRITE-M	# 97 FIBERED ALUMINUM	# 97AF FIBERED ALUMINUM
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)		CLASS A		
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)			TYPE II	TYPE III
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION
2. PRODUCT NAME	# 155 AMPHIBIKOTE WET/DRY	# 169AF NF ALUMINUM	# 170AF TAR CEMENT	# 220AF FIBERED BRUSH EMULSION
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		TYPE I		TYPE II
5. SEE MEMBRANE APPENDIX IF CHECKED	YES		YES	

## Roofing Cements and Coatings Part 2: Technical Data

KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KARNAK CORPORATION	KEMPER SYSTEMS, INC.	KOKEM PRODUCTS INC.	METACRYLICS	METACRYLICS
# 100AF NONFIBERED EMULSION	#107AF VELVET ROOF COATING	# 96 AF ELASTOMERIC PRIMER	# 298AF ALUMIN-R ELASTOMERIC ALUMINUM	# 19 ULTRA RUBBERIZED FLASHING CEMENT	# 81AF MODIFIED BITUMEN ADHESIVE	KEMPEROL	SUNGUARD	ACRYLIC GRAY	ACRYLIC STORM CLOUD
						CLASS A, B	CLASS A, B	CLASS A CLASS A	CLASS A CLASS A
TYPE III									
				TYPE I					
					TYPE III				
				YES					
TYPE II									
						X			

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	METACRYLICS	METACRYLICS	METACRYLICS	MONSEY BAKOR
2. PRODUCT NAME	GEL	BASE	ACRYLIC WHITE	METALSHIELD ELASTOMERIC ROOF COATING GRAY
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A CLASS A	CLASS A CLASS A	CLASS A CLASS A	CLASS A YES
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)	YES	YES	YES	
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR	MONSEY BAKOR
2. PRODUCT NAME	PREMIUM FIBERED ROOF COATING	BLIND NAILING/ COLD METHOD CEMENT/ROOF ADHESIVE	ELASTIC ROOF SEALER	#27 PRO GRADE FLASH-ING CEMENT
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)	TYPE I			
5. SEE MEMBRANE APPENDIX IF CHECKED			TYPE 1, CLASS 1,	TYPE I, CLASS I

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	MONSEY BAKOR	MONSEY BAKOR	NATIONAL COATINGS CORPORATION	NATIONAL COATINGS CORPORATION
2. PRODUCT NAME	#225 PRO GRADE ASBESTOS-FREE ALL WEATHER CEMENT	METAL SHIELD PRIMER	ACRYSHIELD	ACRYFLEX
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)			CLASS A CLASS A	
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)	TYPE I			
	YES			
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	REPUBLIC POWDERED METALS INC.	REPUBLIC POWDERED METALS INC.	REPUBLIC POWDERED METALS INC.	REPUBLIC POWDERED METALS INC.
2. PRODUCT NAME	PERMAFLEX	ALUMAMATION 301	GEOGARD	GEOGARD ALUMINUM
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)		CLASS A CLASS A	CLASS A CLASS A	
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)	TYPE II	TYPE III		
5. SEE MEMBRANE APPENDIX IF CHECKED				



## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	R.M. LUCAS CO.	R.M. LUCAS CO.	R.M. LUCAS CO.	R.M. LUCAS CO.
2. PRODUCT NAME	NO. 766 ELAS-TOMERIC MOD. BIT. ADHESIVE TROWEL	NO. 748 2 LB. ALUMINUM ROOF COATING-AF FIBERATED	NO. 079 TAR-BASE PLASTIC WET SURFACE	NO. 736 ELAS-TOMERIC MOD. BIT. ADHESIVE BRUSH
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		TYPE III		
5. SEE MEMBRANE APPENDIX IF CHECKED	TYPE I	TYPE III, GRADE 2	YES	TYPE I, GRADE 2

1. COMPANY NAME	R.M. LUCAS CO.	R.M. LUCAS CO.	SOMAY PRODUCTS, INC.	SOMAY PRODUCTS, INC.
2. PRODUCT NAME	NO. 779 ASPHALT PLASTIC ROOF CEMENT WET SURFACE-AF	NO. 721 ASPHALT EMULSION ROOF COATING AF	#842-01 ROOF MASTIC	#7751 PRIME & SEAL
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)		TYPE I		
5. SEE MEMBRANE APPENDIX IF CHECKED	YES			

## Roofing Cements and Coatings Part 2: Technical Data

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## Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	SUNGUARD MARKETING CORP.	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC	TAMKO ROOFING PRODUCTS INC
2. PRODUCT NAME	PROTECTO- SEAL	TAM-PRO HEAVY-BODIED FLASHING CEMENT	TAM-PRO FIBERED ALUMINUM ROOF COATING	TAM-PRO NONFIBERED ALUMINUM ROOF COATING
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)				
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)			TYPE III	TYPE I
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)				
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)		TYPE I		
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)				
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)		YES		
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	TAM-PRO ROOFING PRODUCTS INC	TAM-PRO ROOFING PRODUCTS INC	TAM-PRO ROOFING PRODUCTS INC	TAM-PRO ROOFING PRODUCTS INC
2. PRODUCT NAME	TAM-PRO FIBERED EMULSION COATING	TAM-PRO COLD-APPLICATION CEMENT	TAM-PRO WET OR DRY SUR-FACE PLASTIC ROOF. CEMENT	TAM-PRO Q-15 ELASTOMERIC FLASHING CEMENT
3. FIRE RATINGS				
A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C)				
B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C)				
C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH:				
A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response)				
C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response)	TYPE IV			
D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response)				
E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response)				
F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response)				
G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response)				
H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response)			TYPE I	TYPE I
I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response)		TYPE III		
J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response)			YES	YES
K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)				
L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response)				
M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response)				
N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION
2. PRODUCT NAME	MB-PRIMING SYSTEM	FLEXSEAL	MP-300	ONESTEP RUST PRIMER
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A CLASS A NO	CLASS A CLASS A NO	CLASS A CLASS A NO	
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

1. COMPANY NAME	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TOPCOAT, INC., A SUBSIDIARY OF GAF MATERIALS CORPORATION	TREMCO, INC.	TREMCO, INC.
2. PRODUCT NAME	SB-900 FLASHING GRADE	SKYLITE	ELS	TREMLAR LRM-H
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)	CLASS A CLASS A NO	CLASS A CLASS A NO		
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)  L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				

## Roofing Cements and Coatings Part 2: Technical Data

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# Roofing Cements and Coatings Part 2: Technical Data

1. COMPANY NAME	UNIFLEX	UNIFLEX	UNIFLEX	UNIFLEX
2. PRODUCT NAME	UNIFLEX 300 ALUMINUM (5 YEAR)	UNIFLEX 100 ALUMINUM	LO-VOC ALUMINUM (10 YEAR)	WATER BASED MATAL PRIMER
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response) L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)			TYPE III	
5. SEE MEMBRANE APPENDIX IF CHECKED				
1. COMPANY NAME	UNIFLEX	UNIFLEX	UNIFLEX	UNIFLEX
2. PRODUCT NAME	SEAM SEALER	ACRYLIC PATCH CEMENT	BLACK ASPHALT PRIMER	RED ZINC PRIMER
3. FIRE RATINGS A. UL CLASSIFICATION(S) AS A PART OF ANY ROOFING SYSTEM PER ANSI/UL 790 (Class A, B, and/or C) B. FIRE RATING(S) AS A PART OF ANY ROOF SYSTEM PER ASTM E 108 (Class A, B, and/or C) C. FM CLASS 1 FIRE RATING AS A PART OF ANY ROOF SYSTEM (yes/no)				
4. COMPLIES WITH: A. ASTM D 41-94 STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING (yes or no response) B. ASTM D 43-94 STANDARD SPECIFICATION FOR COAL TAR PRIMER USED IN ROOFING, DAMPROOFING, AND WATERPROOFING (yes or no response) C. ASTM D 1227-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR BUILT-UP ROOFING (Type I, II, III, IV, or no response) D. ASTM D 2823-90 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS (Type I, II, or no response) E. ASTM D 4479-93 STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS-ASBESTOS-FREE (Type I, II, or no response) F. ASTM D 2824-94 STANDARD SPECIFICATION FOR ALUMINUM-PIGMENTED ASPHALT ROOF COATINGS, NON-FIBERED, ASBESTOS FIBERED, AND FIBERED WITHOUT ASBESTOS (Type I, II, III, or no response) G. ASTM D 2822-91 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT (Type I and Class I or Class II, or Type II and Class I OR II, or no response) H. ASTM D 4586-93 STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS FREE (Type I, II, or no response) I. ASTM D 3019-94 STANDARD SPECIFICATION FOR LAP CEMENT USED WITH ASPHALT ROLL ROOFING ROOFING, NON-FIBERED, ASBESTOS FIBERED, AND NON-ASBESTOS FIBERED (Grade 1 or 2, Type I; Type II; Type III; or no response) J. ASTM D 3409-93 STANDARD TEST METHOD FOR ADHESION OF ASPHALT-ROOF CEMENT TO DAMP, WET, OR UNDERWATER SURFACES (yes or no response) K. ASTM D 4022-94 STANDARD SPECIFICATION FOR COAL TAR ROOF CEMENT (yes or no response)  L. ASTM D 3747-95 STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT ADHESIVE FOR ADHERING ROOF INSULATION (Type I, II, or no response) M. ASTM D 1187-95 STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS USED AS PROTECTIVE COATINGS FOR METAL (Type I, II, or no response) N. ASTM D 3468-90 STANDARD SPECIFICATION FOR LIQUID-APPLIED NEOPRENE AND CHLOROSULFONATED POLYETHYLENE USED IN ROOFING AND WATERPROOFING (Grade 1 or 2, Type I; Type II; or no response)				
5. SEE MEMBRANE APPENDIX IF CHECKED				



## Roofing Cements and Coatings Part 2: Technical Data

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## Appendix, Roofing Cements and Coatings

### ACRYMAX TECHNOLOGIES, INC.

AcryMax AF-130 series coatings are formulated for specific purposes and are differentiated by the suffix at the end of the AF-130 designations. For example, AF-130 BC designates a base coat formulation and AF-130 FR designates a fire-retardant version. All AF-130 series coatings are based on 100 percent acrylic technology.

### THE BREWER COMPANY

Fortress Tar Roof Cement conforms to ASTM D 5643-94 *Standard Specification for Coal Tar Roof Cement, Asbestos Free*.

### ERSYSTEMS

HER 202: For sealing metal roof systems, fasteners and penetrations is available as a brushable flashing grade (FG) version and the extrudable (EX) version for rapidly pumping and placement of the product along seams. The products differ only in viscosity and thixotropy.

HER 202 is used as the metal roof sealer in both the polyurethane system (polyurethane metal primer and finish coat) and the acrylic system (acrylic metal primer and finish coat).

Eraguard 1100: is a 100% acrylic based coating, identical to Eraguard 1000, and filled with fibers to allow thicker placement on vertical or other steep surfaces without sag and with uniform drying capability.

### GRUNDY INDUSTRIES, INC.

PlyGrip Modified Bitumen Adhesive achieves a UL Class A rating as an alternative to hot mopping asphalt for adherence of base/ply and/or SBS modified bitumen membranes for many roofing systems classifications. When using PlyGrip with SBS modified bitumen products, obtain the membrane manufacturer's approval before proceeding.

a1MB-AF applied at a rate of 1 to 2 gallons per square provides a UL Class A rating over BUR and numerous modified bitumen membranes. Contact Grundy Industries for a complete listing of approved manufacturers (800/435-1210).

### HENRY COMPANY

#111 InsulBond Roof Insulation Adhesive is a solvent-free rubberized asphalt emulsion formulated for laminating solvent-sensitive polystyrene foam board and adhering it to a variety of overlay boards and substrates. It is ideal for tapered insulation systems. InsulBond exceeded FM I-90 wind uplift requirements in tests at an independent laboratory.

### KEMPER SYSTEMS, INC.

Kemperol is an extremely durable fluid-applied polyester resin and polyester fabric-reinforced monolithic membrane. The unsaturated polyester resin offers resistance to ultraviolet and to most chemicals and bonds to most substrate materials, including concrete, metals, wood, glass, plastics, and existing roofing. The fully adhered, seamless, and inert system is rot- and rootproof. Twenty-year warranties are available when Kemperol is applied by trained and certified contractors.

### *Section 3*

# *Roof Membrane Warranties*

## Introduction

The warranty section of the *Commercial Low-Slope Roofing Materials Guide* provides information on warranties offered by materials manufacturers applicable to their built-up, modified bitumen, and single-ply membrane products listed in the *Guide*. The information is derived from two sources: an examination of the warranty or guarantee document itself and the manufacturer's responses to a questionnaire sent by NRCA.

All manufacturers with the referenced categories of membrane products appearing in the *Guide* are invited to submit their warranties for examination and listing. Those without warranty listings have elected not to participate.

For each warranty, there are 27 categories, or items, of information listed. The information provided in the following categories was obtained by an examination of the document itself:

### No. Item of Information

- 1 Identity of issuing entity
- 4 Scope of coverage
- 6 Nature of remedy
- 8 Notification requirements
- 9 Exclusive or additional remedy
- 10 Inclusion of consequential damages
- 11 Determination of warranty applicability
- 12 Specific exclusions from coverage
- 14 Specific conditions to make warranty ineffective or null and void
- 25 Assignability
- 26 Special features/conditions
- 27 Executed by owner

In addition, information in the following categories was provided by the manufacturer in response to a questionnaire accompanying the warranty document:

### No. Item of Information

- 2 Title, original publication date, and identifying symbol (if any)
- 3 Product specification or system covered
- 5 Length of coverage
- 13 Wind coverage/exclusion
- 15 Cost to obtain
- 16 Minimum charge
- 17 Ineligible structures or building uses
- 18 Pre-construction notice and approval requirements
- 19 Approved, authorized, or licensed contractor
- 20 Job inspection policy
- 21 Contractor's post-installation obligation

- 22 Backed by named insured or surety company
- 23 Issuing entity manufacturers and/or sells products
- 24 Conditions for renewal or extension

In response to this information, NRCA endeavors to prepare an accurate, comprehensive, and objective listing for each warranty submitted by a manufacturer. Generally, a separate listing is generated for each document; sometimes, however, a manufacturer uses the same warranty document to cover different roofing systems, specifications, or products, and, in addition, the lengths of coverage, the cost to obtain it, the minimum charge, or the monetary limitations vary. In such cases, there may be more than one listing for a particular warranty reflecting these differences.

A blank space appears for a category of information if the relevant data is not provided by a manufacturer. Brackets ([ ]) are used in listings to indicate information that a manufacturer feels is pertinent but that may not be contained in the document or at least was not apparent to NRCA in its review. In effect, the use of bracketed statements provides a means for manufacturers to disagree with the analysis made of the document by NRCA; in some instances, these statements may even contradict NRCA's conclusions concerning the import of language in a warranty.

It should be noted that the name of the manufacturer as it appears in Item 1 Identity of Issuing Entity may not necessarily be identical to or even the same as the one listed in the membrane index or elsewhere in the membrane section. This is because the name appearing in the warranty section is the name of the entity *appearing in the warranty document itself*. For example, if a manufacturer changes its corporate name but does not change a warranty document that bore its original name, the original will appear in the warranty section. Or if one company purchases the assets of another, upon request NRCA simply moves the products of the acquired company under the name of the company that acquired it. In the warranty section, on the other hand, this may not be possible: until warranty documents bearing the new corporate name are provided NRCA, the name of the entity must remain as it appears in the documents. An explanation of such situations is sometimes provided in a footnote in the warranty section in order to clarify an apparent discrepancy in corporate names.

By necessity, the warranty listings in the *Guide* present rather succinctly a great deal of information contained in the manufacturers' warranties, as well as the policies surrounding them. For this reason, the reader should obtain and examine the warranty document itself, discuss additional questions with a representative of the party issuing the warranty, and obtain professional advice

from counsel when desired. A warranty has significant legal consequences: therefore, all parties should understand the document at the outset of a construction project to preclude subsequent misunderstandings.

The warranty section of the *Commercial Low-Slope Roofing Materials Guide* is prepared by the firm of Hendrick, Phillips, Schemm & Salzman, Atlanta, Ga., in coordination with NRCA staff.

## Understanding the Warranty Listing

Following are descriptions of the kind of data that is contained in the 27 categories of information included in each warranty listing.

**1. Identity of issuing entity** This is the name of the legal entity that issues and is obligated to honor the warranty document. In most instances, this entity is the manufacturer of the product covered by the warranty (but see the explanation of Item 23 for more information in this regard).

**2. Title, original publication date, and identifying symbol (if any)** The title listed is the title printed on the warranty document. The original publication date is the date that the manufacturer first promulgated the warranty form; the document may subsequently be reprinted in the exact same form. Some manufacturer's warranties contain an identifying symbol, or code, that is frequently a combination of numbers and letters, usually in the bottom right-hand or left-hand corner of the document. This identifying symbol indicates the precise document that was reviewed by NRCA. (For the reader to be certain that the warranty document he has in his possession is the same one listed in the *Guide*, the title of the document and the identifying symbol, if any, should match exactly.)

**3. Product, specification, or system covered** This is an enumeration of the manufacturer's products, roof specifications, or roofing systems that are covered by the warranty. If properly updated by the manufacturer, the reader should be able to identify these products or specifications in the various product listings in the membrane section.

**4. Scope of coverage** In most instances, the initial portion of this entry will be either *material and workmanship* or *material only*.\* (*Material and workmanship* indicates that the warranty covers both a defect in the materials supplied by the manufacturer and a deficiency in the workmanship of the applicator. The term *workmanship* refers to the workmanship of the contractor and is meant to indicate whether improper or defective workmanship on the part of the roofing contractor/appliator is encompassed under the manufacturer's warranty.)

After this entry is made, ensuing information supplied in this category usually corresponds to the language used in the warranty document. Virtually all roof membrane warranties provide only for repairs to leaks, regardless of whether they cover materials only or materials and workmanship.

**\*Note:** *If the manufacturer's warranty covers defective material and the remedy includes replacement of the defective material plus labor necessary to replace that defective material with the new material, but the warranty does not state that a leak caused by improper application of the roofing applicator is covered, the initial entry under scope of coverage will not state material and workmanship. The fact that the manufacturer will provide the labor necessary to replace defective material is covered under Item 6 Nature of Remedy.*

**5. Length of coverage** This is the number of years for which the manufacturer will issue the warranty. In most instance, this period commences upon the completion of the roof installation or final inspection and approval by the manufacturer. In a few instances, particularly in the cases of material-only warranties, the coverage period may begin at the time of sale or invoice date.

**6. Nature of remedy** This heading states what action the manufacturer will take in the event that there is a problem with the roof covered under the warranty. The language used in this category generally parallels that appearing in the warranty document. For most roof membrane warranties, the remedy provided is the repair of leaks.

**7. Monetary limitations** The information provided for this category indicates whether the warranty contains a monetary limitation of the manufacturer's obligation under its warranty. The phrase *none stated* indicates that there is no monetary limitation stated in the document, meaning that the manufacturer is obligated to spend whatever sum is necessary in order to honor its warranty. Although most commercial roofing warranties in use today do not contain specific penal sum limitation (as historically was included in roofing bonds offered by roofing materials manufacturers and their sureties), many warranties limit the manufacturer's liability over the life of the warranty to the owner's original cost of the installed roof system. Some warranties, particularly material-only ones, are limited to the original purchase price of the materials; others are limited to a particular per-square amount based on the size of the roof. The existence of or the amount of a monetary limitation may be dependent upon the specific manufacturer's specification or product used. If the manufacturer prorates the maximum amount available over the life of the warranty, prorating information is included as well. The prorating is usually expressed in terms of a percentage available in the later years of a roof

warranty.

**8. Notification requirements** In this category is information concerning the action that an owner or other claimant is to take in order to make a warranty claim; of particular importance is the prescribed time period in which a leak or defect is to be reported to the manufacturer. If the warranty contains specific notification requirements, they are set forth here. Most warranties require that claimants provide the manufacturer with written notice of a warranty claim within 30 days of the discovery of a leak or purported defect. Some warranties require notice within 10 days and/or that written notice be sent by registered or certified mail.

**9. Exclusive or additional remedy** Under general legal principles, unless the warranty document specifically excludes other warranties and remedies that may be available to the owner and the owner agrees to be bound by the warranty terms, the rights and remedies set forth in the warranty document are in addition to those warranties, rights, and remedies that may be available to the owner or other claimant under state statutory or common law. In addition to providing an owner with specific rights, warranty documents are frequently used as a liability-limiting device so that the liability of the party issuing the warranty is limited to what is prescribed in the warranty document. If the warranty states that it is an exclusive warranty and is issued in lieu of all other warranties, the claimant may not be entitled to seek recovery from the manufacturer based on the breach of any other warranties, express or implied.

The manufacturer's warranty may exclude or seek to exclude the implied and express warranties established by the Uniform Commercial Code (UCC). The UCC, as adopted in most states, provides that a warranty is implied in a contract for the sale of goods that the goods shall be merchantable if the seller is a merchant of goods of that kind. To be merchantable goods must be fit at least for the ordinary purposes for which such goods are used, must conform to the promises or affirmations made on the container or label, and must pass without objection in the trade under the contract description. An implied warranty of fitness for particular purpose is created under the UCC when the seller at the time of contracting has reason to know any particular purpose for which the goods are required and that the buyer is relying on the seller's skill or judgment to select or furnish suitable goods.

In addition to those implied warranties, the UCC provides that express warranties are created when the seller (1) makes an affirmation of fact or promise to the buyer that relates to the goods and becomes a part of the basis of the bargain; (2) gives a description of the goods that is made part of the basis of the bargain; (3) provides a sample or model of the goods that is made a part of the

basis of the bargain.

UCC implied warranties may be excluded in accordance with the requirements set forth in the Uniform Commercial Code.

In addition to seeking to make the warranty an exclusive warranty, a manufacturer's warranty may seek to limit the other remedies that the law would otherwise make available to a claimant. A warranty that states that it is the owner's exclusive remedy might limit the claimant's rights to the terms of the warranty and preclude a claim based on another legal theory of liability. Some warranty documents state that remedy provided in the warranty is the owner's "sole and exclusive remedy" and is the manufacturer's sole liability and obligation in the event of a roof problem regardless of whether the owner might otherwise be entitled to pursue a legal claim for breach of contract, negligence, or another legal theory of recovery.

The purpose of the category Exclusive or Additional Remedy is to give the reader an indication as to how the manufacturer's warranty may impact other warranties and remedies that may be available to an owner. The phrase *excludes UCC warranties* in this category means that it appears that the warranty document complies with the UCC requirement to exclude warranties established under the Uniform Commercial Code.

**10. Inclusion of consequential damages** The word *no* in this category indicates that the warranty does not have cover consequential damages that may result from a roof leak, such as damage to the interior of the building. The majority of roof warranties expressly exclude consequential damages.

**11. Determination of warranty applicability** Some warranties state explicitly that the manufacturer has the right to determine whether a leak is covered or excluded from warranty coverage. The entry *manufacturer's determination* indicates that manufacturer reserves to itself the right to determine whether a leak is covered or excluded from warranty coverage. Under these circumstances, the manufacturer's determination may be binding, even if it is erroneous and regardless of whether other parties disagree, provided that the manufacturer's determination was made in good faith.

If the entry in this category states *neutral (no provision)*, the manufacturer's warranty does not contain an explicit provision giving it the right to determine whether the warranty is or is not applicable to a problem. In the event of a dispute concerning the warranty's applicability, a neutral party would ultimately decide whether the warranty is applicable in this case.

**12. Specific exclusions from coverage** Most roofing warranties state that leaks resulting from certain enumer-

ated causes (e.g., natural disasters tornadoes, abuse or misuse) will not be covered. A numeric code is used in this category to reference specific exclusions from coverage, a key for which is provided below. The list of specific exclusions is a compilation of those appearing in warranty documents submitted to NRCA; the language appearing in the index is not necessarily the exact language appearing in a specific warranty document, but it reflects the same exclusion.

The absence of a specific exclusion from coverage does not necessarily mean that a warranty will be applicable to a condition or occurrence not specifically excluded. The applicability of the warranty will generally be determined from the information contained under the category Scope of Coverage.

#### Index of Specifically Enumerated Exclusions from Coverage

1. Natural disasters and acts of God (lightning, tornadoes, earthquakes)
2. Hail
3. Acts of negligence, abuse or misuse, accidents, vandalism, civil disobedience, war
4. Damage by structural failure, settlement, movement, distortion, warpage, displacement of structure
5. Failure of the material and/or metal work not supplied by the manufacturer issuing the warranty; movement of metal work
6. Repairs or alterations of roof or installation of structures, fixtures, or utilities on or through roof without prior approval of manufacturer
7. Defects in, failure or improper application of, roof insulation, roof deck, or any other underlying surface of material used as a base over which the roof is applied
8. Change in usage of building without prior written approval of manufacturer
9. Traffic or storage of materials on roof
10. Moisture entering roof system through walls, copings, or any part of the building structure, including from adjacent building
11. Damage resulting from lack of positive, proper, or adequate drainage; ponding on roof
12. Negligence or failure of owner to use reasonable care in maintenance of roof or failure to follow manufacturer's maintenance specifications
13. Environmental fallout, chemical attack or use within building of commercial or industrial sol-

vents, acids, caustic fluids, oils, waxes, greases, absorbent clays, or plasticizers

14. Discoloration or change in usual appearance due to acceleration or streaking of dirt or other airborne material
15. Repairs performed or materials furnished by others in correcting leaks unless specifically authorized and approved by manufacturer; unauthorized repairs; roof maintenance for corrections other than leaks
16. Fire
17. Faulty construction or design of building, including parapet walls, copings, chimneys, skylights, vents, or of roof deck
18. Contaminants that have not been approved first or accepted by manufacturer; exposure to or contact with damaging substances on deteriorating substances or agents
19. Defects or failure caused by misapplication of materials or by application not in strict adherence with roofing specification, application instructions, and approved practices
20. Installation of roofing membrane
21. Abnormal climatic conditions
22. Infiltration or condensation of moisture in or through underlying area; vapor condensation beneath the roof
23. Damages caused by falling objects
24. Acts of parties other than manufacturer or authorized roofing contractor
25. Penetration of the roof membrane by vegetation

**13. Wind coverage/exclusion** The purpose of this category is to convey the manufacturer's policy in regard to whether damage to the roof caused by wind is covered under the warranty. The information presented is based upon an examination of the warranty document to determine if it addresses the issue of leaks, damages, or conditions resulting from wind and the manufacturer's response to a questions concerning this issue.

Many manufacturers' warranties list either gales, strong gales, wind storms, and/or hurricanes and tornadoes as examples of natural disasters or acts of God that are specifically excluded from warranty coverage. This information is covered in the first sentence under the Wind Coverage/exclusion category. In order to provide more specific, affirmative information regarding the manufacturer's policy concerning wind coverage, NRCA asks manufacturers to identify the wind speed that is

covered by each of their warranties or to state that the warranty does not cover damage to the roof caused by wind regardless of speed—meaning that any damage resulting from wind, even at extremely low speeds, is excluded from warranty coverage.

NRCA references the Beaufort Scale in its questions to manufacturers concerning wind speed. The Beaufort Scale rates winds on a scale of 1 to 12 and utilizes widely accepted definitions, as shown below.

The second sentence under the Wind Coverage/exclusion category, based on NRCA's questions, indicates what speeds, if any, the manufacturer covers. If NRCA believes that the manufacturer's response is potentially inconsistent with the wind exclusions stated in the warranty or creates an ambiguity, the manufacturer's response is included in brackets. If the warranty document does not address the subject of wind, the informa-

tion is based exclusively upon the manufacturer's response to the NRCA wind questions. If the manufacturer does not respond to the wind questions but the warranty addresses the subject of wind, the information is based exclusively on an examination of the warranty document. If the category remains blank, the warranty does not address the wind issue and the manufacturer did not respond to the wind questions.

**14. Specific conditions to make warranty ineffective or null and void** In addition to excluding warranty coverage for leaks resulting from specifically enumerated exclusions, manufacturers' warranties may provide that the entire warranty is ineffective or null and void under certain conditions. Unlike the category Specific Exclusions from Coverage, Category 14 refers to those conditions stated in the warranty document that will make the warranty null and void or ineffective in its entirety, as opposed to simply not being responsive to a particular leak.

Beaufort Scale			
Beaufort Number	International Description	Miles per Hour	Specification
0	calm	less than 1	calm; smoke rises vertically
1	light air	1-3	direction of wind shown by smoke but not by wind vanes
2	light breeze	4-7	wind felt on face; leaves rustle; ordinary vane moved by wind
3	gentle breeze	8-12	leaves and small twigs in constant motion; wind extends light flag
4	moderate breeze	13-18	raises dust and loose paper; small branches are moved
5	fresh breeze	19-24	small trees in leaf begin to sway; crested wavelets form on inlet islands
6	strong breeze	25-31	large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty
7	moderate (or near) gale	32-38	whole trees in motion; inconvenience in walking
8	gale (or fresh gale)	39-46	breaks twigs off trees; generally impedes progress
9	strong gale	47-54	slight structural damage occurs
10	storm (or whole gale)	55-63	trees uprooted; considerable damage occurs
11	violent storm	64-72	accompanied by widespread damage
12	hurricane	73*-136	devastation occurs

\* The U.S. uses 74 statute mph as the speed criterion for hurricanes.

For example, a warranty may indicate that repairs, alterations, or additions without the prior approval of the manufacturer make the warranty null and void; this differs from the statement that a leak resulting from a repair or alteration not previously approved by the manufacturer is excluded, or not covered, under the warranty. An alphabetic code is used in this category to reference speci-

fic conditions to make warranty ineffective or null or void, a key for which is provided below. The list of specific conditions is a compilation of conditions that appear in roof warranties submitted to NRCA; the language appearing in the various conditions is not necessarily the exact language appearing in a specific warranty document.



## Index of Specific Conditions to Make Warranty Ineffective or Null and Void

- A. Lack of inspection at time of application or owner's refusal to allow inspection
  - B. Repairs, alterations, and additions without prior approval of manufacturer
  - C. Failure of the owner to pay all bills for roof installation and materials
  - D. Failure to notify within specified number of days of transfer of ownership
  - E. Failure to submit accurate, completed inspection report or checklist, within prescribed time period
  - F. Failure to use reasonable care in maintenance; failure to follow manufacturer's maintenance instructions
  - G. Failure to comply with terms and conditions of warranty
  - H. Failure to notify manufacturer within prescribed time of discovery of leak
  - I. Owner's unwillingness to accept manufacturer's warranty in lieu of all other remedies and to return signed copy to manufacturer; owner's failure to execute the warranty
  - J. Change in building usage or a significant change in use of building affecting roof membrane
  - K. Assignment of warranty without written approval of manufacturer
  - L. Lack of validation by manufacturer
  - M. Failure of owner to make repairs to leaks not covered by manufacturer's warranty
  - N. Repair work by any contractor other than approved contractor or use of unapproved contractor
  - O. Building is used in any manner or for any purpose other than the purpose for which it was intended
  - P. Roof is used as a promenade or work deck
  - Q. Roof is flooded
  - R. Membrane or materials supplied by manufacturer are not applied according to manufacturer's specifications or instructions
  - S. Failure to repair damaged roof within specified time period, by approved applicator
- 15. Cost to obtain** This is the amount, if any, that the manufacturer charges to obtain the warranty. The word *None* entered in this category means that there is no separate charge, apart from the cost of purchasing the

materials, for the warranty. When there is a separate charge, it will generally be stated on a per-square (100 square feet) basis.

**16. Minimum charge** If the manufacturer has a minimum charge policy for obtaining the warranty, the amount will be entered in this category.

**17. Ineligible structures or building use** If the manufacturer does not offer its warranties for roofs on certain types of buildings or for buildings used for certain purposes, the types of structures or uses ineligible for warranty coverage will be listed here. Private residences may not be eligible for warranty coverage even though a specific exclusion is not listed. Generally manufacturers with a warranty that excludes residential properties intend to exclude single-family homes and similar structures, but they may still offer the warranty for apartment buildings, cooperatives, or condominium properties.

**18. Pre-construction notice and approval requirements** This category is where it is noted whether the manufacturer requires that it give notice and approval prior to construction if the warranty is to be obtained at the completion of the roofing installation. The pre-construction notice and approval requirements, where applicable, generally pertain to the procedure to be employed by the roofing contractor prior to commencing application.

**19. Approved, authorized, or licensed applicators** Most manufacturers require that the roof be installed by a roofing contractor who is "approved," "authorized," or "licensed" by the manufacturer in order for the warranty to be obtained. The entry of *Yes* here means that the contractor must be so approved, authorized, or licensed. (The nature of the relationship between the manufacturer and the contractor is frequently defined in a separate contract.) The entry of *No* indicates that the manufacturer does not require the use of a contractor approved, authorized or licensed by the manufacturer in order for the warranty to be obtained.

**20. Job-inspection policy** This category encompasses in a summary manner the job-inspection policy, if any, of the manufacturer and is where it will be indicated if the manufacturer's representative makes an on-site inspection prior, during, or upon completion of application, as well as some time after application. In this category it will also be indicated whether there is an inspection charge or fee for any on-site job inspections.

**21. Contractor's post-installation obligation** In this category will be covered briefly the manufacturer's policy regarding an obligation by the contractor to make repairs

after issuance of the warranty. While the manufacturer's warranty itself rarely makes reference to an obligation by the contractor to make repairs, there may be a separate agreement between the manufacturer and the contractor concerning such an obligation.

**22. Backed by named insurance or surety company** In this category it will be indicated whether an insurance company or surety is listed on the face of the warranty document and whether the manufacturer has insurance applicable to its warranty obligations. The entry of *No* indicates that no surety or insurance company is named on the face of the warranty document, meaning that the owner or other claimant would not be entitled to assert a claim against an insurance company or surety in the event that the manufacturer were unable to satisfy its warranty commitments.

NRCA also asks manufacturers if they carry insurance covering their warranty obligations and, if so, the type and amount of coverage. The manufacturer's response is included as the second part of the information provided in this category.

**23. Issuing entity manufactures and/or sells products** In this category is indicated whether the entity issuing the warranty is both the manufacturer and seller of the roofing materials covered under the warranty or whether the party issuing the warranty is only the seller of these materials. The information is supplied NRCA in response to a question concerning this issue.

**24. Conditions for renewal or extension** In this category is indicated whether a manufacturer's warranty can be extended or renewed and, if so, the procedures to be employed as well as additional costs incurred in doing so.

**25. Assignability** Like other legal documents, warranties can generally be "assigned" or "transferred" by one party to another, unless there is a specific prohibition against such assignment. Some roofing warranties contain such prohibitions, and some state specifically that no assignment or transfer will be allowed without the prior written permission of the manufacturer. The phrase *No restrictions* stated indicates that the warranty contains no provision barring, limiting, or conditioning the owner's right to assign the warranty to a subsequent building owner, tenant, or other party.

**26. Special features/conditions** In this category are relatively unique or unusual features, conditions, or limitations. This category is generally based on the warranty document itself, but sometimes may be based on information supplied by the manufacturer.

**27. Executed by owner** In this category is indicated

whether the manufacturer's warranty form states on its face that it is to be signed by the owner. Requiring the roofing warranty to be executed by the owner makes it more likely he will be bound to the terms and conditions set forth in the document in the event that a question subsequently arises as to whether the owner agreed to the terms and conditions in the warranty.



## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	AlliedSignal, Inc.	AlliedSignal, Inc.	AlliedSignal, Inc.
2. Title, original publication date, and identifying symbol, if any	"Black Armor NDL Roofing System Warranty"; April 1990; QO4590	"PRIMA NDL Roofing System Warranty"; February 1991	"Roof Materials 10-Year Limited Warranty"; 1987; GOES 681
3. Product, specification, or system covered	Built-up roofing specifications: RP-40, RP-41, RP-50, RP-50TC, RP-51, RP51-TC, RP-40-5, RP-41-5, RP-60, RP-61, RP-60-5, RP-61-5 (See Special Features/Conditions.)	Built-up roofing specifications: RP-40, RP-41, RP-50, RP-50TC, RP-51, RP51-TC, RP-40-5, RP-41-5, RP-60, RP-61, RP-60-5, and RP-61-5.	Built-up roofing specifications: RP-40, RP-41, RP-50, RP-50TC, RP-51, RP51-TC, RP-40-5, RP-41-5, RP-60, RP-61, RP-60-5, RP-61-5
4. Scope of coverage	Material and workmanship: AlliedSignal warrants that it will, at its expense, repair or cause to be repaired the roofing system to the extent necessary to return the roof system to a watertight condition only when leaks result from (1) defects in workmanship or ordinary wear and tear of the Black Armor Roof Membrane and the approved base-flashing; (2) blisters, bare spots, fishmouth, wrinkles, ridges, and splits in the built-up roofing membrane not caused by structural movement or failure of base flashing system; and (3) slippage of the built-up roofing membrane or base flashing. Deterioration of the membrane caused by standing water alone is not excluded from this warranty. [AlliedSignal indicates that when the specification requires a "protected roof membrane assembly," an addendum is added to the warranty stating that warranty includes removal and replacement of the thermal overlay system as required to repair a membrane leak.]	Material and workmanship: AlliedSignal warrants that it will, at its expense, repair or cause to be repaired the roofing system to the extent necessary to return it to a watertight condition and/or the PRIMA Insulation overlay system to its original installed configuration with no more than a 10 percent variation from its original published thermal resistance value only when leaks result from (1) defects in workmanship or ordinary wear and tear of the Black Armor Membrane and the approved base flashing; (2) blisters, bare spots, fishmouth, wrinkles, ridges, and splits in the built-up roofing membrane not caused by structural movement or failure of any material underlying the roof membrane or base flashing system; and (3) slippage of the built-up roofing membrane or base flashing. Deterioration of the membrane caused by standing water alone is not excluded from this warranty.	Material only: Allied Corporation warrants that its coal tar pitch and coal tar saturated felt, when used together in a roof membrane system, meet or exceed all of its published specifications in effect on the date of sale and will not vary beyond the specified values, except for normal exposure and wear and tear.
5. Length of coverage	5, 10, 15, 20, or 25 years: BUR Specs: RP-40, RP-41, RP-50, RP-50TC, RP-51, RP51-TC, RP-40-5, RP-41-5, RP-60, RP-61, RP-60-5, RP-61-5 with Flashing Spec BS-250; 5- and 10-year coverage available for all BUR specifications with Flashing Spec BS 210. A "protected roof membrane assembly" can be warranted up to 20 years	5 or 10 years: All BUR specs with flashing spec BS-210; 5, 10, 15, or 20 years: all BUR specs with flashing spec BS-250	10 years
6. Nature of remedy	AlliedSignal will, at its expense, take appropriate action, as necessary, to return the roofing system to a watertight condition.	AlliedSignal will, at its expense, take appropriate action, as necessary, to return the roofing system to a watertight condition.	If tests confirm that Allied products do not meet published specifications, adjusted for normal exposure and wear and tear, the costs of such tests shall be paid by Allied and Allied shall reimburse owner the original purchase price of the defective products, prorated by year over the ten-year period of the warranty.
7. Monetary limitations	None stated.	None stated.	Prorated of purchase price of defective materials
8. Notification requirements	Written notification upon discovery of a leak to AlliedSignal Inc., Commercial Roofing Systems, P.O. Box 1053, Morristown, NJ 07962. (See Special Features/Conditions.)	Written notification upon discovery of a leak to AlliedSignal, Inc., Black Armor Coal Tar Roofing Systems, P.O. Box 1053, Morristown, NJ 07962-1053. (See Special Features/Conditions.)	Written notification within 30 days to Allied if the owner believes that Allied products no longer meet published specifications, adjusted for normal exposure and wear and tear. Warranty registration form must be completed, executed on behalf of owner, and mailed to Allied.
9. Exclusive or additional remedy	AlliedSignal shall not be liable for any damages based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in warranty.	AlliedSignal shall not be liable for any damages based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in warranty; excludes UCC warranties.	If warranty fails of its essential purpose, the owner's exclusive remedy shall be refund of purchase price of defective products. Warranty provides that buyer agrees that Allied has no liability for any consequential, incidental, special, or punitive damages arising from breach of warranty, breach of contract, negligence, strict liability, or otherwise; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	AlliedSignal's determination	AlliedSignal's determination	Owner takes samples, at his expense, of products in presence of Allied representative and submits samples to independent testing laboratory approved by Allied. Laboratory conducts tests according to appropriate ASTM procedures. Its findings are final and binding on all parties.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 6, 7, 9, 10, 22. Warranty also excludes failure of owner to make repairs not covered under warranty.	1, 2, 3, 4, 6, 7, 9, 10, 15, 22. Warranty also excludes failure of owner to make repairs not covered under warranty.	None listed; material-only warranty
13. Wind coverage/exclusions	Warranty covers damage caused by winds up to gale force.	Warranty covers roof damage caused by winds up to gale force.	No coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	M, R (See Special Features/Conditions.)	M, R (See Special Features/Conditions.)	I, R
15. Cost to obtain	5 years: \$8.00/square; 10 years: \$10.00/square; 15 years: \$12.00/square; 20 years: \$15.00/square	5 years: \$8.00/square; 10 years: \$10.00/square; 15 years: \$12.00/square; 20 years: \$15.00/square	None

16. Minimum charge	5 years: \$700; 10 years: \$800; 15 years: \$900; 20 years: \$1,000	Cold-storage and freezer roofs; private residences	5 years: \$700; 10 years: \$800; 15 years: \$900; 20 years: \$1,000	None
17. Ineligible structure or building use			Cold-storage and freezer roofs, private residences	None
18. Pre-construction notice and approval requirements		Contractor required to submit request for warranty not less than 14 days prior to date of project start to regional or home office for approval, along with minimum warranty charge.	Contractor required to submit request for warranty not less than 14 days prior to date of project start to regional or home office for approval, along with minimum warranty charge.	Contractor to provide notice prior to commencement of installation; no approval required.
19. Approved, authorized, or licensed applicant	Yes			No
20. Job inspection policy	Independent field auditor makes on-site inspections prior to, during (depending on length of coverage), and after application, as well as two years after issuance of warranty; no charge.			No on-site inspections
21. Contractor's post-installation obligation	Contractor obligated to repair workmanship deficiencies for two years.		None; material-only warranty	None; material-only warranty
22. Backed by named insurance or surety	No; AlliedSignal indicates that it is self-insured and that AlliedSignal is a \$13 billion corporation.		No; AlliedSignal indicates that it is self-insured.	No; AlliedSignal indicates that it is self-insured and that AlliedSignal is a \$12 billion corporation.
23. Issuing entity manufactures and/or sells products	AlliedSignal Inc. manufactures and sells product		AlliedSignal, Inc. manufactures and sells product.	AlliedSignal Inc. manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision		No renewal provision	No renewal provision
25. Assignability	Warranty may be transferred to a subsequent owner only if: (1) building owner provides written notification of any transfer of ownership to AlliedSignal Inc., Tar Products, P.O. Box 1063R, Morristown, NJ 07962 within 30 days of such transfer; (2) any repairs required by AlliedSignal Inc. after an inspection of the roof are made; and (3) owner pays to AlliedSignal Inc. the then-current published warranty transfer fee.		No restrictions stated.	Warranty is not transferable to any other party, including any subsequent building owners.
26. Special features/conditions	If roofing system utilizes insulation, insulation must be supplied or approved by AlliedSignal. If emergency conditions exist and immediate temporary repairs are required to avoid building damage, AlliedSignal Inc. will reimburse the owner for reasonable repair expenses that would have otherwise been AlliedSignal Inc.'s responsibility but for the emergency condition. If the roofing system experiences reoccurring leaks (more than two in a given roof area) during a twelve-month period, the owner may request AlliedSignal to inspect the affected roof area and AlliedSignal technical services representative will make an inspection. AlliedSignal will follow the recommendations of its technical services department as to the appropriate remedy for the problem or, if the leaks are not the responsibility of AlliedSignal under the terms of the warranty, AlliedSignal will advise owner of repairs required to make roof membrane watertight and the cost of such repairs will be the responsibility of the owner. Warranty shall be governed by the laws of the state of New Jersey.		If emergency conditions exist and immediate temporary repairs are required to avoid building damage, AlliedSignal, Inc. will reimburse the owner for reasonable repair expenses that would have otherwise been AlliedSignal, Inc.'s responsibility but for the emergency condition. If the roofing system experiences reoccurring leaks (more than two in a given roof area) during a twelve-month period, the owner may request AlliedSignal to inspect the affected roof area, and AlliedSignal technical services representative will make an inspection. AlliedSignal will follow the recommendations of its technical services department as to the appropriate remedy for the problem or, if the leaks are not the responsibility of AlliedSignal under the terms of the warranty, AlliedSignal will advise owner of repairs required to make roof membrane watertight and the cost of such repairs will be the responsibility of the owner. In the event of a reported diminution in the thermal resistance (R-value) of the overlay insulation, samples shall be taken under the direction of AlliedSignal, Inc. and tested by a qualified laboratory in accordance with ASTM Test Method C518-85. If it is determined that the thermal resistance (R-value) is more than 10 percent below its original published value, AlliedSignal, Inc. shall pay all sampling and testing costs; otherwise, said costs shall be paid by the building owner. Warranty shall be governed by the laws of the state of New Jersey.	Any action for breach of warranty shall be commenced within one year after the cause of action has accrued.
27. Executed by owner	No		No	Yes; warranty registration form must be signed on behalf of owner and mailed to Allied.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	AlliedSignal, Inc.	AlliedSignal, Inc.	American Lubricants Company
2. Title, original publication date, and identifying symbol, if any	"Black Armor Premier Series Warranty"; March 1989; CS	"Black Armor Premier Series Warranty"; March 1989; MFS	*Tiffany Division Limited Material Warranty*; November 1, 1989; 10/89
3. Product, specification, or system covered	Built-up Roofing Specifications: RP-41, RP-51, RP-51-TC, RP-61. If roofing system utilizes insulation, insulation must be supplied by AlliedSignal. Warranty requires use of Black Armor Pitch, Black Armor Felts, Black Armor Base Flashings, and AlliedSignal roof insulations.	Built-up Roofing Specifications: RP-40, RP-41, RP-50, RP-50TC, RP-51, RP-51-TC, RP-60, RP-61. Warranty requires use of Black Armor Pitch, Black Armor Felts, and Black Armor Base Flashing; no insulation requirement.	Tiffany Modified Bitumen
4. Scope of coverage	Material and workmanship; AlliedSignal warrants that it will pay for all appropriate repairs to return the roofing system to a watertight condition only when leaks result from (1) defects in workmanship or ordinary wear and tear of the Black Armor Roofing Membrane and the approved base flashing; (2) blisters, bare spots, fishmouths, wrinkles, ridges, and splits in the built-up roofing membrane not caused by structural movement or failure or movement of any material underlying the roof membrane or base flashing systems; and (3) slippage of the built-up roofing membrane or base flashing.	Material and workmanship; AlliedSignal warrants that it will pay for all appropriate repairs to return the roofing system to a watertight condition only when leaks result from (1) defects in workmanship or ordinary wear and tear of the Black Armor Roofing Membrane and the approved base flashing; (2) blisters, bare spots, fishmouths, wrinkles, ridges, and splits in the built-up roofing membrane not caused by structural movement or failure or movement of any material underlying the roof membrane or base flashing system; and (3) slippage of the built-up roofing membrane or base flashing.	Material only; Tiffany Division warrants its products against leaks when properly applied to all structures subject to normal usage. Tiffany does not warrant the application of the product. Application is solely the responsibility of the purchaser.
5. Length of coverage	5 or 10 years: all BUR specs with flashing spec BS-210; 5, 10, 15 or 20 years: all BUR specs with flashing spec BS-250; 25 years: BUR specs RP-41, RP-51, RP-51-TC, and RP-61 with flashing spec BS-250	5 or 10 years: All BUR specs with flashing spec BS-210; 5, 10, 15 or 20 years: All BUR specs with flashing spec BS-250; 25 years: BUR specs RP-41, RP-51, RP-51-TC, and RP-61 with flashing spec BS-250	5 years: uncoated; 10 years: if coated at original installation with Silver-Bright Liquid-Aluminum Roof Coating, Tiff-A-Lume, granules or gravel and re-coated after five years; 15 years: see conditions for renewal or extension.
6. Nature of remedy	AlliedSignal will take appropriate action to make the roofing system watertight.	AlliedSignal will take appropriate action to make the roofing system watertight.	If leak occurs within the warranty coverage, American Lubricants will furnish, freight collect, sufficient additional materials of Tiffany's manufacture to make necessary repairs for the duration of the warranty.
7. Monetary limitations	Warranty states that there is no aggregate dollar limit to the cost of any "appropriate repairs" over the term of this warranty. However, if a repair otherwise covered by warranty is not an "appropriate repair," owner's sole remedy and AlliedSignal's total remaining liability shall be payment to owner of "remaining roof value," which is prorated, based on years roof has been in service, and total installed cost.	Warranty states there is no aggregate dollar limit to the cost of any "appropriate repairs" over the term of this warranty. However, if a repair otherwise covered by warranty is not an "appropriate repair," owner's sole remedy and AlliedSignal's total remaining liability shall be payment to owner of "remaining roof value," which is prorated based on years roof has been in service and total installed cost.	Amount of adjustment material provided by American Lubricants will in no case exceed the amount on the original purchase.
8. Notification requirements	Written notification within 30 days after discovery of all leaks to AlliedSignal Commercial Roofing Systems, P.O. Box 1053, Morristown, NJ 07960.	Written notification within 30 days after discovery of all leaks to AlliedSignal Commercial Roofing Systems, P.O. Box 1053, Morristown, NJ 07960.	None stated.
9. Exclusive or additional remedy	AlliedSignal not liable for any damages based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in warranty.	AlliedSignal not liable for any damages based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in warranty.	Excludes UCC warranties
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 6, 7, 9, 10, 15, 22. Warranty also excludes failure of owner to make repairs not covered under warranty.	1, 2, 3, 4, 6, 7, 9, 10, 15, 22. Warranty also excludes failure of owner to make repairs not covered under warranty.	1, 2, 3, 4, 6, 11, 13, 17, 18, 19, 20

13. Wind coverage/exclusions	Warranty excludes gales.	Warranty excludes gales.	No coverage for damage caused by wind
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	R	R	C, R
15. Cost to obtain	5 year: \$8.00/square; 10 year: \$10.00/square; 15 year: \$12.00/square; 20 year: \$15.00/square; 25 year: \$20.00/square	5 year: \$6.00/square; 10 year: \$7.00/square; 15 year: \$8.00/square; 20 year: \$12.00/square; 25 year: \$15.00/square	None
16. Minimum charge	5 year: \$700; 10 year: \$800; 15 year: \$900; 20 year: \$1,000; 25 year: \$1,500	5 year: \$700; 10 year: \$800; 15 year: \$900; 20 year: \$1,000; 25 year: \$1,500	None
17. Ineligible structure or building use	Cold-storage or freezer roofs; private residences	Cold-storage or freezer roofs; private residences	Cold-storage buildings, heated tanks, roofs without positive drainage, Double T or prestressed T prefabricated concrete; private residences.
18. Pre-construction notice and approval requirements	Contractor required to submit request for warranty not less than 14 days prior to date of project start to regional or home office for approval, along with minimum warranty charge.	Contractor required to submit request for warranty not less than 14 days prior to date of project start to regional or home office for approval, along with minimum warranty charge.	Contractor required to submit roof record and signed warranty form.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Independent field auditor makes on-site inspections prior to, during, and/or after application, as well as two years after issuance of warranty; no charge.	Independent field auditor makes on-site inspections prior to, during, and after application, as well as two years after issuance of warranty; 5-, 10-, and 15-year warranties, two inspections; 20-, 25-year warranties, three inspections; no charge.	No manufacturer inspections; contractor makes pre-job inspection at his discretion.
21. Contractor's post-installation obligation	Contractor obligated to repair workmanship deficiencies for two years and for longer than two years if it is found that roof was misapplied beyond what could be reasonably considered a minor infraction of standard practice, per terms of AlliedSignal authorized contractor's agreement.	Contractor obligated to repair workmanship deficiencies for two years.	None; material-only warranty
22. Backed by named insurance or surety	No; AlliedSignal indicates that it is self-insured.	No; AlliedSignal indicates that it is self-insured and that AlliedSignal is a \$13 billion corporation.	No; American Lubricants Company indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	AlliedSignal, Inc. manufactures and sells product.	AlliedSignal, Inc. manufactures and sells product.	American Lubricants Company manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	15-year warranty is in effect providing Silver Bright Aluminum Roof Coating is applied 30 days after installation and at 5-year intervals thereafter.
25. Assignability	Warranty may be transferred to a subsequent owner only if: (1) owner provides written notification of any transfer of ownership to AlliedSignal Tar Products, P.O. Box 1053R, Morristown, NJ 07960, within 30 days of such transfer; (2) any repairs required by AlliedSignal Inc. after an inspection of the roof are made; and (3) owner pays to AlliedSignal Inc. the then-current published warranty transfer fee.	Warranty may be transferred to a subsequent owner only if: (1) building owner provides written notification of any transfer of ownership to AlliedSignal, Inc. Black Armor Coal Tar Roofing Systems, P.O. Box 1053R, Morristown, NJ 07962, within 30 days of such transfer; (2) any repairs required by AlliedSignal, Inc. after an inspection of the roof are made; and (3) owner pays to AlliedSignal, Inc. the then-current published warranty transfer fee.	No restrictions stated.
26. Special features/conditions	5- and 10-year Premier Series warranties are available for retrofit applications over an existing roof with prior approval by AlliedSignal. Warranty shall be governed by the laws of the state of New Jersey.	5- and 10-year Premier Series warranties are available for retrofit applications over an existing roof with prior approval by AlliedSignal. Warranty shall be governed by the laws of the state of New Jersey.	
27. Executed by owner	No	No	Yes

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	The Barrett Company, Inc.	The Barrett Company, Inc.	The Barrett Company, Inc.
2. Title, original publication date, and identifying symbol, if any	Barrett Company "Ram-Tough Elastomeric Built Up Roof Five Year Material Limited Warranty"; 1986; DT 1249	Barrett Company "Ram-Tough Elastomeric Built-up Roof Limited Warranty"; 1986; DT 1247	Barrett Company "Ram-Tough Elastomeric Built-Up Roof Material Components Ten Year Limited Warranty"; 1986; DT 1248
3. Product, specification, or system covered	KLB-100-2F KLB-100-1MBKLB-100-2M, KLB-100-3F, KLB-100-2MBKLB-100-3M, KLB-100-4FKLB-100-4M, K-312-2 FK-312-3, FK-312-4 F	KLB-100-1PG, KLB-100-2FKLB-100-2MB, KLB-100-2PGKLB-100-3FK-312-2F, KLB-100-3PGKLB-100-4F K-312-3F, KLB-100-4PGKLB-100-2MK-312-4F, KLB-100-2PKLB-100-3MK-312-2P, KLB-100-3PKLB-100-4MK-312-3P, KLB-100-4PKLB-100-1MBK-31-2-4P	KLB-100-1 PG, KLB-100-2 PG, KLB-100-3 PG, KLB-100-4 PG, KLB-100-2P, KLB-100-3 P, KLB-100-4 P, K-312-2 P, K-312-3 P, K-312-4 P
4. Scope of coverage	Material only; Barrett warrants that the Ram Tough KLB elastomeric built-up roofing components sold by Barrett will be free from manufacturing defects at the time of delivery to the original purchaser and that the KLB component materials will not prematurely deteriorate to the point of failure because of weathering, if properly installed, maintained and used for the purpose Barrett intended, in accordance with Barrett published specifications in effect at the time of sale.	Material and workmanship; Barrett warrants that the Barrett Ram-Tough Membranes Components will remain in a watertight condition.	Material only; Barrett warrants that the Ram-Tough KLB elastomeric built-up roofing components sold by Barrett will be free from manufacturing defects at the time of delivery to the original purchaser and that the KLB component materials will not prematurely deteriorate to the point of failure because of weathering, if properly installed, maintained, and used for the purpose Barrett intended, in accordance with Barrett published specifications in effect at the time of sale.
5. Length of coverage	5 years	5, 8, 10, 12, 15, 20, or 25 years, depending on specification used	10 years
6. Nature of remedy	If the Barrett-supplied membrane components or bitumen evidences manufacturing defects, Barrett will, at its option, repair or replace defective material at original FOB point. If the Barrett membrane components show premature deterioration, Barrett will, at its option, provide repair material for original membrane or will provide credit to be applied towards the purchase of new membrane components at the then current prices for the membrane.	In the event of failure of the product to function as warranted, whether caused by workmanship or defective product, Barrett will make or cause to be made such repairs and maintenance necessary to enable the product to perform as warranted, except for the removal and replacement of any materials covering the system.	If the Barrett-supplied membrane components or bitumen evidences manufacturing defects, Barrett will, at its option, repair or replace defective material at original F.O.B. point. If the Barrett membrane components show premature deterioration, Barrett will, at its option, provide repair material for original membrane or will provide credit to be applied towards the purchase of new membrane components at the then current prices for the membrane.
7. Monetary limitations	Barrett's maximum liability shall be for the full value of the original Barrett supplied material components—only purchase price. In case of premature deterioration, maximum value allowed as credit shall not exceed the original Barrett supplied components purchase price.	Barrett's repair obligations over the life of the warranty are limited to the owner's original cost of product.	For the first five years from date of completion, Barrett's maximum liability shall be for the full value of the original Barrett-supplied material components—only purchase price. Thereafter, Barrett's liability shall be reduced by 20 percent of the original warranty value each successive year until warranty expiration. In the case of premature deterioration, the maximum value allowed for credit shall not exceed the original purchase price.
8. Notification requirements	None	Prompt notification and confirmation, in writing, sent by registered or certified mail of any failure of the product within 30 days following such failure.	None
9. Exclusive or additional remedy	Barrett makes no other warranty or guarantee and is in lieu of all other obligations or liability; excludes UCC warranties.	Owner's sole and exclusive remedy; Barrett not liable or obligated for any loss or damage based on breach of warranty or negligence; excludes UCC warranties.	Barrett makes no other warranty or guarantee and is in lieu of all other obligations or liability; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Barrett shall have sole and exclusive right of determination of warranty applicability.	Barrett shall have the sole and exclusive right of good faith determination of warranty applicability.	Barrett shall have sole and exclusive right of determination of warranty applicability.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	19	1, 2, 3, 4, 6, 7, 8, 12, 16, 18	19



13. Wind coverage/exclusions	No coverage for damage caused by wind.	Warranty excludes high winds, gales, hurricanes, and tornadoes. [Barrett indicates that coverage of wind speeds is up to 72 miles per hour.]	Warranty covers roof damage caused by wind speeds up to 72 miles per hour.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	I, O (See Special Features/Conditions.)	B, C, H, I, R	I, O (See Special Features/Conditions.)
15. Cost to obtain	None	\$5.00/square	\$2.00/square
16. Minimum charge	None	\$500	\$250
17. Ineligible structure or building use	Unusual or unique applications may require specification modifications or other special considerations.	Unusual or unique applications may require specification modifications or other special considerations.	Unusual or unique applications may require specification modifications or other special considerations.
18. Pre-construction notice and approval requirements	Contractor must file Barrett pre-construction form and intent to warrant application with Barrett prior to commencement of installation.	Contractor must file Barrett pre-construction form and intent to warrant application with Barrett prior to commencement of installation.	Contractor must file Barrett pre-construction form and intent to warrant application with Barrett prior to commencement of installation.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Barrett makes on-site inspections prior to, during, and after completion, as well as two years after issuance of warranty, as required or deemed necessary; no charge.	Barrett makes on-site job inspections prior to, during and after completion, as well as two years after issuance of warranty as required or deemed necessary; no charge.	Barrett makes on-site inspections prior to, during and after completion, as well as two years after issuance of warranty as required or deemed necessary; no charge.
21. Contractor's post-installation obligation	Although this is a material only warranty, contractor is obligated to make repairs to all workman ship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Although this is a material only warranty, contractor is obligated to make repairs to all workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Barrett indicates that it carries \$1-million-per-occurrence products liability insurance.	No; Barrett indicates that it carries \$1-million-per-occurrence products liability insurance.	No; Barrett indicates it carries \$1-million-per-occurrence products liability insurance.
23. Issuing entity manufactures and/or sells products	Barrett manufactures some, but not all, components and sells the products as a complete system.	Barrett manufactures some, but not all, components and sells the products as a complete system.	Barrett manufactures some, but not all, components and sells the products as a complete system.
24. Conditions for renewal or extension	No renewal provision	No renewable provision	No renewal provision
25. Assignability	No restrictions stated.	Not assignable	No restrictions stated
26. Special features/conditions	If purchaser does not accept delivery of the products supplied by Barrett for the purpose of work indicated, the products are to be returned forth with, unopened. Should the owner fail to properly execute and return a signed copy of warranty within 90 days of issuance, warranty shall be null and void in its entirety and any products sold shall become a materials-only sale without any warranty or guarantee as expressly provided for on Barrett invoices and terms of sale.	No representative of Barrett has authority to make any representation or promises except as stated on warranty. Should the owner fail to properly execute and return a signed copy of warranty within 90 days of issuance, warranty shall be null and void in its entirety and any products sold shall become a materials-only sale without warranty or guarantee as expressly provided for on Barrett invoices and terms of sale.	If purchaser does not accept delivery of the products supplied by Barrett for the purpose of work indicated, the products are to be returned forth with, unopened. Should the owner fail to properly execute and return a signed copy of warranty within 90 days of issuance, warranty shall be null and void in its entirety and any products sold shall become a materials-only sale without any warranty or guarantee as expressly provided for on Barrett invoices and terms of sale.
27. Executed by owner	Yes	Yes	Yes

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity		The Barrett Company, Inc.		The Barrett Company, Inc.		Bitec, Inc.	
2. Title, original publication date, and identifying symbol, if any		Barrett "Protected Membrane Roof Limited Warranty"; 1984; 1984		Barrett Company "Ram-Tough Platinum System Warranty"; 1986; DT 1246		"Limited Ten-Year Material Warranty"; June 1986; (F-203-1/89)	
3. Product, specification, or system covered		Ram-Tough TM-500; Ram-Tough KLB Specifications KLB 3-F; KLB 3-P; KLB 3-M; KLB 4-PG; KLB 4-F; KLB 4-P; KLB 4-M; KLB 4-HS		KLB-100-3PG-PMR, K-312-3P-PMR, KLB-100-4PG-PMR, K-312-4P-PMR, KLB-100-3P-PMR, KLB-100-4F-PMR, KLB-100-4P-PMR, KLB-100-4F-PMR		All Bitec modified bitumen membranes	
4. Scope of coverage		Material and workmanship; Barrett warrants that its Barrett Ram-Tough Roof Membrane will remain in a watertight condition and will not fail to function due to workmanship or defective product.		Material and workmanship; Barrett warrants that the Barrett Ram-Tough Membrane Components will remain in a watertight condition and that the Foamular extruded polystyrene insulation material will retain at least 80 percent of its thermal resistance and that the ballast will remain on the roof.		Material only; Bitec, Inc. warrants that the manufactured modified bitumen waterproofing roofing product, at the time of installation, conforms to Bitec's published specifications, provided that the membrane has been stored, handled, and that the installation meets or exceeds the published use, and is installed in accordance with governing industry standards, the Bitec product will be free of manufacturing defects and will remain free.	
5. Length of coverage		10 years		10, 15, 20, or 25 years, depending upon specification used		10 years	
6. Nature of remedy		Barrett will make or cause to be made such repairs and maintenance necessary to enable the Ram-Tough Roof Membrane to perform as warranted, except for the removal and replacement of any materials covering the waterproof membrane.		In the event of failure of the product to function as warranted, Barrett will make or cause to be made such repairs and maintenance necessary to enable the product to perform as warranted, except for the removal and replacement of any materials covering the system.		If manufacturing defects cause the membrane to lose its watertight integrity, Bitec, at its sole option, will refund to the owner a portion of the original purchase cost of the membrane or replace a portion of the membrane.	
7. Monetary limitations		Barrett's repair obligations over the life of the warranty are limited to the owner's original cost of the Barrett Ram-Tough Roof Membrane.		Barrett's repair obligations over the life of this warranty are limited to the owner's original cost of the product.		Bitec's liability limited to refunding to owner a portion of the membrane's original cost, or replacing a portion of the membrane according to a pro-rated schedule, reduced 10 percent per year, ranging from 100 per-cent in years 1 and 2 to 10 percent in year 10.	
8. Notification requirements		Written notification within 30 days of any failure covered by the warranty.		Written notification within 30 days following any failure of the product covered by the warranty.		Notification of any manufacturing defect must be submitted to Bitec's general offices within five days after discovery of any such defect and include certificate number. (See Special Features/Conditions.)	
9. Exclusive or additional remedy		Excludes UCC warranties.		Owner's sole and exclusive remedy; Barrett not liable or obligated for any loss or damage based on breach of warranty or negligence; excludes UCC warranties.		Owner's sole and exclusive remedy. Owner shall not be entitled to additional remedies; owner expressly waives any and all other claims for damages, being direct or indirect, consequential or incidental, including but not expressly limited to the following: property damage, personal injury, damage to the owner or third parties, and/or loss of business or profit; excludes UCC warranties.	
10. Inclusion of consequential damages		No		No		No	
11. Determination of warranty applicability		Neutral (no provision)		Barrett shall have the sole and exclusive right of good faith determination of warranty applicability.		Neutral (no provision)	
12. Specific exclusions from coverage (See item no. 12 in Introduction.)		1, 2, 4, 6, 7, 8, 12, 16		1, 2, 3, 4, 6, 7, 8, 12, 16, 18		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (including ionized radiation or contamination from any hazardous substance or waste), 15, 16, 23. Warranty also specifically excludes damage caused by food.	

13. Wind coverage/exclusions	Warranty excludes high winds, gales, hurricanes, and tornadoes. (Barrett indicates that warranty covers roof damage from wind speeds up to 70 miles per hour.)	Warranty excludes gales, windstorms with gust wind speeds in excess of 70 mph, hurricanes, and tornadoes. (Barrett indicates that warranty covers roof damage resulting from wind speeds up to 70 miles per hour.)	No coverage for damage caused by wind
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, H, R	B, C, H, I, R	I, L
15. Cost to obtain	\$5.00/square	\$10.00/square	None
16. Minimum charge	\$500	\$500	None
17. Ineligible structure or building use	Unusual installations are subject to technical review and approval.	Unusual or unique applications may require specification modifications or other special considerations.	Roofs installed over cold storage or freezer compartments.
18. Pre-construction notice and approval requirements	Contractor must submit request form with pertinent information prior to job start.	Contractor must file Barrett pre-construction form and intent to warrant application with Barrett prior to commencement of installation.	None required
19. Approved, authorized, or licensed applicator	Yes	Yes	No
20. Job inspection policy	Barrett technical representative makes on-site inspections prior, during, and after application, as well as two years after completion depending on job conditions; no charge.	Barrett makes on-site job inspections prior to, during, and after completion, as well as two years after issuance of warranty, as required or deemed necessary; no charge.	No on-site inspections
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to all workmanship deficiencies for two years.	None
22. Backed by named insurance or surety	Surety not named on warranty; Barrett indicates it has insurance coverage of \$1 million per occurrence.	No; Barrett indicates that it carries \$1-million-per-occurrence products liability insurance.	No; Bitec indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Barrett manufactures and sells some products and only sells some products.	Barrett manufactures some, but not all, components and sells the products as a complete system.	Bitec, Inc. manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Not assignable	Not assignable	Warranty is transferable or assignable only with the prior written approval of Bitec's manager of technical services, and payment of applicable transfer fee, which includes inspection fee and travel expenses.
26. Special features/conditions		No representative of Barrett has authority to make any representation or promises except as stated on warranty. Should the owner fail to properly execute and return a signed copy of warranty within 90 days of issuance date, the warranty shall be null and void in its entirety and any products sold shall become a materials-only sale without warranty or guarantee as expressly provided for on Barrett Invoices and Terms of Sale.	For warranty to be validated, registration form must be completed and mailed to Bitec's offices, P.O. Box 497, Morrilton, AR 72110, within 90 days after job completion.
27. Executed by owner	No	Yes	Owner signs Bitec registration form.

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Bitec, Inc.	Bitec, Inc.	Bondcote Corp.
2. Title, original publication date, and identifying symbol, if any	Limited "Insured" Roofing Warranty; June 1987	"Mineral Design Limited Warranty"; January 1997; Form MDW - 12/96	BondCote Roofing Systems "Standard Warranty"; Feb. 1, 1993
3. Product, specification, or system covered	All Bitec modified bitumen membranes	Mineral Design MDA or MD5	BondCote Single Ply Roofing Systems
4. Scope of coverage	Material only, first two years; material and workmanship for balance of warranty. Bitec warrants that the roofing installation will be free of defects in material and workmanship that cause it to leak. During the first two years, Bitec will be responsible only for defects in material only. During remaining years, Bitec will pay cost to repair leaks caused by ordinary wear and tear. (See Special Features/Conditions.)	Material only; Bitec warrants that the Mineral Design membrane will be free from manufacturing defects which result in leaks. Warranty covers the Bitec Mineral Design membrane only when installed on slope of 3:12 or greater.	Material and workmanship; BondCote Roofing Systems will repair leaks caused by defects in the roofing system manufactured or supplied by it and installed by an authorized BondCote dealer/installer.
5. Length of coverage	10 years: APS4T.1, APS4T.2, APM4T.1, APM4T.2, SPM4.5T.1, SPM4.5T.2, SPM3.5H.1, SPM3.5H.2, SPM4H.1, SPM4H.2, SPS3H.1, SPS3H.2, SPM3.5H.1, SPM3.5H.2, SPM3.5HFR.2; 15 years: APS4T.1.15, APS4T.2.15, APM4T.1.15, APM4T.2.15, SPM4.5T.1.15, SPM4.5T.2.15, SPM3.5H.1.15, SPM3.5H.2.15, SPM4H.1.15, SPM4H.2.15, SPS3H.1.15, SPS3H.2.15, SPM3.5H.1.15, SPM3.5H.2.15, SPM3.5HFR.1.15, SPM3.5HFR.2.15; 20 years: APS4T.1.20, APS4T.2.20, APM4T.1.20, APM4T.2.20, SPM4.5T.1.20, SPM4.5T.2.20, SPM3.5H.1.20, SPM3.5H.2.20, SPM4H.1.20, SPM4H.2.20, SPS3H.1.20, SPS3H.2.20, SPM3.5H.1.20, SPM3.5H.2.20, SPM3.5HFR.1.20, SPM3.5HFR.2.20	25 years	10 years; 15 years, only for new construction or tear-off applications using certain insulations
6. Nature of remedy	After the first two years, Bitec will pay the cost of repairs to correct roof water leaks that are caused by ordinary wear and tear.	Bitec will make repairs or cause repairs to be made or will replace the Mineral Design membrane (exclusive of all other roofing components) as required to prevent leaks resulting directly from and solely from manufacturing defects. Extent of repair or replacement is at sole discretion of Bitec.	BondCote Roofing Systems will provide owner with repair to correct any leaks caused by defects in the manufacture or installation of roofing materials supplied by BondCote Roofing Systems.
7. Monetary limitations	Bitec's obligations limited to the amount of the original cost of labor and material for installation of the defective membrane.	Bitec's maximum liability is limited to the original cost of the Mineral Design membrane when purchased, and the reasonable repair or replacement cost of the membrane. After the first year, Bitec's maximum liability is the original cost of the Mineral Design membrane reduced by 4% per year.	BondCote's cost not to exceed the owner's original installed cost of materials supplied by BondCote Roofing Systems.
8. Notification requirements	Claims must be directed to Bitec, Inc., P.O. Box 497, Morrilton, AR 72110, must be received within 72 hours of the original occurrence, and must be confirmed in writing and received by Bitec within ten days of the occurrence.	Owner must notify Bitec by certified mail at P.O. Box 497, Morrilton, AR, 72110 within 30 days of the alleged discovery of leaks allegedly to have been caused by manufacturing defects. (See Special Features/Conditions)	Written notification to BondCote Roofing Systems, 984 Southford Road, Middlebury, CT, 06762, within 30 days after leaks are discovered or should have been discovered
9. Exclusive or additional remedy	Owner's sole and exclusive right and remedy and Bitec, Inc.'s sole obligation for any failure of the roofing installation or material; excludes UCC warranties.	Warranty is expressly in lieu of any other obligations, warranties and guarantees, or liability on the part of Bitec; excludes UCC warranties.	Warranty is expressly agreed to be an exclusive warranty; warranty is in lieu of any other remedy and all other warranties whether arising under contract, tort, negligence, product liability, or any other action; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Bitec's determination	BondCote's good-faith determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (including ionized radiation or contamination), 16, 18, 23. Warranty also specifically excludes damage caused by food, birds, vermin, rodents, insects, or any other animal or pest.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (including ionized radiation or contamination from any hazardous substance or waste).	1, 2, 3, 4, 6, 8, 12, 16

13. Wind coverage/exclusions	No coverage for damage caused by wind	Warranty covers wind speeds up to 60 mph for five years after initial application if the Mineral Design membrane has been installed in accordance with published installation requirements and leaks occur. Warranty excludes gales, windstorms, hurricanes and tornadoes.	Warranty excludes wind equal to or exceeding strong gale, hurricanes, and tornadoes. Warranty covers roof damage resulting from wind speeds up to 46 miles per hour.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C	I, L	C, I
15. Cost to obtain	10 years: no charge for coated membrane; \$3.00/square for uncoated membranes; 15 years: \$3.00/square; 20 years: \$4.00/square	None	
16. Minimum charge	10 years: \$300; 15 years: \$400; 20 years: \$500	None	
17. Ineligible structure or building use	Cold storage, freezer compartments, residences, apartment buildings, and condominiums	Roof installed over cold storage or freezer compartments.	
18. Pre-construction notice and approval requirements	Contractor required to give notice and obtain approval at least 14 days before project is started.	None required.	Contractor must complete project approval form and forward to BondCote Roofing Systems for approval prior to job start.
19. Approved, authorized, or licensed applicator	Yes	No	Yes
20. Job inspection policy	Bitec field technical representative makes on-site job inspections prior to, during, and after completion prior to issuance of warranty; no charge. Per diem cost for extra inspection.	No on-site inspections.	BondCote technical field representative makes inspections after completion prior to issuing warranty; BondCote will inspect prior to and during application for "new contractors" and on large or difficult installations; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	None; material-only warranty.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Bitec indicates that it does not carry insurance covering its warranty obligations.	No; Bitec indicates that it does not carry insurance covering its warranty obligations.	No; BondCote indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Bitec, Inc. manufactures and sells product.	Bitec manufactures and sells the product.	BondCote Roofing Systems manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision.	None
25. Assignability	Not assignable	Non-transferable. Warranty solely benefits the first consumer, purchaser or owner of Bitec Mineral Design membrane; it cannot be transferred in any form to anyone.	Not assignable without written permission from BondCote Roofing Systems.
26. Special features/conditions	Owner agrees that the Bitec authorized roofing contractor shall be solely responsible for any and all costs to repair or correct any and all water leaks caused by defective workmanship or installation for two years, and Bitec shall be held harmless against any and all claims arising from workmanship or installation during the first two years.	Claims require proof of purchase of the Mineral Design membrane. Owner must provide Bitec with a receipt which can be traced to a Bitec distributor who sold the Mineral Design membrane. Bitec has ninety days after receipt of notification to make, or cause to be made repairs or replacements covered under warranty. Prior to expiration of the ninety day period, Bitec will not be liable for any cost of repair or replacement unless Bitec has given written approval of the repair or replacement of Mineral Design membrane. Warranty may not be changed or modified. No one, including any representative or employee of Bitec has the authority to assume any additional liability for Bitec in connection with Mineral Design membranes.	BondCote Roofing Systems has no obligation under the warranty without owner's signature accepting the warranty in lieu of all other remedies and the return of signed copy to BondCote Roofing Systems; the extended warranty has the same limitations as the original ten-year warranty. Owner shall be responsible for the cost of investigation if any leaks are determined not to be covered under warranty.
27. Executed by owner	No	Warranty registration card must be completed and sent to Bitec within 10 days of membrane installation.	Yes (See Special Features/Conditions.)

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Burke Rubber Company, a division of Burke Industries	Burke Rubber Company, a division of Burke Industries	Burke Rubber Company, a division of Burke Industries
2. Title, original publication date, and identifying symbol, if any	"Burkeline Roofing Systems Warranty for Commercial Building"; April 1988; BR00322	"Burkeline Gold Total Roofing System Warranty for Commercial Building"; April 1988; BR00355	"Burkeline Standard Limited Material Warranty"; February 1988; BR 00352
3. Product, specification, or system covered	CSPE Hypalon	CSPE Hypalon	CSPE Hypalon
4. Scope of coverage	Material and workmanship; Burke warrants that Burke will cause to be repaired leaks in Burkeline Roofing System caused by defects in roofing system's material or workmanship of the Burke authorized roofing applicator.	Material and workmanship; Burke warrants that Burke will cause to be repaired leaks in Burkeline Roofing System caused by defects in roofing system's material or workmanship of the Burke approved roofing applicator.	Material only; Burke warrants that Burkeline roofing products manufactured by or for it will be free from defects in materials. Products may not always conform exactly to illustrations or samples.
5. Length of coverage	5 or 10 years (See Conditions for Renewal or Extension.)	15 years (See Conditions For Renewal or Extension.)	2 years (See Conditions for Renewal or Extension.)
6. Nature of remedy	Burke will cause to be repaired leaks in the Burkeline Roofing System.	Burke's sole obligation is the repair or replacement of Burkeline roofing products that prove defective within the limited warranty.	Burke's sole obligation is the repair or replacement of Burkeline roofing products that prove defective within the limited warranty.
7. Monetary limitations	Burke's liability not to exceed owner's original cost of the installed roof over the life of warranty.	Burke's liability not to exceed owner's original cost of the installed roof over the life of warranty.	Burke's liability shall not exceed the price paid for the defective product, and Burke may, at its option, discharge such liability, if any, by supplying free of charge an equal quantity of roofing products to replace those found to be defective or by issuing credit to the customer in the amount of a net billing price after cash and other discounts allowed.
8. Notification requirements	Written notice within 30 days of discovery of any leaks	Written notice within 30 days of discovery of any leaks	Written notice describing any claimed defect must be given to Burke immediately upon discovery and in no case later than 30 days from discovery.
9. Exclusive or additional remedy	Warranty excludes all other warranties; Burke not liable for any other damages resulting from the use of the roofing system or caused by any defect, failure, or malfunction of the roofing system whether a claim is based upon warranty, contract, negligence, or otherwise; excludes UCC warranties.	Warranty excludes all other warranties; Burke not liable for any other damages resulting from the use of the roofing system or caused by any defect, failure, or malfunction of the roofing system, whether a claim is based upon warranty, contract, negligence, or otherwise; excludes UCC warranties.	Excludes all other warranties; Burke is not liable for any other damages resulting from the use of the product or caused by any defect, failure, or malfunction of the product, whether a claim is based upon warranty, contract, negligence or otherwise; excludes
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Burke's determination; Burke's sole judgment whether exclusions apply	Burke's determination; Burke's sole judgment whether exclusions apply	Burke's determination; Burke's sole judgment whether exclusions apply
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 7, 18	1, 3, 4, 5, 7, 18	1, 3, 4, 5, 7, 18, 20
13. Wind coverage/exclusions	Warranty excludes winds of peak gust speeds of ___ mph measured 35 feet above the ground, hurricanes, and tornadoes. Burke indicates that warranty covers roof damage resulting from wind speeds up to 60 miles per hour.	Warranty excludes coverage for roof damage for winds of peak gust speed of ___ mph measured 35 feet above the ground, hurricanes, and tornadoes. Manufacturer indicates that the warranty covers roof damage from wind speeds up to 70 miles per hour. If higher wind speeds are required, Burke will design and approve increased fastener patterns and attachments to accommodate the request.	Warranty excludes damage to the product caused by gales, hurricanes, and tornadoes. [Burke indicates that there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F, G	B, C, F, G	B, F, G
15. Cost to obtain	5 years: \$6.00/square; 10 years: \$8.00/square	\$11.00/square	None

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Carlisle SynTec Systems, Division of Carlisle Corporation	Carlisle SynTec Systems, Division of Carlisle Corporation	Carlisle SynTec Systems, Division of Carlisle Corporation
2. Title, original publication date, and identifying symbol, if any	"Twenty Year Membrane Material Warranty"; April 1986; (85-5-503SM (Rev. 4.86) appears on sample.)	"Ten Year Bite-Ply Membrane Material Warranty"; (85-5-961 SM appears on sample)	"Fifteen Year Polyepichlorohydrin Membrane Material Warranty"; 1986; (85-5-505SM (Rev. 4/86) appears on sample.)
3. Product, specification, or system covered	Carlisle Sure-Seal EPDM membrane	Carlisle Bite-Ply EPDM Membrane	Sure-Seal Polyepichlorohydrin Rubber Membrane
4. Scope of coverage	Material only; Carlisle warrants to the buyer that the Sure-Seal Rubber Membrane will be free from manufacturing defects at the time of delivery to job site and the membrane material will not prematurely deteriorate to the point of failure because of weathering if properly installed, maintained, and used for purpose Carlisle intended. Flashings, adhesives and other accessories contained in a membrane system are not covered by this warranty.	Material only; Carlisle warrants that the Bite-Ply rubber membrane material will be free from manufacturing defects at the time of its delivery to the job site and will not prematurely deteriorate to the point of failure because of weathering, if properly installed, maintained, and used for the purpose Carlisle intended. Flashings, adhesives, and other accessories contained in membrane system are not covered by this warranty.	Material only; Carlisle warrants to the buyer that the Sure-Seal Rubber Membrane will be free from manufacturing defects at the time of delivery to job site and the membrane material will not prematurely deteriorate to the point of failure because of weathering if properly installed, maintained, and used for purpose Carlisle intended. Flashings, adhesives, and other accessories contained in a membrane system are not covered by this warranty.
5. Length of coverage	20 years (from date of sale)	10 years	15 years (from date of sale)
6. Nature of remedy	If membrane evidences manufacturing defects, Carlisle will, at its option, repair or replace defective material at F.O.B. point. If membrane shows premature deterioration, Carlisle will, at its option, provide repair material for original membrane or provide credit to be applied towards the purchase of a new membrane, the value of either of these remedies being determined by Carlisle based upon the number of remaining months of the unexpired warranty used to prorate at the current prices for the membrane.	If membrane evidences manufacturing defects, Carlisle's liability limited, at its option, to the repair or replacement of the defective membrane at the F.O.B. point in the original contract of sale. If membrane shows premature deterioration because of weathering, Carlisle's liability limited, at its option, to providing repair material for the original membrane or credit to be applied towards the purchase of a new membrane, the value of these remedies being determined by Carlisle based upon the number of remaining months of the unexpired warranty used to prorate at the current prices for the membrane.	If membrane evidences manufacturing defects, Carlisle will, at its option, repair or replace defective material at F.O.B. point. If membrane shows premature deterioration, Carlisle will, at its option, provide repair material for original membrane or provide credit to be applied towards the purchase of a new membrane, the value of either of these remedies being determined by Carlisle based upon the number of remaining months of the unexpired warranty used to prorate at the current prices for the membrane.
7. Monetary limitations	Carlisle's liability shall not exceed the original membrane material purchase price prorated by the number of remaining months of the unexpired warranty.	Carlisle's liability shall not exceed the original membrane purchase price prorated by the number of remaining months of the unexpired warranty.	Carlisle's liability shall not exceed the original membrane material purchase price prorated by the number of remaining months of unexpired warranty.
8. Notification requirements	Buyer must give notice within 30 days of discovery of premature deterioration of membrane.	Buyer must give notice to Carlisle within 30 days of discovery of premature deterioration of the membrane.	Buyer must give notice within 30 days of discovery of premature deterioration of membrane.
9. Exclusive or additional remedy	No other warranties beyond warranties contained in document; excludes UCC warranties.	No other warranties beyond warranties contained in document; excludes UCC warranties.	No other warranties beyond warranties contained in document; excludes UCC warranties.
10. Inclusion of consequential damages	No	No (See Special Features/Conditions.)	No
11. Determination of warranty applicability	Unclear; warranty states: "If upon inspection by the Seller, the Membrane evidences manufacturing defects (or) shows premature deterioration because of weathering..." [Carlisle indicates that Carlisle makes the determination.]	Unclear; warranty states, "If upon inspection by the seller, the membrane evidences manufacturing defects (or) premature deterioration because of weathering..." [Carlisle indicates that Carlisle makes the determination.]	Unclear; warranty states "If upon inspection by the seller the membrane shows deterioration because of weathering..." [Carlisle indicates that Carlisle makes the determination.]
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	None listed; material-only warranty.	None listed; material-only warranty	None listed; material-only warranty.
13. Wind coverage/exclusions	None listed; material-only warranty.		
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	None listed; material-only warranty.	None listed; material-only warranty	None listed; material-only warranty.
15. Cost to obtain			

16. Minimum charge	5 years: \$800; 10 years: \$600	\$1,100	None
17. Ineligible structure or building use	Residential buildings; there may be other buildings with special requirements.	Private residences, condominiums, townhomes	None
18. Pre-construction notice and approval requirements	Contractor must provide roof layout plan and all details to Burke prior to job start; Burke approval required.	Contractor must submit completed Burke Form BR00-339 to Burke; approval number and changes/requirements then forwarded by Burke to applicator; must have approval number to apply for final warranty inspection.	None
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Burke field service employees make inspection prior to, during, and after application prior to issuance of warranty as well as two years later; \$350/day charge plus expenses for re-inspections only.	Burke field service employees make on-site inspections prior to, during (depending on job) and after application prior to issuance of warranty, as well as two years later; \$350/day plus expenses for re-inspections only.	No on-site inspections
21. Contractor's post-installation obligation	Contractor obligated to make repairs to all leaks and materials and workmanship for two years.	Contractor obligated to make repairs to all leaks, any defects and materials and workmanship for two years.	Although this is a material-only warranty, contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Burke indicates it does carry insurance that covers its warranty obligations.	No; Burke indicates that it carries insurance that covers its warranty obligations.	No; Burke indicates that it carries general liability and blanket umbrella insurance that covers its warranty obligations.
23. Issuing entity manufactures and/or sells products	Burke manufactures and sells product.	Burke manufactures and sells product.	Burke manufactures and sells product.
24. Conditions for renewal or extension	Warranty may be extended for five years. If owner notifies Burke at the time of issuance of original warranty of intent to seek an extension, there is no fee for inspection. If owner seeks extension later, owner pays \$350/day plus expenses for inspection. Burke makes inspection; owner pays for work necessary to bring roof to condition acceptable to Burke and pays fee for extension.	Warranty may be extended for five years. If owner notifies Burke at time of issuance of original warranty of intent to seek an extension, there is no charge for inspection. If owner seeks extension later, owner pays \$350/day plus expenses for inspection.	Warranty may be extended for up to 15 years by payment of fee. Fee varies depending on length of warranty and system used.
25. Assignability	No restrictions stated.	No restrictions stated.	No restrictions stated.
26. Special features/conditions	No representative of Burke has authority to make any representation or promises except as stated in warranty document.	No representative of Burke has authority to make any representation or promises except as stated in warranty	Warranty states that it is expressly understood that (1) the products may not always conform exactly to illustrations or samples and (2) Burke has no control over the customer's use of the products or the advisability of using such products for any particular installation. Warranty also states that if any warranty provisions are held or determined to be invalid or unenforceable, the remaining provisions of the warranty shall remain in full force and effect.
27. Executed by owner	No	No	No



16. Minimum charge	Residential structures; however, warranty is available for apartment houses, co-ops, condominiums, and the like.	Residential structures; however, warranty is available for apartment houses, co-ops, condominiums, and the like.	Residential structures; however, warranty is available for apartment houses, co-ops, condominiums, and the like.
17. Ineligible structure or building use	None required.	None required.	None required.
18. Pre-construction notice and approval requirements	Yes	Yes	Yes
19. Approved, authorized, or licensed applicator	No on-site inspection	No on-site inspections	No on-site inspections for this warranty.
20. Job inspection policy	None; material-only warranty	None; material-only warranty	None; material-only warranty
21. Contractor's post-installation obligation	No; Carlisle indicates that it does not carry insurance covering its warranty obligations.	No; Carlisle indicates that it does not carry insurance covering its warranty obligations.	No; Carlisle indicates that it does not carry insurance covering its warranty obligations.
22. Backed by named insurance or surety	Carlisle manufactures and sells product.	Carlisle manufactures and sells product.	Carlisle manufactures and sells product.
23. Issuing entity manufactures and/or sells products	No renewal provision	No renewal provision	No renewal provision
24. Conditions for renewal or extension	No restrictions stated	No restrictions stated.	No restrictions stated
25. Assignability	This warranty is only issued in conjunction with a "Sure-Seal Membrane Systems Warranty" or "Golden Seal Total Roofing System Warranty."	Carlisle shall not be responsible for the cleanliness or discoloration of the membrane material caused by environmental conditions, including, but not limited to, dirt, pollutants or biological agents. Warranty states that Carlisle shall not be liable for any incidental, consequential, or other damages under any theory of law whatsoever.	This warranty is only issued in conjunction with a Carlisle Membrane System Warranty.
26. Special features/conditions			
27. Executed by owner	No	No	No

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Carlisle SynTec Systems, Division of Carlisle Corporation	Carlisle SynTec Systems, Division of Carlisle Corporation	Carlisle SynTec Systems, Division of Carlisle Corporation
2. Title, original publication date, and identifying symbol, if any	"Carlisle Ten Year Total Roofing System Warranty"; 85-6-938 SM	"Carlisle Membrane System Warranty"; 85-5-936 (Rev. 3/95)	"Golden Seal Total Roofing System Warranty"; May 1990; (85-5-939SM (Rev. 5/90) appears on sample)
3. Product, specification, or system covered	Carlisle Sure-Seal EPDM, Carlisle Brite-Ply EPDM, and Carlisle Sure-Weld Molecular Bonded Polyolefin Roofing Systems	Carlisle Sure-Seal EPDM, Carlisle Brite-Ply EPDM, and Carlisle Sure-Weld Molecular Bonded Polyolefin Roofing Systems	Carlisle Sure-Seal EPDM Roofing Systems
4. Scope of coverage	Material and workmanship; Carlisle warrants to repair leaks in the Carlisle Ten Year Total Roofing System caused by a defect in the Carlisle total roofing system's materials or workmanship of the Carlisle authorized roofing applicator in installing the total roofing system. Carlisle total roofing system is defined as Carlisle membrane, flashings, counterflashings, adhesives and sealants, recovery board, fasteners, fastener plates, fastener strips, hard rubber or metal termination bars, and any other Carlisle-brand products utilized in installation.	Material and workmanship; Carlisle warrants to repair leaks in the Carlisle membrane system caused by a defect in the Carlisle membrane system's materials or workmanship of Carlisle authorized applicator in installing the membrane system. Carlisle membrane system is defined as Carlisle membrane, flashings, adhesives and sealants, and any other Carlisle-brand products utilized in installation. (See Special Features/Conditions.)	Material and workmanship; Carlisle warrants to repair leaks in the Golden Seal Total Roofing System caused by a defect in Carlisle's Total Roofing System's materials or workmanship of Carlisle-authorized roofing applicator in installing the Total Roofing System. Carlisle's Total Roofing System is defined as Carlisle-brand materials: membrane, flashings, counter-flashings, adhesives and sealants, insulation, recovery board, fasteners, fastener plates, fastener strips, hard rubber or metal edging, metal termination bars, and any other Carlisle-brand products utilized in installation.
5. Length of coverage	10 years	5 or 10 years	15 years from date of Carlisle's acceptance, but not to exceed 15.5 years subsequent to date of substantial completion of roof
6. Nature of remedy	Carlisle will repair leaks in the total roofing system.	Carlisle will repair leaks in the Carlisle membrane system.	Carlisle will repair leaks in the Carlisle Golden Seal Total Roofing System.
7. Monetary limitations	None stated.	None stated.	None stated.
8. Notification requirements	Written notice within 30 days of discovery of any leak in the total roofing system to Carlisle's Warranty Services, P.O. Box 7000, Carlisle, PA 17013	Written notice within 30 days of discovery of any leak in the Carlisle membrane system to Carlisle's Warranty Services, P.O. Box 7000, Carlisle, PA 17013	Written notice within 30 days of discovery of any leak in the Carlisle Total Roofing System to Carlisle's supporting services department, P. O. Box 7000, Carlisle, PA 17013.
9. Exclusive or additional remedy	Owner's remedies and Carlisle's liability limited to repair of leaks in the total roofing system; remedy stated in warranty is owner's sole and exclusive remedy for failure of the Carlisle total roofing system or its components; excludes UCC warranties.	The owner's remedies and Carlisle's liability are limited to repair of leaks in membrane system; remedy stated in warranty is owner's sole and exclusive remedy for failure of the Carlisle membrane system or its components; excludes UCC warranties.	Owner's remedies and Carlisle's liability limited to Carlisle's repair of leaks in membrane system; remedy stated in warranty is owner's sole and exclusive remedy for failure of the Carlisle Total Roofing System or its components; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Carlisle's determination. (See Special Features/Conditions.)	Carlisle's determination (See Special Features/Conditions.)	Carlisle's determination (See Special Features/Conditions.)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 5, 7, 13, 16, 17. Warranty also specifically excludes insect infestation.	1, 2, 3, 5, 7, 13, 16, 17. Warranty also specifically excludes insect infestation.	1, 2, 3, 5, 7, 13, 16, 17. Warranty also specifically excludes insect infestation.
13. Wind coverage/exclusions	Warranty form states that it excludes "winds of peak gust speeds _____ mph or higher measured at 10 meters above ground, hurricanes, and tornadoes." Carlisle indicates that 55 mph is inserted when warranty is issued so that warranty covers roof damage resulting from wind speeds up to 55 mph. Carlisle indicates that, when a request is made, warranty can be obtained to cover higher speeds after a project specification and detail review.	Warranty form states that it excludes "winds of peak gust speeds _____ mph or higher measured at 10 meters above ground," hurricanes, and tornadoes. Carlisle indicates that 55 is inserted when warranty is issued so that warranty covers roof damage resulting from wind speeds up to 55 mph.	Warranty excludes winds of peak gust of _____ mph or higher measured at 10 meters above ground, hurricanes, and tornadoes. Carlisle indicates that warranty will be issued excluding winds of peak gust speeds of 72 mph or higher and that warranty covers roof damage resulting from wind speeds up to 72 miles per hour if roof design submitted qualifies; if roof design does not qualify and owner chooses not to make Carlisle's recommended design changes, warranty will be issued to cover winds of peak gust speeds up to 55 mph.

14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F (including failure of owner to comply with Carlisle's care and maintenance information sheet)	B, C, F (including failure of owner to comply with Carlisle's care and maintenance information sheet)
15. Cost to obtain		
16. Minimum charge		
17. Ineligible structure or building use	Single-family residential structures; however, warranty is available for apartment houses, co-ops, condominiums, and the like.	Single-family residential structures; however, warranty is available for apartment houses, co-ops, condominiums, and the like.
18. Pre-construction notice and approval requirements	Carlisle must be contacted for a project specification and detail review.	Carlisle must be contacted for a project specification and detail review on projects where the building height exceeds 75 feet for Design B, 150 feet for mechanically fastened systems, and 250 feet for adhered systems.
19. Approved, authorized, or licensed applicator	Yes	Yes
20. Job inspection policy	If requested by owner or applicator, Carlisle technical representative makes on-site inspections prior to and during application and after completion prior to issuance of warranty; two inspections at no charge. Each additional inspection will cost \$500.	If requested by owner or applicator, Carlisle technical representative makes on-site inspections prior and during application; after completion prior to issuance of warranty; two inspections at no charge. Each additional inspection will cost \$500.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Carlisle indicates that it does not carry insurance covering its warranty obligation.	No; Carlisle indicates that it does not carry insurance covering its warranty obligation.
23. Issuing entity manufactures and/or sells products	Carlisle manufactures and sells system components.	Carlisle manufactures and sells system components.
24. Conditions for renewal or extension	Warranty can be extended for 5 years for Sure-Seal Design A, B and mechanically fastened roofing systems. Owner must request in writing a Carlisle inspection within 30 days after the end of the initial 10 years, pay any expense that may be required to bring the installed roof membrane system into warrantable conditions, and pay \$500 per occurrence for the inspection.	Warranty may be extended for 5 years for Sure-Seal Design A, B and mechanically fastened roofing systems. The owner must request in writing a Carlisle inspection within 30 days after the end of the initial 10 years, pay any expense that may be required to bring the installed roof membrane system into warrantable conditions, and pay \$500 per occurrence for the inspection.
25. Assignability	No restrictions stated.	No restrictions stated.
26. Special features/conditions	Carlisle shall not be responsible for the cleanliness or discoloration of the membrane system caused by environmental conditions, including, but not limited to, dirt, pollutants, or biological agents. Carlisle does not warrant products utilized in installation that it has not furnished and specifically disclaims liability, under any theory of law, arising out of the installation and performance of, or damages sustained by or caused by, products not furnished by Carlisle. If Carlisle's investigation after receipt of notice of leak from owner reveals that cause of leak is outside scope of warranty, investigation and repair costs are to be paid by owner. Warranty runs from substantial completion of roof regardless of date warranty is issued.	Carlisle shall not be responsible for the cleanliness or discoloration of the Carlisle membrane system caused by environmental conditions including, but not limited to, dirt, pollutants, or biological agents. Carlisle does not warrant products utilized in installation that it has not furnished and specifically disclaims liability, under any theory of law, arising out of the installation and performance of, or damages sustained by or caused by, products not furnished by Carlisle. If Carlisle's investigation after receipt of notice of leak from owner reveals that cause of leak is outside scope of warranty, investigation and repair costs are to be paid by owner. Warranty runs from substantial completion of roof regardless of date warranty is issued.
27. Executed by owner	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Celotex Corporation	Celotex Corporation	Celotex Corporation
2. Title, original publication date, and identifying symbol, if any	"Commercial Roofing Material Only Limited Warranty"; September 1997; Form 1146-1190 Rev.D	"Specification Warranty"; September 1997; Form 1033-0487 Rev. B	"Roofing System Limited Warranty"; September 1997; Form 1005-1092 Rev. A
3. Product, specification, or system covered	BUR Specifications: AGS-5-W-M, AGS-5-C-M, AGS-4-F-G, G/A-5-W-M, G/A-6-C-M, G/A-4-F-G, AGS-4-W-M, AGS-4-C-M, AGS-4-F-S, G/A-4-F-S, AGS-4-W-G, AGS-4-C-G, AGS-H+4-W-M, G/A-4-W-G, G/A-4-C-G, G/A-H+4-W-M, AGS-4-W-S, AGS-4-C-S, AGS-H+3-W-M, G/A-4-W-S, G/A-4-C-S, G/A-H+3-W-M, G/A-3-W-G, AGS-5-F-M, AGS-H+3-W-S, G/A-5-F-M, G/A-H+3-W-S, G/A-3-W-M, AGS-3-C-G, AGS-H+3-W-G, G/A-3-W-S, AGS-4-F-M, G/A-4-F-M, Modified Bitumen Specifications: SBS-4-W-M, SBS-DP-3-F-M, APP-3-C-M, SBS-H+2-W-M, APP-4-C-S, SBS-DP-4-W-M, SBS-H+2-W-M, APP-2-C-M, SBS-DP-2-F-M, APP-2-C-M, SBS-DP-3-W-M, SBS-H+2-W-M, APP-4-F-S, SBS-DP-2-W-M, SBS-DP-3-W-M, APP-4-F-M, SBS-4-C-M, SBS-DP-H+2-W-M, APP-3-F-M, SBS-3-C-M, SBS-2-C-M, APP-2-F-M, SBS-2-C-M, SBS-2-R-M, APP-4-F-S, SBS-DP-3-C-M, APP-3-W-M, APP-2-F-S, SBS-DP-2-C-M, APP-2-W-M, APP-H+3-W-M, SBS-4-F-M, APP-4-W-S, APP-H+2-W-M, SBS-2-F-M, APP-2-W-S, APP-H+3-W-S, SBS-DP-4-F-M, APP-4-C-M, APP-H+2-W-S, APP-H+2-IV-W-M	BUR Specifications: AGS-5-W-M, AGS-5-C-M, AGS-4-F-G, G/A-5-W-M, G/A-6-C-M, G/A-4-F-G, AGS-4-W-M, AGS-4-C-M, AGS-4-F-S, G/A-4-F-S, AGS-4-W-G, AGS-4-C-G, AGS-H+4-W-M, G/A-4-W-G, G/A-4-C-G, G/A-H+4-W-M, AGS-4-W-S, AGS-4-C-S, AGS-H+3-W-M, G/A-4-W-S, G/A-4-C-S, G/A-H+3-W-M, G/A-3-W-G, AGS-5-F-M, AGS-H+3-W-S, G/A-5-F-M, G/A-H+3-W-S, G/A-3-W-M, AGS-3-C-G, AGS-H+3-W-G, G/A-3-W-S, AGS-4-F-M, G/A-4-F-M, Modified Bitumen Specifications: SBS-4-W-M, SBS-DP-3-F-M, APP-3-C-M, SBS-H+2-W-M, APP-4-C-S, SBS-DP-4-W-M, SBS-H+2-W-M, APP-2-C-M, SBS-DP-2-F-M, APP-2-C-M, SBS-DP-3-W-M, SBS-H+2-W-M, APP-4-F-S, SBS-DP-2-W-M, SBS-DP-3-W-M, APP-4-F-M, SBS-4-C-M, SBS-DP-H+2-W-M, APP-3-F-M, SBS-3-C-M, SBS-2-C-M, APP-2-F-M, SBS-2-C-M, SBS-2-R-M, APP-4-F-S, SBS-DP-3-C-M, APP-3-W-M, APP-2-F-S, SBS-DP-2-C-M, APP-2-W-M, APP-H+3-W-M, SBS-4-F-M, APP-4-W-S, APP-H+2-W-M, SBS-2-F-M, APP-2-W-S, APP-H+3-W-S, SBS-DP-4-F-M, APP-4-C-M, APP-H+2-W-S, APP-H+2-IV-W-M	Built-Up Roofing Specifications: G/A-5-W-M, G/A-5-C-M, G/A-4-F-G, G/A-4-W-M, G/A-4-C-M, G/A-4-F-S, G/A-4-W-G, G/A-4-C-G, G/A-H+4-W-M, G/A-4-W-S, G/A-4-C-S, G/A-H+3-W-M, G/A-3-W-M, G/A-3-C-G, G/A-H+3-W-G, G/A-3-W-G, G/A-5-F-M, G/A-H+3-W-S, AGS-4-W-M, G/A-3-W-S, G/A-4-F-M, Modified Bitumen Specifications: SBS-4-W-M, SBS-DP-3-F-M, APP-3-C-M, SBS-3-W-M, SBS-DP-2-F-M, APP-2-C-M, SBS-H+2-W-M, APP-4-C-S, SBS-DP-4-W-M, SBS-H+2-W-M, APP-2-C-M, SBS-DP-3-W-M, SBS-H+2-W-M, APP-4-F-S, SBS-DP-2-W-M, SBS-DP-3-W-M, APP-4-F-M, SBS-4-C-M, SBS-DP-H+2-W-M, APP-3-F-M, SBS-3-C-M, SBS-2-C-M, APP-2-F-M, SBS-2-C-M, SBS-2-R-M, APP-4-F-S, SBS-DP-3-C-M, APP-3-W-M, APP-2-F-S, SBS-DP-2-C-M, APP-2-W-M, APP-H+3-W-M, SBS-4-F-M, APP-4-W-S, APP-H+2-W-M, SBS-2-F-M, APP-2-W-S, APP-H+3-W-S, SBS-DP-4-F-M, APP-4-C-M, APP-H+2-W-S, APP-H+2-IV-W-M
4. Scope of coverage	Material only; Celotex warrants that the Celotex roof membrane and base flashing will withstand ordinary wear and tear by the elements and will be free of manufacturing defects which affect the ability of the materials to keep the roof watertight.	Material and workmanship; Celotex will repair any leaks in the Celotex roof membrane and base flashing caused by defects in the Celotex roofing materials or errors in workmanship.	Material and workmanship; Celotex warrants that it will repair leaks in the Celotex roof membrane and base flashing caused by defects in the Celotex roofing materials or errors in workmanship.
5. Length of coverage	10 years: built-up roofing; 12 years: modified bitumen	10 years: 3 ply; 15 years: 3 ply; 20 years: 4 ply	10 years: Celotex-1 EPDM, Built-up Roofing; 12 years: Modified Bitumen; 15 years: Celotex-1 EPDM Built-up Roofing, Modified Bitumen; 20 years: Built-up Roofing and Modified Bitumen
6. Nature of remedy	Celotex will provide replacement material.	Celotex will have repairs made and will pay for such repairs. Owner's sole remedy and Celotex's liability limited to Celotex's repair of Celotex roofing materials.	Celotex will have repairs made and will pay for such repairs. Owner's sole remedy and Celotex's liability limited to Celotex's repair of the Celotex roof membrane and base flashing.
7. Monetary limitations	Celotex's maximum responsibility is the original cost of the Celotex membrane and flashing materials. Celotex is not responsible for any labor charges.	None stated.	For built-up roofing and modified bitumen specifications, Celotex's maximum liability is limited to \$100/square. For Membrane Insulation Assembly Warranty, Celotex's maximum liability is limited to \$130/square. For Celotex-1 EPDM specifications, Celotex's maximum liability is limited to the original installed cost of Celotex membrane materials.
8. Notification requirements	Written notice within 10 days of discovery of any leaks in the roofing system to Celotex Corporation, P.O. Box 31602, Tampa, FL 33631.	Written notice within 10 days of discovery of any leaks in the roofing system to Celotex Corporation, P.O. Box 31602, Tampa, FL 33631.	Written notice within 10 days of discovery of leaks in the roofing system to Celotex Corporation, P.O. Box 31602, Tampa, FL 33631.
9. Exclusive or additional remedy	Warranty is owner's sole and exclusive remedy with respect to the roofing system and owner waives any and all other claims, rights, proceedings, actions and demands from Celotex relating to the roofing system. Warranty is in lieu of any and all other Celotex warranties; excludes UCC warranties.	Warranty is owner's sole and exclusive remedy with respect to the roofing system and owner waives any and all other claims, rights, proceedings, actions and demands from Celotex relating to the roofing system. Warranty is in lieu of any and all other Celotex warranties; excludes UCC warranties.	Warranty is owner's sole and exclusive remedy with respect to the roofing system and Owner waives any and all other claims, rights, proceedings, actions and demands from Celotex relating to the roofing system. Warranty is in lieu of any and all other Celotex warranties; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Celotex's determination.	Celotex's determination	Celotex's determination.
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1 (including chemical or organic deposits), 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 20, 23	1 (including chemical or organic deposits), 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 23	1 (including chemical or organic deposits), 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 23
13. Wind coverage/exclusions	Warranty covers roof damage resulting from wind speeds up to 72 mph. Warranty excludes gales, hurricanes and tornadoes.	Warranty covers roof damage resulting from wind speeds up to 72 mph. Warranty excludes gales, hurricanes and tornadoes.	Celotex indicates warranty covers damage resulting from winds without stating a speed. Warranty excludes gales, hurricanes and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	C	C	C

15. Cost to obtain	\$100		\$10.00/square; 15 years: \$12.00/square; 20 years: \$15.00/square	Celo-1 10 years: \$ 5.00/square; 15 years: \$10.00/square  Built-Up Roofing 10 years: \$ 7.00/square; 10 years MIA: \$10.00/square; 15 years: \$ 9.00/square; 15 years MIA: \$11.00/square; 20 years: \$14.00/square; 20 years MIA: \$13.00/square  Modified Bitumen 12 years: \$ 8.00/square; 12 years MIA: \$10.00/square; 15 years: \$ 9.00/square; 15 years MIA: \$11.00/square; 20 years: \$14.00/square; 20 years MIA: \$13.00/square
16. Minimum charge	\$100		10 years: \$1,000; 15 years: \$1,200; 20 years: \$1,500	Celo-1 10 years: \$ 500; 15 years: \$1,000  Built-Up Roofing 10 years: \$ 700; 10 years MIA: \$1,000; 15 years: \$ 900; 15 years MIA: \$1,100; 20 years: \$1,400; 20 years MIA: \$1,300  Modified Bitumen 12 years: \$ 800; 12 years MIA: \$1,000; 15 years: \$ 900; 15 years MIA: \$1,100; 20 years: \$1,400; 20 years MIA: \$1,300  Contact local Celotex sales office for building evaluation.
17. Ineligible structure or building use	None		None	Contractor must fill out a Notice of Award; if accepted, notify Celotex of start date and completion.
18. Pre-construction notice and approval requirements	None		Yes	Yes
19. Approved, authorized, or licensed applicator	No		Independent inspection service makes on-site inspections prior to application and after completion prior to issuance of warranty, as well as two years after issuance of warranty; no charge.	Independent inspection service makes on-site inspections after completion prior to issuance of warranty, as well as two years after issuance of warranty; no charge.
20. Job inspection policy	No on-site inspections		Contractor obligated to make repairs to all leaks, any defects and workmanship deficiencies for two years.	Contractor obligated to make repairs to materials and workmanship deficiencies for two years.
21. Contractor's post-installation obligation	None; material-only warranty.		No; Celotex indicates that it does not carry insurance covering its warranty obligations.	No; Celotex indicates that it does not carry insurance covering its warranty obligations.
22. Backed by named insurance or surety	No; Celotex indicates that it does not carry insurance covering its warranty obligations.		Celotex manufactures and sells the product.	Celotex manufactures and sells the product.
23. Issuing entity manufactures and/or sells products	Celotex manufactures and sells the product.		Warranty may be extended for five years at a cost of \$500.	No renewal provision. For Celo-1 specifications, "Celo-1 Extended Coverage Roofing Sheet Only Warranty" for 5 or 10 year additional material-only warranty coverage.
24. Conditions for renewal or extension	No renewal provision.		Not assignable; warranty accrues to the original owner named in the warranty and cannot be transferred to or for the benefit of any tenant, purchaser, successor, or assignee.	Not assignable; warranty accrues to the original owner named in the warranty and does not accrue to the benefit of any tenant, purchaser, successor, or assignee.
25. Assignability	Not assignable; warranty accrues to the original owner named in the warranty and does not accrue to the benefit of any tenant, purchaser, successor or assignee.		No representative of Celotex has authority to make any representation or promise except as stated in warranty documentation. Any inspection conducted by Celotex may require that adequate samples of the roofing system be taken for testing by Celotex to evaluate any claim of purported defect or deterioration. Refusal by the owner to permit removal of samples for testing constitutes a waiver of the claim.	This warranty form is used for built-up roofing, modified bitumen, Celo-1 EPDM, membrane insulation assembly (M.I.A.), and membrane only. At time of issuance, warranty type is designated. No representative of Celotex has authority to make any representation or promise except as stated in warranty documentation. Any inspection conducted by Celotex may require that adequate samples of the roofing system be taken for testing by Celotex to evaluate any claim of purported defect or deterioration. Refusal by the owner to permit removal of samples for testing constitutes a waiver of the claim.
26. Special features/conditions	Warranty only applies to Celotex materials which are installed in accordance with current Celotex specifications. No representative of Celotex has authority to make any representation or promise except as stated in warranty documentation. Any inspection conducted by Celotex may require that adequate samples of the roof be taken for testing by Celotex to evaluate any claim of a purported defect or deterioration. Refusal by the owner to permit removal of samples for testing constitutes a waiver of the claim.		No	No
27. Executed by owner	No		No	No

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Celotex Corporation	Celotex Corporation	Conklin Company, Inc.
2. Title, original publication date and identifying symbol, if any	"Celo-1 Extended Coverage Roofing Sheet Only Warranty"; September 1997; Form 1038-0587 Rev. C	"Celo-1 EPDM Membrane Material Only Limited Warranty"; September 1997; Form 1010-0888 Rev. D	"Conklin Limited Materials Warranty"; November 1990; 1-000141A (Code #078270A 9/92 appears on packet accompanying warranty documents.)
3. Product, specification, or system covered	Celo-1 Type I, Celo-1 Type II, Celo-1 Type III, Celo-1 Type III R	Celo-1 Type I, Celo-1 Type II, Celo-1 Type III, Celo-1 Type III R	Hy-Crown
4. Scope of coverage	Material only; Celotex represents that its cured Celo-1 EPDM roofing sheet is free from manufacturing defects and will not deteriorate prematurely to the point of failure due to weathering.	Material only; Celotex represents that its cured EPDM rubber roofing sheet is free from manufacturing defects and will not deteriorate prematurely to the point of failure due to weathering.	Material only; Conklin warrants that the roof will not leak in ordinary weather conditions due to any defect in product materials manufactured or sold by Conklin.
5. Length of coverage	5 or 10 years beyond termination date of Roofing System Limited Warranty for Celo-1 EPDM (See Special Features/Conditions)	10 years	1 to 15 years
6. Nature of remedy	Celotex will provide replacement material, F.O.B., place of manufacture. Celotex not responsible for any labor and service charges pertaining to either original or replacement product. Owner's sole remedy and Celotex's liability is replacement of that portion of the Celotex roof membrane or base flashing which contains manufacturing defects or deterioration caused by ordinary wear and tear of the elements that has caused one or more leaks. Warranty is prorated for each month of service.	Celotex will, at its option, provide replacement membrane, F.O.B., place of manufacture, to effect repair or provide credit to be applied towards the purchase of replacement membrane. Celotex not responsible for any labor or service charges pertaining to either original or replacement membrane. Warranty is prorated at the rate of 1/120 for each month of service.	Conklin's obligation is limited to the replacement of Conklin roofing product(s) to repair leaks.
7. Monetary limitations	Celotex's maximum responsibility is the original cost of the Celotex membrane and flashing materials. Original purchase price of EPDM sheet is reduced for each month of service provided by the product.	Celotex's maximum responsibility is the original cost of the Celotex membrane and flashing materials. In calculating Celotex's liability, the cost of the original membrane will be reduced by the amount of usage owner has received prior to the date of the claim, at the rate of 1/120 for each month of service provided by the membrane after the date of the original purchase.	None stated.
8. Notification requirements	Written notice within 10 days of discovery of any leaks in the roofing system to Celotex Corporation, P.O. Box 31602, Tampa, FL 33631.	Written notice within 10 days of the discovery of any leaks in the membrane to Celotex Corporation, P.O. Box 31602, Tampa, FL 33631.	Notification within 30 days following the discovery of circumstances giving rise to a claim to contractor and Conklin at 551 Valley Park Drive, P. O. Box 155, Shakopee, MN 55379.
9. Exclusive or additional remedy	Celotex makes no warranties or guarantees of any kind, express or implied, except as stated in warranty; excludes UCC warranties.	Celotex makes no warranties or guarantees of any kind, express or implied, except as stated in warranty; excludes UCC warranties.	Warranty is given in lieu of any other warranty; excludes UCC warranties; warrantors shall not be liable for any direct, indirect, incidental, consequential, special, or general damages resulting from failure of the Conklin system.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Celotex's determination	Celotex's determination.	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1 (including chemical or organic deposits), 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 23	1 (including chemical or organic deposits), 2, 3, 4, 5, 6, 8, 9, 11, 12, 15, 19, 20, 23	1, 2, 3, 4, 6, 7, 14, 15, 16, 19, 20, 24, 25
13. Wind coverage/exclusions	Warranty covers roof damage resulting from wind speeds up to 72 mph. Warranty excludes gales, hurricanes and tornadoes.	Warranty covers roof damage resulting from wind speeds up to 72 mph. Warranty excludes gales, hurricanes and tornadoes.	Warranty excludes gales, windstorms, hurricanes, and tornadoes. Conklin indicates that warranty covers roof damage resulting from wind speeds up to 43 miles per hour.

	C	C	H (including notice to contractor), R
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)			
15. Cost to obtain	5 years: \$1.00/square; 10 years: \$2.00/square	None	1 to 10 years: no charge; 11 to 15 years: less than 10,000 square feet, \$200; greater than 10,000 square feet, \$300
16. Minimum charge	5 years: \$100; 10 years: \$200	None	None for 1 to 10 years; \$200 for 11 to 15 years
17. Ineligible structure or building use	Contact local Celotex sales office for building evaluation.	None	None
18. Pre-construction notice and approval requirements	Contractor must fill out a Notice of Award; if accepted, notify Celotex of start date and completion.	None required	Application must be submitted within 30 days of completion of project
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Independent inspection service makes on-site inspections after completion, as well as two years after issuance of warranty; no charge.	No on-site inspections.	No on-site inspections.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to materials and workmanship deficiencies for two years.	None; material-only warranty	None; material-only warranty
22. Backed by named insurance or surety	No; Celotex indicates that it does not carry insurance covering its warranty obligations.	No; Celotex indicates that it does not carry insurance covering its warranty obligations.	No; Conklin indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Celotex manufactures and sells the product.	Celotex manufactures and sells the product.	Conklin sells product only.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Not assignable; warranty accrues to the original owner named in the warranty and does not accrue to the benefit of any tenant, purchaser, successor, or assignee.	Not assignable; warranty accrues to the original owner named in the warranty and does not accrue to the benefit of any tenant, purchaser, successor, or assignee.	No restrictions stated.
26. Special features/conditions	This is an extended warranty, issued and valid only with purchase of Celotex Roofing System Limited Warranty and covers roofing sheet only after expiration of standard warranty. No representation of Celotex has authority to make any representation or promise except as stated in warranty document. Any inspection conducted by Celotex may require that adequate samples of the roofing system be taken for testing by Celotex to evaluate any claim of purported defect or deterioration. Refusal by the owner to permit removal of samples of testing constitutes a waiver of the claim. If Celotex Roofing System Limited Warranty is terminated or cancelled for reasons other than normal expiration, this Roofing Sheet Only Limited Warranty shall be void upon such termination or cancellation.	No representative of Celotex has authority to make any representation or promise except as stated in warranty document. Any inspection conducted by Celotex may require that adequate samples of the Membrane be taken for testing by Celotex to evaluate any claim of a purported defect or deterioration. Refusal by the owner to permit removal of samples for testing constitutes a waiver of the claim.	Warranty interpreted and governed by the laws of the state of Minnesota.
27. Executed by owner	No	No	Yes

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Conklin Company, Inc.	Conklin Company, Inc.	Consolidated Coatings Corporation
2. Title, original publication date, and identifying symbol, if any	"Conklin Company, Inc. Total Roof System Limited Joint Warranty"; Form E; November 1990; 1-000139; (Code #078268 1/90 appears on packet accompanying warranty documents.)	"Conklin Company Limited Joint Warranty"; Form E; November 1990; 1-00139A; (Code #078268A 11/91 appears on packet accompanying warranty documents.)	"Ten Year Limited Warranty Goodyear E-Z Roof Premium"; 1980
3. Product, specification, or system covered	Hy-Crown. Warranty is limited exclusively to the use of approved substrate materials overlaid with an approved Conklin roof membrane. The Conklin Total Roof System consists of Conklin roof membrane, Conklin fasteners, plates and approved boardstock insulation, polyurethane foam, and/or Hy-Crown slip sheet.	Hy-Crown. Warranty is limited exclusively to the use of approved Conklin Joint Warranty roofing membrane system.	E-Z Roof Premium White, Black
4. Scope of coverage	Material and workmanship. Conklin and contractor jointly warrant that the Conklin system will be free from water leaks resulting from ordinary wear and tear from the elements or from improper application.	Material and workmanship. Conklin and contractor jointly warrant that the Conklin membrane/coating will be free from water leaks resulting from ordinary wear and tear from the elements or from improper application.	Material only: Consolidated guarantees Goodyear E-Z Roof Premium Grade and Premium Grade-White against any defect that can be shown to Consolidated's satisfaction to have been caused by faulty workmanship in the manufacture of the goods or deterioration of the goods under normal service conditions.
5. Length of coverage	1 to 15 years	1 to 10 years	10 years (from date of delivery)
6. Nature of remedy	Conklin and contractor, at their own expense, will supply the necessary product and labor to correct leakage caused by ordinary wear and tear or improper application.	Conklin and contractor, at their own expense, will supply the necessary product and labor to correct leakage caused by ordinary wear and tear or improper application.	Consolidated will procure the making good of any water leaks in defective goods by such methods as it determines fit. Consolidated's obligation is limited to the rectification of defects in the goods causing water leaks, including the costs of labor and materials necessary to repair or replace the defective goods.
7. Monetary limitations	Conklin's and contractor's obligation shall in no event exceed either that portion of the original amount of the roofing contract that relates to the Conklin system and the labor required to apply the Conklin system or \$250,000, whichever is lesser.	Conklin's and contractor's obligation shall in no event exceed either that portion of the original amount of the roofing contract that relates to the roofing membrane/coating and the labor required to apply the roofing membrane/coating or \$250,000, whichever is lesser.	Consolidated's entire liability under warranty shall not exceed the total of the invoices covering the shipment of E-Z Roof to the purchaser.
8. Notification requirements	Written notification within 30 days following discovery of leak to contractor and Conklin at P. O. Box 155, Shakopee, MN 55379.	Written notification within 30 days following discovery of leak to contractor and Conklin at P. O. Box 155, Shakopee, MN 55379.	The purchaser shall give notice of defects to Consolidated in writing within 28 days of the date on which the purchaser became aware of defect.
9. Exclusive or additional remedy	Owner's sole and exclusive remedy shall be the replacement of the defective membrane; warranty is given in lieu of any other warranty; excludes UCC warranties; warrantors shall not be liable for any direct, indirect, incidental, consequential, special, or general damages resulting from failure of the Conklin system.	Owner's sole and exclusive remedy shall be the replacement of the defective membrane; warranty is given in lieu of any other warranty; excludes UCC warranties; warrantors shall not be liable for any direct, indirect, incidental, consequential, special, or general damages resulting from failure of the Conklin system.	Guarantee shall be in lieu of any other warranty or guarantee, express or implied. Purchaser's remedy, as stated in warranty, shall be exclusive, and Consolidated shall not be liable for any damages, either direct or consequential.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Consolidated's determination
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1, 2, 3, 4, 6, 7, 14, 15, 16, 24, 25	1, 2, 3, 4, 6, 7, 14, 15, 16, 24, 25	1, 2, 3, 4, 6, 9, 15, 19, 22
13. Wind coverage/exclusions	Warranty excludes winds of peak gust speed of ___ mph measured 35 feet above the ground, hurricanes, and tornadoes. Conklin indicates that warranty will be issued excluding winds over 43 miles per hour. Conklin indicates higher wind speed exclusions can be obtained by submitting a wind speed application.	Warranty excludes gales, windstorms, hurricanes, and tornadoes. Conklin indicates that warranty covers roof damage resulting from wind speeds up to 43 miles per hour.	Warranty excludes windstorms, hurricanes, and tornadoes. Consolidated indicates that there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	A, B, C, D, E, F, H, J, S. Failure of owner to file an accurate, completed maintenance/inspection report annually within 30 days prior to anniversary of warranty effective date and failure to complete repairs deemed necessary within 60 days of annual inspection shall void the warranty. (See Special Features/Conditions.)	A, B, C, D, E, F, H, J, S. Failure of owner to file an accurate, complete maintenance/inspection report annually within 30 days prior to anniversary of warranty effective date and failure to complete repairs deemed necessary within 60 days of annual inspection shall void the warranty. (See Special Features/Conditions.)	B (other than emergency repairs properly carried out with compatible materials), C, H, R
15. Cost to obtain	\$8.00/square	\$5.00/square	None
16. Minimum charge	\$800	\$500	None
17. Ineligible structure or building use	None	None	Residential structures



18. Pre-construction notice and approval requirements	Contractor must complete preapplication forms and submit them to Conklin prior to starting job; mandatory preinspection by Conklin prior to granting approval.	Yes	Contractor must complete preapplication forms and submit to Conklin prior to starting job. Conklin's written approval to start the job is needed before work may begin. Conklin reserves the right to preinspect the job, for a fee, prior to granting approval.	Yes	Contractor required to give notice of the type of construction and number of squares and obtain approval from Consolidated prior to beginning installation.
19. Approved, authorized, or licensed applicator		Yes		Yes	No
20. Job inspection policy	Conklin warranty inspector makes on-site inspection prior to and after application prior to issuance of warranty; \$300 charge per day for preapplication inspection and \$300 charge per day for post-application inspection; \$100 charge for each additional day. If roof passes first post-application inspection, \$300 is applied toward cost of warranty. If roof fails the first post-application inspection, \$300 is retained and an additional \$300 is due upon scheduling of second post-application inspection.	Yes	Conklin warranty inspector makes on-site inspection prior to application sometimes and after application prior to issuance of warranty; \$300 charge per job post-application inspection, \$300 is applied toward cost of warranty. If roof fails the first post-application inspection, \$300 is retained and an additional \$300 is due upon scheduling of second post-application inspection.	Yes	Consolidated authorized representative will make inspection during application and five years after completion; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to all leaks, any defects, and material and workmanship deficiencies for three years	Yes	Contractor obligated to make repairs to all leaks, any defects, and material and workmanship deficiencies for three years	Yes	Although this is a material-only warranty, contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Conklin indicates that it does not carry insurance covering its warranty obligations	No	No; Conklin indicates that it does not carry insurance covering its warranty obligations.	No	No
23. Issuing entity manufactures and/or sells products	Conklin sells product only	Yes	Conklin sells product only.	Yes	Consolidated manufactures and sells product
24. Conditions for renewal or extension	No renewal provision	No	No renewal provision	No	No renewal provision
25. Assignability	Warranty may be transferred upon giving notification to Conklin and contractor in writing within 60 days of transfer and ownership of structure of the name of new building owner and the intended use of the building. Conklin may inspect roof for a fee and require any modification it deems necessary to protect the roof system. Failure to notify Conklin in timely manner renders warranty null and void.	Yes	Warranty may be transferred upon giving notification to Conklin and contractor in writing within 60 days of transfer and ownership of structure of the name of new building owner and the intended use of the building. Conklin may inspect roof for a fee and require any modification it deems necessary to protect the membrane. Failure to notify Conklin in timely manner renders warranty null and void.	Yes	No restrictions stated.
26. Special features/conditions	The Conklin Company, Inc. Total Roof System Limited Joint Warranty is a joint warranty obligating Conklin Company, Inc. and the contractor. Building owner must submit to Conklin a maintenance/inspection report completed either by original contractor or another contractor approved by Conklin on forms provided by Conklin. The required maintenance inspection report must be filed annually not less than 30 days prior to the anniversary of the effective date of the warranty. Failure to submit accurate, complete report voids the warranty. If corrections are needed, roofing repairs not covered by the warranty must be completed within 60 days of the annual inspection, or warranty will be void. Conklin may require an inspection of repairs with inspection costs to be charged to building owner at current inspection fee rates. Owner must give written notice to Conklin and contractor within 30 days following discovery of damage to roof not covered by warranty, allow Conklin to inspect for a fee, and make repairs in order for warranty to remain in effect. Warranty interpreted and governed by laws of Minnesota.	Yes	The Conklin Limited Joint Warranty is a joint warranty obligating Conklin Company, Inc. and the contractor. The building owner must submit to Conklin a maintenance/inspection report completed either by original contractor or another contractor approved by Conklin on forms provided by Conklin. The required maintenance inspection report must be filed annually not less than 30 days prior to the anniversary of the effective date of the warranty. Failure to submit accurate, complete report voids the warranty. If corrections are needed, roofing repairs not covered by the warranty must be completed within 60 days of the annual inspection, or warranty will be void. Conklin may require an inspection of repairs with inspection costs to be charged to building owner at current inspection fee rates. Owner must give written notice to Conklin and contractor within 30 days following discovery of damage to roof not covered by warranty, must allow Conklin to inspect for a fee, and must make repairs in order for warranty to remain in effect. Warranty interpreted and governed by laws of Minnesota.	Yes	This guarantee shall not apply in any case where water leaks arise from a defect in the goods or the relevant roofing works or from other circumstances that (a) should have been but were not seen by purchaser or its contractor during the course of or on completion of installation or (b) were so seen but not properly corrected at that time.
27. Executed by owner	Yes; warranty also executed by contractor.	Yes	Yes; warranty also executed by contractor.	Yes	No

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

Consolidated Coatings Corporation		Danosa Caribbean, Inc.	
1. Identity of issuing entity	"Limited Material Warranty"; 1980	"Roofing System Limited Warranty"; 1980	"Danosa Roofing Membrane System Limited Warranty"; 1979
2. Title, original publication date, and identifying symbol, if any	Conso-Gard II	Conso Gard III, IV	Esterdan RM; Glasdan AL-80, Glasdan R-36; Esterdan R-36
3. Product, specification, or system covered	Material only; Consolidated warrants that if, after complete coverage with Consolidated's Goodyear Roofing Materials according to directions, customer's roof develops leaks CPCC agrees to furnish without charge sufficient Consolidated Roofing Materials to stop any leaks.	Material and workmanship; Consolidated warrants that the roofing membrane and flashing materials sold by Consolidated are free from defects in material and installation at the time of application and the roofing materials conform to Consolidated's specification. Warranty covers leaks resulting from deterioration of Consolidated roof membrane or Consolidated flashing caused by ordinary weathering; blisters, buckles, ridges, wrinkles and slips of the Consolidated roof membrane not caused by structural failure; damage to Consolidated roof membrane due to thermal shock; slippage of Consolidated roof membrane or flashing; breaks in approved flashing; deterioration of Consolidated roof membrane due to occasional ponding of water not caused by structural defect; and improper installation if the leak first occurs more than two years after completion. (See Special Features/Conditions.)	Material and workmanship; Danosa will pay all authorized costs of repair to Roofing Membrane System necessary to stop leaks resulting from deterioration of Danosa roofing membrane or flashing membrane system resulting from ordinary wear and tear by elements, improper workmanship in application, blisters, buckles, ridges, wrinkles attributed to roofing membrane and its workmanship, and splits or cracks not caused by structural failure or slippage.
4. Scope of coverage			
5. Length of coverage	10 years (from invoice date)	10 years (from invoice date)	5, 10, 15 years
6. Nature of remedy	Consolidated agrees to furnish without charge, F.O.B. closest U.S.A. or Canada warehouse, or F.O.B. U.S.A. export port of embarkation, sufficient Consolidated Roofing Materials to stop leaks. Warranty does not include any labor or transportation charge.	Consolidated will pay the cost of repair necessary to correct leaks in the roof membrane and flashing.	Danosa will pay all authorized costs of repair necessary to stop leaks.
7. Monetary limitations	Consolidated's total obligation over the life of the warranty shall not exceed the owner's original cost of the Consolidated-supplied materials.	None stated.	Danosa's total cumulative liability not to exceed a per-square limitation established by Danosa at time of completion of warranty form.
8. Notification requirements	No notification requirements stated in warranty.	All claims shall be made by writing to Consolidated at 1801 East Ninth Street, Cleveland, Ohio 44114 within 30 days after discovery of any defects or leaks.	Written notice within 30 days of discovery of leak
9. Exclusive or additional remedy	Warranty is in lieu of all warranties, express, implied, or statutory, and Consolidated neither assures nor authorizes any person to assume for it any other obligation or liability whatsoever.	Warranty is exclusive and in lieu of all other warranties whether oral or written, express or implied; excludes UCC warranties.	Excludes other guarantees and warranties; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Consolidated determines if leak is due to an excluded condition.	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 6, 7, 24. (Consolidated indicates that 9, 10, 16, 17 and 19 are also applicable).	1, 2, 3, 4, 5, 6, 9, 12, 16, 23	1, 2, 3, 4, 6, 7, 8, 9, 10, 12, 13, 17, 22. [Danosa indicates that 11, 15, 16, 18, 19, 23, 24, and 25 are also applicable.]
13. Wind coverage/exclusions	Consolidated indicates that damage as a result of wind is not covered by warranty.	Warranty excludes windstorms, hurricanes, and tornadoes. Consolidated indicates that there is no coverage for damage caused by wind.	Warranty excludes hurricanes. [Danosa indicates that there is no coverage for damage caused by wind.]

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Dermabit	Dermabit	Dibiten, a division of Johns Manville Corporation
2. Title, original publication date, and identifying symbol, if any	Dermabit Waterproofing Industries "Guarantee Material and Labor", April 1988	Dermabit Waterproofing Industries "Material Guarantee", April 1988	"20 Year Limited Material Warranty", March 1997; RS-5013-3-97
3. Product, specification, or system covered	Dermabit APP 4170, 4170S; Elastaphil SBS 4170, 4170S	Dermabit APP 4170; Elastaphil 4170, 4170S, SBS	Dibiten Poly/4 Two Ply Specifications: 401-2, 402-2, 403-2, 404-2; Dibiten Poly 4.5 Two Ply Specifications: 451-2, 452-2, 453-2, 454-2
4. Scope of coverage	Material only; Dermabit guarantees that the membrane/ flashing will not lose its waterproof quality due to natural deterioration of the membrane, bare spots, ridges, or splits not caused by structural failure or movement of or cracks in substrate, roof base, or insulation.	Material only; Dermabit guarantees that Dermabit membrane will not lose its waterproof quality due to natural deterioration of the membrane, bare spots, ridges, or splits not caused by structural failure or movement of or cracks in substrate or roof base or insulation.	Material only; Dibiten warrants its roofing membrane to be free of manufacturing defects.
5. Length of coverage	10 years: Dermabit 4170 APP, 4170 SBS (must be coated); 12 years: Dermabit 4170, 4170S APP, SBS 4170, 4170S (all smooth surfaced specifications must be coated); 20 years: Dermabit 4170, 4170S APP, SBS 4170, 4170S (must be two layers and coated)	10 years	20 years
6. Nature of remedy	Dermabit shall replace and/or repair any part of the Dermabit membrane/flashing as shall be necessary solely in order to stop water leaks.	Dermabit, in its sole discretion, will either refund to owner a prorated portion of the original purchase price of the defective Dermabit membrane or provide, at no cost to owner, a portion of the Dermabit membrane required to replace defective membrane.	If the Dibiten membrane is proved to have manufacturing defects that affect the watertight integrity of the membrane, Dibiten will pay a share, on a pro-rata basis (1/20 per year) of all costs including materials and labor, for repair or replacement of the defective Dibiten membrane.
7. Monetary limitations	Dermabit's obligation over the life of guarantee is the aggregate amount equal to the amount that was paid by owner for supply and installation of the Dermabit membrane/flashing covered by the guarantee.	Original purchase price reduced in accordance with a prorated schedule ranging from 100 percent of original purchase price during the first two years of roof service to 10 percent in year 10.	Dibiten's liability not to exceed the original cost of the membrane.
8. Modification requirements	Written notification by certified mail to D.W.I., Incorporated, P.O. Box 1154, McLean, VA 22101, within 10 days after discovery of any leak	Written notification by certified mail to D.W.I., Incorporated, P.O. Box 1154, McLean, VA 22101, within 10 days after discovery of any leak.	Written notice within 30 days of discovery of water leaks through the Dibiten membrane to Dibiten, P.O. Box 5108, Denver, Colorado 80217-5108.
9. Exclusive or additional remedy	Excludes UCC warranties and any other obligations or liability on the part of Dermabit.	Dermabit's obligation to refund a portion of owner's original purchase price or to provide a portion of new membrane shall be the owner's sole and exclusive remedy; excludes UCC warranties and any other obligations or liability on the part of Dermabit.	Warranty is exclusive warranty from Dibiten and represents the exclusive remedy available to any purchaser of the membrane materials. Dibiten makes no other representation or warranty of any kind. No retailer, contractor or distributor is authorized to alter the warranty. Dibiten shall not be liable for any damages which are based on negligence, breach of warranty, strict liability or any other theory other than the limited liability stated in warranty; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including exposure to any chemical or solution, radiation, or contamination by radioactivity from any nuclear fuel waste), 22, 23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including exposure to any chemical or solution, radiation, or contamination by radioactivity from any nuclear fuel or waste), 22, 23. (Also excludes failure of underlying materials or structures to conform to manufacturer's specifications as to roof slopes or other requirements.)	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 17, 19, 20, 22
13. Wind coverage/exclusions	Warranty excludes windstorms, hurricanes, and tornadoes.	Warranty excludes windstorms, hurricanes, and tornadoes.	Warranty excludes wind and hurricanes. Dibiten indicates that there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	B (see Special Features/Conditions), C, H, R. Cancellation of this guarantee will also result if building is damaged by any cause listed in Specific Exclusions from Coverage so as to affect the waterproof quality of the membrane or watertightness of structure.	B (see Special Features/Conditions), C, H, R. Cancellation of this guarantee will also result if building is damaged by any cause listed under Specific Exclusions from Coverage so as to affect waterproof quality of membrane or watertightness of structure.	C, F, H, I, M, R
15. Cost to obtain	None	None	None
16. Minimum charge	None	None	None
17. Intended structure or building use	Cold-storage buildings	Cold-storage buildings	Structures used for cool or cold storage.

14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, L. (Consolidated indicates that P and R are also applicable.)	A, B, C, F, H	B, C. [Danosa indicates that F, G, H, I, J, K, L, M, N, O, P, Q, and S are also applicable.]
15. Cost to obtain	None	None	\$6.00 square
16. Minimum charge	None	None	None
17. Ineligible structure or building use	Residential structures	Residential structures	None
18. Pre-construction notice and approval requirements	Contractor required to give notice of the type of construction and number of squares and obtain approval from Consolidated prior to beginning installation.	Contractor required to give notice of the type of construction and number of squares and obtain approval from Consolidated prior to beginning installation.	Danosa requires a letter from contractor indicating date and Danosa specification number before commencing work.
19. Approved, authorized, or licensed applicator	No	No	Yes
20. Job inspection policy	Consolidated authorized representative will make inspection during application and five years after completion; no charge.	Consolidated authorized representative will make inspection during application and five years after completion; no charge.	Danosa inspector will inspect prior, during, and after application; will also inspect every five years; no charge.
21. Contractor's post-installation obligation	Although this is a material-only warranty, contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship	Contractor obligated to make repairs to workmanship deficiencies for 10 years.
22. Backed by named insurance or surety	No	No	No
23. Issuing entity manufactures and/or sells products	Consolidated manufactures and sells product.	Consolidated manufactures and sells product.	Danosa manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	Five- or ten-year extension available if roof passes inspection and additional fee is paid.
25. Assignability	Not assignable	Warranty is not transferable or assignable to subsequent owners without prior written consent of Consolidated.	Not assignable
26. Special features/conditions		Consolidated's obligation to make repairs resulting from improper installation is limited to the repair of leaks that first occur more than two years after the date of completion. Consolidated shall have no obligation to repair leaks resulting from improper installation that first occur within two years of the date of completion.  Any products sold by Consolidated and not manufactured by Consolidated are sold "as is" and without any warranty, express or implied.  The expense of removing and replacing the traffic surfaces or other structures building over the roof shall be borne by the owner.  The warranty is conditioned upon the owner allowing Consolidated access to inspect the roofing system annually, and with an additional inspection during the final three months of the second year after completion.  Warranty shall be construed according to the laws of the state of Ohio. No payment shall be made by Consolidated to the extent that any sums are paid by any corporation affiliated with Consolidated on account of a claim against such affiliated company arising out of the same facts.	All repairs must be authorized in writing in advance by Danosa and all repairs must be performed only by a Danosa approved roofing contractor.
27. Executed by owner	No	No	No

18. Pre-construction notice and approval requirements	None	None	None
19. Approved, authorized, or licensed applicator	Yes	No	Yes
20. Job inspection policy	No on-site inspections. Owners signature on a 48-hour flood test required.	No on-site inspections	No on-site inspections.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	None	None, material-only warranty.
22. Backed by named insurance or surety	No; Dermabit indicates that it carries \$1 million product-liability insurance coverage.	No; Dermabit indicates that it carries \$1 million product-liability insurance coverage.	No; Dbliten indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Dermabit manufactures and sells product.	Dermabit manufactures and sells product.	Dbliten manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision.
25. Assignability	Not assignable	Not assignable	No restrictions stated. Warranty states that it is made to the original owner.
26. Special features/conditions	No action, suit, claim, or other proceeding arising out of or relating to the Dermabit membrane or this guarantee may be filed or commenced later than one year after the expiration of the term of this guarantee. Owner shall give 30 days' prior written notice to Dermabit of owner's intention to repair or modify roof or other surface over which membrane is installed, including plans and specifications for the proposed repairs or modifications. No Dermabit representative, employee, or agent or any other person has the authority to assume any additional or other liability or responsibility in connection with the membrane installed.	No action, suit, claim, or other proceeding arising out of or relating to the Dermabit membrane or this guarantee may be filed or commenced later than one year after the expiration of the term of this guarantee. Owner shall give 30 days' prior written notice to Dermabit of owner's intention to repair or modify roof or other surface over which membrane is installed, including plans and specifications for the proposed repairs or modifications. No Dermabit representative, employee, or agent or any other person has the authority to assume any additional or other liability or responsibility in connection with the membrane installed.	In order to continue limited warranty coverage, owner must implement a maintenance program prescribed by Dbliten on the reverse side of limited warranty, including repair of any item beyond the scope of the warranty which would affect the integrity of the Dbliten membrane and recoating smooth surfaced membranes as necessary and: (a) maintaining a file showing proof-of-purchase, all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bed mortar joints, and any loose stone or tile coping that abut the roof; (f) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (g) examining roof top equipment to determine if they move excessively or leak; (h) checking building exterior for settlement or movement; and (i) recoating any areas of excessive wear, flaking, or blistered areas of protective coatings. Installing roofing contractor must be licensed by and in good standing with the licensing authority of the jurisdiction in which the structure is located. Region 2 excludes CA, NV, AZ, UT, ID, NM, TX, HI, FL.
27. Executed by owner	No	No	Registration form must be completed and returned to Dbliten within 30 days of completion of the Dbliten membrane and a copy of the contractor's bill must be attached.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Dibiten, a division of Johns-Manville Corporation	Dibiten, a division of Johns-Manville Corporation	Dibiten, a division of Johns-Manville Corporation
2. Title, original publication date, and identifying symbol, if any	"15 Year Limited Material Warranty"; March 1997; RS-9012 3-97	"12 Year Limited Material Warranty"; September 1997; RS-9011 9-97	"10 Year Limited Material Warranty"; March 1997; RS-9010 3-97
3. Product, specification, or system covered	Dibiten Poly 5 specifications with roof coating: 501, 502, 503, 504, R505, R506	Dibiten Poly 4 Specifications with roof coating: 401, 402, 404, R405, R406	Dibiten Poly 4 Uncoated Specifications: 401, 402, 403, 404, 405, 406 in Region 2; Dibiten Poly 4.5 Granular Specifications: 451, 452, 453, 454, R455, R456; Dibiten Poly 5 Uncoated Specifications: 501, 502, 503, 504, R505, R506
4. Scope of coverage	Material only; Dibiten warrants its roofing membrane to be free of manufacturing defects.	Material only; Dibiten warrants its roofing membrane to be free of manufacturing defects.	Material only; Dibiten warrants its roofing membrane to be free of manufacturing defects.
5. Length of coverage	15 years	12 years	10 years
6. Nature of remedy	If the Dibiten membrane is proved to have manufacturing defects that affect the watertight integrity of the membrane, Dibiten will pay a share, on a pro-rata basis (1/15 per year) of all costs including materials and labor, for repair or replacement of the defective membrane.	If the Dibiten membrane is proved to have manufacturing defects that affect the watertight integrity of the membrane, Dibiten will pay a share, on a pro-rata basis (1/12 per year) of all costs including materials and labor, for repair or replacement of the defective membrane.	If the Dibiten membrane is proved to have manufacturing defects that affect the watertight integrity of the membrane, Dibiten will pay a share, on a pro-rata basis (1/10 per year) of all costs including materials and labor, for repair or replacement of the defective membrane.
7. Monetary limitations	Dibiten's liability not to exceed the original cost of the membrane.	Dibiten's liability not to exceed the original cost of the membrane.	Dibiten's liability not to exceed the original cost of the membrane.
8. Notification requirements	Written notice within 30 days of discovery of water leaks through the Dibiten membrane to Dibiten, P.O. Box 5108, Denver, Colorado 80217-5108.	Written notice within 30 days of discovery of water leaks through the Dibiten membrane to Dibiten, P.O. Box 5108, Denver, Colorado 80217-5108.	Written notice within 30 days of discovery of water leaks through the Dibiten membrane to Dibiten, P.O. Box 5108, Denver, Colorado 80217-5108.
9. Exclusive or additional remedy	Warranty is exclusive warranty from Dibiten and represents the exclusive remedy available to any purchaser of the membrane materials. Dibiten makes no representation or warranty of any kind. No retailer, contractor or distributor is authorized to alter the warranty. Dibiten shall not be liable for any damages which are based on negligence, breach of warranty, strict liability or any other theory other than the limited liability stated in warranty; excludes UCC warranties.	Warranty is exclusive warranty from Dibiten and represents the exclusive remedy available to any purchaser of the membrane materials. Dibiten makes no representation or warranty of any kind. No retailer, contractor or distributor is authorized to alter the warranty. Dibiten shall not be liable for any damages which are based on negligence, breach of warranty, strict liability or any other theory other than the limited liability stated in warranty; excludes UCC warranties.	Warranty is exclusive warranty from Dibiten and represents the exclusive remedy available to any purchaser of the membrane materials. Dibiten makes no representation or warranty of any kind. No retailer, contractor or distributor is authorized to alter the warranty. Dibiten shall not be liable for any damages which are based on negligence, breach of warranty, strict liability or any other theory other than the limited liability stated in warranty; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 17, 19, 20, 22	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 17, 19, 20, 22	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 17, 19, 20, 22
13. Wind coverage/exclusions	Warranty excludes wind and hurricanes. Dibiten indicates that there is no coverage for damage caused by wind.	Warranty excludes wind and hurricanes. Dibiten indicates that there is no coverage for damage caused by wind.	Warranty excludes wind and hurricanes. Dibiten indicates that there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, F, H, I, M, R	C, F, H, I, M, R	C, F, H, I, M, R
15. Cost to obtain	None	None	None
16. Minimum charge	None	None	None
17. Ineligible structure or building use	Structures used for cool or cold storage	Structures used for cool or cold storage	Structures used for cool or cold storage
18. Pre-construction notice and approval requirements	None	None	None

19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	No on-site inspections	No on-site inspections	No on-site inspections
21. Contractor's post-installation obligation	None; material-only warranty	None; material-only warranty	None; material-only warranty
22. Backed by named insurance or surety	No; Dibiten indicates that it does not carry insurance covering its warranty obligations.	No; Dibiten indicates that it does not carry insurance covering its warranty obligations.	No; Dibiten indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Dibiten manufactures and sells product.	Dibiten manufactures and sells product.	Dibiten manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	No restrictions stated	No restrictions stated	No restrictions stated
26. Special features/conditions	In order to continue limited warranty coverage, owner must implement a maintenance program prescribed by Dibiten on the reverse side of limited warranty, including repair of any item beyond the scope of the warranty which would affect the integrity of the Dibiten membrane and recoating smooth surfaced membranes as necessary and: (a) maintaining a file showing proof-of-purchase, all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (f) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (g) examining roof top equipment to determine if they move excessively or leak; (h) checking building exterior for settlement or movement; and (i) recoating any areas of excessive wear, flaking, or blistered areas of protective coatings. Installing roofing contractor must be licensed by and in good standing with the licensing authority of the jurisdiction in which the structure is located. Region 2 excludes CA, NV, AZ, UT, ID, NM, TX, HI, FL.	In order to continue limited warranty coverage, owner must implement a maintenance program prescribed by Dibiten on the reverse side of limited warranty, including repair of any item beyond the scope of the warranty which would affect the integrity of the Dibiten membrane and recoating smooth surfaced membranes as necessary and: (a) maintaining a file showing proof-of-purchase, all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (f) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (g) examining roof top equipment to determine if they move excessively or leak; (h) checking building exterior for settlement or movement; and (i) recoating any areas of excessive wear, flaking, or blistered areas of protective coatings. Installing roofing contractor must be licensed by and in good standing with the licensing authority of the jurisdiction in which the structure is located. Region 2 excludes CA, NV, AZ, UT, ID, NM, TX, HI, FL.	In order to continue limited warranty coverage, owner must implement a maintenance program prescribed by Dibiten on the reverse side of limited warranty, including repair of any item beyond the scope of the warranty which would affect the integrity of the Dibiten membrane and recoating smooth surfaced membranes as necessary and: (a) maintaining a file showing proof-of-purchase, all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (f) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (g) examining roof top equipment to determine if they move excessively or leak; (h) checking building exterior for settlement or movement; and (i) recoating any areas of excessive wear, flaking, or blistered areas of protective coatings. Installing roofing contractor must be licensed by and in good standing with the licensing authority of the jurisdiction in which the structure is located. Region 2 excludes CA, NV, AZ, UT, ID, NM, TX, HI, FL.
27. Executed by owner	Registration form must be completed and returned to Dibiten within 30 days of completion of the Dibiten membrane and a copy of the contractor's bill must be attached.	Registration form must be completed and returned to Dibiten within 30 days of completion of the Dibiten membrane and a copy of the contractor's bill must be attached.	Registration form must be completed and returned to Dibiten within 30 days of completion of the Dibiten membrane and a copy of the contractor's bill must be attached.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Dibiten, a division of Johns-Manville Corporation	Duro-Last Roofing, Inc.	Duro-Last Roofing, Inc.
2. Title, original publication date, and identifying symbol, if any	"6 Year Limited Material Warranty"; March 1997; RS-9009 3-97	"15 Year Residential Material Warranty"; March 1993; DL 15-01 Rev. 3/93	"15 Year Warranty"; August 1, 1991; DL 15-00 Rev.
3. Product, specification, or system covered	Dibiten Poly/4 Uncoated Specifications: 401, 402, 403, 404, 405, 406	Duro-Last Roofing System	Duro-Last
4. Scope of coverage	Material only; Dibiten warrants its roofing membrane to be free of manufacturing defects.	Material only; Duro-Last grants a material-only warranty to the owner of a building with a roof on a porch, sun deck, garage, storage shed, or single-family residence and installed by an authorized dealer/contractor that the Duro-Last membrane material and accessories will be free from manufacturing defects at the time of delivery and the membrane material and accessories will not become defective within the term of the warranty. Warranty does not extend to color.	Material and workmanship; Duro-Last grants a limited warranty to the building owner that it will repair any leak in a Duro-Last roof caused by any defect in Duro-Last membrane materials or accessories or workmanship of the authorized dealer/contractor. Warranty does not extend to color.
5. Length of coverage	6 years	15 years	15 years
6. Nature of remedy	If the Dibiten membrane is proved to have manufacturing defects that affect the watertight integrity of the membrane, Dibiten will pay a share, on a pro-rata basis (1/6 per year) of all costs including materials and labor, for repair or replacement of the defective Dibiten membrane.	Should a defect occur in the membrane material or accessories within the warranty, Duro-Last's liability limited solely to provide the materials necessary to make the repairs.	Provided that Duro-Last has authorized the repair and an authorized dealer/contractor makes the repair, Duro-Last's obligation is to repair any covered leak in the roof, including repair or replacement of membrane material and accessories and the cost of or furnishing labor to repair roof at the contractor list price in effect at the time of repair.
7. Monetary limitations	Dibiten's liability not to exceed the original cost of the membrane.	None stated.	Duro-Last's liability for cost of labor to repair roof is at the contractor's list price in effect at time of repair; otherwise, no monetary limitations stated.
8. Notification requirements	Written notice within 30 days of discovery of water leaks through the Dibiten membrane to Dibiten, P.O. Box 5108, Denver, Colorado 80217-5108.	Written notification to Duro-Last's corporate headquarters, 525 Morley Drive, Saginaw, MI 48601, within 30 days after discovery of any defective material	Written notification to Duro-Last's corporate headquarters, 525 Morley Drive, Saginaw, MI 48601, within 30 days after discovery of any leak
9. Exclusive or additional remedy	Warranty is exclusive warranty from Dibiten and represents the exclusive remedy available to any purchaser of the membrane materials. Dibiten makes no other representation or warranty of any kind. No retailer, contractor or distributor is authorized to alter the warranty. Dibiten shall not be liable for any damages which are based on negligence, breach of warranty, strict liability or any other theory other than the limited liability stated in warranty; excludes UCC warranties.	Warranty is owner's sole and exclusive remedies for failure of the roofing membrane material or accessories; excludes UCC warranties. (See Special Features/Conditions.)	No warranties, representations, promises, or oral statements have been made by any representative of Duro-Last, and owner is not to rely on same unless added to the warranty in writing. (See Special Features/Conditions.)
10. Inclusion of consequential damages	No	No	No express exclusion
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 17, 19, 20, 22	1, 3, 18. Warranty also excludes damages caused by chemicals not normally found in nature.	1, 2, 3, 4, 6, 10, 12, 14, 16, 18, 24. Warranty also excludes damages caused by chemicals not normally found in nature. [Duro-Last indicates warranty covers damage caused by oils, wax, grease, animal fats, and acids.]
13. Wind coverage/exclusions	Warranty excludes wind and hurricanes. Dibiten indicates that there is no coverage for damage caused by wind.		Warranty excludes gales, hurricanes, and tornadoes. [Duro-Last does not indicate wind speeds covered by warranty.]
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, F, H, I, M, R	A, C, I	A, C, G, I
15. Cost to obtain	None	None	None
16. Minimum charge	None	None	None



17. Ineligible structure or building use	Structures used for cool or cold storage	None	Porch, sun deck, garage, storage shed, or single-family residence of less than 1,000 square feet.
18. Pre-construction notice and approval requirements	None	None required	None
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	No on-site inspections	No on-site inspections	Duro-Last quality assurance specialist makes on-site inspection after application prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	None; material-only warranty	Although this is a material-only warranty, contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Dibiten indicates that it does not carry insurance covering its warranty obligations.	No; Dibiten indicates that it does not carry insurance covering its warranty obligations.	No; Duro-Last indicates that it carries \$12 million liability insurance coverage.
23. Issuing entity manufactures and/or sells products	Dibiten manufactures and sells product.	Duro-Last manufactures and sells product.	Duro-Last fabricates and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	No restrictions stated	No restrictions stated.	Assignable with written permission of Duro-Last, Inc.
26. Special features/conditions	In order to continue limited warranty coverage, owner must implement a maintenance program prescribed by Dibiten on the reverse side of limited warranty, including repair of any item beyond the scope of the warranty which would affect the integrity of the Dibiten membrane and recoating smooth surfaced membranes as necessary and: (a) maintaining a file showing proof-of-purchase, all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that abut the roof; (f) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (g) examining roof top equipment to determine if they move excessively or leak; (h) checking building exterior for settlement or movement; and (i) recoating any areas of excessive wear, flaking, or blistered areas of protective coatings. Installing roofing contractor must be licensed by and in good standing with the licensing authority of the jurisdiction in which the structure is located.	All interpretations of this warranty shall be considered that their form, execution, and validity thereof shall be controlled by the laws of the state of Michigan. Oral representations cannot be relied upon as correctly stating the representations of Duro-Last Roofing, Inc.	Owner's failure to comply with the terms and limitations in the limited warranty releases Duro-Last from any liability. All interpretations of this warranty shall be considered that their form, execution, and validity thereof shall be controlled by the laws of the state of Michigan. Duro-Last "does not waive any rights under this limited warranty if it does not enforce the limitations." Oral representations cannot be relied upon as correctly stating the representations of Duro-Last, Inc.
27. Executed by owner	Registration form must be completed and returned to Dibiten within 30 days of completion of the Dibiten membrane and a copy of the contractor's bill must be attached.	Yes	Yes

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Duro-Last Roofing, Inc.	Elastomeric Roofing Systems, Inc.	Elastomeric Roofing Systems, Inc.
2. Title, original publication date, and identifying symbol, if any	Duro-Last, Inc. "20 Year Limited Warranty"; August 1, 1991; DL 20-00 Rev. 8/91	"ERSystems ____ Year PermaWeld CPA Roof System Warranty"; October 1, 1996; 961001 PRSW	"ERSystems ____ Year PermaWeld CPA Watertight Material Warranty"; October 1, 1996; 961001 PMWW
3. Product, specification, or system covered	Duro-Last Roof	PermaWeld, PermaWeld Fleeca Backed, PermaVac systems	PermaWeld, PermaWeld Fleeca Backed, PermaVac systems
4. Scope of coverage	Material and workmanship; Duro-Last grants a limited warranty to the building owner that it will repair any leak in the Duro-Last roof caused by any defect in Duro-Last membrane materials or accessories or by the workmanship of the authorized dealer/contractor.	Material and workmanship; ERSystems warrants to repair or cause to be repaired any leak in the membrane system caused by premature deterioration due to weathering or a defect in the ERSystems materials or in the workmanship of installing the system. The system is defined as the elastomeric membrane, adhesives, sealants, flashing membrane, fasteners, and insulation supplied by ERSystems. All materials not supplied by ERSystems must be approved in writing by ERSystems.	Material and workmanship; ERSystems warrants to repair defects in materials and workmanship required to maintain roof in a watertight condition or if product shows premature deterioration due to weathering. Regarding materials, warranty is limited to ERSystems membrane and material approved in writing by ERSystems.
5. Length of coverage	20 years. (During years 11 through 20, Duro-Last will not pay for any labor needed to effect repairs; see Nature of Remedy.)	5, 10, or 15 years	5, 10, or 15 years
6. Nature of remedy	Provided that Duro-Last has authorized the repair and an authorized dealer/contractor makes the repair, during Years 1 through 10, Duro-Last will repair any covered leaks, including the repair or replacement of membrane material and accessories and the cost of furnishing labor to repair the roof. During the 11th through 20th years, Duro-Last will pay a pro-portionate cost of material only and will not be responsible for the cost of the labor. During the 11th year, Duro-Last will pay 80 percent of the cost of material only to return roof to leak-proof status 12th year: 60 percent of the cost of the material only; 13th year, 40 percent of the cost of the material only; 14th through 20th years: 30 percent of the cost of material only. During years 11 through 20, the owner pays contractor for time and other materials.	The owner's remedies and ERSystems' liability is limited to the cost of repair of the leaks in the system.	ERSystems' liability is limited to providing the necessary materials and labor to repair the defective roof area and maintain a watertight condition.
7. Monetary limitations	Duro-Last's liability for cost of labor for repairs during first 10 years is at the contractor list price in effect at time of repair. During years 11 through 20, Duro-Last to pay only a proportionate cost of material only, ranging from 80 percent to 30 percent.	None stated.	The maximum value allowed by ERSystems for the repair or credit shall not exceed the original product purchase price.
8. Notification requirements	Written notification to Duro-Last's corporate headquarters in Saginaw, Mich. within 30 days after discovery of any leak.	The buyer must notify ERSystems by registered mail, return receipt requested, at 2950 Niagara Lane North, Minneapolis, MN 55447-4854, within 30 days of discovery of the failure.	The buyer must notify ERSystems by registered mail, return receipt requested, at 2950 Niagara Lane North, Minneapolis, MN 55447-4854, within 30 days of discovery of the failure.
9. Exclusive or additional remedy	No other warranties, representations, promises or oral statements have been made by any representative of Duro-Last (See Special Features/Conditions.)	The warranty is exclusive and in lieu of any other warranties; ERSystems shall have no further obligation or liability of any kind. ERSystems' sales personnel are not authorized to make warranties; ERSystems' employees' oral statements do not constitute warranties and shall not be relied upon; excludes UCC warranties.	The warranty is exclusive and in lieu of any other warranties; ERSystems shall have no further obligation or liability of any kind. ERSystems' sales personnel are not authorized to make warranties; ERSystems' employees' oral statements do not constitute warranties and shall not be relied upon; excludes UCC warranties.
10. Inclusion of consequential damages	No express exclusion	No	No
11. Determination of warranty applicability	Neutral (no provision)	ERSystems' determination	ERSystems' determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 6, 10, 12, 14, 16, 24. Warranty also excludes damages caused by chemicals not normally found in nature.	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 16, 17, 18, 22, 23. Warranty also specifically excludes damages caused by atomic radiation, insects or animals, and Specific Condition P.	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 16, 17, 18, 22, 23. Warranty also specifically excludes damages caused by atomic radiation, insects or animals, and Specific Condition P.
13. Wind coverage/exclusions	Warranty excludes gales, hurricanes, and tornadoes.	Warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes gales (exceeding 55 mph) and tornadoes.	Warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes gales (exceeding 55 mph) and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	A, C, G, I	C, M, S (See Special Features/Conditions.)	C, M, S (See Special Features/Conditions.)
15. Cost to obtain	None	5 years: \$9.00/square; 10 years: \$12.00/square; 15 years: \$16.00/square	5 years: \$6.00/square; 10 years: \$8.00/square; 15 years: \$12.00/square

16. Minimum charge	None	5 years: \$700; 10 years: \$900; 15 years: \$1,100	5 years: \$600; 10 years: \$700; 15 years: \$800
17. Ineligible structure or building use	Porch, sun deck, garage, storage shed, or single-family residence of less than 1,000 square feet	Cold-storage buildings, single-family residences, and special-purpose facilities	Cold-storage buildings, single-family residences, and special-purpose facilities
18. Pre-construction notice and approval requirements	None	ERSystems must receive a completed warranty pre-notification form prior to the start of the project. All warranty requests require approval in advance of starting the project. Any deviations from ERSystems' published specifications must be approved in writing prior to job start.	ERSystems must receive a completed warranty pre-notification form prior to the start of the project. All warranty requests require approval in advance of starting the project. Any deviations from ERSystems' published specifications must be approved in writing prior to job start.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Duro-Last quality assurance specialist makes on-site inspection after application prior to issuance of warranty; no charge.	ERSystems technical support representative makes inspections during application depending on size and complexity of job and qualifications of contractor and after completion prior to issuance of warranty as well as two years after issuance of warranty; no charge for initial warranty; charge for subsequent inspection if job does not pass inspection. ERSystems reserves the right to require a pre-job inspection.	ERSystems technical support representative makes inspections during application depending on size and complexity of job and qualifications of contractor and after completion prior to issuance of warranty as well as two years after issuance of warranty; no charge for initial warranty; charge for subsequent inspection if job does not pass inspection. ERSystems reserves the right to require a pre-job inspection.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Duro-Last indicates that it carries \$12 million liability insurance coverage.	No; ERSystems indicates that it carries a \$2.5 million product liability insurance covering its warranty obligations.	No; ERSystems indicates that it carries a \$2.5 million product liability insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Duro-Last manufactures and sells product.	ERSystems sells product only.	ERSystems sells product only.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Assignable with the written permission of Duro-Last, Inc.	The warranty is transferable subject to ERSystems' inspection, written approval, and payment of the current transfer fee, solely at the discretion of ERSystems.	The warranty is transferable subject to ERSystems' inspection, written approval, and payment of the current transfer fee, solely at the discretion of ERSystems.
26. Special features/conditions	The owner's failure to comply with the terms and limitations in the limited warranty releases Duro-Last from any liability. All interpretations of this warranty shall be considered that their form, execution, and validity thereof shall be controlled by the laws of the state of Michigan. Duro-Last "does not waive any rights under this limited warranty if it does not enforce the limitations." Oral representations cannot be relied upon as correctly stating the representation of Duro-Last, Inc.	If ERSystems determines the cause of a reported leak to be outside the scope of the warranty, inspection and repair costs shall be paid by the owner; failure of owner to pay for non-warranted repairs within 30 days shall render the warranty null and void.  The warranty shall be governed and construed in accordance with the laws of the state of Minnesota. The courts of Minnesota shall have exclusive jurisdiction over all disputes arising out of warranty.  Any action for breach of the contract or warranty, except for nonpayment by buyer, must be commenced within one year after the cause of action occurs, and all actions shall be barred after such time. Warranty states that it is agreed and understood that the price for the system is consideration for the limitation of ERSystems liability stated in warranty.	If ERSystems determines the cause of a reported leak to be outside the scope of the warranty, inspection and repair costs shall be paid by the owner; failure of owner to pay for non-warranted repairs within 30 days shall render the warranty null and void.  The warranty shall be governed and construed in accordance with the laws of the state of Minnesota. The courts of Minnesota shall have exclusive jurisdiction over all disputes arising out of warranty.  Any action for breach of the contract or warranty, except for nonpayment by buyer, must be commenced within one year after the cause of action occurs, and all actions shall be barred after such time. Warranty states that it is agreed and understood that the price for the system is consideration for the limitation of ERSystems liability stated in warranty.
27. Executed by owner	Yes	Yes	Yes

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Elastomeric Roofing Systems, Inc.	Elastomeric Roofing Systems, Inc.	Elastomeric Roofing Systems, Inc.
2. Title, original publication date, and identifying symbol, if any	"ERSystems ____ Year PermaWeld CPA Material Warranty"; October 1, 1996; 961001 PMMW	"ERSystems ____ Year EPDM Roof System Warranty"; October 1, 1996; 961001 RSW	"ERSystems ____ Year EPDM Watertight Material Warranty"; October 1, 1996; 961001 MWVW
3. Product, specification, or system covered	PermaWeld, PermaWeld Fleece Backed, PermaVac systems	.045 and .060 black nonreinforced EPDM; .045 and .060 black FR EPDM; reinforced 90, Poly-Bond; plate bond, fully adhered, ballasted, batten, Poly-Bond systems	.045 and .060 black nonreinforced EPDM; .045 and .060 black FR EPDM; reinforced 90, Poly-Bond; plate bond, fully adhered, ballasted, batten, Poly-Bond systems
4. Scope of coverage	Material only; ERSystems warrants that the roofing membrane is free from manufacturing defects at the time the material is delivered and that the product will not prematurely deteriorate to the point of failure due to weathering if properly installed, maintained, and used for the purpose for which the membrane is intended. Warranty covers the membrane only and does not cover adhesives, sealants, flashings, seams, coatings, accessories, or workmanship.	Material and workmanship; ERSystems warrants to repair or cause to be repaired any leak in the membrane system caused by premature deterioration due to weathering or a defect in the ERSystems materials or in the workmanship of installing the system. The system is defined as the elastomeric membrane, adhesives, sealants, flashing membrane, fasteners and insulation supplied by ERSystems. All materials not supplied by ERSystems must be approved in writing by ERSystems.	Material and workmanship; ERSystems warrants to repair defects in materials and workmanship required to maintain roof in a watertight condition or if product shows premature deterioration due to weathering. Regarding materials, warranty is limited to ERSystems membrane and material approved in writing by ERSystems.
5. Length of coverage	5, 10, or 15 years	5 or 10 years: Poly-Bond; 5, 10, or 15 years: .045 and .060 black nonreinforced EPDM, .045 and .060 black FR EPDM, reinforced 90	5 or 10 years: Poly-Bond; 5, 10, or 15 years: .045 and .060 black nonreinforced EPDM, .045 and .060 black FR EPDM, reinforced 90
6. Nature of remedy	If the product shows premature deterioration due to weathering, ERSystems liability is limited, at ERSystems option, to provide the repair material for the original product or credit toward the purchase of new membrane to repair the leak.	The owner's remedies and ERSystems' liability is limited to the cost of repair of the leaks in the system.	ERSystems' liability is limited to providing the necessary materials and labor to repair the defective roof area and maintain a watertight condition.
7. Monetary limitations	The maximum value allowed by ERSystems for the repair or credit shall not exceed the original product purchase price.	None stated.	The maximum value allowed by ERSystems for the repair or credit shall not exceed the original product purchase price.
8. Notification requirements	The buyer must notify ERSystems by registered mail, return receipt requested, at 2950 Niagara Lane North, Minneapolis, MN 55447-4854, within 30 days of discovery of the failure.	The buyer must notify ERSystems by registered mail, return receipt requested, at 2950 Niagara Lane North, Minneapolis, MN 55447-4854, within 30 days of discovery of the failure.	The buyer must notify ERSystems by registered mail, return receipt requested, at 2950 Niagara Lane North, Minneapolis, MN 55447-4854, within 30 days of discovery of the failure.
9. Exclusive or additional remedy	The warranty is exclusive and in lieu of any other warranties; ERSystems shall have no further obligation or liability of any kind. ERSystems' sales personnel are not authorized to make warranties; ERSystems' employees' oral statements do not constitute warranties and shall not be relied upon; excludes UCC warranties.	The warranty is exclusive and in lieu of any other warranties; ERSystems shall have no further obligation or liability of any kind. ERSystems' sales personnel are not authorized to make warranties; ERSystems' employees' oral statements do not constitute warranties and shall not be relied upon; excludes UCC warranties.	The warranty is exclusive and in lieu of any other warranties; ERSystems shall have no further obligation or liability of any kind. ERSystems' sales personnel are not authorized to make warranties; ERSystems' employees' oral statements do not constitute warranties and shall not be relied upon; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	ERSystems' determination	ERSystems' determination	ERSystems' determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 16, 17, 18, 20, 22, 23. Warranty also specifically excludes damages caused by atomic radiation, insects or animals, and specific Condition P.	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 16, 17, 18, 20, 22, 23. Warranty also specifically excludes damages caused by atomic radiation, insects or animals, and specific Condition P.	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 16, 17, 18, 20, 22, 23. Warranty also specifically excludes damages caused by atomic radiation, insects or animals, and specific Condition P.
13. Wind coverage/exclusions	The warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes gales (exceeding 55 mph) and tornadoes.	The warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes gales (exceeding 55 mph) and tornadoes.	The warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes gales (exceeding 55 mph) and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, M, S (See Special Features/Conditions.)	C, M, S (See Special Features/Conditions.)	C, M, S (See Special Features/Conditions.)
15. Cost to obtain	5 years: \$50; 10 years: \$75; 15 years: \$2.00/square	5 years: \$8.00/square; 10 years: \$11.00/square; 15 years: \$15.00/square	5 years: \$4.00/square; 10 years: \$7.00/square; 15 years: \$11.00/square

16. Minimum charge	5 years: \$50; 10 years: \$75; 15 years: \$100	5 years: \$600; 10 years: \$800; 15 years: \$1,000	5 years: \$500; 10 years: \$600; 15 years: \$700
17. Ineligible structure or building use	Cold-storage buildings, single-family residences, and special purpose facilities	Cold-storage buildings, single-family residences, and special purpose facilities	Cold-storage buildings, single-family residences, and special purpose facilities
18. Pre-construction notice and approval requirements	ERSystems must receive a completed warranty pre-notification form prior to the start of the project. All warranty requests require approval in advance of starting the project. Any deviations from ER Systems' published specifications must be approved in writing prior to job start.	ERSystems must receive a completed warranty pre-notification form prior to the start of the project. All warranty requests require approval in advance of starting the project. Any deviations from ER Systems' published specifications must be approved in writing prior to job start.	ERSystems must receive a completed warranty pre-notification form prior to the start of the project. All warranty requests require approval in advance of starting the project. Any deviations from ER Systems' published specifications must be approved in writing prior to job start.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	ERSystems technical support representative makes inspections during application depending on size and complexity of job and qualifications of contractor, and after completion prior to issuance of warranty as well as two years after issuance of warranty; no charge for initial warranty; charge for subsequent inspection if job does not pass inspection. ERSystems reserves the right to require a pre-job inspection.	ERSystems technical support representative makes inspections during application depending on size and complexity of job and qualifications of contractor, and after completion prior to issuance of warranty as well as two years after issuance of warranty; no charge for initial warranty; charge for subsequent inspection if job does not pass inspection. ERSystems reserves the right to require a pre-job inspection.	ERSystems technical support representative makes inspections during application depending on size and complexity of job and qualifications of contractor, and after completion prior to issuance of warranty as well as two years after issuance of warranty; no charge for initial warranty; charge for subsequent inspection if job does not pass inspection. ERSystems reserves the right to require a pre-job inspection.
21. Contractor's post-installation obligation	None; material-only warranty	The contractor is obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; ERSystems indicates that it carries a \$2.5 million product liability insurance covering its warranty obligations.	No; ERSystems indicates that it carries a \$2.5 million product liability insurance covering its warranty obligations.	No; ERSystems indicates that it carries a \$2.5 million product liability insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	ERSystems sells product only.	ERSystems sells product only.	ERSystems sells product only.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	The warranty is transferable subject to the terms of ERSystems' inspection, written approval, and payment of the current transfer fee, solely at the discretion of ERSystems.	The warranty is transferable subject to the terms of ERSystems' inspection, written approval, and payment of the current transfer fee, solely at the discretion of ERSystems.	The warranty is transferable subject to the terms of ERSystems' inspection, written approval, and payment of the current transfer fee, solely at the discretion of ERSystems.
26. Special features/conditions	If ERSystems determines the cause of a reported leak to be outside the scope of the warranty, inspection and repair costs shall be paid by the owner; failure of owner to pay for nonwarranted repairs within 30 days of notification shall render the warranty null and void. The warranty shall be governed and construed in accordance with the laws of the state of Minnesota. The courts of Minnesota shall have exclusive jurisdiction over all disputes arising out of warranty. Any action for breach of the contract or warranty, except for nonpayment by buyer, must be commenced within one year after the cause of action occurs, and all actions shall be barred after such time. Warranty states that it is agreed and understood that the price for the system is consideration for the limitation of ERSystems liability stated in warranty.	If ERSystems determines the cause of a reported leak to be outside the scope of the warranty, inspection and repair costs shall be paid by the owner; failure of owner to pay for nonwarranted repairs within 30 days of notification shall render the warranty null and void. The warranty shall be governed and construed in accordance with the laws of the state of Minnesota. The courts of Minnesota shall have exclusive jurisdiction over all disputes arising out of warranty. Any action for breach of the contract or warranty, except for nonpayment by buyer, must be commenced within one year after the cause of action occurs, and all actions shall be barred after such time. Warranty states that it is agreed and understood that the price for the system is consideration for the limitation of ERSystems liability stated in warranty.	If ERSystems determines the cause of a reported leak to be outside the scope of the warranty, inspection and repair costs shall be paid by the owner; failure of owner to pay for nonwarranted repairs within 30 days of notification shall render the warranty null and void. The warranty shall be governed and construed in accordance with the laws of the state of Minnesota. The courts of Minnesota shall have exclusive jurisdiction over all disputes arising out of warranty. Any action for breach of the contract or warranty, except for nonpayment by buyer, must be commenced within one year after the cause of action occurs, and all actions shall be barred after such time. Warranty states that it is agreed and understood that the price for the system is consideration for the limitation of ERSystems liability stated in warranty.
27. Executed by owner	Yes	Yes	Yes

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Elastomeric Roofing Systems, Inc.	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.
2. Title, original publication date, and identifying symbol, if any	"ERSystems _____ Year EPDM Membrane Material Warranty"; October 1, 1996; 961001 MMW	Red Shield "Roofing System Limited Warranty"; July 1994; 7/94 - Item #815 (replaces 5/92-01)	Firestone "Modified Bitumen Membrane Limited Warranty"; July 1994; 7/94 - Item #595(S)MB (replaces 12/93-01)
3. Product, specification, or system covered	.045 and .060 black nonreinforced EPDM, .045 and .060 black FR EPDM, reinforced 90, Poly-Bond; plate bond, fully adhered, ballasted, batten and Poly-Bond systems	Firestone RubberGuard EPDM Systems, Firestone UltraPly 78 + Systems, Firestone APP Systems, Firestone SBS Systems, Firestone Built-up Systems	Firestone APP, Firestone SBS
4. Scope of coverage	Material only; ERSystems warrants that the roofing membrane is free from manufacturing defects at the time the material is delivered and that the product will not prematurely deteriorate to the point of failure due to weathering if properly installed, maintained, and used for the purpose for which the membrane is intended. Warranty covers the membrane only and does not cover adhesives, sealants, flashings, seams, coatings, accessories, or workmanship.	Material and workmanship; Firestone warrants to repair any leak in the Firestone roofing system. The Firestone roof system is limited to Firestone-brand membranes, Firestone-brand insulations, and other Firestone-brand accessories when installed in accordance with Firestone technical specifications. Firestone indicates that roof coatings and sealants, specifically Firestone PC 100 AcrylTop Coating, Aluminum Roof Coating, S-10 Pourable Sealer and General Purpose Sealant, are not covered under this warranty.	Material only; Firestone warrants that it will repair any leak caused by weathering of the Firestone modified bitumen roofing membrane as a result of ordinary exposure to the elements or any manufacturing defect in the membrane. Warranty does not cover flashings, seams, adhesives, sealant, coatings, or workmanship.
5. Length of coverage	5 or 10 years: Poly-Bond; 5, 10, or 15 years: .045 and .060 black nonreinforced EPDM, .045 and .060 black FR EPDM, reinforced 90	5, 10, 15, or 20 years: Firestone EPDM; 5, 10, or 15 years: UltraPly 78 +; 5, 10, 12, 15, or 20 years: Firestone SBS; 5, 10, 12, 15, or 20 years: Firestone APP	5, 10, or 12 years
6. Nature of remedy	If the product shows premature deterioration due to weathering, ERSystems liability is limited, at ERSystems option, to provide the repair material for the original product or credit toward the purchase of new membrane to repair the leak.	The owner's sole and exclusive remedy and Firestone's liability shall be limited to the repair of the leak.	The owner's sole and exclusive remedy and Firestone's liability shall be limited to the repair of the leak.
7. Monetary limitations	The maximum value allowed by ERSystems for the repair or credit shall not exceed the original product purchase price.	None stated.	Firestone's repair obligations over the life of the warranty are limited to the original cost of the membrane installation.
8. Notification requirements	The buyer must notify ERSystems by registered mail, return receipt requested, at 2950 Niagara Lane North, Minneapolis, MN 55447-4854, within 30 days of discovery of the failure.	Written notification within 30 days of any occurrence of a leak	Written notification within 30 days of any occurrence of a leak
9. Exclusive or additional remedy	The warranty is exclusive and in lieu of any other warranties; ERSystems shall have no further obligation or liability of any kind. ERSystems' sales personnel are not authorized to make warranties; ERSystems' employees' oral statements do not constitute warranties and shall not be relied upon; excludes UCC warranties.	Warranty is owner's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	Warranty is owner's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	ERSystems' determination	Firestone's determination	Firestone's determination
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 16, 17, 18, 20, 22, 23. Warranty also specifically excludes damages caused by atomic radiation, insects or animals, and Specific Condition P.	1, 2, 3, 6, 7, 8, 10, 12 (See Special Features/Conditions), 13, 17, 18, 22. Warranty also specifically excludes damages caused by atomic radiation, insects, or animals and Specific Condition H.	1, 2, 3, 6, 7, 8, 10, 11, 12 (See Special Features/Conditions), 13, 17, 18, 22. Warranty also specifically excludes damages caused by atomic radiation, insects, or animals and Specific Condition H.
13. Wind coverage/exclusions	The warranty covers roof damage resulting from wind speeds up to 55 mph. The warranty excludes gales (exceeding 55 mph) and tornadoes.	Warranty excludes wind in excess of 55 mph, hurricanes, and tornadoes. Firestone indicates that warranty covers roof damage resulting from wind speeds up to 55 mph.	Warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damaged caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	C, M, S (See Special Features/Conditions.)	C, M, S (See Special Features Conditions.)	M, S (See Special Features/Conditions.)
15. Cost to obtain	5 years: \$50; 10 years: \$76; 15 years: \$2.00/square	Firestone EPDM: 5 years: \$3.00/square; 10 years: \$5.00/square; 15 years: \$8.00/square; 20 years: \$10.00/square; (warranty price is reduced \$1.00/square for using nonreinforced membrane.) UltraPly 78 + : 5 years: \$3.00/square; 10 years: \$5.00/square; 15 years: \$8.00/square; Firestone APP (without roof monitoring): 5 years: \$3.00/square; 10 years: \$7.00/square; 12 years: \$9.00/square; 15 years: \$12.00/square; 20 years: \$17.00/square; Firestone SBS (without roof monitoring): 5 years: \$3.00/square; 10 years: \$7.00/square; 12 years: \$9.00/square; 15 years: \$12.00/square; 20 years: \$17.00/square; Firestone Built-up: 5 years: \$3.00/square; 10 years: \$7.00/square; 12 years: \$9.00/square; 15 years: \$12.00/square; 20 years: \$17.00/square; (warranty price for APP, SBS, and Built-up systems are reduced when roof monitoring is employed.)	10 or 12 years: \$50.00

16. Minimum charge	5 years: \$50; 10 years: \$75; 15 years: \$100	Varies from \$250 to \$750 depending on length of coverage	300
17. Ineligible structure or building use	Cold-storage buildings, single-family residences, and special-purpose facilities.	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada
18. Pre-construction notice and approval requirements	ERSystems must receive a completed warranty pre-notification form prior to the start of the project. All warranty requests require approval in advance of starting the project. Any deviations from ERSystems' published specifications must be approved in writing prior to job start.	Preinstallation notice must be submitted 14 days prior to job start and must be approved by Firestone technical service.	Contractor must submit "request for warranty" certifying that the membrane has been installed in accordance with Firestone technical specifications.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	ERSystems technical support representative makes inspections during application depending on size and complexity of job and qualifications of contractor and after completion prior to issuance of warranty as well as two years after issuance of warranty; no charge for initial warranty; charge for subsequent inspection if job does not pass inspection. ERSystems reserves the right to require a pre-job inspection.	Firestone field technical representative makes on-site inspection after completion and prior to issuance of warranty; no charge	No on-site inspections
21. Contractor's post-installation obligation	None; material-only warranty.	Contractor obligated to repair workmanship deficiencies for two years.	Although this is a material-only warranty, contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; ERSystems indicates that it carries a \$2.5 million product liability insurance covering its warranty obligations.	No; Firestone indicates that it is self-insured.	No; Firestone indicates that it is self-insured.
23. Issuing entity manufactures and/or sells products	ERSystems sells product only.	Firestone manufactures and sells the product.	Firestone manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	Renewable rider must be purchased initially.	No renewal provision
25. Assignability	Warranty is transferable subject to the terms of ERSystems' inspection, written approval, and payment of the current transfer fee, solely at the discretion of ERSystems.	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.
26. Special features/conditions	<p>If ERSystems determines the cause of a reported leak to be outside the scope of the warranty, inspection and repair costs shall be paid by the owner; failure of owner to pay for non-warranted repairs within 30 days of notification shall render the warranty null and void.</p> <p>The warranty shall be governed and construed in accordance with the laws of the state of Minnesota. The courts of Minnesota shall have exclusive jurisdiction over all disputes arising out of warranty.</p> <p>Any action for breach of the contract or warranty, except for nonpayment by buyer, must be commenced within one year after the cause of action occurs, and all actions shall be barred after such time. The warranty states that it is agreed and understood that the price for the system is consideration for the limitation of ERSystems liability stated in warranty.</p>	<p>If Firestone's investigation reveals that the cause of a leak is excluded under the warranty, investigation costs shall be paid by owner; failure of owner to pay these costs shall render the warranty null and void. Any dispute, controversy, or claim between the owner and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires owner compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, the owner shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system that are due to delays associated with said restrictions. The owner shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, excluding accepted stone ballast or pavers, as necessary to expose the system for inspection and/or repair.</p>	<p>If Firestone's investigation reveals that the cause of a leak is outside the scope of the warranty, investigation costs shall be paid by owner; failure of owner to pay these costs shall render the warranty null and void. Any dispute, controversy, or claim between the owner and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires owner compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, the owner shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system which are due to delays associated with said restrictions. The owner shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, as necessary to expose the system for inspection and/or repair.</p>
27. Enforced by owner	Yes	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.
2. Title, original publication date, and identifying symbol, if any	"Firestone 10-Year EPDM/Ultraply 78+ Membrane Limited Warranty"; August 1994; 8/94—Item #916R-01	"Firestone Protected Membrane Limited Warranty"; August 1994; 8/94—Item #915R-01	Firestone "Modified Bitumen Standard Roof System Limited Warranty"; July 1994; 7/94—Item #558(S)MB (Replaces 12/92)-01
3. Product, specification, or system covered	Firestone Rubbergard EPDM, Firestone Ultra Ply 78+	Firestone Rubbergard EPDM, Firestone Protected Membrane System	Firestone APP Systems, Firestone SBS Systems
4. Scope of coverage	Material only: Firestone warrants that it will provide replacement membrane materials sufficient to replace any area of EPDM or Ultra Ply 78+ roofing membrane which leaks as a result of ordinary exposure to the elements or manufacturing defect in the membrane. Warranty does not cover flashings, seams, adhesives, sealants, coatings, or workmanship.	Material only: Firestone warrants that it will provide replacement membrane material sufficient to replace any area of Firestone EPDM membrane that leaks as a result of ordinary exposure to the elements or any manufacturing defect in the membrane. Warranty does not cover flashings, seams, adhesives, sealants, coatings, or workmanship.	Firestone warrants that it will repair any leak in the Firestone modified bitumen roofing system. The Firestone System is limited to mean Firestone-brand membranes, Firestone-brand insulation, and other Firestone-brand accessories when installed in accordance with Firestone technical specifications.
5. Length of coverage	10 years	10 years	10, 12, or 15 years
6. Nature of remedy	The owner's sole and exclusive remedy and Firestone's liability shall be limited to the repair of the leak.	The owner's sole and exclusive remedy and Firestone's liability shall be limited to the repair of the leak.	The owner's sole and exclusive remedy and Firestone's liability shall be limited to the repair of the leak.
7. Monetary limitations	Firestone's replacement obligations over the life of the warranty are limited to the original cost of the membrane.	Firestone's replacement obligations over the life of the warranty are limited to the original cost of the membrane.	Firestone's repair obligation over the life of the warranty is limited to the original cost of the system installation.
8. Notification requirements	Written notification within 30 days of any occurrence of a leak	Written notification within 30 days of any occurrence of a leak	Written notification within 30 days of any occurrence of a leak
9. Exclusive or additional remedy	Warranty is owner's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	Warranty is owner's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	Warranty is owner's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Firestone's determination	Firestone's determination	Firestone's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 6, 7, 8, 10, 12 (see Special Features/Conditions), 13, 17, 18, 22. Warranty also specifically excludes damages caused by atomic radiation, insects, or animals, and Specific Condition H.	1, 2, 3, 6, 7, 8, 10, 12 (see Special Features/Conditions), 13, 17, 18, 22. Warranty also specifically excludes damages caused by atomic radiation, insects, or animals, and Specific Condition H.	1, 2, 3, 6, 7, 8, 10, 11, 12 (see Special Features/Conditions), 13, 17, 18, 22. Warranty also specifically excludes damages caused by atomic radiation, insects, or animals and Specific Condition H.
13. Wind coverage/exclusions	Warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damage caused by wind.	Warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damage caused by wind.	Warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	M, S (See Special Features/Conditions.)	C, M, S (See Special Features/Conditions.)	C, M, S (See Special Features/Conditions.)
15. Cost to obtain	\$50 project fee	\$200 project fee	5 years: \$3.00/square; 10 years: \$5.00/square; 12 years: \$6.00/square
16. Minimum charge	\$50 project fee	\$200 project fee	5 years: \$300/square; 10 years: \$350/square; 12 years: \$400/square
17. Ineligible structure or building use	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada
18. Pre-construction notice and approval requirements	Preinstallation notice must be submitted 14 days prior to job start.	Preinstallation notice must be submitted 14 days prior to job start.	Preinstallation notice must be submitted 14 days prior to job start and must be approved by Firestone technical service.



19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	No on-site inspections	No on-site inspections	Firestone field technical representative makes on-site inspection after job completion prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	Although this is a material-only warranty, contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Firestone indicates that it is self-insured.	No; Firestone indicates that it is self-insured.	No; Firestone indicates that it is self-insured.
23. Issuing entity manufactures and/or sells products	Firestone manufactures and sells the product.	Firestone manufactures and sells the product.	Firestone manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.
26. Special features/conditions	<p>If Firestone's investigation reveals that the cause of a leak is outside the scope of the warranty, investigation costs shall be paid by purchaser; failure of purchaser to pay these costs shall render the warranty null and void. Any dispute, controversy, or claim between the purchaser and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires purchaser compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, purchaser shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system which are due to delays associated with said restrictions. Purchaser shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, as necessary to expose the surface of the membrane for inspection and/or repair.</p>	<p>If Firestone's investigation reveals that the cause of a leak is outside the scope of the warranty, investigation costs shall be paid by owner; failure of owner to pay these costs shall render the warranty null and void. Any dispute, controversy, or claim between the owner and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires owner compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, the owner shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system which are due to delays associated with said restrictions. The owner shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, as necessary to expose the system for inspection and/or repair.</p>	<p>If Firestone's investigation reveals that the cause of a leak is excluded under the warranty, investigation costs shall be paid by owner; failure of owner to pay these costs shall render the warranty null and void. Any dispute, controversy or claim between the owner and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires owners compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, the owner shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system which are due to delays associated with said restrictions. The owner shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, as necessary to expose the system for inspection and/or repair.</p>
27. Executed by owner	No	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.	Firestone Building Products Company, division of Bridgestone/Firestone, Inc.
2. Title, original publication date, and identifying symbol, if any	Firestone "Modified Bitumen Product Limited Warranty"; July 1994; 7/94—Item #913MB-01	Firestone "Roofing Membrane Limited Warranty"; August 1994; 8/94—Item #812R (Replaces 5/92-01)	"Manufacturer's Insulation Warranty"; 4/96—Item #963S-01
3. Product, specification, or system covered	Firestone APP 160, 170, 180, Firestone SBS	Firestone Rubbergard EPDM, Firestone Ultra Ply 78 +	Firestone ISO 95 + Insulation
4. Scope of coverage	Material only; Firestone warrants that it will provide replacement membrane material or a prorated credit (based upon the remaining months of the unexpired warranty) sufficient to replace any area of Firestone modified bitumen membrane that leaks as a result of ordinary exposure to the elements or any manufacturing defect in the membrane. Warranty does not cover flashings, seams, adhesives, sealants, coatings, or workmanship.	Material only; Firestone warrants that it will provide replacement membrane materials sufficient to replace any area of Firestone roofing membrane that leaks as a result of ordinary exposure to the elements or any manufacturing defect in the membrane. Warranty does not cover flashings, seams, adhesives, sealants, coatings, or workmanship.	Material only; Firestone warrants that when used under a Firestone-manufactured roofing membrane, the Firestone ISO 95 + will not warp, bow, or destabilize to the point of causing a roof leak as a result of any manufacturing defect in the ISO 95 +. This warranty is only effective when issued with a Firestone Standard or Red Shield System warranty.
5. Length of coverage	10 years: Firestone APP 160 or 170 (smooth surfaced), Firestone SBS (granule surfaced); 12 years: Firestone APP 160 or 170 (smooth surfaced) with approved field-applied roof coating, Firestone APP 180 (granule surfaced), Firestone SBS (granule surfaced) installed over a hot asphalt attached base sheet.	15 years: Firestone Ultra Ply 78 +; 20 years: Firestone EPDM	10, 15, or 20 years
6. Nature of remedy	Purchaser's sole and exclusive remedy and Firestone's liability shall be limited either to the supply of replacement membrane material sufficient to cover or replace the deteriorated membrane area or a prorated credit (based on the number of remaining months of the unexpired warranty) to be applied towards the purchase of the new membrane material.	The owner's sole and exclusive remedy and Firestone's liability shall be limited to the repair of the leak.	Firestone shall provide the owner with free Firestone 95 + and Firestone roofing membrane materials and shall repair the affected roof area.
7. Monetary limitations	Firestone's replacement obligations over the life of the warranty are limited to the original cost of the membrane.	Firestone's repair obligations over the life of the warranty are limited to the original cost of the membrane installation.	None stated.
8. Notification requirements	Written notification within 30 days of any occurrence of a leak.	Written notification within 30 days of any occurrence of a leak.	Written notification within 30 days of the discovery of any event leading to a claim.
9. Exclusive or additional remedy	The warranty is purchaser's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	The warranty is owner's sole and exclusive remedy against Firestone; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	The warranty is the owner's sole and exclusive remedy against Firestone; the warranty supersedes and is in lieu of all other warranties or guarantees; Firestone shall not be liable for any damages that are based on negligence, breach of warranty, strict liability, or any other theory, other than the limited liability set forth in the warranty; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Firestone's determination	Firestone's determination	Firestone's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 6, 7, 8, 10, 11, 12 (see Special Features/Conditions), 13, 17, 18, 22. The warranty also specifically excludes damages caused by atomic radiation, insects, or animals, and Specific Condition H.	1, 2, 3, 6, 7, 8, 10, 12, 17, 18, 22. The warranty also specifically excludes damages caused by atomic radiation, insects, or animals, and Specific Condition H.	1, 2, 3, 6, 7, 10, 12, 13, 18, 22. The warranty also specifically excludes damages caused by atomic radiation, insects, or animals.
13. Wind coverage/exclusions	The warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damage caused by wind.	The warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damage caused by wind.	The warranty excludes winds, hurricanes, and tornadoes. Firestone indicates that there is no coverage for damages caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	M, S (See Special Features/Conditions.)	M, S (See Special Features/Conditions.)	J
15. Cost to obtain	None	\$200 project fee	None
16. Minimum charge	None	\$200 project fee	None
17. Ineligible structure or building use	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada.	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada.	Single-family residence, patio, plaza deck, roofs outside of U.S. and Canada.
18. Pre-construction notice and approval requirements	None required.	Preinstallation notice must be submitted 14 days prior to job start.	Preinstallation notice must be submitted 14 days prior to job start and must be approved by Firestone technical service.
19. Approved, authorized, or licensed applicator	No	No	Yes

20. Job inspection policy	No on-site inspections	No on-site inspections	Firestone field technical representative makes on-site inspection after job completion prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	None required.	Although this is a material-only warranty, the contractor is obligated to make repairs to workmanship deficiencies for two years.	Although this is a material-only warranty, the contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Firestone indicates that it is self-insured.	No; Firestone indicates that it is self-insured.	No; Firestone indicates that it is self-insured.
23. Issuing entity manufactures and/or sells products	Firestone manufactures and sells the product.	Firestone manufactures and sells the product.	Firestone manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.	Warranty is transferable subject to Firestone inspection, written approval, and payment of current transfer fee.	No restrictions stated.
26. Special features/conditions	<p>If Firestone's investigation reveals that the cause of a leak is outside the scope of the warranty, investigation costs shall be paid by purchaser; failure of purchaser to pay these costs shall render the warranty null and void. Any dispute, controversy, or claim between the purchaser and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires purchaser compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, purchaser shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system which are due to delays associated with said restrictions. Purchaser shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, as necessary to expose the surface of the membrane for inspection and/or repair.</p>	<p>If Firestone's investigation reveals that the cause of a leak is outside the scope of the warranty, investigation costs shall be paid by purchaser; failure of purchaser to pay these costs shall render the warranty null and void. Any dispute, controversy, or claim between the purchaser and Firestone concerning warranty shall be settled by final and binding arbitration in accordance with the American Arbitration Association's rules for the construction industry. Warranty shall be governed and construed in accordance with the laws of the state of Indiana without regard to conflict of laws.</p> <p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate. Warranty cannot be amended, altered, or modified in any way except in writing signed by the president of Firestone or a person to whom his authority has been delegated in writing.</p> <p>Warranty requires purchaser compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty document, including at least twice yearly inspections; ponding water not be allowed; drain areas remain clear; no exposure to acids, solvents, greases, oil, fats, chemicals, and the like; protective walkways for roof traffic; maintenance of counter flashings, metal work, drains, skylights, equipment curbs and supports, other rooftop accessories, and roof coatings and sealants.</p> <p>In the event the roof access is limited due to security or other restrictions, purchaser shall reimburse Firestone for all reasonable costs incurred during inspection and/or repair of the system which are due to delays associated with said restrictions. Purchaser shall be responsible for the removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, as necessary to expose the surface of the membrane for inspection and/or repair.</p>	<p>Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of roof system is appropriate.</p> <p>Warranty requires compliance with Firestone roofing care and maintenance requirements stated on reverse side of warranty, including at least twice yearly inspections; ponding water not allowed; drain areas remain clear; no exposure to acids, solvents, greases, oils, fats, chemicals and the like.</p> <p>Contact Firestone immediately if the Firestone Roofing System comes into contact with any such materials.</p>
27. Executed by owner	No	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

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14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F, G, H	B, C, F, G, H	C, H, I. Also, warranty provides that cancellation of this warranty will result if the roof is damaged by any cause listed above as a specific exclusion that will affect the integrity or watertightness of the roof.
15. Cost to obtain	5 years: None; 10 years: \$5.00/square; 15 years: \$8.00/square	5 years: None; 10 years: \$1.00/square; 15 years: \$2.00/square	None
16. Minimum charge	5 years: None; 10 years: \$375; 15 years: \$600	5 years: None; 10 years: \$50; 15 years: \$100	None
17. Ineligible structure or building use	None	None	Domed structures, heated tanks, storage silos, drying kilns, car wash buildings, swimming pools, and other structures with abnormally high-humidity conditions, cold-storage and cooler buildings when the freezer or cooler insulation is used as the base to receive the roof
18. Pre-construction notice and approval requirements	The contractor submits request for guarantee to Flex for approval with roof diagram.	The contractor submits request for guarantee to Flex for approval with roof diagram.	None
19. Approved, authorized, or licensed applicator	Yes	Yes	No
20. Job inspection policy	Flex technical representative makes on-site inspections prior to, during application (a minimum of one inspection), and after completion of installation prior to issuance of warranty; no charge.	Flex technical representative makes on-site inspection prior to, during application (a minimum of one inspection), and after completion of installation prior to issuance of warranty; no charge.	No on-site inspections
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to all leaks and workmanship deficiencies for two years.	Although this is a material-only warranty, contractor is obligated to make repairs to workmanship deficiencies for two years.	None; material-only warranty
22. Backed by named insurance or surety	No; Flex indicates that it does not carry insurance covering its warranty obligations.	No	No; GAF indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Flex manufactures and sells the product.	Flex manufactures and sells the product.	GAF manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision in warranty. Flex indicates that it may issue extensions on an individual project basis.	No renewal provision in warranty. Flex indicates that it may issue extension on individual project basis.	No renewal provision
25. Assignability	Warranty may not be transferred without the written consent of Flex. Flex indicates it permits transfer with written consent from Flex and payment of transfer fee.	Warranty may not be transferred without Flex's written consent. Flex indicates that it permits transfer with written consent from Flex and payment of transfer fee.	Not transferable or assignable in any manner
26. Special features/conditions	No representative of Flex has authority to make any representations or promises except as stated in warranty.	No representative of Flex has authority to make any representations or promises except as stated in warranty.	Owner must sign and mail in GAF warranty registration form within 30 days of roof completion in order for warranty to be effective. No representative, employee, or agent of GAF, or any other person has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for or liable for any change or amendment to the GAF roof specifications in regard to the construction of the roof, unless the change or amendment to the specifications are approved in writing by an authorized GAF technical service manager.
27. Executed by owner	No	No	

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	GAF Materials Corporation (GAF)	GAF Materials Corporation (GAF)	GAF Materials Corporation (GAF)
2. Title, original publication date, and identifying symbol, if any	"Liberty Guarantee"; November 1996; Form 10448 11/96	"Commercial Roof Guarantee"; November 1996, Form 10442 11/96	"Ruberoid LMG"; January 1, 1997; Form 10460 1/97
3. Product, specification, or system covered	Built-Up Roofing and Modified Bitumen Products: Ruberoid Torch FR, Ruberoid Torch Plus, Ruberoid Torch, Ruberoid Mop, Ruberoid Mop FR, Ruberoid Mop 170 FR, Ruberoid Mop Plus, Ruberoid 30 FR, Ruberoid 30, Ruberoid 601 Plus, Ruberoid Smooth, Ruberoid Torch 1, Ruberoid 601 Plus, Ruberoid Modified Base Sheet, GAFGLAS Ply 6, GAFGLAS Ply 4, GAFGLAS Flex Ply 6, Ultima 80 Base	All Ruberoid and GAFGLAS Specifications	Modified Bitumen Products: Ruberoid Mop Plus, Ruberoid Mop FR, Ruberoid Mop 170 FR, Ruberoid Torch FR, Ruberoid Torch Plus, Ruberoid Torch Granule, Ruberoid Torch Smooth Coated, Ruberoid Torch Smooth
4. Scope of coverage	Material and workmanship: GAF guarantees to make repairs to GAF roofing membrane, GAF-base flashing, GAF insulation, GAF expansion joint covers, and GAF pre-flashed accessories as necessary solely to correct leaks resulting from natural deterioration of GAF materials; blisters; bare spots; fishmouths; ridges; splits not caused by structural failure or movement of or cracks in substrate roof base or non-GAF insulation over which GAF materials are applied; buckles and wrinkles; workmanship in applying the GAF materials; and slippage of membrane or base flashing.	Material and workmanship: GAF guarantees to make repairs to GAF roofing membrane, GAF base flashing, GAF insulation, GAF expansion joint covers, and GAF pre-flashed accessories as necessary solely to correct leaks resulting from natural deterioration of GAF materials; blisters; bare spots; fishmouths; ridges; splits not caused by structural failure or movement of or cracks in substrate roof base or non-GAF insulation over which GAF materials are applied; buckles and wrinkles; workmanship in applying the GAF materials; and slippage of membrane or base flashing.	Material only: GAF warrants that the Ruberoid roof membrane and Ruberoid base flashing materials will withstand ordinary wear and tear by the elements and will be free of manufacturing defects which affect their ability to maintain the roof in watertight condition. Warranty applies to Ruberoid materials installed in accordance with current GAF specifications.
5. Length of coverage	5, 10 and 12 years: 3- or 4-ply GAFGLAS Ply 4 or Ply 6 Specifications, Ruberoid, or Plus specifications; 12 years: Ruberoid or Plus specifications; 15 or 20 years: 4-Ply GAFGLAS Ply 6 Specifications, Ruberoid Plus specifications. Approved coating or asphalt and gravel must be applied as top covering for smooth surface Ruberoid membrane to obtain 12-year Ruberoid Liberty Guarantee.	5 and 10 years: 3- or 4-ply GAFGLAS Ply 4 or Ply 6 Specifications, Ruberoid, or Plus specifications; 10 years: Ruberoid or Plus specifications; 12 years: Ruberoid or Plus specifications; 15 years: 4-ply GAFGLAS Ply 6 Specifications, Ruberoid Plus specifications; 20 years: 4-ply GAFGLAS Ply 6 Specifications, Ruberoid Plus specifications. Approved coating or asphalt and gravel must be applied as top covering for smooth surface Ruberoid membrane to obtain 10, 15, or 20-year guarantee.	10 years: Ruberoid 30, Ruberoid 30 FR, Ruberoid Torch Smooth; 12 years: Ruberoid Mop 170 FR, Ruberoid Torch Granule, Ruberoid Torch Smooth Coated, Ruberoid Torch Plus, Ruberoid Torch Plus, Ruberoid Torch FR
6. Nature of remedy	GAF will make repairs to GAF membrane, base flashing, insulation, expansion joint covers, and pre-flashed accessories as shall be necessary solely in order to correct covered leaks at no cost to owner. Warranty excludes repair or replacement of materials not sold by GAF.	GAF will make repairs to GAF membrane, base flashing, insulation, expansion joint covers, and pre-flashed accessories as shall be necessary solely in order to correct covered leaks at no cost to the owner. Warranty excludes repair or replacement of materials not sold by GAF.	GAF's sole responsibility is the repair or replacement, at GAF's option, of that portion of the Ruberoid materials that contains manufacturing defects or deterioration caused by ordinary wear and tear by the elements that have resulted in a roof leak. Repair or replacement of the roof deck or other roof components used with the Ruberoid materials is not included.
7. Monetary limitations	None stated.	GAF's maximum liability shall not exceed in the aggregate over the life of the guarantee more than \$100 per square.	None stated.
8. Notification requirements	Written notification within 30 days of discovery of leak to GAF technical services department, 1361 Alps Road, Building 2-1, Wayne, NJ 07470	Written notice within 30 days of discovery of leak to GAF technical services department, 1361 Alps Road, Building 2-1, Wayne, NJ 07470	Written notice within 30 days of discovery of leak to GAF Technical Services Department, 1361 Alps Road, Building 2-1, Wayne, NJ 07470
9. Exclusive or additional remedy	The guarantee is expressly in lieu of any other guarantees and/or warranties and any other obligations or liability on the part of GAF, whether any claim is based upon strict liability, negligence, breach of warranty, or any other theory or cause of action; excludes UCC warranties.	The guarantee is expressly in lieu of any other guarantees and/or warranties and any other obligations or liability on the part of GAF, whether any claim is based upon strict liability, negligence, breach of warranty, or any other theory or cause of action; excludes UCC warranties.	Warranty is expressly in lieu of any other guarantees and/or warranties and any other obligations or liability on the part of GAF, whether any claim is based upon strict liability, negligence, breach of warranty, or any other theory or cause of action; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	GAF's determination
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1, 2, 3, 4, 5, 6, 7 (not applicable to GAF insulation or GAF roof base), 8, 9, 10, 11, 12, 13, 15, 17, 22, 24.	1, 2, 3, 4, 5, 6, 7 (not applicable to GAF insulation or GAF roof base), 8, 9, 10, 11, 12, 13, 15, 17, 22, 24.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 19, 20, 22, 24.
13. Wind coverage/exclusions	Warranty excludes windstorms, hurricanes, and tornadoes. GAF indicates that there is no coverage for damage caused by wind.	Warranty excludes windstorms, hurricanes, and tornadoes. GAF indicates that there is no coverage for damage caused by wind.	Warranty excludes windstorms, hurricanes and tornadoes. GAF indicates that there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	C, H, I, S. Also, guarantee states that cancellation of this guarantee will result if roof is damaged by any cause listed as an exclusion (See item 12 above) if the damage affects the integrity or watertightness of the roof and owner does not promptly make repairs following notification by GAF.	C, H, I, S. Also, the guarantee states that cancellation of this guarantee will result if the roof is damaged by any cause listed as an exclusion (See item 12 above) if the damage affects the integrity or watertightness of the roof and owner does not promptly make repairs following notification by GAF.	Warranty states that cancellation of this warranty will result if the roof is damaged by any cause listed as an exclusion (See item 12 above) if the damage affects the integrity or watertightness of the roof.
15. Cost to obtain	5 years: \$5.00/square; 10 years: \$9.00/square; 12 years: \$10.00/square; 15 years: \$12.00/square; 20 years: \$17.00/square	5 years: \$4.00/square; 10 years: \$6.00/square; 12 years: \$7.00/square; 15 years: \$9.00/square; 20 years: \$12.00/square	None
16. Minimum charge	5 years: \$350; 10 years: \$750; 12 years: \$750; 15 years: \$800; 20 years: \$1,000	5 years: \$350; 10 years: \$600; 12 years: \$500; 15 years: \$500; 20 years: \$500	None
17. Ineligible structure or building use	High-humidity buildings (i.e., car washes, swimming pools), domed structures, heated tanks, storage silos, drying kilns, freezer or cooler buildings when the freezer or cooler insulation is also the roof insulation.	Domed structures, heated tanks, storage silos, drying kilns, car wash buildings, swimming pools and other structures with abnormally high humidity conditions, cold-storage and cooler buildings when the freezer or cooler insulation is used as the base to receive the roof.	Applications over buildings with high internal humidity, freezer buildings or buildings used for cold storage.

18. Pre-construction notice and approval requirements	The contractor must submit a notice of award of contract at least ten days prior to commencement, providing job details.	Yes	Contractor must submit a notice of award of contract prior to commencement, providing job details.	None required.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes	Yes
20. Job inspection policy	GAF territory manager makes on-site inspections prior to and during application. GAF field technical representative makes on-site inspections after completion prior to issuance of warranty, as well as two years after issuance of warranty; no charge.		GAF territory manager makes on-site inspections prior to and during application. GAF field technical representative makes on-site inspections after completion, prior to issuance of guarantee, as well as two years after issuance of guarantee; no charge.	No on-site inspections.
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to all leaks and workmanship deficiencies for two years.		Contractor obligated to make repairs to all leaks and workmanship deficiencies for two years	None; material-only guarantee.
22. Backed by named insurance or surety	No; GAF indicates that it does not carry insurance covering its guarantee obligations.		No; GAF indicates it does not carry insurance covering its guarantee obligations.	No; GAF indicates it does not carry insurance covering its guarantee obligations.
23. Issuing entity manufactures and/or sells products	GAF manufactures and sells product.		GAF manufactures and sells product.	GAF manufactures and sells product.
24. Conditions for renewal or extension	Warranty may be renewed for five years at a cost of \$500.		The owner requests during the last six months of the fifth year that GAF make roof inspection free of charge. GAF will advise the owner of any repairs necessary to qualify for additional five years. The owner must make repairs at his sole expense and notify GAF no later than 45 days after the expiration of the original five-year guarantee. GAF will then reinspect and, if acceptable, guarantee will be extended for five years. GAF reserves the right to refuse to renew the guarantee if GAF determines repairs are needed due to specific exclusions from guarantee coverage.	No renewal provision
25. Assignability	Assignable to another owner only if (1) request is made in writing 30 days after ownership transfer; (2) membrane is inspected and any required repairs are completed at owner's expense; (3) proposed assignment is approved in writing by an authorized GAF technical services manager; and (4) an assignment fee of \$500 is paid to GAF. Otherwise, guarantee is not assignable, directly or indirectly.		Assignable to another owner only if (1) request is made in writing within 30 days after ownership transfer, (2) membrane is inspected and any required repairs are completed at owner's expense, (3) proposed assignment is approved in writing by an authorized GAF technical services manager, and (4) an assignment fee of \$500 is paid. Otherwise, guarantee is not assignable, directly or indirectly.	Not transferable or assignable in any manner.
26. Special features/conditions	Owner shall, at its expense, (a) perform regular inspections and maintenance; (b) keep records of all inspections and maintenance performed; and (c) perform repairs to the roof or other building components identified during inspections by GAF as being necessary to preserve the integrity of the GAF roofing materials. Failure of owner to perform work promptly following written notification by GAF may result in cancellation of guarantee if the owner's failure results in damage to the GAF roofing materials.  Owner shall, at its expense, remove (and, if desired, subsequently replace) any materials and equipment that impede inspection and repair of the GAF roofing materials, such as HVAC units and satellite dishes mounted so that there is no functional access to the roof system, and precast concrete or rubber pavers, wood decking and steel grating that are installed over the GAF roofing materials.  No representative, employee, or agent of GAF, or any other person, has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for or liable for any change or amendment to the GAF roof specifications, unless the change or amendment is approved in writing by an authorized GAF technical services manager.  In an emergency, the Owner may authorize or perform temporary repairs to minimize damage to the building or its contents. Such work will not result in the cancellation of guarantee provided that the temporary repairs are reasonable and customary, and do not result in permanent damage to the GAF membrane or base flashing. Owner is responsible for all expenses associated with temporary repairs.		Owner shall, at its expense, (a) perform regular inspections and maintenance; (b) keep records of all inspections and maintenance performed; and (c) perform repairs to the roof or other building components identified during inspections by GAF as being necessary to preserve the integrity of the GAF roofing materials. Failure of owner to perform work promptly following written notification by GAF may result in cancellation of guarantee if the owner's failure results in damage to the GAF roofing materials.  Owner shall, at its expense, remove (and, if desired, subsequently replace) any materials and equipment that impede inspection and repair of the GAF roofing materials, such as HVAC units and satellite dishes mounted so that there is no functional access to the roof system, and precast concrete or rubber pavers, wood decking and steel grating that are installed over the GAF roofing materials.  No representative, employee, or agent of GAF, or any other person, has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for or liable for any change or amendment to the GAF roof specifications, unless the change or amendment is approved in writing by an authorized GAF technical services manager.  In an emergency, the owner may authorize or perform temporary repairs to minimize damage to the building or its contents. Such work will not result in the cancellation of guarantee provided the temporary repairs are reasonable and customary and do not result in permanent damage to the GAF membrane or base flashing. Owner is responsible for all expenses associated with temporary repairs.	Claims under this warranty require proof of purchase. GAF shall have reasonable time after notification of a defect to inspect the roof and if GAF determines manufacturing defects are covered by warranty, GAF will have 90 days after receipt of notification of leaks to make or cause to be made repairs or replacement.  The owner must initiate and follow a 10-point maintenance program prescribed by GAF on the reverse side of guarantee including: (1) maintaining a file showing all inspections, repairs, original construction drawings and specifications; (2) inspecting roof at least semiannually; (3) inspecting roof for damage after severe weather conditions; (4) repairing non-guaranteed conditions affecting the GAF roof system; (5) removing any debris; (6) examining/reattaching loose metal-work; (7) repairing loose masonry/rooftop stones; (8) examining roof top equipment to determine if they move excessively or leak; (9) resealing any cracked, flaking, blistered or worn areas of protective coatings; and (10) minimize rooftop traffic.  No representative, employee, or agent of GAF, or any other person, has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for or liable for any change or amendment to the GAF specifications, unless the change or amendment to the technical specifications is approved in writing by an authorized GAF technical services manager. Notice to the roofing contractor or distributor is not notice to GAF.
27. Executed by owner	No	No	No	Yes; Owner must sign and mail in warranty registration form within 30 days of roof completion.

[illegible]



13. Wind coverage/exclusions	Warranty excludes windstorms, hurricanes, and tornadoes. GAF indicates that there is no coverage for damage caused by wind.	Warranty excludes windstorms, hurricanes, and tornadoes. GAF indicates that there is no coverage for damage caused by wind.	
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	C, H, I, S. Also, warranty provides that cancellation of this warranty will result if the roof is damaged by any cause listed above as a specific exclusion that will affect the integrity or watertightness of the roof.	C, H, I, S. Also, guarantee states that cancellation of this guarantee will result if the roof is damaged by any cause listed as an exclusion (See item 12 above) if the damage affects the integrity or watertightness of the roof and the owner does not promptly make repairs following notification by GAF.	C, H, I, S. Also, the guarantee states that cancellation of this guarantee will result if the roof is damaged by any cause listed as an exclusion if the damage affects the integrity or watertightness of the roof and the owner does not promptly make repairs to rectify the damage and preserve the integrity of the roof following notification by GAF.
15. Cost to obtain	None	10 years: \$10.00/square; 15 years: \$14.00/square; 20 years: \$19.00/square	5 years: \$6.00/square; 10 years: \$10.00/square; 12 years: \$12.00/square; 15 years: \$14.00/square; 20 years: \$19.00/square
16. Minimum charge	None	10 years: \$800; 15 years: \$1,000; 20 years: \$1,200	5 years: \$450; 10 years: \$850; 12 years: \$900; 15 years: \$1,000; 20 years: \$1,200
17. Inhabitable structure or building use	Domed structures, heated tanks, storage silos, drying kilns, car wash buildings, swimming pools and other structures with abnormally high-humidity conditions. Cold-storage and freezer buildings when the freezer or cooler insulation is used as the base to rectify the roof	High-humidity buildings (i.e., car washes, swimming pools), domed structures, heated tanks, storage silos, drying kilns, freezer or cooler buildings when freezer or cooler insulation is also the roof insulation.	High-humidity buildings (i.e., car washes, swimming pools), domed structures, heated tanks, storage silos, drying kilns, freezer or cooler buildings when the freezer or cooler insulation is also the roof insulation.
18. Pre-construction notice and approval requirements	None	Contractor must submit a notice of award of contract at least ten days prior to commencement, providing job details.	The contractor must submit a notice of award of contract at least ten days prior to commencement, providing job details.
19. Approved, authorized, or licensed applicator	None	Yes	Yes
20. Job inspection policy	No on-site inspections	GAF territory manager makes on-site inspections prior to and during application. GAF field technical representative makes on-site inspections after completion prior to issuance of guarantee, as well as two years after issuance of guarantee; no charge.	GAF territory manager makes on-site inspections prior to and during application. GAF field technical representative makes on-site inspections after completion prior to issuance of warranty, as well as two years after issuance of warranty; no charge.
21. Contractor's post-installation obligation	None	Flood testing of all plaza deck roofing installations is required.	Contractor obligated to make repairs to all leaks and workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; GAF indicates that it does not carry insurance covering its warranty obligations.	No; GAF indicates that it does not carry insurance covering its guarantee obligations.	No; GAF indicates that it does not carry insurance covering its guarantee obligations.
23. Issuing entity manufactures and/or sells products	GAF manufactures and sells the product.	GAF manufactures and sells the product.	GAF manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision.	No renewal provision.
25. Assignability	Not transferable or assignable in any manner	Days after ownership transfer; (2) the visible GAF roofing materials and plaza deck are inspected and any required repairs are completed at owner's expense; (3) proposed assignment is approved in writing by an authorized GAF technical services manager; and (4) an assignment fee of \$500 is paid to GAF. Otherwise, guarantee is not assignable, directly or indirectly.	Assignable to another owner only if (1) request is made in writing 30 days after ownership transfer; (2) membrane is inspected and any required repairs are completed at owner's expense; (3) proposed assignment is approved in writing by an authorized GAF technical services manager; and (4) an assignment fee of \$500 is paid to GAF. Otherwise, guarantee is not assignable, directly or indirectly.
26. Special features/conditions	The owner must sign and mail in GAF warranty registration form within 30 days of completion in order for warranty to be effective. No representative, employee, or agent of GAF, or any other person has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for failure, any change or amendment to the GAF roof specifications in regard to the construction of the roof, unless the change or amendment to the specifications are approved in writing by an authorized GAF technical services manager.	Upon request by GAF, the owner shall remove (and subsequently replace) all plaza deck assembly materials to expose the GAF/MC Roofing Materials. Removal and replacement of the plaza deck assembly materials shall be made at the sole cost of the owner even if GAF determines that the leak is covered by this guarantee. No representative, employee, or agent of GAF, or any other person, has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for failure, any change or amendment to the GAF roof specifications, unless the change or amendment to the specifications is approved in writing by an authorized GAF technical services manager.	Owner shall, at its expense, (a) perform regular inspections and maintenance; (b) keep records of all inspections and maintenance performed; and (c) perform repairs to the roof or other building components identified during inspections by GAF as being necessary to preserve the integrity of the GAF roofing materials. Failure of owner to perform work promptly following written notification by GAF may result in cancellation of guarantee if the owner's failure results in damage to the GAF roofing materials. Owner shall, at its expense, remove (and, if desired, subsequently replace) any materials and equipment that impede inspection and repair of the GAF roofing materials, such as HVAC units and satellite dishes mounted so that there is no functional access to the roof system, and precast concrete or rubber pavers, wood decking or steel grating that are installed over the GAF roofing material. No representative, employee, or agent of GAF, or any other person, has any authority to assume for GAF any additional or other liability or responsibility. GAF shall not be responsible for failure, any change or amendment to the GAF roof specifications, unless the change or amendment to the specifications is approved in writing by an authorized GAF technical services manager. In an emergency, the Owner may authorize or perform temporary repairs to minimize damage to the building or its contents. Such work will not result in the cancellation of guarantee provided that the temporary repairs are reasonable and customary, and do not result in permanent damage to the GAF membrane or base flashing. Owner is responsible for all expenses associated with temporary repairs. No claim may be made in respect to thermal performance unless based on tests carried out by a qualified laboratory using tests and procedures satisfactory to GAF. GAF reserves the right to perform thermal testing on the LWIC insulation at its discretion and at its own cost.
27. Executed by owner	Yes (See Special Features/Conditions.)	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

GenCorp Inc.		GenCorp Inc.		GenCorp Inc.	
1. Identity of issuing entity		"Thermoplastic Roofing System Warranty"; 1996; 10-96	"EPDM Roofing System Warranty"; 1996; 10-96	"Limited Membrane Only Warranty"; 1996; 10-96	
2. Title, original publication date, and identifying symbol, if any					
3. Product, specification, or system covered		GenFlex RM and GenFlex TPO Roofing Systems	GenFlex EPDM	GenFlex Thermoplastic PVC and TPO membranes, GenFlex EPDM	
4. Scope of coverage		Material and workmanship; GenCorp warrants that it will repair leaks in the GenFlex RM or GenFlex TPO roofing system caused by a defect in GenFlex brand materials or workmanship of the GenFlex authorized contractor. The roofing system consists of GenFlex RM or GenFlex TPO brand membrane, GenFlex brand insulation, fasteners, adhesives, sealants, flashings, fastener plates, metal bars and related GenFlex brand accessory items when used in accordance with GenFlex's published written technical specifications.	Material and workmanship; GenCorp warrants that it will repair leaks in the GenFlex EPDM roofing system caused by a defect in GenFlex brand materials or workmanship of the GenFlex authorized contractor. The roofing system consists of GenFlex EPDM brand membrane, GenFlex brand insulation, fasteners, adhesives, sealants, flashings, roofing tapes, fastener plates, metal bars, and related GenFlex EPDM brand accessory items when used in accordance with GenFlex's published written technical specifications.	Material only; GenCorp warrants that the roofing membrane will not deteriorate to the point of causing leaks through the membrane due to normal weathering. Warranty applies only to roofing membrane and does not apply to labor, materials, or construction details.	
5. Length of coverage		5, 10, or 15 years	5, 10, or 15 years	5, 10, 15 or 20 years. In order to obtain 20 year coverage, thermoplastic membranes must be at least .060 mils.	
6. Nature of remedy		If there is a leak caused by a defect in GenFlex brand materials or workmanship, GenCorp will repair the leak.	If there is a leak caused by a defect in GenFlex brand materials or workmanship, GenCorp will repair the leak.	GenCorp will, at its option, either repair the membrane or issue credit against the purchase of a new roofing membrane from GenCorp, prorated based on months of service.	
7. Monetary limitations		None stated.	None stated.	Credit issued by GenCorp shall be determined by multiplying the current price of replacement membrane by a fraction, the numerator of which is the remaining months of the warranty and the denominator of which is the total number of months the warranty is to be in effect.	
8. Notification requirements		Written notice within 30 days of discovery of any leak and any warranty claim by certified mail to GenFlex Roofing Systems, 1722 Indian Wood Circle, Maumee, Ohio 43537, Attention: Technical Department.	Written notice within 30 days of discovery of any leak and any warranty claim by certified mail to GenFlex Roofing Systems, 1722 Indian Wood Circle, Maumee, OH 43537, Attention: Technical Department.	Written notice within 30 days of discovery of any leak and any warranty claim by certified mail to GenFlex Roofing Systems, 1722 Indian Wood Circle, Maumee, OH 43537, Attention: Technical Department.	
9. Exclusive or additional remedy		Remedy stated in warranty is sole and exclusive remedy for failure of the system; no other express warranties; excludes UCC warranties.	The owner's sole and exclusive remedy for failure of the system; excludes UCC warranties.	Remedy stated in warranty is the sole and exclusive remedy for failure of the roofing membrane; no other express warranties; excludes UCC warranties.	
10. Inclusion of consequential damages		No	No	No	
11. Determination of warranty applicability		Neutral	GenCorp's determination	Neutral	
12. Specific exclusions from coverage (See item no. 12 in Introduction.)		1,2,3,4,5,6,7,9,10,12 (see Special Features/Conditions), 13,17,24. (Warranty also specifically excludes damages caused by insects and animals.)	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12 (see Special Features/Conditions), 13, 17, 24. (Warranty also excludes damages caused by insects and animals.)	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12 (see Special Features/Conditions), 13, 17, 24. Warranty also specifically excludes damages caused by insects and animals.	
13. Wind coverage/exclusions		Warranty excludes roof damage resulting from wind gusts in excess of 54 mph and hurricanes. GenCorp indicates that, when a request is made prior to bidding and after a specific roof system design criteria is met, GenCorp's "Thermoplastic Roofing System High Wind Warranty" covering winds of peak gusts up to 100 mph may be obtained. GenFlex Technical Department must be contacted for approval.	Warranty excludes roof damage resulting from wind gusts in excess of 54 mph and hurricanes. GenCorp indicates that, when a request is made prior to bidding and after a specific roof system design criteria is met, GenCorp's "EPDM Roofing System High Wind Warranty" covering winds of peak gusts up to 100 mph may be obtained. GenFlex Technical Department must be contacted for approval.	Warranty excludes roof damage resulting from wind gusts in excess of 54 mph and hurricanes.	
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)		B, C (Warranty may also be suspended if owner fails to reimburse GenCorp for investigation costs if GenCorp's investigation reveals that GenCorp is not responsible for owner's claim.), D, H, K	B, C (Warranty may also be suspended if owner fails to reimburse GenCorp for investigation costs if GenCorp's investigation reveals that GenCorp is not responsible for owner's claim.), D, H, K	B, C (Warranty may also be suspended if owner fails to reimburse GenCorp for investigation costs if GenCorp's investigation reveals that GenCorp is not responsible for owner's claim.), D, H, K	
15. Cost to obtain		5 years: \$3.00/square; 10 years: \$6.00/square; 15 years: \$10.00/square	5 years: \$3.00/square; 10 years: \$5.00/square; 15 years: \$8.00/square	10 years: no charge; 15 years: \$100; 20 years: \$200	
16. Minimum charge		5 years: \$250; 10 years: \$300; 15 years: \$400	5 years: \$250; 10 years: \$300; 15 years: \$400	10 years: no charge; 15 years: \$100; 20 years: \$200.	
17. Ineligible structure or building use		Private residences, walking decks	Private residences, walking decks	Private residences, walking decks	
18. Pre-construction notice and approval requirements		Authorized contractor must submit pre-job survey form to GenCorp technical department in Maumee, Ohio.	Authorized contractor must submit pre-job survey form to GenCorp technical department in Maumee, Ohio.	Authorized contractor must submit pre-job survey form to GenFlex Roofing Systems technical department in Maumee, Ohio.	

	Yes	Yes	Yes
19. Approved, authorized, or licensed applicator	Upon request or dependent on GenCorp's evaluation, Gen Corp technical representative makes on-site inspections prior to, during application, and after completion prior to issuance of warranty, no charge.	Upon request or GenFlex evaluation, a GenFlex technical representative makes on-site inspection prior to, during application and after completion prior to issuance of warranty; no charge.	No on-site inspections
20. Job inspection policy	The contractor is obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years.	None; material-only warranty
21. Contractor's post-installation obligation	No; GenCorp indicates that it is self-insured.	No; GenCorp indicates that it is self-insured.	No; GenCorp indicates that it is self-insured.
22. Backed by named insurance or surety	GenCorp manufactures and sells GenFlex PVC and TPO thermoplastic membranes.	GenCorp sells product only.	GenCorp manufactures and sells GenFlex thermoplastic PVC and TPO membranes and only sells GenFlex EPDM.
23. Issuing entity manufactures and/or sells products	Within 30 days of the expiration of 5 and 10 year warranties, GenCorp will provide an option to extend the warranty for 5 years once a fee of \$500 has been paid and any required repairs to the roofing system have been completed.	Within 30 days of the expiration of 5 and 10 year warranties, GenCorp will provide an option to extend the warranty for 5 years once a fee of \$500 has been paid and any required repairs to the roofing system have been completed.	No renewal provision
24. Conditions for renewal or extension	Warranty may not be transferred upon change of ownership unless the owner (a) notifies GenCorp in writing of proposed change at least 45 days prior to change (b) pays GenCorp the warranty transfer fee in effect on the date the warranty was issued, and (c) completes all repairs required by GenCorp in order to comply with owner's obligations under this warranty.	Warranty may not be transferred upon change of ownership unless the owner (a) notifies GenCorp in writing of its proposed change at least 45 days prior to the change, (b) pays GenCorp the warranty transfer fee in effect on the date the warranty was issued, and (c) completes all repairs required by GenCorp in order to correct failures to comply with owner's obligations under the warranty.	Warranty may not be transferred upon change of ownership unless the owner (a) notifies GenCorp in writing of proposed change at least 45 days prior to change, (b) pays GenCorp the warranty transfer fee in effect on the date the warranty was issued, and (c) completes all repairs required by GenCorp in order to comply with the owner's obligations under this warranty.
25. Assignability	If Gen Corp's investigation of any claim reveals that GenCorp is not responsible for owner's claim, owner shall promptly reimburse GenCorp for the investigation and repair costs incurred by GenCorp. While GenCorp reserves the right to suspend its warranty obligations if all bills for installation have not been paid, or the warranty fee has not been paid or if the owner has not reimbursed GenCorp for claim investigation costs, the sole and exclusive remedy provision for failure of the roof membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Warranty requires compliance with GenFlex maintenance and care requirements stated on reverse side of warranty, including at least twice yearly inspections; ponded water will not be allowed; roof must have slope to drain and all drain areas must remain clear; regular cleaning in areas where contaminants (i.e., oil, grease, freon, acids, solvents) potentially harmful to the roof system may accumulate; protective walkways for roof traffic; maintenance of counterflashing, metal work, equipment curb and supports, pitch pockets, caulking, walk pads, and any other roof top accessories. Any claim or dispute between owner and GenCorp arising out of warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in the warranty.	If GenCorp's investigation of any claim reveals that GenCorp is not responsible for owner's claim, owner shall promptly reimburse GenCorp for the investigation and repair costs incurred by GenCorp. While GenCorp reserves the right to suspend its warranty obligations if all bills for installation have not been paid, or the warranty fee has not been paid or if the owner has not reimbursed GenCorp for claim investigation costs, the sole and exclusive remedy provision for failure of the roof membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Warranty requires compliance with GenFlex maintenance and care requirements stated on reverse side of warranty, including at least twice yearly inspections; ponded water will not be allowed; roof must have slope to drain and all drain areas must remain clear; regular cleaning in areas where contaminants (i.e., oil, grease, freon, acids, solvents) potentially harmful to the roof system may accumulate; protective walkways for roof traffic; maintenance of counterflashing, metal work, equipment curb and supports, pitch pockets, caulking, walk pads, and any other roof top accessories. Any claim or dispute between owner and GenCorp arising out of warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in the warranty.	If Gen Corp's investigation of any claim reveals that GenCorp is not responsible for owner's claim, owner shall promptly reimburse GenCorp for the investigation and repair costs incurred by GenCorp. While GenCorp reserves the right to suspend its warranty obligations if all bills for installation have not been paid, or the warranty fee has not been paid or if the owner has not reimbursed GenCorp for claim investigation costs, the sole and exclusive remedy provision for failure of the roof membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Warranty requires compliance with GenFlex maintenance and care requirements stated on reverse side of warranty, including at least twice yearly inspections; ponded water will not be allowed; roof must have slope to drain and all drain areas must remain clear; regular cleaning in areas where contaminants (i.e., oil, grease, freon, acids, solvents) potentially harmful to the roof system may accumulate; protective walkways for roof traffic; maintenance of counterflashing, metal work, equipment curb and supports, pitch pockets, caulking, walk pads, and any other roof top accessories. Any claim or dispute between owner and GenCorp arising out of warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in the warranty.
26. Special features/conditions	If Gen Corp's investigation of any claim reveals that GenCorp is not responsible for owner's claim, owner shall promptly reimburse GenCorp for the investigation and repair costs incurred by GenCorp. While GenCorp reserves the right to suspend its warranty obligations if all bills for installation have not been paid, or the warranty fee has not been paid or if the owner has not reimbursed GenCorp for claim investigation costs, the sole and exclusive remedy provision for failure of the roof membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Warranty requires compliance with GenFlex maintenance and care requirements stated on reverse side of warranty, including at least twice yearly inspections; ponded water will not be allowed; roof must have slope to drain and all drain areas must remain clear; regular cleaning in areas where contaminants (i.e., oil, grease, freon, acids, solvents) potentially harmful to the roof system may accumulate; protective walkways for roof traffic; maintenance of counterflashing, metal work, equipment curb and supports, pitch pockets, caulking, walk pads, and any other roof top accessories. Any claim or dispute between owner and GenCorp arising out of warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in the warranty.	If GenCorp's investigation of any claim reveals that GenCorp is not responsible for owner's claim, owner shall promptly reimburse GenCorp for the investigation and repair costs incurred by GenCorp. While GenCorp reserves the right to suspend its warranty obligations if all bills for installation have not been paid, or the warranty fee has not been paid or if the owner has not reimbursed GenCorp for claim investigation costs, the sole and exclusive remedy provision for failure of the roof membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Warranty requires compliance with GenFlex maintenance and care requirements stated on reverse side of warranty, including at least twice yearly inspections; ponded water will not be allowed; roof must have slope to drain and all drain areas must remain clear; regular cleaning in areas where contaminants (i.e., oil, grease, freon, acids, solvents) potentially harmful to the roof system may accumulate; protective walkways for roof traffic; maintenance of counterflashing, metal work, equipment curb and supports, pitch pockets, caulking, walk pads, and any other roof top accessories. Any claim or dispute between owner and GenCorp arising out of warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in the warranty.	If Gen Corp's investigation of any claim reveals that GenCorp is not responsible for owner's claim, owner shall promptly reimburse GenCorp for the investigation and repair costs incurred by GenCorp. While GenCorp reserves the right to suspend its warranty obligations if all bills for installation have not been paid, or the warranty fee has not been paid or if the owner has not reimbursed GenCorp for claim investigation costs, the sole and exclusive remedy provision for failure of the roof membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Warranty requires compliance with GenFlex maintenance and care requirements stated on reverse side of warranty, including at least twice yearly inspections; ponded water will not be allowed; roof must have slope to drain and all drain areas must remain clear; regular cleaning in areas where contaminants (i.e., oil, grease, freon, acids, solvents) potentially harmful to the roof system may accumulate; protective walkways for roof traffic; maintenance of counterflashing, metal work, equipment curb and supports, pitch pockets, caulking, walk pads, and any other roof top accessories. Any claim or dispute between owner and GenCorp arising out of warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in the warranty.
27. Escorted by owner	No	No	No

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	GenCorp, Inc.	W.R. Grace & Co. - Conn.	W.R. Grace & Co. - Conn.
2. Title, original publication date, and identifying symbol, if any	"Ten Year Membrane Only Warranty For Commercial Buildings"; 1997; 4-97	"PRMA System 10 Year Material Warranty"; June 1997; PRMA-031 6/97	"PRMA System Gold 10 Year Material and Labor Warranty"; June 1997; PRMA-035 6/97
3. Product, specification, or system covered	GenFlex Thermoplastic, PVC, RM, FRM and TPO membranes, GenFlex EPDM	PRMA Membrane	PRMA membrane
4. Scope of coverage	Material only; GenCorp warrants that the roofing membrane will not deteriorate to the point of causing leaks through the membrane due to normal weathering. Warranty applies only to roofing membrane and does not apply to labor, materials, or construction details.	Material only; Grace warrants that water will not leak directly through any individual sheet of PRMA membrane as a result of deterioration of the sheet caused by ordinary wear and tear and the effects thereof and the PRMA membrane will bridge ruptures caused by cracking of the immediate substrate up to 1.6 mm (0.0625 in.) in width.	Material and workmanship; Grace agrees to make or cause to be made, at Grace's expense, all repairs necessary to correct leaks to the Grace PRMA System resulting from system membrane deterioration as a result of ordinary wear and tear and the effects thereof; improper workmanship by the contractor in the installation of the PRMA System; splits in the System membrane; temperature fluctuations or thermal shock; and System membrane slippage.
5. Length of coverage	10 years	10 years	10 years
6. Nature of remedy	GenCorp will, at its option, either repair the membrane or issue credit against the purchase of a new roofing membrane from GenCorp, prorated based on months of service.	Grace will supply replacement PRMA membrane, and accessory products deemed necessary and approved by Grace equal to the cost of materials paid to Grace for the original installation. Warrants does not cover any costs or expenses associated with labor costs for the removal of ballast or pavers or otherwise exposing the PRMA membrane and installation of replacement membrane.	Grace agrees to make or cause to be made, at Grace's expense, repairs necessary to correct leaks. Costs for removing ballast or removable pavers is the responsibility of Grace. Cost for removing solid or interlocking pavers or otherwise exposing the PRMA system is the responsibility of owner.
7. Monetary limitations	Credit issued by GenCorp shall be determined by multiplying the current price of replacement membrane by a fraction, the numerator of which is the remaining months of the warranty and the denominator of which is the total number of months the warranty is to be in effect.	Grace's liability to provide replacement material is limited to the cost of materials paid to Grace for the original installation.	Grace's total liability shall not exceed the cost of materials required and approved by Grace for repair plus labor costs for repair activities approved by Grace.
8. Notification requirements	Written notice within 30 days of discovery of any leak and warranty claim by certified mail to GenFlex Roofing Systems, 1722 Indian Wood Circle, Maumee, Ohio 43537, Attention: Technical Department.	None stated.	Written notice within 30 days from the date of discovery of the need for any repair or the date such need should reasonably have been discovered that may be a responsibility of Grace.
9. Exclusive or additional remedy	Remedy stated in warranty is sole and exclusive remedy for failure of the roofing membrane; no other express warranties; excludes UCC warranties.	Owner waives any and all other claims, actions, and demands relating to the use of the PRMA System. Statements, obligations, and representations contained in the warranty and made expressly in lieu of all other warranties; excludes UCC warranties.	Owner waives any and all other claims, actions, and demands relating to the use of the PRMA System. Statements, obligations, and representations contained in warranty are made expressly in lieu of all other warranties; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral	Grace's determination	Neutral
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 24. (Warranty also specifically excludes damages caused by insects and animals.)	1, 3, 15, 17	1, 2, 3, 4, 6, 7, 8, 10, 15
13. Wind coverage/exclusions	Warranty excludes damage resulting from wind gusts in excess of 54 mph and hurricanes.	No coverage for damage caused by wind.	Warranty excludes windstorms, hurricanes and tornadoes. Grace indicates there is no coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, D, H, K	R	C, I

15. Cost to obtain	None	\$1.50/square	\$2.50/square
16. Minimum charge	None	\$150	\$250
17. Ineligible structure or building use	Private residences, walking decks	None	None
18. Pre-construction notice and approval requirements	None	Grace requires contractor to provide a pre-job report prior to commencement of installation.	Grace requires contractor to give a pre-job report prior to commencement of installation.
19. Approved, authorized, or licensed applicator	No	Yes	Yes
20. Job inspection policy	No on-site inspections	Grace representative makes on-site inspections prior to and after completion, prior to issuance of warranty, as well as two years after issuing warranty; no charge.	Grace representative makes on-site inspections prior to and after completion, prior to issuance of warranty, as well as two years after issuing warranty; no charge.
21. Contractor's post-installation obligation	None; material-only warranty	Although this is a material-only warranty, contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; GenCorp indicates that it is self-insured.	No; Grace indicates that it does not carry insurance covering its warranty obligations.	No; Grace indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	GenCorp manufactures and sells GenFlex thermoplastic PVC and TPO membranes and only sells GenFlex EPDM.	Grace manufactures and sells product.	Grace manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty may not be transferred upon change of ownership unless the owner (a) notifies GenCorp in writing of proposed change at least 45 days prior to change, (b) pays GenCorp the warranty transfer fee in effect on the date the warranty was issued, and (c) completes all repairs required by GenCorp in order to comply with the owner's obligations under this warranty.	No restrictions stated.	Assignable provided (1) Grace is given not less than 30 days written notice prior to transfer and the intended building use is stated and approved by Grace, (2) an inspection of the structure is made by Grace, (3) all repairs deemed necessary by Grace are made at owner's expense and such repairs are inspected and approved by Grace, (4) Grace's then-current inspection and processing fee is paid to Grace.
26. Special features/conditions	While GenCorp reserves the right to suspend its obligations under the warranty if all bills for installation, supplies, and service have not been paid in full to the roofing contractor and material suppliers, the sole and exclusive remedy provision for failure of the roofing membrane and exclusion of other warranties, including UCC warranties, remains in full force and effect. Any claim or dispute between owner and GenCorp arising out of the warranty or relating to any material supplied or specifically required by GenCorp shall be resolved by final and binding arbitration in accordance with the rules of the American Arbitration Association. No representative has authority to make any representations other than those stated in warranty.	Warranty provides that Grace shall not be liable for penal damages.	PRMA System must be maintained by owner in accordance with such instructions of Grace as may be in effect from time to time. Warranty provides that Grace shall not be liable for penal damages.
27. Executed by owner	Registration form is to be completed and submitted to GenFlex Roofing Systems in Maumee, Ohio.	Yes; warranty is to be signed and "accepted" by owner and installing contractor.	Yes; warranty is to be signed and "accepted" by owner and installing contractor.

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	W.R. Grace & Co. - Conn.	GS Roofing Products Company, Inc.	GS Roofing Products Company, Inc.
2. Title, original publication date, and identifying symbol, if any	"PRMA System Platinum 15 Year Material and Labor Warranty"; June 1997; PRMA-032 6/97	"Roof Membrane Limited Warranty"; 3/93; 70-01-0003-5245/-003	"Ten Year Roof Membrane Limited Warranty"; March 1996
3. Product, specification, or system covered	PRMA membrane	All GS Roofing BUR specifications.	All GS Roofing BUR specifications.
4. Scope of coverage	Material and workmanship; Grace agrees to make or cause to be made, at Grace's expense, all repairs necessary to correct leaks to the Grace PRMA System, resulting from system membrane deterioration as a result of ordinary wear and tear and the effects thereof; improper workmanship by the contractor in the installation of the System; splits in the PRMA System membrane; temperature fluctuations or thermal shock; and System membrane slippage.	Material and workmanship; GS warrants that, should there be any leaks in the roof membrane caused solely by reason of ordinary wear of the elements or workmanship on the part of the GS authorized roofing contractor and not caused completely or partially by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks as necessary to retain the roof membrane in a watertight condition at GS's expense. (See Special Features/ Conditions.)	Material and workmanship; GS warrants that, should there be any leaks or manufacturing defects in the GS products used in the roof membrane caused solely by reason of ordinary wear of the elements or workmanship on the part of the GS authorized roofing contractor and not caused completely or partially by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks exclusive of metal work and non-GS approved flashings) as necessary to retain the roof membrane in a watertight condition at GS's expense. The roof membrane is composed of a base sheet, optional interplies, bituminous asphaltic material between layers when required, and a capsheet and/or surfacing layer applied per GS published specifications and conditions. (See Special Features/Conditions.)
5. Length of coverage	15 years	10 years	5 years
6. Nature of remedy	Grace agrees to make or cause to be made, at Grace's expense, all repairs necessary to correct leaks. Cost for removing ballast or removable pavers is the responsibility of Grace. Cost for removing solid or interlocking pavers or otherwise exposing the PRMA System from structural or solid overburden is the responsibility of owner.	GS or authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS's expense.	GS or its authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS's expense.
7. Monetary limitations	Grace's total liability shall not exceed the cost of materials required and approved by Grace for repair plus labor costs for repair activities also approved by Grace.	\$50/square; GS shall be discharged of all further obligation whenever the value of all repairs furnished (based on the cost to GS of all repair labor and materials) together with any inspection cost incurred by GS, shall equal the amount of \$50 per square.	\$50/square; GS shall be discharged of all further obligation whenever the value of all repairs furnished (based on the cost to GS of all repair labor and materials) together with any inspection cost incurred by GS, shall equal the amount of \$50 per square.
8. Notification requirements	Written notice within 30 days from the date of discovery of the need for any repair or the date such need should reasonably have been discovered that may be a responsibility of Grace.	Written notification to GS at applicable regional office within 30 days after discovery of any claim.	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75039. Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)
9. Exclusive or additional remedy	Owner waives any and all other claims, actions, and demands relating to the use of the PRMA System. Statements, obligations and representations contained in warranty and made expressly in lieu of all other warranties; excludes UCC warranties.	Warranty is in lieu of all other guarantees or warranties and all other obligations and liabilities on the part of GS; excludes UCC warranties.	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties. Warranty states that GS does not warrant any review of construction or design plans or any inspection of the roof or the installation thereof.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral	Neutral (no provision)	GS' determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 6, 7, 8, 10, 15	1, 2, 4, 6, 7, 9, 10, 11, 18 (including damages caused by solid or liquid deposits of any substance), 22, 23. Warranty also excludes sleet or icing.	1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 20, 22, 23.
13. Wind coverage/exclusions	Warranty excludes windstorms, hurricanes and tornadoes. Grace indicates there is no coverage for damage caused by wind.	GS indicates warranty covers roof damage resulting from wind speeds up to 54 mph. Warranty excludes winds or gusts exceeding Force 9 on the Beaufort Scale and tornadoes.	GS indicates that the warranty covers roof damage resulting from wind speeds up to 54 mph. The warranty excludes winds exceeding Force 9 on the Beaufort Scale and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, I	B, C (service charge must be received by GS within six months after completion), H, I, J, L	A, B, C, J
15. Cost to obtain	\$4.50/square	\$4.00/square	\$4.00/square
16. Minimum charge	\$450	\$400	\$400
17. Ineligible structure or building use	None	Residential, apartments, condominiums, heated tanks, and cold-storage facilities	Residential, condos, heated tanks, cold storage facilities
18. Pre-construction notice and approval requirements	Grace requires contractor to give a pre-job report prior to commencement of installation.	The contractor must submit application for GS warranty prior to job start for review and approval. The contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.	The contractor must submit application for GS warranty prior to job start for review and approval. The contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes

20. Job inspection policy	Grace representative makes on-site inspections prior to and after completion, prior to issuance of warranty, as well as two years after issuing warranty; no charge.	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Grace indicates that it does not carry insurance covering its warranty obligations.	No; GS indicates that it does not carry insurance covering its warranty obligations.	No; GS indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Grace manufactures and sells product.	GS Roofing Products Company, Inc. manufactures and sells product.	GS Roofing Products Company, Inc. manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal policy	GS indicates that warranty can be renewed for life of warranty. GS references it published schedule of renewal fees.
25. Assignability	Not assignable	The owner may transfer to a third party provided the use to which said third party puts the structure is not one prohibited by GS in the 1990 edition of its commercial roofing systems specification manual. The owner shall notify GS's regional office prior to making any transfer.	Subject to payment of applicable transfer fee to GS and proper documentation being delivered to GS within thirty days after building ownership transfer, the owner may transfer this warranty to a subsequent owner, provided the use to which the subsequent owner puts the structure is not one prohibited by GS in its published material. The owner shall contact GS for applicable transfer fee and notification documentation.
26. Special features/conditions	PRIMA System shall be maintained by owner in accordance with such instructions of Grace as may be in effect from time to time. Warranty provides that Grace shall not be liable for penal damages.	Roof deck, metal work, drains, expansion joints, skylights, vents, plastic-type flashings, and reflective color coating are not considered part of the roof membrane and are not included within the protection of the warranty. Failure of flashings are not covered, except if covered by a GS Flashing Endorsement. Flashings are not covered unless a flashing endorsement is separately executed and attached; failure of flashings is excluded from warranty coverage, unless a flashing endorsement is obtained. GS will extend warranty coverage to roof insulation, vapor retarder, and insulation fasteners if they are GS-brand or approved by GS and covered by a separately executed and attached roof insulation endorsement. Neither issuance of warranty nor any review or inspection of plans by GS shall constitute waiver by GS of exclusions and limitations in warranty. No GS representative may waive any exclusion or limitation either orally or in writing. In calculating whether monetary limitation has been reached, inspection costs incurred by GS are included in addition to value of repair.	Roof deck, insulation, vapor retarders, fasteners, metal work, drains, expansion joints, skylights, vents, flashings or reflective coating are not considered part of the roof membrane and are not included within the protection of the warranty. Bituminous flashings are not considered part of the roof membrane. GS is not responsible for any costs related to the removal or abatement of any asbestos present in the existing roof system to which the GS roof system is applied. The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure owner may incur in replacing or repairing the roof membrane which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs per formed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department. No representative, employee, agent of GS, or any other person has the authority to assume for GS any additional or other liability or responsibility in connection with the roof. GS shall not be responsible for or liable if there is any change or amendment to the warranty or to the GS specification(s) in regard to the construction of the Roof Membrane, unless said change and/or amendment has been signed by an officer of GS. No action for breach of this limited warranty shall be brought later than one year after any potential cause of action has accrued. All disputed claims or other disputes that may arise between the owner, contractor, architect and/or GS arising out of or relating to or in connection with warranty shall be submitted to and decided by arbitration in accordance with the Construction Industry Arbitration Rules. This agreement to arbitrate shall be specifically enforceable under the applicable state or federal arbitration laws. The award rendered by the arbitrator shall be final and judgment may be entered upon such award in accordance with applicable law in any court having jurisdiction thereof. GS does not practice engineering or architecture.
27. Executed by owner	Yes; warranty is to be signed and "accepted" by owner and installing contractor.	Yes; the owner signs and returns warranty acknowledgement form to GS regional office.	

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	GS Roofing Products Company, Inc.	GS Roofing Products Company, Inc.	GS Roofing Products Company, Inc.
2. Title, original publication date, and identifying symbol, if any	"Twelve Year Flintlastic Roof Membrane Product Warranty (A Limited Warranty)"; March 1996; GRP-1603-A R 3/96	"Five Year Full Value Roof Membrane Warranty (A Limited Warranty)"; March 1996	"Ten Year Full Value Roof Membrane Warranty (A Limited Warranty)"; March 1996
3. Product, specification, or system covered	All GS Roofing Flintlastic specifications.	All GS Roofing BUR specifications.	All GS Roofing BUR specifications.
4. Scope of coverage	Material only; GS warrants that the GS Flintlastic products are free from manufacturing defects and will withstand ordinary wear of the elements, provided that the materials are installed in accordance with GS' current published specifications and conditions. The warranty applies to leaks caused solely by ordinary wear of the elements or manufacturing defect and not caused completely or partially by any excluded cause. The warranty does not cover roof insulation, roof deck, vapor retarder, flashings, drains, expansion joints, skylights, vents or optional reflective, decorative or fire-resistant coatings and surfacings.	Material and workmanship; GS warrants that, should there be any leaks or manufacturing defects in the GS products used in the roof membrane caused solely by reason of ordinary wear and tear of the elements or workmanship on the part of the GS authorized roofing contractor, and not caused, completely or partially, by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks (exclusive of metal work and non-GS approved flashings) as necessary to retain the roof membrane in a watertight condition at GS's expense. The roof membrane is composed of a base sheet, optional interplies, bituminous asphaltic material between layers when required, and a capsheet and/or surfacing layer applied per GS published specifications and conditions. (See Special Features/Conditions.)	Material and workmanship; GS warrants that, should there be any leaks or manufacturing defects in the GS products used in the roof membrane caused solely by reason of ordinary wear and tear of the elements or workmanship on the part of the GS authorized roofing contractor, and not caused, completely or partially, by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks (exclusive of metal work and non-GS approved flashings) as necessary to retain the roof membrane in a watertight condition at GS's expense. The roof membrane is composed of a base sheet, optional interplies, bituminous asphaltic material between layers when required, and a capsheet and/or surfacing layer applied per GS published specifications and conditions. (See Special Features/Conditions.)
5. Length of coverage	12 years	5 years	10 years
6. Nature of remedy	GS or its authorized agent will repair or replace, at its option, including labor and materials, the Flintlastic roof membrane and/or Flintlastic base flashing.	GS or its authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS' expense.	GS or its authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS' expense.
7. Monetary limitations	GS' maximum liability over term of warranty is \$80/square for Flintlastic roofing membrane. GS' maximum liability is decreased by 14.25 percent of the original liability per year after the first five years from the date of completion.	None stated.	None stated.
8. Notification requirements	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75038. Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75038. Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75038. Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)
9. Exclusive or additional remedy	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties.	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties. The warranty states that GS does not warrant any review of construction or design plans or any inspection of the roof or the installation thereof.	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties. The warranty states that GS does not warrant any review of construction or design plans or any inspection of the roof or the installation thereof.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	GS' determination	GS' determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 19, 20, 22, 23	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 20, 22, 23	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 20, 22, 23
13. Wind coverage/exclusions	GS indicates that the warranty covers roof damage resulting from wind speeds up to 64 mph. Warranty excludes winds exceeding Force 9 on the Beaufort Scale, hurricanes, and tornadoes.	GS indicates that the warranty covers roof damage resulting from wind speeds up to 64 mph. The warranty excludes winds exceeding Force 9 on the Beaufort Scale and tornadoes.	GS indicates that the warranty covers roof damage resulting from wind speeds up to 64 mph. The warranty excludes winds exceeding Force 9 on the Beaufort Scale and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	A, B, G, J (also void when total value of all repairs furnished equal GS' then remaining maximum liability). Warranty also states that GS will be discharged of all further obligations upon occurrence of any event set forth as an exclusion from coverage (see Item No. 12 above).	A, B, C, J	A, B, C, J
15. Cost to obtain	GS references its published fee schedule.	GS references its published fee schedule.	GS references its published fee schedule.
16. Minimum charge	GS references its published fee schedule.	GS references its published fee schedule.	GS references its published fee schedule.
17. Ineligible structure or building use	Residential, cold-storage, storage silos, heated tanks, structures outside U.S., structures with conduit or piping installed above roof deck and/or roof membrane, thermal insulation not approved by GS Roofing Products Company, Inc., lightweight insulating concrete unless venting is provided in accordance with GS Roofing Products Company specifications, reroofing over existing roof systems containing moisture and/or improperly prepared surfaces, plywood decks of less than 1/2 inch thickness without continuous solid end-blocking, structures with high interior-humidity conditions	Residential, condos, heated tanks, cold-storage facilities	Residential, condos, heated tanks, cold-storage facilities



18. Pre-construction notice and approval requirements	None required.	Contractor must submit application for GS warranty prior to job start for review and approval. Contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.	Yes	Contractor must submit application for GS warranty prior to job start for review and approval. Contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.
19. Approved, authorized, or licensed applicator	No	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.	Yes	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.
20. Job inspection policy	No on-site inspections	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Yes	Contractor is obligated to make repairs to workmanship deficiencies for two years.
21. Contractor's post-installation obligation	None; material-only warranty	No; GS indicates that it does not carry insurance covering its warranty obligations.	No; GS indicates that it does not carry insurance covering its warranty obligations.	No; GS indicates that it does not carry insurance covering its warranty obligations.
22. Backed by named insurance or surety	GS Roofing Products Company, Inc. manufactures and sells product.	GS Roofing Products Company, Inc. manufactures and sells product.	GS Roofing Products Company, Inc. manufactures and sells product.	GS Roofing Products Company, Inc. manufactures and sells product.
23. Issuing entity manufactures and/or sells products	No renewal provision	GS indicates warranty can be renewed for life of warranty. GS references it published schedule of renewal fees.	GS indicates warranty can be renewed for life of warranty. GS references it published schedule of renewal fees.	GS indicates warranty can be renewed for life of warranty. GS references it published schedule of renewal fees.
24. Conditions for renewal or extension	Subject to payment of applicable transfer fee to GS and proper documentation being delivered to GS within thirty days after building ownership transfer, the owner may transfer this warranty to a subsequent owner, provided the use to which the subsequent owner puts the structure is not one prohibited by GS in its published material. The owner shall contact GS for applicable transfer fee and notification documentation.	Subject to payment of applicable transfer fee to GS and proper documentation being delivered to GS within thirty days after building ownership transfer, the owner may transfer this warranty to a subsequent owner, provided the use to which the subsequent owner puts the structure is not one prohibited by GS in its published material. The owner shall contact GS for applicable transfer fee and notification documentation.	Subject to payment of applicable transfer fee to GS and proper documentation being delivered to GS within thirty days after building ownership transfer, the owner may transfer this warranty to a subsequent owner, provided the use to which the subsequent owner puts the structure is not one prohibited by GS in its published material. The owner shall contact GS for applicable transfer fee and notification documentation.	Subject to payment of applicable transfer fee to GS and proper documentation being delivered to GS within thirty days after building ownership transfer, the owner may transfer this warranty to a subsequent owner, provided the use to which the subsequent owner puts the structure is not one prohibited by GS in its published material. The owner shall contact GS for applicable transfer fee and notification documentation.
25. Assignability	The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs performed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department.	The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs performed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department.	The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs performed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department.	The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs performed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department.
26. Special features/conditions	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.
27. Executed by owner	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, warranty states that by purchasing GS products, the owner accepts terms, conditions, limitations, and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	GS Roofing Products Company, Inc.	GS Roofing Products Company, Inc.	GS Roofing Products Company, Inc.
2. Title, original publication date, and identifying symbol, if any	"Twelve Year Full Value Roof Membrane Warranty (A Limited Warranty)"; March 1996	"Fifteen Year Full Value Roof Membrane Warranty (A Limited Warranty)"; March 1996	"Twenty Year Full Value Roof Membrane Warranty (A Limited Warranty)"; March 1996
3. Product, specification, or system covered	All GS Roofing BUR specifications.	All GS Roofing BUR specifications.	All GS Roofing BUR specifications.
4. Scope of coverage	Material and workmanship; GS warrants that, should there be any leaks or manufacturing defects in the GS products used in the roof membrane caused solely by reason of ordinary wear and tear of the elements or workmanship on the part of the GS authorized roofing contractor and not caused, completely or partially, by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks (exclusive of metal work and non-GS approved flashings) as necessary to retain the roof membrane in a watertight condition at GS's expense. The roof membrane is composed of a base sheet, optional interplies, bituminous asphaltic material between layers when required, and a capsheet and/or surfacing layer applied per GS published specifications and conditions. (See Special Features/Conditions.)	Material and workmanship; GS warrants that, should there be any leaks or manufacturing defects in the GS products used in the roof membrane caused solely by reason of ordinary wear and tear of the elements or workmanship on the part of the GS authorized roofing contractor and not caused, completely or partially, by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks (exclusive of metal work and non-GS approved flashings) as necessary to retain the roof membrane in a watertight condition at GS's expense. The roof membrane is composed of a base sheet, optional interplies, bituminous asphaltic material between layers when required, and a capsheet and/or surfacing layer applied per GS published specifications and conditions. (See Special Features/Conditions.)	Material and workmanship; GS warrants that, should there be any leaks or manufacturing defects in the GS products used in the roof membrane caused solely by reason of ordinary wear and tear of the elements or workmanship on the part of the GS authorized roofing contractor and not caused, completely or partially, by any of the causes excluded from coverage, GS or its authorized agent will repair such leaks (exclusive of metal work and non-GS approved flashings) as necessary to retain the roof membrane in a watertight condition at GS's expense. The roof membrane is composed of a base sheet, optional interplies, bituminous asphaltic material between layers when required, and a capsheet and/or surfacing layer applied per GS published specifications and conditions. (See Special Features/Conditions.)
5. Length of coverage	12 years	15 years	20 years
6. Nature of remedy	GS or its authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS' expense.	GS or its authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS' expense.	GS or its authorized agent will repair leaks as necessary to retain the roof membrane in a watertight condition at GS' expense.
7. Monetary limitations	None stated.	None stated.	None stated.
8. Notification requirements	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75038, Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75038, Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)	Written notification, together with proof of purchase, by certified mail to GS Roofing Products Company, Inc., 5525 MacArthur Blvd., Suite 900, Irving, TX 75038, Attn: Commercial Services Department within 30 days of discovery of alleged defect. Notice must include a general description of the alleged defect. (See Special Features/Conditions.)
9. Exclusive or additional remedy	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties. The warranty states that GS does not warrant any review of construction or design plans or any inspection of the roof or the installation thereof.	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties. The warranty states that GS does not warrant any review of construction or design plans or any inspection of the roof or the installation thereof.	The warranty is in lieu of any other obligations, guarantees, and warranties and any other liability on the part of GS; excludes UCC warranties. The warranty states that GS does not warrant any review of construction or design plans or any inspection of the roof or the installation thereof.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	GS' determination	GS' determination	GS' determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 20, 22, 23.	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 20, 22, 23.	1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18 (including damages caused by solid or liquid deposits of any substance), 20, 22, 23.
13. Wind coverage/exclusions	GS indicates that the warranty covers roof damage resulting from wind speeds up to 54 mph. The warranty excludes winds exceeding Force 9 on the Beaufort Scale and tornadoes.	GS indicates that the warranty covers roof damage resulting from wind speeds up to 54 mph. The warranty excludes winds exceeding Force 9 on the Beaufort Scale and tornadoes.	GS indicates that the warranty covers roof damage resulting from wind speeds up to 54 mph. The warranty excludes winds exceeding Force 9 on the Beaufort Scale and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	A, B, C, J	A, B, C, J	A, B, C, J
15. Cost to obtain	GS references its published fee schedule.	GS references its published fee schedule.	GS references its published fee schedule.
16. Minimum charge	GS references its published fee schedule.	GS references its published fee schedule.	GS references its published fee schedule.
17. Insurable structure or building use	Residential, condos, heated tanks, cold storage facilities	Residential, condos, heated tanks, cold storage facilities	Residential, condos, heated tanks, cold storage facilities
18. Pre-construction notice and approval requirements	The contractor must submit application for GS warranty prior to job start for review and approval. The contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.	The contractor must submit application for GS warranty prior to job start for review and approval. The contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.	The contractor must submit application for GS warranty prior to job start for review and approval. The contractor must also notify local GS personnel at least three working days prior to job start to arrange for deck inspection and pre-job conference.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.	GS personnel make on-site inspections prior, during, and after application, as well as two years after issuance of warranty; no charge. GS conducts a minimum of three inspections with additional inspections as necessary for quality assurance.

21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for two years.	
22. Backed by named insurance or surety	No; GS indicates that it does not carry insurance covering its warranty obligations.	The contractor is obligated to make repairs to workmanship deficiencies for two years.
23. Issuing entity manufactures and/or sells products	GS Roofing Products Company, Inc. manufactures and sells product.	No; GS indicates that it does not carry insurance covering its warranty obligations.
24. Conditions for renewal or extension	GS indicates that warranty can be renewed for life of warranty. GS references it published schedule of renewal fees.	GS Roofing Products Company, Inc. manufactures and sells product.
25. Assignability	Subject to payment of applicable transfer fee to GS and proper documentation being delivered to GS within thirty days after building ownership transfer, the owner may transfer this warranty to a subsequent owner, provided the use to which the subsequent owner puts the structure is not one prohibited by GS in its published material. The owner shall contact GS for applicable transfer fee and notification documentation.	GS indicates that warranty can be renewed for life of warranty. GS references it published schedule of renewal fees.
26. Special features/conditions	<p>Roof deck, insulation, vapor retarders, fasteners, metal work, drains, expansion joints, skylights, vents, flashings or reflective coating are not considered part of the roof membrane and are not included within the protection of the warranty. Bituminous flashings are not considered part of the roof membrane.</p> <p>GS is not responsible for any costs related to the removal or abatement of any asbestos present in the existing roof system to which the GS roof system is applied.</p> <p>The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure owner may incur in replacing or repairing the roof membrane which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs performed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department.</p> <p>No representative, employee, agent of GS, or any other person has the authority to assume for GS any additional or other liability or responsibility in connection with the roof. GS shall not be responsible for or liable if there is any change or amendment to the warranty or to the GS specification(s) in regard to the construction of the Roof Membrane, unless said change and/or amendment has been signed by an officer of GS.</p> <p>No action for breach of this limited warranty shall be brought later than one year after any potential cause of action has accrued.</p> <p>All disputed claims or other disputes that may arise between the owner, contractor, architect and/or GS arising out of or relating to or in connection with warranty shall be submitted to and decided by arbitration in accordance with the Construction Industry Arbitration Rules. This agreement to arbitrate shall be specifically enforceable under the applicable state or federal arbitration laws. The award rendered by the arbitrator shall be final and judgment may be entered upon such award in accordance with applicable law in any court having jurisdiction thereof. GS does not practice engineering or architecture.</p>	<p>Roof deck, insulation, vapor retarders, fasteners, metal work, drains, expansion joints, skylights, vents, flashings or reflective coating are not considered part of the roof membrane and are not included within the protection of the warranty. Bituminous flashings are not considered part of the roof membrane.</p> <p>GS is not responsible for any costs related to the removal or abatement of any asbestos present in the existing roof system to which the GS roof system is applied.</p> <p>The owner must allow taking of samples that adequately demonstrate the alleged problem for testing by GS. GS will not be liable for any expenditure owner may incur in replacing or repairing the roof membrane which is incurred prior to written acknowledgment from GS that it is responsible. In the event an emergency condition exists which requires immediate repair to avoid damage to the building or its contents, the owner may make essential temporary repairs performed by a qualified roofing individual. GS will reimburse owner for only those essential repair expenses which would have been the responsibility of GS under the warranty. All repairs must have prior written approval of GS' claims service department.</p> <p>No representative, employee, agent of GS, or any other person has the authority to assume for GS any additional or other liability or responsibility in connection with the roof. GS shall not be responsible for or liable if there is any change or amendment to the warranty or to the GS specification(s) in regard to the construction of the Roof Membrane, unless said change and/or amendment has been signed by an officer of GS.</p> <p>No action for breach of this limited warranty shall be brought later than one year after any potential cause of action has accrued.</p> <p>All disputed claims or other disputes that may arise between the owner, contractor, architect and/or GS arising out of or relating to or in connection with warranty shall be submitted to and decided by arbitration in accordance with the Construction Industry Arbitration Rules. This agreement to arbitrate shall be specifically enforceable under the applicable state or federal arbitration laws. The award rendered by the arbitrator shall be final and judgment may be entered upon such award in accordance with applicable law in any court having jurisdiction thereof. GS does not practice engineering or architecture.</p>
27. Executed by owner	No; however, the warranty states that by purchasing GS products, owner accepts terms, conditions, limitations and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.	No; however, the warranty states that by purchasing GS products, owner accepts terms, conditions, limitations and exclusions in GS warranty. The warranty also states that the owner acknowledges that the effectiveness of this warranty is part of the consideration for the purchase of roof materials from GS.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Haartz-Mason, Inc. (H-M)	Henry Company	Henry Company
2. Title, original publication date, and identifying symbol, if any	"Roofing Labor and Materials Guarantee"; HF-11 8/96	Henry Company "Ten and Ten Roof" Membrane Warranty A Twenty Year Full Value Warranty With Maintenance Treatment During Tenth Anniversary Year"; February 1985	Henry Company "Roof Membrane Limited Warranty"; February 1985
3. Product, specification, or system covered	HyShield Hypalon, HyShield EIP	Built-up roofing specifications HM107W, HM107C, HM107-IW, HM107-JC, HM107-5, HM107LWC, HM106W, HM106-IW	Built-up roofing specifications HM106W, HM106C, HCA80W HCG203W
4. Scope of coverage	Material and workmanship; H-M shall cause to be repaired leaks that are caused by defects in the materials manufactured or sold by H-M or defects in workmanship in the installation of the H-M Roofing System supplied by the independent roofing contractor.	Material and workmanship; Henry Company warrants the roof membrane against leaks and will cause to be repaired at no cost to the building owner occurring in the roof membrane that are due to ordinary wear of the elements.	Material and workmanship; Henry Company will cause to be repaired at no cost to the building owner leaks occurring in the roof membrane that are due to ordinary wear of the elements. Roof membrane does not include and warranty excludes roof insulation, vapor retarder, roof deck, drains, expansion joints, metal or plastic fittings, vents, skylights, and reflective coating.
5. Length of coverage	10 years	20 years, provided owner pays for maintenance, repair, and coating determined by Henry after initial 10 years (See Conditions for Renewal or Extension.)	10 years
6. Nature of remedy	H-M will cause the defect to be repaired or replace the roof membrane. The decision to repair or replace shall be solely at H-M's good faith determination.	Henry will make or cause to be made repairs necessary to maintain the roof membrane in a watertight condition.	Henry will make or cause to be made any repairs necessary to maintain roof membrane in a watertight condition.
7. Monetary limitations	In no event shall H-M's obligation over the life of the guarantee exceed the amount of the owner's original cost of the installed H-M roofing system.	None stated	Henry Company shall be discharged of all further liability whenever the cost to Henry of all covered roof membrane repairs equals warranty amount.
8. Notification requirements	Written notice within 30 days of discovery of leak to Haartz-Mason, Inc., 270 Pleasant Street, P.O. Box 9128, Watertown, MA 02272-9128	Written notice within 30 days of discovery of leak to Henry Company, 2911 Slauson Ave., Huntington Park, CA 90255	Written notice within 30 days of discovery of leak to Henry Company, 2911 Slauson Ave., Huntington Park, CA 90255
9. Exclusive or additional remedy	Remedy in guarantee is the sole and exclusive remedy at law or equity for defects in materials manufactured or sold by H-M and the workmanship supplied by the independent contractor; excludes UCC warranties.	Warranty shall be the only obligation of Henry Company, with respect to the roof membrane; excludes all other warranties; seeks to exclude UCC warranties.	Warranty shall be the only obligation of Henry Company, with respect to the roof membrane; excludes all other warranties; seeks to exclude UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	H-M's determination	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 16, 17, 18, 22, 23	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 16, 18, 20, 22, 23, 24. (Warranty also excludes construction inside the building, including the removal or addition of walls or ceiling structures, that affects the integrity of the roof membrane.)	1, 2, 3, 4, 5, 8, 9, 10, 11, 18, 22, 23. Warranty also excludes construction inside the building, including the removal or addition of walls, that influences the integrity of the roof membrane.
13. Wind coverage/exclusions	H-M indicates that there is no coverage for damage caused by wind. Warranty excludes gale force winds, hurricanes, and tornadoes. (Gale force winds are defined on the Beaufort Scale as winds between 39 and 46 mph.)	Warranty covers roof damage resulting from wind speeds up to 46 miles per hour.	Warranty covers roof damage resulting from wind speeds up to 46 miles per hour.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, M	B, D, F, H	B, H, S
15. Cost to obtain	\$5.00/square	\$10.00/square	\$10.00/square
16. Minimum charge	\$500	\$1,000	\$1,000

17. Ineligible structure or building use	Residential		Cold-storage facilities and most apartment buildings and condominiums. All structures and locations subject to approval by Henry Company.	Cold-storage and most apartment buildings and condominiums; all structures and locations subject to approval by Henry Company.
18. Pre-construction notice and approval requirements	Contractor must be a registered HyShield applicator and submit a notice of award, job survey, and details prior to shipment of material and scheduling technical service.		Prior approval issued by execution of warranty application form and preconstruction notice 72 hours in advance.	Prior approval issued by execution of warranty application form and preconstruction notice 72 hours in advance.
19. Approved, authorized, or licensed applicator	Yes		Yes	Yes
20. Job inspection policy	H-M technical service representatives make on-site inspections during application (typically three times), and after application, as well as two years after issuance of warranty; no charge.		Henry inspector makes on-site inspections prior to and during application (daily to periodical) and after application, as well as two years after issuance of warranty; \$1.00/square charge.	Henry inspector makes on-site inspections prior to and during application (daily to periodical) and after application, as well as two years after issuance of warranty; \$1.00/square charge.
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to workmanship deficiencies for two years.		Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; H-M indicates that it does not carry insurance covering its warranty obligations.		No; Henry Company indicates that it does not carry insurance covering its warranty obligations.	No; Henry Company indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	H-M manufactures and sells product.		Henry Company manufactures and sells product.	Henry Company manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision		After 10 years, warranty can be extended for additional 10 years. During tenth year following installation, a Henry representative will inspect the roof and report any routine maintenance determined by Henry Company to be necessary to maintain integrity of the roof membrane and flashing for the remaining 10-year period of the warranty term. The cost of such repair and coating will be the responsibility of the building owner; no additional warranty fee.	No renewal provision
25. Assignability	Not assignable		Warranty may be transferred to a new building owner with prior written consent of Henry Company, which consent shall not be unreasonably withheld; consent shall not be determined to be unreasonably withheld if the use of the building by any owner is materially different from the use of the prior building owner.	Transferable to new building owner, provided the use to which the new owner puts the building is approved by Henry Company. Building owner shall notify Henry Company prior to making any transfer of ownership.
26. Special features/conditions	The owner agrees to reimburse H-M for expenses incurred for leak investigation for leaks not caused by defects in the roofing membrane, and H-M may terminate its guarantee obligations if it does not receive payment in full. No representative has authority to make any representations other than those stated in guarantee.		In the event an emergency condition exists requiring immediate repair to avoid significant damage to the building, the building owner may make such temporary repairs as may be necessary to repair such leaks and such action shall not void warranty. In the event the building owner fails to proceed with maintenance recommended by Henry Company after 10 years, Henry Company shall be discharged from all further obligation under warranty at the end of the 10th year of warranty.	In the event an emergency condition exists requiring immediate repair to avoid significant damage to owner, the owner may make temporary repairs as may be essential and such action shall not void warranty.
27. Executed by owner	No		No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Herbert Malarkey Roofing Company	W.P. Hickman Systems, Inc.	W.P. Hickman Systems, Inc.
2. Title, original publication date, and identifying symbol, if any	"Malarkey Roofing System Warranty"	Hickman Roofing Systems "Membrane Assemblies Guarantee"; 1985; GOES 447	"Roof Assemblies Guarantee"; January 1, 1980; GOES 447
3. Product, specification, or system covered	All eligible built-up roofing specifications with a #602 mineral cap sheet; modified bitumen specifications #601 SBS mineral cap sheet, #625 Paragon SBS mineral cap sheet, #650 Paroply SBS mineral cap sheet, #917 SBS mineral cap sheet, #919 SBS smooth cap sheet		Built-up Roofing Specifications; Modified Bitumen Specifications; Cold-Process BUR Specifications; Single-Ply Specifications
4. Scope of coverage	Material and workmanship; Malarkey warrants that the roof system will remain in a watertight condition or Malarkey will initiate repairs at its own expense if required as a result of deterioration of the Malarkey roofing membrane or base flashing system resulting from ordinary wear and tear of the elements; workmanship on the part of the Malarkey approved roofing contractor in application of the Malarkey roofing membrane or base flashing system; blisters, bare spots, fishmouths, wrinkles, or ridges in the roof system; splits in the Malarkey roofing membrane not caused by structural movement or failure or movement of any material underlying the roofing membrane or base flashing; or slippage of the roofing membrane or base flashing.	Material and workmanship; Hickman guarantees that it will, at its expense, repair or cause to be repaired the roofing system to an extent to return the system to a watertight condition.	Material and workmanship; Hickman guarantees that it will repair or cause to be repaired leaks in the Hickman roof assembly.
5. Length of coverage	10, 12, 15, or 20 years	10 years	10 years
6. Nature of remedy	Malarkey will be liable only for the cost of repair of the existing roof membrane or installation of a replacement roof membrane; Malarkey's sole liability resulting from any failure of the roof system shall be cost of repair or replacement.	Hickman will take appropriate action to repair leaks that may occur due to ordinary wear that may be required because of deficiencies resulting from workmanship during the membrane and flashing installation. Hickman's sole responsibility is the cost of repairs to the membrane assembly.	Hickman will inspect the roof and, if leak is covered under the guarantee, Hickman with at its own expense make or cause to be made all necessary repairs to the Hickman Roof Assembly to put it into watertight condition.
7. Monetary limitations	Warranty includes space for Malarkey's maximum liability to be inserted. (Malarkey indicates that 10-year warranty can be purchased with a \$35/square or \$50/square maximum liability limitation or can be purchased without a maximum Malarkey liability limitation and that 12, 15, and 20 year warranties can be obtained without a maximum Malarkey liability limitation.)	None stated	None stated.
8. Notification requirements	Written notification by registered or certified mail within 30 days after the leak is discovered or should, by reasonable diligence, have been discovered to Malarkey Roofing Company, P.O. Box 17217, Portland, OR 97217	Written notification within 10 days after discovery of a leak on the roofing system or flashing assembly	Written notice to Hickman within 10 days after discovery of a leak on the roofing system or flashing assembly
9. Exclusive or additional remedy	Warranty is in lieu of and excludes all other warranties, guarantees or obligations; warranty seeks to exclude UCC warranties.	Seeks to exclude and limit UCC implied warranties.	Seeks to exclude and limit UCC implied warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Neutral; Hickman inspects roof.
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 17, 23	1, 2, 3, 4, 5, 6, 8, 10, 13, 17, 18, 22	1, 2, 3, 4, 6, 8, 10, 13, 17, 18, 22
13. Wind coverage/exclusions	Warranty excludes windstorms, hurricanes, and tornadoes. Malarkey indicates that there is no coverage for damage caused by wind.	Warranty excludes hurricane-related winds. Warranty covers roof damage resulting from wind speeds up to 73 miles per hour.	Guarantee excludes hurricane-rated winds. Warranty covers roof damage resulting from wind speeds up to 73 miles per hour.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	C	C	C
15. Cost to obtain	10 years (with \$35/square monetary limitation): \$4.00/square; 10 years (with \$50/square monetary limitation): \$4.50/square; 12 years: \$8.00/square; 15 years: \$10.00/square; 20 years: \$15.00/square	\$4.00/square	

16. Minimum charge	10 years (with \$35/square monetary limitation): \$400; 10 years (with \$50/square monetary limitation): \$450; 10 years (without monetary limitation): \$600; 12 years: \$800; 15 years: \$1,000; 20 years: \$1,500	\$500	\$500
17. Ineligible structure or building use	Cold storage, single family	Cold-storage, freezer, and dry kiln buildings; Hickman reviews all structures to determine eligibility.	Cold-storage, freezer, and dry-kiln buildings.
18. Pre-construction notice and approval requirements	Warranty application must be filed with and approved by Malarkey prior to job start.	Contractor required to give verbal or written notice to schedule pre-job conference.	Contractor required to give verbal or written notice to schedule pre-job conference.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Malarkey representative makes inspections prior, during, and after application depending upon size; no charge.	Hickman field representative makes on-site inspections prior to, during, and after application as well as two years after completion and makes yearly inspections; no charge.	
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to all leaks and any defects for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years	
22. Backed by named insurance or surety	No; Malarkey indicates that it does not carry insurance covering its warranty obligations.	No	
23. Issuing entity manufactures and/or sells products	Malarkey manufactures and sells product		W. P. Hickman Systems, Inc. manufactures and sells the product.
24. Conditions for renewal or extension	The owner has option to renew for ___ years by requesting inspection by Malarkey. Malarkey inspects and advises owner of necessary maintenance work to be performed by approved contractor at owner's expense. If work performed within 90 days of expiration and Malarkey, then accepts the roof, upon payment of charge not to exceed the current initial charge, the warranty will be renewed.		Guarantees applicable to reroofing, retrofit, and new construction projects can be renewed for 10 years; guarantees applicable to restoration projects can be renewed for five years. Owner must notify Hickman 60 days prior to guarantee expiration. Hickman representative makes inspection and notifies owner of all repairs required by Hickman. Owner pays for all repairs, which must be made with Hickman materials by an approved Hickman contractor. Upon completion and approval by Hickman of repairs and payment of guarantee charge, extended guarantee will be issued. Current cost for 5 or 10 year extension is \$5.00/square.
25. Assignability	The warranty is transferable provided that Malarkey is notified by the original owner at least seven days prior to transfer. Malarkey schedules a roof inspection. Any repairs covered under the warranty will be paid for by Malarkey; the owner pays for maintenance items and/or incidental repairs found to be required. Once maintenance and/or repairs have been completed by a Malarkey approved roofing contractor, warranty transfer will be completed after payment of a \$500 transfer fee.	Transferable by the building owner to a subsequent purchaser of the property by giving not less than 10 days written notice to Hickman of proposed transfer; Hickman will inspect roofing system and make written report to building owner and proposed purchaser of findings.	Guarantee may be transferred by the building owner to a subsequent purchaser of the property by giving not less than ten days written notice to Hickman of proposed transfer; Hickman will inspect roof and make written report to building owner and proposed purchaser of findings.
26. Special features/conditions	Warranty is only valid when Malarkey pre-approved asphalt, base flashing system, and roof insulation when the roof is insulated are used.		To the extent any repairs to any part of the building other than the Hickman Roof Assembly are required, or the removal or replacement of any traffic surfaces or other appurtenances built over the roof are required in order to put the Hickman Roof Assembly in a watertight condition, the liability for or expense of any such repair, removal, or replacement shall be assumed and paid by the owner.
27. Executed by owner	No	No	No



# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Hyload, Inc.	Hyload, Inc.	Hyload, Inc.
2. Title, original publication date, and identifying symbol, if any	"High Performance Roofing Systems 10 Year Commercial Warranty"; July 1, 1996; HW070196-10YM	"High Performance Roofing Systems 15 Year Commercial Warranty"; July 1, 1996; HW070196-15YM	"High Performance Roof Systems 10 Year Commercial Warranty Material and Workmanship"; July 1, 1996; HW070196-10LM
3. Product, specification, or system covered	Hyload H150E, Hyload 250E, Hyload WS, Hyload SAM, ALPROOF, ALPROOF CP, ALPSAM WS, ALPSAM; minimum of one ply of Type IV felt must be installed prior to Hyload membrane.	Hyload H150E, Hyload 250E, Hyload WS, ALPROOF, ALPROOF CP, ALPSAM WS; minimum of two plies of Type IV felt must be installed prior to Hyload membrane.	Hyload H150E, Hyload 250E, Hyload WS, Hyload SAM, ALPROOF, ALPROOF CP, ALPSAM WS, ALPSAM; minimum of one ply of Type IV felt must be installed prior to Hyload membrane.
4. Scope of coverage	Material only; Hyload warrants that the Hyload roofing membrane will not leak and cause water infiltration into the building as a result of any defect in the design and manufacture of the membrane.	Material only; Hyload warrants that the Hyload roofing membrane will not leak and cause water infiltration into the building as a result of any defect in the design and manufacture of the membrane.	Material and workmanship; Hyload warrants that the Hyload roofing membrane will not leak and cause water infiltration into the building as a result of any defect in the design or manufacture of the membrane, or as a result of defective workmanship in the application of the membrane.
5. Length of coverage	10 years	15 years	10 years
6. Nature of remedy	Hyload will, via such methods as Hyload determines fit, effect the repair of leaks at its expense.	Hyload will, via such methods as Hyload determines fit, effect the repair of leaks at its expense.	Hyload will, via such methods as Hyload determines fit, effect the repair of leaks at its expense.
7. Monetary limitations	Hyload's obligation over the lifetime of the warranty shall not exceed the retail price of the Hyload roofing materials used in the original installation of the roof.	Hyload's obligation over the lifetime of the warranty shall not exceed the retail price of the Hyload roofing materials used in the original installation of the roof.	Hyload's obligation over the lifetime of the warranty shall not exceed the retail price of the Hyload roofing materials used in the original installation of the roof.
8. Notification requirements	Immediate notification by telephone to Hyload upon the discovery of any leak in the membrane and written confirmation of the leak within 15 days thereafter	Immediate notification by telephone to Hyload upon the discovery of any leak in the membrane and written confirmation of the leak within 15 days thereafter	Immediate notification by telephone to Hyload upon the discovery of any leak in the membrane and written confirmation of the leak within 15 days thereafter
9. Exclusive or additional remedy	Remedy in warranty is owner's sole and exclusive remedy so that Hyload's repair of leaks constitutes fulfillment of all its obligations; excludes other guarantees and warranties; excludes UCC warranties.	Remedy in warranty is owner's sole and exclusive remedy so that Hyload's repair of leaks constitutes fulfillment of all its obligations; excludes other guarantees and warranties; excludes UCC warranties.	Remedy in warranty is owner's sole and exclusive remedy so that Hyload's repair of leaks constitutes fulfillment of all its obligations; excludes other guarantees and warranties; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Hyload's determination	Hyload's determination	Hyload's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 7, 9, 10, 12, 18, 19, 20	1, 3, 4, 5, 7, 9, 10, 12, 18, 19, 20	1, 3, 4, 5, 7, 9, 10, 12, 18
13. Wind coverage/exclusions	Hyload indicates that the warranty covers roof damage resulting from wind speeds up to 39 mph. Warranty excludes hurricanes, gales, and tornadoes.	Hyload indicates that the warranty covers roof damage resulting from wind speeds up to 39 mph. Warranty excludes hurricanes, gales, and tornadoes.	Hyload indicates that the warranty covers roof damage resulting from wind speeds up to 39 mph. Warranty excludes hurricanes, gales, and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, J, M, R, S. Warranty also becomes null and void if subsequent work is done at or through the Hyload membrane.	B, C, J, M, R, S. Warranty also becomes null and void if subsequent work is done at or through the Hyload membrane.	B, C, J, M, R, S. Warranty also becomes null and void if subsequent work is done at or through the Hyload membrane.
15. Cost to obtain	\$6.00/square	\$8.00/square	\$9.00/square
16. Minimum charge	\$600	\$800	\$900
17. Ineligible structure or building use	Residential	Residential	Residential
18. Pre-construction notice and approval requirements	Contractor is required to pay warranty fee, complete warranty request form outlining membrane installation, and obtain approval from Hyload prior to beginning installation.	Contractor is required to pay warranty fee, complete warranty request form outlining membrane installation, and obtain approval from Hyload prior to beginning installation.	Contractor is required to pay warranty fee, complete warranty request form outlining membrane installation, and obtain approval from Hyload prior to beginning installation.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes



20. Job inspection policy	No on-site inspections	No on-site inspections	Hyload technical department representative makes on-site inspections after completion of installation prior to issuance of warranty and two years after issuance of warranty; no charge.
21. Contractor's post-installation obligation	Although this is a material-only warranty, contractor is obligated to make repairs to material and workmanship deficiencies for two years.	Although this is a material-only warranty, contractor is obligated to make repairs to material and workmanship deficiencies for two years.	The contractor is obligated to make repairs to material and workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Hyload indicates it does not carry insurance covering its warranty obligations.	No; Hyload indicates it does not carry insurance covering its warranty obligations.	No; Hyload indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Hyload manufactures and sells the product.	Hyload manufactures and sells the product.	Hyload manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	The warranty is not assignable	The warranty is not assignable	The warranty is not assignable.
26. Special features/conditions	The warranty shall be governed by the laws of the state of Ohio, excluding principles of conflicts of law. All actions arising under the warranty shall be brought in the court of common pleas for Medina County, Ohio. If the owner does not make repairs that are not covered by the warranty within 30 days of notice from Hyload, warranty shall automatically terminate.	The warranty shall be governed by the laws of the state of Ohio, excluding principles of conflicts of law. All actions arising under the warranty shall be brought in the court of common pleas for Medina County, Ohio. If the owner does not make repairs that are not covered by the warranty within 30 days of notice from Hyload, warranty shall automatically terminate.	The warranty shall be governed by the laws of the state of Ohio, excluding principles of conflicts of law. All actions arising under the warranty shall be brought in the court of common pleas for Medina County, Ohio. If the owner does not make repairs that are not covered by the warranty within 30 days of notice from Hyload, warranty shall automatically terminate.
27. Executed by owner	No	No	No

## Roof Membrane Warranties (Built-up, Modified Blumen, and Single-Ply)

1. Identity of issuing entity	Hyload, Inc.	Imper Italia S.p.A.	Intec/Permarglas, a division of U.S. Intec, Inc.
2. Title, original publication date, and identifying symbol, if any	"High Performance Roof Systems 15 Year Commercial Warranty; Material and Workmanship"; October 1, 1998; HW100196-15LM	"Imper Italia Roofing Membrane Guarantee"	"Roofing System Guarantee"; September 1996
3. Product, specification, or system covered	Hyload H150E, Hyload H250E, Hyload WS, ALPROOF, ALPROOF CP, ALPSAM WS; minimum of two plies of Type IV felt must be installed prior to Hyload membrane.	Paralon NT4, Atwenol ARD/S	Built-up roofing specifications: A. G-B4UP-N M-B4UP-N C. ERA-B4TP-N G-B5UP-N M-B5UP-N ERA-B5TP-N G-4UP-RH M-4UP-RH ERA-4TP-RH G-B4TP-N M-B4TP-N ERA-B5TP-N G-B5TP-N M-B5TP-N ERA-4TP-RH M-4TP-RH M-5TP-RH ERA-B5TP-RH
4. Scope of coverage	Hyload warrants that the Hyload roofing membrane will not leak and cause water infiltration into the building as a result of any defect in the design or manufacture of the membrane, or as a result of defective workmanship in the application of the membrane.	Material only. Imper Italia guarantee agrees to provide replacement material resulting from all manufacturing defects to restore roof to watertight condition.	Material and workmanship; Intec/Permarglas guarantees to the original building owner that it will repair or replace, at its sole discretion, the Intec/Permarglas roofing system or portion thereof as is necessary to correct leaks caused by (1) manufacturing defects, (2) deterioration as a result of ordinary wear and tear from exposure to the elements, (3) splits, fissures or tears not caused by structural or roof deck movement or failure, or (4) workmanship in installing the roofing membranes and base flashings. The components of Intec/Permarglas roofing system covered by the guarantee are the membrane, flashing, insulation and accessories specifically identified in the guarantee; all other components of the building, including any roofing components, are excluded. (See Special Features/Conditions.)
5. Length of coverage	15 years	10 years	5, 10, 15, or 20 years (length of coverage depends upon number and type of plies as well as climate zone)
6. Nature of remedy	Hyload will, via such methods as it determines fit, effect the repair of leaks at its expense.	Imper Italia will provide replacement material at its own expense.	Intec/Permarglas shall repair or replace the membrane and base flashings or any portion thereof to make the Intec/Permarglas roofing system watertight, unless the roofing contractor is obligated to do so for a claim brought during the first two years. (See Special Features/Conditions.)
7. Monetary limitations	Hyload's obligation over the lifetime of the warranty shall not exceed the retail price of the Hyload roofing materials used in the original installation of the roof.	Imper Italia's total liability shall not exceed the original cost of its membrane roofing material.	Intec/Permarglas' maximum liability shall not exceed in the aggregate over the life of the guarantee more than the dollar amount inserted on an individual basis.
8. Notification requirements	Immediate notification by telephone to Hyload upon the discovery of any leak in the membrane and written confirmation of the leak within 15 days thereafter	Written notification to the approved roofing contractor and Imper Italia, Inc. (representatives of Imper Italia) within 30 days of discovery of any leaks in Imper Italia Roofing Membrane.	Written notice to Intec/Permarglas within 15 days of discovery of the leak which is the basis of a claim, even if the discovery is within the first two years
9. Exclusive or additional remedy	Remedy in warranty is the owner's sole and exclusive remedy so that Hyload's repair of leaks constitutes fulfillment of all its obligations; excludes other guarantees and warranties; excludes UCC warranties.	Owner's sole and exclusive remedy; excludes all other warranties; excludes UCC warranties.	Remedy in guarantee shall be the sole and exclusive remedy available to the owner. Guarantee is expressly in lieu of any other guarantees or warranties, and any other obligations or liability on the part of Intec, whether any claim is based upon strict liability, negligence, breach of warranty or any other theory or cause of action; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Hyload's determination	Ref-Ply, Inc.'s determination	Intec/Permarglas' determination (See Special Features/Conditions.)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 7, 9, 10, 12, 18	1, 2, 3, 4, 5, 7, 9, 10, 11, 22	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 17, 20, 22. Warranty also excludes damages to the roof system more than 15 days after discovery of a leak unless Intec/Permarglas was notified within 15 days
13. Wind coverage/exclusions	Hyload indicates that warranty covers roof damage resulting from wind speeds up to 39 mph. Warranty excludes hurricanes, gales, and tornadoes.	Warranty does not mention wind conditions specifically.	Intec/Permarglas indicates that there is no coverage for damage caused by wind. Guarantee excludes windstorms, hurricanes, and tornadoes.
14. Specific conditions to make warranty effective or null and void (See item no. 14 in Introduction.)	B, C, J, M, R, S. The warranty also becomes null and void if subsequent work is done at or through the Hyload membrane.	B, C, J, N	B, C, E, G, H, I, L, M, R (See Special Features/Conditions.)
15. Cost to obtain	\$12.00/square	None	5 years: \$6.00/square; 10 years: \$7.50/square; 12 years: \$8.00/square; 15 years: \$10.00/square; 20 years: \$15.00/square
16. Minimum charge	\$1000	None	5 years: \$600; 10 years: \$750; 12 years: \$800; 15 years: \$1,000; 20 years: \$1,500
17. Ineligible structure or building use	Residential	Cold-storage buildings; roofs with polystyrene insulation, uninsulated steel decks; areas subjected to oil caustic chemicals or roofs that retain water more than 24 hours	Any building where harmful emissions or chemicals may damage the roof and parking areas
18. Pre-construction notice and approval requirements	The contractor is required to pay warranty fee, complete warranty request form outlining membrane installation, and obtain approval from Hyload prior to beginning installation.	Imper Italia indicates that the contractor is required to give notice and obtain approval prior to commencing installation.	The contractor shall submit notice to Intec/Permarglas ten days prior to commencement of guaranteed job.

	Yes	Yes	Yes
19. Approved, authorized, or licensed applicator		Imper Italia inspects job site prior to and after application prior to issuance of guarantee; there may be an inspection charge.	Intec/Permaglas technical roof inspectors make on-site inspections during application (every other week depending on job size) and after completion prior to issuance of guarantee (inspection done before surfacing), as well as two years after issuance of guarantee; no charge.
20. Job inspection policy	Hyload technical department representative makes on-site inspections after completion of installation prior to issuance of warranty and two years after issuance of warranty; no charge.		The contractor is obligated to make all repairs due to workmanship for two years. The guarantee states that the owner and roofing contractor expressly agree that if the owner discovers or should have discovered, within the first two years after guarantee validation, leaks in the membrane or base flashings due to misapplication or the roofer's failure to install the membrane and base flashings in compliance with the Intec/Permaglas specification manual in effect at the time of roof installation, it is the roofing contractor's sole responsibility to repair those leaks and Intec/Permaglas shall have no obligation to repair any such leaks.
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to material and workmanship deficiencies for two years.		No; Intec/Permaglas indicates that it does not carry insurance covering its warranty obligations.
22. Backed by named insurance or surety	No; Hyload indicates that it does not carry insurance covering its warranty obligations.	No	No; Intec/Permaglas indicates that it does not carry insurance covering its guarantee obligations.
23. Issuing entity manufactures and/or sells products	Hyload manufactures and sells the product.	Imper Italia S.p.A. manufactures product; product sold in United States by its representative, Rol-Ply, Inc.	Intec/Permaglas manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	The guarantee may be renewed for 5 or 10 years at a cost of \$1,000 or more depending upon fees at the time. Request for renewal must be made 180 days prior to expiration; owner pays for cost of repairs to be performed prior to reinspection by manufacturer.
25. Assignability	The warranty is not assignable.	No restrictions stated.	The guarantee is assignable to another owner for the remaining term only, if the following conditions are met: (1) the request is sent by certified mail to Intec/Permaglas, Attn: Technical Services Department, P.O. Box 2845, Port Arthur, TX 77643 within 30 days after ownership transfer; (2) the membrane is inspected by Intec/Permaglas and any required repairs are completed at the owner's expense; (3) the proposed assignment is approved in writing by an authorized Intec/Permaglas Technical Services Manager; and (4) an assignment fee of \$750 is paid to Intec/Permaglas. The guarantee is not otherwise transferable or assignable, directly or indirectly.
26. Special features/conditions	The warranty shall be governed by the laws of the state of Ohio, excluding principles of conflicts of law. All actions arising under the warranty shall be brought in the court of common pleas for Medina County, Ohio. The warranty does not make repairs which are not covered by the warranty within 30 days of notice from Hyload; warranty shall automatically terminate.	In the event of a leak, Rol-Ply, Inc. will make inspection and determine what repairs are necessary and will advise Imper Italia, the owner, and the contractor in writing. Owner shall be liable for expenses of any repair, removal or replacement of traffic surfaces or flashing. If the owner does not make repairs necessary to restore the roof to a watertight condition and any repair is part of the building other than the roof.	The guarantee excludes workmanship coverage from Intec/Permaglas for first two years. (See item #21 above.) In the event Intec/Permaglas determines that complaint is excluded by the guarantee, owner shall be responsible for reimbursing Intec/Permaglas or the technical services department for the cost of inspection and the cost of any repairs. Intec/Permaglas shall terminate its obligations if the inspection occurs during the first two years, the reimbursable expenses are the joint obligation of the owner and the roofing contractor. Intec/Permaglas may make inspection during the period between 23 and 25 months after validation of guarantee. An inspection report detailing any application related inadequacies or leaks will be provided to the roofing contractor. Owner and roofing contractor agree that all such application inadequacies or leaks will be repaired within 30 days, weather permitting. If Intec/Permaglas discovers conditions in or adjacent to the roofing system that are not covered by the guarantee but which affect the watertight integrity of the roof system, the owner agrees to completely remedy the condition within 30 days. Owner shall send an inspection report to Intec/Permaglas detailing such repair within 15 days of their completion. Intec/Permaglas representatives may be retained to furnish all necessary inspection services at owner's cost. If the owner discovers leaks or other conditions which create an emergency condition, the owner may make essential temporary repairs as necessary at the owner's expense. Owner shall perform routine inspections and maintenance. Regular inspections should be made at least once a year and as soon as possible after extreme weather conditions such as heavy winds, rain or hail, excessive snow or ice build-up and/or earthquakes. Any existing or potential problems discovered during an inspection must be reported to Intec/Permaglas immediately. No representative, employee or agent of Intec/Permaglas or any other person shall be held liable for Intec/Permaglas' actions or omissions or other liability or responsibility. Intec/Permaglas shall not be responsible for any change or amendment to the Intec/Permaglas roof specifications unless approved in writing by an authorized Intec/Permaglas Technical Services Manager. Absent reasonable access to the roof, owner shall be responsible for all additional expenses incurred by Intec/Permaglas. Failure of owner to reimburse Intec/Permaglas promptly for such additional expenses shall void the guarantee.
27. Executed by owner	No	No	Yes; contractor and owner must execute guarantee and forward to Intec/Permaglas within sixty days of receipt of guarantee after validation by Intec/Permaglas.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	International Diamond 105 Non-Penetrating Roofing Systems, Inc. (IDS)	International Diamond 105 Non-Penetrating Roofing Systems, Inc. (IDS)	Johns Manville International, Inc. (JM)
2. Title, original publication date, and identifying symbol, if any	"Limited Workmanship Warranty"; Revised 12/95	"Limited Ten Year Membrane Only Warranty (Prorated)"; Revised 12/95	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)
3. Product, specification, or system covered	Diamond 105, Seal-A-Plate, FM Bar, Ballasted, Bonded Plate, 135 Totally Adhered, Reinforced	Diamond 105, Seal-A-Plate, FM Bar, Ballasted, Bonded Plate, 135 Totally Adhered, Reinforced	BUR Specifications: 4GIS, 4GIG, 4GNS, 4GNG, 4GLG, 4GIC, 4GNC, 4GIG-CT, 4GNG-CT, with GlasPly Premier Felts, installed over two layers of Fescoboard
4. Scope of coverage	Material and workmanship; IDS warrants that it will repair improper workmanship of any installed IDS product in the original IDS roofing system. The IDS roofing system is limited to and includes only the IDS EPDM vulcanized roofing membrane, flashing, adhesives, and other IDS accessories purchased from IDS or its distributors, utilized in the installation and installed according to IDS installation instructions. (See Special Features/Conditions.)	Material only. IDS warrants that the IDS EPDM vulcanized roofing membrane will not deteriorate to the point of causing leaks through the membrane due to normal weathering. Warranty applies only to the IDS EPDM vulcanized roofing membrane applied in the installation and installed according to IDS' installation instructions and does not apply to labor, materials, or any other item.	Material and workmanship. JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.
5. Length of coverage	10 years workmanship, 15 years materials	10 or 15 years	20 years for new construction or tear-off
6. Nature of remedy	IDS will repair improper workmanship of any installed product in the original IDS roof system. The owner's sole remedy is limited to replacement of the defective IDS product; the method of repair is sole determination of IDS. The owner's sole remedies and IDS' liabilities and obligations shall be limited to replacement of the defective IDS product by repair or substitution of new material.	IDS will, at its option, either repair the membrane or issue a prorated credit against the purchase of a new roofing membrane from IDS. The owner's sole remedies and IDS' liabilities and obligations shall be limited to the replacement of defective IDS EPDM vulcanized roofing membrane by repair or substitution of new material.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.
7. Monetary limitations	IDS' obligation to remedy defects shall not exceed the original cost of IDS materials as charged by IDS.	IDS' obligation to remedy defects shall not exceed the original cost of IDS materials as charged by IDS.	Guarantee includes space for JM's maximum monetary obligation to be inserted. JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)
8. Notification requirements	Written notification within 30 days of discovery of any defect in the IDS roofing system by certified mail, return receipt requested, to IDS at 5110 Angola Road, Toledo, OH 43615	Written notification within 30 days of discovery of any defect in the IDS roofing system by certified mail, return receipt requested, to IDS at 5110 Angola Road, Toledo, OH 43615	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.
9. Exclusive or additional remedy	The warranty replaces and excludes all other warranties; remedy stated in warranty is the sole and exclusive remedy; excludes UCC warranties. The warranty states: "The building owners sole remedy is to file a claim against our product liability or completed operations for any underlying materials or any other damages whatsoever. The products must be proven defective scientifically by certified laboratories."	The warranty replaces and excludes all other warranties; remedy stated in warranty is the sole and exclusive remedy; excludes UCC warranties. The warranty states: "The building owners sole remedy is to file a claim against our product liability or completed operations for any underlying materials or any other damages whatsoever. The products must be proven defective scientifically by certified laboratories."	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	IDS' determination	Neutral (no provision).	Neutral; JM arranges inspection
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 7, 10, 11, 12 (including those items contained in IDS Roofing Care and Maintenance Guide), 13, 16, 17, 18, 19, 24. (The warranty also excludes damage or loss caused by pests, insect infestation, ice storm or any windstorm or occurrence covered by fire and windstorm insurance, including subrogation claims.)	1, 2, 3, 4, 5, 6, 7, 10, 11, 12 (including those items contained in IDS Roofing Care and Maintenance Guide), 13, 16, 17, 18, 19, 24. (Warranty also excludes damage or loss caused by pests, insect infestation, ice storm, or any windstorm or occurrence covered by fire and windstorm insurance, including subrogation claims.)	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18
13. Wind coverage/exclusions	The warranty excludes: "as windstorms, wind gusts/gales, hurricanes, and tornadoes. IDS indicates that the warranty covers wind speeds up to Beaufort Scale 8, which starts at 39 mph. The plate bond system is not wind uplift rated. (See Special Features/Conditions.)"	The warranty excludes windstorms, wind gusts/gales, hurricanes, and tornadoes. IDS indicates that warranty covers wind speeds up to Beaufort Scale 8, which starts at 39 mph. The plate bond system is not wind uplift rated.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, M, N, S	C, M, N, S	C, F, M (See Special Features/Conditions.)
15. Cost to obtain	\$8.00/square	None	\$12.00/square
16. Minimum charge	10 years: \$600, 15 years: \$600	None	\$1,200
17. Insurable structure or building use	The warranty states that IDS shall have no obligation if building is used for noncommercial purposes, such as residential, personal, family, or household purposes.	The warranty states that IDS shall have no obligation if building is used for noncommercial purposes, such as residential, personal, family, or household purposes.	Cold-storage buildings, private residences, storage silos, heated tanks

18. Pre-construction notice and approval requirements	Prior to the job commencing, the contractor submits an application to install IDS roofing systems. Upon completion, the contractor submits notice of completion and request for warranty.	Yes	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.
19. Approved, authorized, or licensed applicator	Yes	Yes	
20. Job inspection policy	IDS field technical department will make on-site inspections prior to and during application upon request. IDS makes inspection after completion prior to issuance of warranty, as well as two years after issuance of warranty, no charge. If a second inspection is required, inspection charge is \$350/day plus \$0.26 per mile.	IDS field technical department will make on-site inspections prior to and during application upon request. IDS makes inspection after completion prior to issuance of warranty, as well as two years after issuance of warranty, no charge. If a second inspection is required, inspection charge is \$350/day plus \$0.26 per mile.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; IDS indicates that it does not carry insurance covering its warranty obligations.	No; IDS indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	IDS manufactures and sells the product.	IDS manufactures and sells the product.	JM manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	The warranty is not transferable.	The warranty is not transferable.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.
26. Special features/conditions	<p>Although the warranty states that it covers workmanship of any installed IDS product, the warranty also states: "The Owner's roofing applicator is responsible for workmanship for the first two (2) years of this warranty or any defective workmanship known or unknown for the life of this warranty. The buyer agrees to indemnify and save IDS harmless against any claims arising out of the sale or installation of defective workmanship." In the limitations section, the warranty states: "IDS is under no obligation to issue a warranty on any job until an affidavit is signed by the building owner and the roofing contractor stating that the job was done with IDS material, specifications, and details. IDS warranty is clearly limited to the repair of IDS material if defective and the repair of the workmanship if it is made defective by the defective material." Thus, the warranty is ambiguous as to whether it covers both material and workmanship of contractor.</p> <p>All legal actions against IDS must be noticed and venue in Toledo, Lucas County, Ohio and Ohio law shall apply.</p> <p>The warranty states: "The building owners sole remedies on the above conditions and limitation of recovery on any and all claims will be filed against IDS insurance carrier. Any dispute which cannot be settled within the terms and conditions of this warranty limits the building owners recovery to the realms of our insurance policy and/or our suppliers, and/or his agents."</p> <p>If the courts find the warranty legally binding or non-binding between IDS and the owner, then the UCC statute of limitations applies in lieu of the warranty in its entirety.</p> <p>The warranty states: "All parties must except [sic] industry standards, state of the art technology, FM (Factory Mutual), UL (Underwriters Laboratories), and ASTM testing (as published by them) as the standard that is excepted [sic] by the industry and all parties with no deviations as tested by IDS."</p> <p>The official weather report is the nearest airport or the national weather bureau. If there are damaging winds recorded at the airport and wind damage is found on the building, the owner's insurance will be responsible for the repair of the roofing system. If the owner's insurance denies coverage for the wind damage, the owner will hold IDS harmless, along with the other terms, conditions, and limitations of warranty. Note: Ground speed winds must be calculated and multiplied by three in order to determine the effect the wind has on a system.</p> <p>If a defect is not caused by workmanship, IDS will advise of the type and/or extent of repairs required to be made at owner's expense by a qualified applicator; all investigation and repair costs are the owner's responsibility.</p>	<p>The warranty states: "IDS is under no obligation to issue a warranty on any job until an affidavit is signed by the building owner and the roofing contractor stating that the job was done with IDS material, specifications, and details. IDS warranty is clearly limited to the repair of IDS material if defective and the repair of the workmanship if it is made defective by the defective material." Thus, the warranty is ambiguous as to whether it covers both material and workmanship of contractor.</p> <p>All legal actions against IDS must be noticed and venue in Toledo, Lucas County, Ohio and Ohio law shall apply.</p> <p>The warranty states: "The building owners sole remedies on the above conditions and limitation of recovery on any and all claims will be filed against IDS insurance carrier. Any dispute which cannot be settled within the terms and conditions of this warranty limits the building owners recovery to the realms of our insurance policy and/or our suppliers, and/or his agents."</p> <p>If the courts find the warranty legally binding or non-binding between IDS and the owner, then the UCC statute of limitations applies in lieu of the warranty in its entirety.</p> <p>The warranty states: "All parties must except [sic] industry standards, state of the art technology, FM (Factory Mutual), UL (Underwriters Laboratories), and ASTM testing (as published by them) as the standard that is excepted [sic] by the industry and all parties with no deviations as tested by IDS."</p> <p>The official weather report is the nearest airport or the national weather bureau. If there are damaging winds recorded at the airport and wind damage is found on the building, the owner's insurance will be responsible for the repair of the roofing system. If the owner's insurance denies coverage for the wind damage, the owner will hold IDS harmless, along with the other terms, conditions, and limitations of warranty. Note: Ground speed winds must be calculated and multiplied by three in order to determine the effect the wind has on a system.</p> <p>If a defect is not caused by workmanship, IDS will advise of the type and/or extent of repairs required to be made at owner's expense by a qualified applicator; all investigation and repair costs are the owner's responsibility.</p>	<p>To be eligible for this 20-year guarantee, a four-ply specification by Glaspy Premier Felts must be installed over two layers of either JM Fasco or Insulation; the project must be either new construction or tear-off.</p> <p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of the guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose, or poorly sealed metal flashing and valleys by an approved contractor; (f) repainting damaged masonry, poorly mounted counter-flashing, loose caulking, bad mortar joints, and any loose stone or tile coping that abut the roof; (g) recoating materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof for equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs that are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal law of Colorado.</p>
27. Executed by owner	Yes; warranty must be signed, dated, and returned to IDS at its office in Toledo, Ohio not later than 30 days after receipt.	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Johns Manville International, Inc. (JM)	Johns Manville International, Inc. (JM)	Johns Manville International, Inc. (JM)
2. Title, original publication date, and identifying symbol, if any	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)
3. Product, specification, or system covered	BUR Specifications: 4GIS, 4GIG, 3GIS, 3GIG, 4GIC, 4GNC, 4GNS, with use of GlasPly Premier Felts; DynaKap Modified Bitumen Specifications: 2CID, 2CIG, 2CND, 2CNG, 3CID, 3CIG, 3CND (See Special Features/Conditions)	BUR Specifications: 4GIS, 4GIG, 3GIS, 3GIG, 4GIC, 4GNC, 4GNS, with use of GlasPly Premier Felts; DynaKap Modified Bitumen Specifications: 3CID, 3CIG, 3CND, 3CNG (See Special Features/Conditions)	BUR Specifications: 4GIS, 3GIS, 4GIG, 3GIG, 4GNS, 3GNS, 4GNC, 3CNG, 4GIC, 3GLG, 4GIC, 4GNC, 3GIC, 3GNC, 4GIG-CT, 3GIG-CT, 3GIG-CT, 3GNG-CT, Modified Bitumen Specifications: 2GID, 2GND, 2CID, 2CND, 3CID, 3CND, 3CIG, 3CNG, 2PIN-W, 2PIS-W, 2PFN-W, 3PIN-W
4. Scope of coverage	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.
5. Length of coverage	5 years for re-roofing; 10 years for new construction or tear-off.	20 years for new construction or tear-off.	5 or 10 years
6. Nature of remedy	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.
7. Monetary limitations	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)
8. Notification requirements	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.
9. Exclusive or additional remedy	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral; JM arranges inspection	Neutral; JM arranges inspection	Neutral; JM arranges inspection
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18
13. Wind coverage/exclusions	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, F, M (See Special Features/Conditions.)	C, F, M (See Special Features/Conditions.)	C, F, M (See Special Features/Conditions.)
15. Cost to obtain	\$8.50/square	\$17.00/square	5 years: \$5.00/square; 10 years: \$6.00/square
16. Minimum charge	\$850	\$1,700	5 years: \$500; 10 years: \$600
17. Ineligible structure or building use	Cold-storage buildings, private residences, storage silos, heated tanks	Cold-storage buildings, private residences, storage silos, heated tanks	Cold-storage buildings, private residences, storage silos, heated tanks
18. Pre-construction notice and approval requirements	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.

19. Approved, authorized, or licensed assignator	Yes	Yes	Yes
20. Job inspection policy	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	JM manufactures and sells product.	JM manufactures and sells product.	JM manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.
26. Special features/conditions	<p>Specifications 4GIC, 4GNC, 4GNS and 4GNG are eligible for this guarantee in JM's designated Region 3 only.</p> <p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>Specifications 4GIC, 4GNC, 4GNS and 4GNG are eligible for this guarantee in JM's designated Region 3 only.</p> <p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>All listed specifications are eligible for either the 5- or 10-year guarantee.</p> <p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>
27. Executed by owner	No	No	No



# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Johns Manville International, Inc. (JM)	Johns Manville International, Inc. (JM)	Johns Manville International, Inc. (JM)
2. Title, original publication date, and identifying symbol, if any	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)
3. Product, specification, or system covered	BUR Specifications: 4GIS, 4GIG, 5GIC, 5GNS, 5GNG, with use of GlasPly Premier Felt and one layer of FascoBoard; DynaKop Modified Bitumen Specifications: 3CID, 3CIG, 3CND, 3CNG (See Special Features/Conditions.)	APP Modified Bitumen Products: APPEX Classic FR Premium, Classic FR, Classic M, Classic S, 5S, 4S, 4M, 4MFR, 4.5M, 200, Bior, Tricor, Tricor MFR, when applied over one or two plies	APP Modified Bitumen Products: Bior or Tricor when installed over two APPEX base sheets, utilizing three plies of material.
4. Scope of coverage	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.
5. Length of coverage	15 years for new construction or tear-off.	5 years: any APPEX modified bitumen membrane product installed over one ply of felt or any approved substrate; 10 years: any APPEX modified bitumen membrane product installed over one ply or base sheet over an approved substrate; 12 years: any APPEX modified bitumen membrane product installed over one base ply and an approved substrate.	20 years
6. Nature of remedy	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.
7. Monetary limitations	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)
8. Notification requirements	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.
9. Exclusive or additional remedy	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral; JM arranges inspection	Neutral; JM arranges inspection	Neutral; JM arranges inspection
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18
13. Wind coverage/exclusions	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, F, M (See Special Features/Conditions.)	C, F, M (See Special Features/Conditions.)	C, F, M (See Special Features/Conditions.)
15. Cost to obtain	\$12.50/square	5 years: \$5.00/square; 10 years: \$6.00/square; 12 years: \$8.50/square.	\$17.00/square
16. Minimum charge	\$1,250	5 years: \$500; 10 years: \$600; 12 years: \$850	\$1,700
17. Ineligible structure or building use	Cold-storage buildings, private residences, storage silos, heated tanks	Cold-storage buildings, private residences, storage silos, heated tanks	Cold-storage buildings, private residences, storage silos, heated tanks



18. Pre-construction notice and approval requirements	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.	Yes	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.	Yes	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes	Yes	Yes
20. Job inspection policy	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	JM manufactures and sells product.	JM manufactures and sells product.	JM manufactures and sells product.	JM manufactures and sells product.	JM manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.
26. Special features/conditions	<p>Specifications 5GIC, 5GNC, 5GNS and 5GNG are eligible for this guarantee in JM's designated Region 3 only.</p> <p>JM's 15-year guarantee is limited to four-ply specifications installed over one layer of FesCore, used in new construction or tear-off projects.</p> <p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>
27. Executed by owner	No	No	No	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Johns Manville International, Inc. (JM)	Johns Manville International, Inc. (JM)	Johns Manville International, Inc. (JM)
2. Title, original publication date, and identifying symbol, if any	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)	"Gold Shield Roofing System Guarantee"; June 1997; JM-645-2 (6/97)
3. Product, specification, or system covered	SBS Specifications: 2CID, 2GND, 2CID, 2CND, 3CID, 3CND; APP Specifications: 2PIN-W, 2PIS-W, 2PPN-W, 2CIN-W, 3PIN-W, 3CIN-W	APPEX 4.5M, utilizing two plies of material	EPDM Specifications: SE4B, SE6A, SE6B, SE6M, SE4B(T), SE6B(T), SE6M(T), SE6A(T), SE4RM, SE6RM, SE4RM(T), SE6RM(T)
4. Scope of coverage	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.	Material and workmanship; JM guarantees that it will pay for the materials and labor required to promptly repair the roofing system to return it to a watertight condition if leaks occur due to ordinary wear and tear or deficiencies in any or all of the component materials of the Roofing System or workmanship deficiencies in the application of the Roofing System. Roofing System components are JM membrane, flashing, insulation, and accessories; all other components of building are excluded.
5. Length of coverage	5, 10 or 15 years (new construction or tear off)	15 years	5, 10 or 15 years
6. Nature of remedy	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.	JM will take prompt appropriate action to return the Roofing System to a watertight condition. Exclusive responsibility and liability of JM under guarantee is to make repairs that may be necessary to maintain the Roofing System in a water tight condition.
7. Monetary limitations	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)	Guarantee includes space for JM's maximum monetary obligation to be inserted. (JM indicates that for these specifications, JM's maximum liability is the original installed cost of the roof system.)
8. Notification requirements	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.	Written notification to JM's Guarantee Services Department, P.O. Box 5108, Denver, CO 80127-5108, immediately upon discovery of leak and in no event later than 30 days after discovery of leak.
9. Exclusive or additional remedy	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.	Guarantee states that JM and its affiliates shall not be liable for any damages which are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in guarantee; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral; JM arranges inspection	Neutral; JM arranges inspection	Neutral; JM arranges inspection
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18	1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 18
13. Wind coverage/exclusions	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.	JM indicates that guarantee covers roof damage resulting from wind speeds up to 63 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, F, M (See Special Features/Conditions.)	C, F, M (See Special Features/Conditions.)	C, F, M (See Special Features/Conditions.)
15. Cost to obtain	5 years: \$5.00/square; 10 years: \$6.00/square; 15 years: \$8.50/square.	\$12.50/square	5 years: \$4.00/square; 10 years: \$8.00/square; 15 years: \$11.00/square
16. Minimum charge	5 years: \$500; 10 years: \$600; 15 years: \$850	\$1,250	5 years: \$400; 10 years: \$800; 15 years: \$1,100
17. Ineligible structure or building use	Cold-storage buildings, private residences, storage silos, heated tanks	Cold-storage buildings, private residences, storage silos, heated tanks	Cold-storage buildings, private residences, storage silos, heated tanks
18. Pre-construction notice and approval requirements	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.	Contractor is required to submit a guarantee application for approval 14 days prior to start of construction.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes

20. Job inspection policy	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.	Inspections made by local JM field representatives prior, during, and after application as well as two years after issuance of guarantee; no charge.
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.	No; JM indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	JM manufactures and sells product.	JM manufactures and sells product.	JM manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.	Guarantee will be transferred by JM, in its sole discretion, only after receiving satisfactory information and payment of a transfer fee, which must be delivered to JM as soon as practical, but no later than 30 days after the date of building ownership transfer.
26. Special features/conditions	<p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose or poorly sealed materials by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repairs, which are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>	<p>All specifications are eligible for the 5-, 10- or 15-year guarantee.</p> <p>In order to continue guarantee coverage, owner must implement a maintenance program prescribed by JM on the reverse side of the guarantee, including: (a) maintaining a file showing all inspections and repairs; (b) inspecting roof at least semiannually; (c) removing any debris; (d) cleaning gutters, downspouts, drains, and surrounding areas; (e) repairing any damaged, loose, or poorly sealed metal flashing and valleys by an approved contractor; (f) repairing damaged masonry, poorly mounted counterflashing, loose caulking, bad mortar joints, and any loose stone or tile coping that about the roof; (g) correcting materials at edges of the roof that have been lifted by wind by an approved contractor; (h) examining roof top equipment to determine if they move excessively or leak; (i) checking building exterior for settlement or movement; and (j) recoating any cracked, flaking, or blistered areas of protective coatings.</p> <p>In the event of an emergency condition that requires immediate repair to avoid substantial damage to building or its contents, JM will reimburse the owner for repair expenses for essential temporary repairs that would have been JM's responsibility.</p> <p>In the event JM pays for repair that are required due to acts or omissions of others, JM shall be subrogated to all rights of recovery of the building owner to the extent of the amount of the repairs. No one is authorized to change, alter, or modify the provisions of the guarantee other than the Manager, Marketing and Technical Services or authorized delegate. All terms and conditions are to be construed under internal laws of Colorado.</p>
27. Executed by owner	No	No	No

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	JPS Elastomerics Corp.,	JPS Elastomerics Corp.,	JPS Elastomerics Corp.,
2. Title, original publication date, and identifying symbol, if any	"Limited Material Warranty for Commercial Building"; January 1995, RSD-FM-12	"Limited Warranty for Commercial Building - NDL"; January, 1995, RSD-FM-11	"Hi-Tuff Plus Total Systems Limited Warranty for Commercial Building - NDL"; January, 1995; RSD-FM-13A
3. Product, specification, or system covered	Hi-Tuff Roofing membrane wearing surface	Hi-Tuff Roofing System	Hi-Tuff Roofing System Total Roof System includes membrane, Hi-Tuff edge metal system, insulation, adhesives, fasteners, insulation plates, term bars, and other materials provided by JPS.
4. Scope of coverage	Material only; JPS warrants that the Hi-Tuff roofing membrane wearing surface will withstand the effects of the weather due to normal wear and tear of the elements when installed and used in strict compliance with JPS specifications. Warranty does not include the cost of installation of replacement material or removal of defective material.	Material and workmanship; JPS warrants to repair leaks in the Hi-Tuff roofing system caused by defects in JPS roofing material or workmanship of the JPS authorized roofing applicator. Warranty does not include insulation.	Material and workmanship; JPS warrants to repair leaks in the Hi-Tuff roofing system caused by material or workmanship of the JPS authorized roofing applicator. JPS does not warrant the thermal resistance of roof insulation.
5. Length of coverage	5 or 10 years	10 years	10 or 15 years
6. Nature of remedy	If the wearing surface fails due to the effects of weather and normal wear and tear of the elements and the material is installed and used in strict accordance with JPS specifications, JPS will be liable for the cost of the material at the time of claim, prorated for service to date of claim. JPS will furnish the owner Hi-Tuff roofing membrane to replace the affected area.	JPS will repair leaks in the roofing system using methods determined to be suitable at JPS' discretion.	JPS will repair leaks in the roofing system using methods determined to be suitable at JPS' discretion.
7. Monetary limitations	JPS' liability limited to the cost of the material at the time of claim, prorated for service to date of claim.	None stated.	None stated.
8. Notification requirements	Written notification to JPS Warranty Services Department, Holyoke, MA 01040-2800, within 30 days of the discovery of any wearing surface failure in the membrane	Written notification of leaks must be delivered to JPS Warranty Services Department, Holyoke, MA 01040-2800, within 30 days of discovery.	Written notification of leaks must be delivered to JPS Warranty Service Department at Holyoke, MA 01040-2800, within 30 days of discovery.
9. Exclusive or additional remedy	Warranty and remedies are exclusive and in lieu of any other remedy or warranty whether written, oral, implied, or statutory; excludes UCC warranties.	Warranty and remedies are exclusive and in lieu of any other remedy or warranty whether written, oral, implied or statutory; excludes UCC warranties.	Warranty and remedies are exclusive and in lieu of any other remedy or warranty whether written, oral, implied or statutory; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	JPS' determination; JPS' judgment whether specific exclusions and conditions that make warranty null and void occur.	JPS' determination; JPS' sole judgment whether specific exclusions and conditions that make warranty null and void occur.	JPS' determination; JPS' sole judgment whether specific exclusions and conditions that make warranty null and void occur.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 16, 23	1, 3, 5, 7, 17. Warranty states that specific Condition M also makes the warranty inapplicable.	1, 3, 5, 7, 17. Warranty states that specific Condition M also makes the warranty inapplicable.
13. Wind coverage/exclusions	Warranty excludes gale-force winds.	Warranty excludes winds of peak gust speed of _____ mph measured 10 meters above the ground, hurricanes, and tornadoes.	Warranty excludes winds of peak gust speed of _____ mph measured 10 meters above the ground, hurricanes, and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F, G, I	B, C, F, G, H, I	B, C, F, G, H, I
15. Cost to obtain	5 years: \$150; 10 years: \$300	10 years: \$6.00/square	10 years: \$8.00 and \$11.00/square; 15 years: \$9.00 and \$12.00/square
16. Minimum charge	5 years: \$150; 10 years: \$300	10 years: \$450	10 years: \$600; 15 years: \$675
17. Ineligible structure or building use	Residential buildings	Residential buildings	Residential buildings

18. Pre-construction notice and approval requirements	None	Contractor submits request to JPS for approval of warranty form, along with diagram and details.	Contractor submits request to JPS for approval of warranty form, along with diagram and details.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy		JPS technical representative makes on-site inspection after application prior to issuance of warranty; no charge.	JPS technical representative makes on-site inspection after application prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation		The contractor is "normally" obligated to make repairs to all leaks, any defects, and workmanship deficiencies for two years.	The contractor is "normally" obligated to make repairs to all leaks, any defects, and workmanship deficiencies for two years.
22. Backed by named insurance or surety	No	No	No
23. Issuing entity manufactures and/or sells products	JPS manufactures and sells the product.	JPS manufactures and sells the product.	JPS manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty is transferable; consult JPS for conditions of transferability. Conditions are noted in JPS maintenance instructions.	Warranty is transferable; consult JPS for conditions of transferability. Conditions are noted in JPS maintenance instructions.	Warranty is transferable; consult JPS for conditions of transferability. Conditions are noted in JPS maintenance instructions.
26. Special features/conditions	Any controversy or claim arising out of or relating to warranty shall be settled by arbitration in accordance with the construction industry rules of the American Arbitration Association at the Boston, Mass. regional office, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof. No representations or promises, except as stated in warranty.	Any controversy or claim arising out of or relating to warranty shall be settled by arbitration in accordance with the construction industry rules of the American Arbitration Association at the Boston, Mass. regional office, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof. No representations or promises, except as stated in warranty.	Any controversy or claim arising out of or relating to warranty shall be settled by arbitration in accordance with the construction industry rules of the American Arbitration Association at the Boston, Mass. regional office, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof. No representations or promises, except as stated in warranty.
27. Executed by owner	Yes	Yes	Yes

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Koppers Industries, Inc.	Koppers Industries, Inc.	Koppers Industries, Inc.
2. Title, original publication date, and identifying symbol, if any	"Koppers Built-Up Roofing Classic Warranty"; CRD-04/95 C	"Modified Bitumen Roof Membrane Warranty"; CRD-04/95 D	"Koppers IRMA Roof Warranty with Styrofoam Brand Insulation"; June 1991; CRD-05/91 [Specimen copy has designation CRD-05/91SP.]
3. Product, specification, or system covered	Built-Up roofing specifications: 200 Series, 300 Series, 400 Series, 500 Series. All Classic Warranties require two layers of insulation supplied and/or approved by Koppers.	Modified bitumen specifications	IRMA Built-Up Roofing specifications: 263, 264, 273, 274, 463, 464, 473, 474
4. Scope of coverage	Material and workmanship; Koppers agrees to provide roofing repairs to correct all roof water leaks that may occur from ordinary wear and tear of the elements, defects in built-up roofing, flashing, or insulation supplied by Koppers, and workmanship of the original roofing contractor in installing Koppers built-up roofing, flashing, and insulation. A roof water leak is defined as water passing through the roofing or flashing membrane and into the interior of the building. Warranty does not cover correction of any condition other than roof water leaks, including blisters, clogged drains, ridging, bitumen drip/leak, or migration.	Material and workmanship; Koppers agrees to provide roofing repairs to correct all roof water leaks that may occur from defects in modified bitumen material supplied by Koppers and workmanship of the original Koppers eligible roofing contractor in installing Koppers' modified bitumen products after the first two years of warranty. Warranty does not cover correction of any condition other than roof water leaks, including ridging or alligatoring.	Material and workmanship; warranty covers roof water leaks resulting from ordinary wear and tear of the elements; defects in Koppers built-up roofing and flashing or Styrofoam Brand Roofing Material Insulation manufactured by Dow Chemical Company; retention of at least 90 percent of Styrofoam Brand Insulation's published thermal resistance; Styrofoam Brand Insulation blow-off in roof level wind gusts of up to 70 miles per hour; and workmanship of the original roofing contractor in installing Koppers built-up roofing, flashing, and Styrofoam Brand Insulation.
5. Length of coverage	5 or 10 years for BUR specifications Series 200, 300, 400, and 500; 15 or 20 years for BUR Specification Series 200, 400, and 500	5, 10, or 12 years. The only warranty available for a new roof over an existing roof is Koppers 5-year warranty; this requires prior inspection/approval and at least one layer of Koppers-approved insulation over the existing roof.	10 years: specifications 263 and 463 on lightweight insulating concrete or gypsum, 273 and 473 on precast concrete or steel; 15 years: specifications 263 and 463 on wood plank, 264 and 464 on lightweight insulating concrete or gypsum; 20 years: specifications 264 and 464 on wood plank, 274 and 474 on poured or precast concrete or steel, 273 and 473 on poured concrete; 20-year specifications are eligible for 15- and 10-year warranties; 15-year specifications are eligible for 10-year warranties.
6. Nature of remedy	Koppers will undertake repairs so long as the repair is considered "prudent" (i.e., Koppers considers that the cost of the repair is less than the "remaining value" of the roof on the date the repair is required. "Remaining value" is the total cost of roof installation, reduced by 5 percent for each year or part of a year after the effective date, with no deduction for the cost of any previous warranty repair). If Koppers believes repair is not prudent, payment of remaining value will be owner's sole and exclusive remedy and shall relieve Koppers of all further liability under this warranty.	Koppers will schedule a roof inspection and arrange for any repairs that are covered by warranty.	Koppers will undertake repairs as long as the repair is "practicable," i.e., the cost of the repair is less than the "remaining value" of the roof on the date the repair is required. "Remaining value" is the total cost of roof installation reduced by 5 percent for each year or part of a year after the effective date with no deduction for the cost of any previous warranty repair. If Koppers believes repair is not practicable, payment of remaining value will be owner's sole and exclusive remedy.
7. Monetary limitations	Koppers is not liable to pay for a repair that Koppers believes will cost more than the total cost of the roof installation (BUR membrane, flashing, and insulation) reduced by 5 percent for each year or part thereof.	Koppers' liability is a minimum of \$1,000 and is limited based upon the length of the warranty, as follows:  Length of Warranty      Liability Limit 5 years                      \$100/square 10 years                     \$50/square 12 years                     \$100/square	Koppers is not liable to pay for a repair that Koppers believes will cost more than the total cost of the roof installation (BUR membrane, flashing, and Styrofoam) reduced by 5 percent for each year or part thereof.
8. Notification requirements	Call Koppers at 800/468-9626 within 72 hours of discovery of leak and provide written notice within 30 days to Koppers Industries, Inc. 436 Seventh Avenue, Pittsburgh, PA 15219, Attention: Roofing Warranty Department.	Call Koppers at 800/468-9629 within 72 hours of discovery of leak and provide written notice within 30 days to Koppers Industries, Inc. 436 Seventh Avenue, Pittsburgh, PA 15219, Attention: Roofing Warranty Department.	Call Koppers at 1-800-468-9629 within 72 hours of discovery of leak or insulation failure and provide written notice by registered mail to Koppers Industries, Inc., 436 Seventh Avenue, Pittsburgh, PA 15219, Attention: Roofing Customer Service Department.
9. Exclusive or additional remedy	Remedy provided by warranty is sole and exclusive remedy at law or equity for defects in material supplied by Koppers and workmanship of the contractor. Koppers not liable for consequential, incidental, or other damages under any theory of law; excludes UCC warranties.	Remedy provided by warranty is sole and exclusive remedy at law or equity for defects in material supplied by Koppers and workmanship of the contractor. Koppers is not liable for consequential, incidental, or other damages under any theory of law; excludes UCC warranties.	Remedy provided in warranty is sole and exclusive remedy at law or in equity for defects in material supplied by Koppers or Dow and workmanship of the contractor. Koppers not liable for consequential, incidental, or other damages under any theory of law; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Koppers' determination	Koppers' determination	Koppers determines whether repair is practical. Thermal resistance of insulation tested according to ASTM C518-85. (See Special Features/Conditions.)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 22, 23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 22, 23	1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 15, 16, 17, 18, 22, 23
13. Wind coverage/exclusions	Warranty excludes wind damage, hurricanes, and tornadoes. Koppers indicates that there is no coverage for damage caused by wind.	The warranty excludes wind damage, hurricanes, and tornadoes. Koppers indicates that there is no coverage for damage caused by wind.	The warranty covers roof damage resulting from wind speeds up to 70 miles per hour.

	H, M	H, M	B (except emergency repairs), G
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)			
15. Cost to obtain	5 years: \$8.00/square; 10 years: \$10.00/square; 15 years: \$12.00/square; 20 years: \$15.00/square	5 years: \$4.00/square; 10 years: \$5.00/square; 12 years: \$6.00/square	10 years: \$9.00/square; 15 years: \$10.50/square; 20 years: \$13.00/square
16. Minimum charge	5 years: \$700; 10 years: \$800; 15 years: \$900; 20 years: \$1,000	5 years: \$350; 10 years: \$650; 12 years: \$600	10 years: \$800; 15 years: \$900; 20 years: \$1,000
17. Inhabitable structure or building use	Cooler/freezer buildings, private residences	Cold-storage or freezer/cooler units	Cooler/freezer buildings, private residences
18. Pre-construction notice and approval requirements	Contractor telephones application to Koppers 14 days prior to job start. If project is approved, contractor is sent application for warranty.	The contractor telephones application to Koppers 14 days prior to job start. If project is approved, contractor is sent application for warranty.	The contractor telephones application to Koppers 14 days prior to job start. If project is approved, contractor is sent application for warranty.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Koppers technical service personnel or designated representative will make on-site inspections prior to and during application periodically or as requested. Koppers makes inspection after completion prior to issuance of warranty, as well as two years after issuance of warranty; no charge.	Koppers technical service personnel or designated representative makes inspections prior to, and during application. A final inspection, prior to warranty issuance, is required. A two-year inspection is required. No charge for inspections.	Koppers technical service personnel or designated representative may make on-site inspections prior to and during application. Inspection of insulation installation and a final inspection prior to warranty issuance and a two-year inspection are required; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Koppers Indicates that it is self-insured.	No; Koppers Indicates that it is self-insured.	No; Koppers Indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Koppers manufactures and sells product.	Koppers sells product only.	Koppers manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty states that original named owner is covered and not any tenant, purchaser, or successor without prior written notice to and approval from Koppers.	Warranty states that original named owner is covered and not any tenant, purchaser, or successor without prior written notice to and approval from Koppers.	Warranty states that original named owner is covered and not any tenant, purchaser, or successor without prior written notice to and approval from Koppers.
26. Special features/conditions	Workmanship coverage is contingent upon contractor's agreement to install Koppers' products in accordance with applicable specifications and details. Koppers does not certify that the work is actually free from defect. A roof sketch must be supplied to Koppers identifying the exact location of all additions, alterations, or repairs. This warranty will be governed by the laws of the Commonwealth of Pennsylvania. Any action for breach of warranty must be commenced within one year after such breach occurs or is discovered. If Koppers' investigation of a reported problem reveals the problem to be outside the scope of warranty, investigation and repair costs shall be paid by owner. Annual roof inspections are the responsibility of the building owner. When necessary, roof maintenance must be performed. A complete recoating of the flashing systems, using a Koppers aluminum roof coating, is required every five years on flashing specifications 168, 172, 173, and 180, and as needed on 174 and 182.	Workmanship coverage is contingent upon contractor's agreement to install Koppers' modified bitumen products in accordance with applicable specifications and details. Koppers does not certify that the work is actually free from defect. A roof sketch must be supplied to Koppers identifying exact location of all additions, alterations, or repairs. This warranty will be governed by the laws of the Commonwealth of Pennsylvania. Any action or breach of this agreement must be commenced within one year after such breach occurs or is discovered. If Koppers' investigation of a reported problem reveals the problem to be outside the scope of warranty, investigation and repair costs shall be paid by owner. Annual roof inspections are the responsibility of the building owner. When necessary, roof maintenance must be performed. A complete recoating of the flashing system, using a Koppers aluminum roof coating, is required every five years on flashing specifications 168, 172, 173, and 180, and as needed on 174 and 182.	Koppers does not certify that the work is actually free from defect. If Koppers' investigation of a reported problem reveals the problem to be outside the scope of the warranty, investigation and repair costs shall be paid by the owner. Thermal resistance of Styrofoam Brand insulation shall be tested, at owner's expense, according to ASTM C518-85. Should testing prove insulation to have lost greater than 10 percent of thermal resistance, owner will be reimbursed for testing cost and insulation replacement. Warranty will be governed by the laws of Pennsylvania. Any action or breach of this agreement must be commenced within one year after such breach occurs or is discovered.
27. Executed by owner	No	No	

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Koppers Industries, Inc.	MBT Technology Corporation	MBT Technology Corporation
2. Title, original publication date, and identifying symbol, if any	"Koppers Built-Up Roofing Standard Warranty": CRD-04/95 B	MBT Technology "Roof Membrane Guarantee (Form MBT-108) — Year Limited"; April 1990; Form MBT-108A 4/90	"12-Year Limited Material Warranty"; 1990
3. Product, specification, or system covered	Built-Up roofing specifications: 200 Series and 400 Series	All published FG90GWH, FG160CWH, SC75GWH, FGFT160CWH, MF160WAL systems. Cap sheet substitutes allowed for non-fire-rated systems as outlined in current manual.	All published FG90GWH, FG160CWH, SC75GWH, FGFT160CWH, MF160WAL systems. Cap sheet substitutes allowed for non-fire-rated systems as outlined in current manual.
4. Scope of coverage	Material and workmanship: Koppers agrees to provide roofing repairs to correct all roof water leaks that may occur from ordinary wear and tear of the elements, defects in built-up roofing or flashing materials supplied by Koppers, and workmanship of the original roofing contractor in installing Koppers built-up roofing and flashing materials. A roof water leak is defined as water passing through the roofing or flashing membrane and into the interior of the building. Warranty does not cover correction of any condition other than roof water leaks, including blisters, clogged drains, ridging, bitumen drippege, or migration.	MBT guarantees that the roof membrane shall remain in a watertight condition or MBT shall repair roof membrane at its own expense.	Material only: MBT warrants that the MBT roofing membrane and base flashings will withstand ordinary wear and tear by the elements and will be free of manufacturing defects that affect the ability of the products to maintain the roof in a watertight condition when installed in accordance with current MBT specifications.
5. Length of coverage	5 or 10 years for BUR specification Series 200, 400; 15 or 20 years for BUR specification Series 200, 400. The only warranty available for a new roof over an existing roof is Koppers 5-year standard warranty; this requires prior inspection/approval and at least one layer of Koppers approved insulation over the existing roof, and excludes certain specifications.	10, 12, 15, or 20 years (length and type of coverage depends upon specification used).	12 years
6. Nature of remedy	Koppers will schedule a roof inspection and arrange for any repairs that are covered by warranty.	Warranty states, "If roofing contractors applying MBT materials guarantee all workmanship and assume all liability to repair or replace, at his sole cost and expense, any and all materials causing leaks wherein the materials were improperly installed from the date of warranty issue or until the repairs or replacement of the MBT materials are proven to provide for a reasonable two-year period or (36) watertight conditions." Thereafter, MBT guarantees to repair or replace all defective materials to provide for a watertight condition of the roofing system. (See Special Features/Conditions.)	If manufacturing defects cause the membrane to lose its watertight integrity, MBT, at its sole discretion and option, will either refund to the owner a portion of the original purchase cost of the membrane or replace a portion of the membrane.
7. Monetary limitations	Koppers' liability is a minimum of \$1,000 and is limited based upon the length of the warranty:  Length of Warranty      Liability Limit 5 years                      \$100/square 10 years                     \$50/square 15 years                     \$75/square 20 years                     \$100/square	MBT's liability for repair and/or replacement of defective MBT membrane shall be restricted to the amount of the original cost of MBT material.	MBT's liability limited to refunding to owner a portion of the membrane's original purchase cost, or replacing a portion of the membrane, including all materials and labor, according to a prorated schedule, reduced 10 percent per year, ranging from 100 percent in years 1 and 2 to 10 percent in year 12.
8. Notification requirements	Call Koppers at 800/468-9629 within 72 hours of discovery of leak and provide written notice within 30 days to Koppers Industries, Inc. 436 Savanth Avenue, Pittsburgh, PA 15219, Attention: Roofing Warranty Department.	Written notification by certified mail to MBT's office at 188 S. Tellman, Fresno, CA 93706, within 10 days of the date owner discovers material defect.	All repairs must be authorized in writing in advance by manager, technical services, MBT Technology, 188 S. Tellman St., Fresno, CA 93706-9556.
9. Exclusive or additional remedy	Remedy provided by warranty is sole and exclusive remedy at law or equity for defects in material supplied by Koppers and workmanship of the contractor. Koppers not liable for consequential, incidental, or other damages under any theory of law; excludes UCC warranties.	Warranty and remedy provided are exclusive and in lieu of all other obligations, liabilities or express warranties; excludes UCC warranties. No warranties extending beyond warranty document, specifications, descriptive information, recommendations or test results provided by MBT do not constitute warranties. In no event shall MBT be liable to owner in tort, for negligence, strict liability, or otherwise for any loss or damage resulting from any material defect.	Warranty and remedy provided are exclusive and in lieu of all other obligations, liabilities, or express warranties, excludes UCC warranties. Specifications, descriptive information, recommendations, or test results provided by MBT do not constitute warranties. In no event shall MBT be liable to owner in tort, for negligence, strict liability, or otherwise for any loss or damage resulting from any material defect.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Koppers' determination	MBT's sole and exclusive determination as to whether leaks in MBT material will be rectified by repair or replacement.	MBT's determination
12. Specific exclusions from coverage (See item no. 12 in introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 22, 23	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 15, 16, 17, 19, 20, 22, 24, 25. Warranty also specifically excludes losses, damages, or leaks resulting from any animal or insect, willful misrepresentation or fraud by owner, and exposure to ionized radiation or contamination by radioactivity from nuclear fuel or nuclear waste.	1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 15, 16, 19, 20, 22, 24, 25. Warranty also specifically excludes losses, damages, or leaks resulting from any animal or insect, willful misrepresentation or fraud by owner, and exposure to ionized radiation or contamination by radioactivity from nuclear fuel or nuclear waste.



13. Wind coverage/exclusions	The warranty excludes wind damage, hurricanes and tornadoes. Koppers indicates that there is no coverage for damage caused by wind.	Warranty excludes windstorms and hurricanes. [MBT indicates that there is no coverage for damage caused by wind.]	
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in introduction.)	H, M	A, C, G, H, I, M, N, R. Warranty not applicable to losses, damages or leaks resulting from work performed by contractor or pursuant to contracts that were not approved in writing in advance from MBT. Warranty also shall be void if MBT materials are disposed in a manner that prevents MBT from prior inspection to establish causes of failure.	L
15. Cost to obtain	5 years: \$4.00/square; 10 years: \$6.00/square; 15 years: \$7.00/square; 20 years: \$8.00/square	10 or 12 years: \$6.00/square; 15 years: \$8.50/square; 20 years: \$13.50/square	None
16. Minimum charge	5 years: \$350; 10 years: \$550; 15 years: \$600; 20 years: \$650	10 or 12 years: \$600; 15 years: \$850; 20 years: \$1,350	None
17. Ineligible structure or building use	Cooler/freezer buildings, private residences	Cold-storage; coolers; freezer buildings; high-humidity structures, like swimming pools, laundry facilities; restaurants, storage silos, and heated tank structures must be reviewed before acceptability.	Coolers, cold-storage, or freezer buildings
18. Pre-construction notice and approval requirements	The contractor telephones application to Koppers 14 days prior to job start. If project is approved, contractor is sent application for warranty.	Fourteen days prior to start of construction, the contractor must complete and submit Form MBT-103 Warranted System Proposal and Survey for technical review before acceptance of roof system application.	None required.
19. Approved, authorized, or licensed applicator	Yes	Yes	No
20. Job inspection policy	Koppers technical service personnel or designated representative will make on-site inspections prior to and during application periodically or as requested. Koppers makes inspection after completion prior to issuance of warranty, as well as two years after issuance of warranty; no charge.	MBT field technical staff makes on-site inspections prior, at least two times during application, and after application, as well as two years after issuance of warranty; no charge	No on-site inspections
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies and all leaks for two years.	None; material-only warranty
22. Backed by named insurance or surety	No; Koppers indicates that it is self-insured.	No	No; MBT indicates that it carries \$100 million general liability insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Koppers manufactures and sells product.	MBT manufactures and sells the product.	MBT manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	Renewal at MBT's discretion	No renewal provision
25. Assignability	Warranty states that original named owner is covered and not any tenant, purchaser, or successor without prior written notice to and approval from Koppers.	Not assignable; warranty accrues to original owner named in the warranty and shall not accrue to the benefit of, or be assignable to any tenant, successor, purchaser, or assignee of original owner.	Not assignable; warranty accrues to original owner named in warranty and shall not accrue to the benefit of or be assignable to any tenant, successor, purchaser, or assignee of original owner.
26. Special features/conditions	Workmanship coverage is contingent upon contractor's agreement to install Koppers' products in accordance with applicable specifications and details. Koppers does not certify that the work is actually free from defect. A roof sketch must be supplied to Koppers identifying exact location of all additions, alterations, or repairs. This warranty will be governed by the laws of the Commonwealth of Pennsylvania. Any action for breach of warranty must be commenced within one year after such breach occurs or is discovered. If Koppers' investigation of a reported problem reveals the problem to be outside the scope of warranty, investigation and repair costs shall be paid by owner. Annual roof inspections are the responsibility of the building owner. When necessary, roof maintenance must be performed. A complete recoating of the flashing system, using a Koppers aluminum roof coating, is required every five years on flashing specifications 166, 172, and 180, and as needed on 174 and 182.	Upon receipt of claim, MBT technical department will make on-site inspection. If leak condition is found to be from causes other than manufacturing defects or workmanship, MBT charges \$250/day plus expenses for inspection; otherwise, no charge. MBT shall be entitled to replace or repair at MBT's sole and exclusive discretion any component of MBT materials as deemed necessary, whether or not a claim has been made. The cost of such repair or replacement shall be borne by MBT unless repair or replacement results from causes excluded from warranty coverage, in which case the owner shall reimburse MBT for such costs. Refusal of owner to allow MBT to inspect repairs or replace materials or pay costs for repairs not covered by warranty terminates the warranty and relieves MBT from any further liability.	Roofing contractor must complete warranty registration and mail promptly along with proof of purchase to MBT offices to validate warranty.
27. Excused by owner	No	Yes	No

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	MBTechnology Corporation	Monsey Bakor	Monsey Bakor
2. Title, original publication date, and identifying symbol, if any	"10-Year Limited Material Warranty"; 1990	"Roofing Systems & Waterproofing Limited Warranty"; 09/96	"Limited Roofing & Waterproofing Product Warranty"; 09/96
3. Product, specification, or system covered	All published FG90GWH, FG160CWH, SC76GWH, FGFT160CWH, MF160WAL systems. Cap sheet substitutes allowed for non-fire-rated systems as outlined in current manual.	Modified Plus Modified Bitumen roofing products and systems	Modified Plus Modified Bitumen roofing products and systems
4. Scope of coverage	Material only; MBT warrants that the MBT roofing membrane and base flashings will withstand ordinary wear and tear by the elements and will be free of manufacturing defects that affect the ability of the products to maintain the roof in a watertight condition when installed in accordance with current MBT specifications.	Material only; Monsey Bakor warrants that it will, at its option, repair or replace free of charge any Monsey Bakor products that are found to be materially defective. The warranty covers only material defects in Monsey Bakor products that cause water leakage.	Material only; Monsey Bakor warrants that the Monsey Bakor product, when prepared and applied in accordance with specifications and directions and used under normal service conditions, will not break down or disintegrate.
5. Length of coverage	10 years	12 years	12 years
6. Nature of remedy	If manufacturing defects cause the membrane to lose its watertight integrity, MBT, at its sole discretion and option, will either refund to the owner a portion of the original purchase cost of the membrane or replace a portion of the membrane.	Monsey Bakor's liability limited to replacement of materials and the cost of labor necessary to maintain or restore the surface to which the Monsey Bakor product is applied in a watertight condition.	Monsey Bakor shall refund to the owner all or part of the original cost of the product based upon a prorating schedule.
7. Monetary limitations	MBT's liability limited to refunding to owner a portion of the membrane's original purchase cost, or replacing a portion of the membrane according to a pro-rated schedule, reduced 10 percent per year, ranging from 100 percent in years 1 and 2 to 10 percent in year 10.	None stated.	Refund to the owner shall be determined by multiplying the original cost of the product times (by) the unexpired fraction of the warranty period.
8. Notification requirements	All repairs must be authorized in writing in advance by manager, technical services, MBTechnology, 188 S. Tellman St., Fresno, CA 93706-9956.	Written notice of any material defect of the Monsey Bakor products within 30 days of the defect to Monsey Bakor, Cold Stream Road, Kimberton, PA 19442.	Written notice of any failure of the Monsey Bakor product within 30 days of failure to Monsey Bakor, Cold Stream Road, Kimberton, PA 19442
9. Exclusive or additional remedy	Warranty and remedy provided are exclusive and in lieu of all other obligations, liabilities, or express warranties, excludes UCC warranties. Specifications, descriptive information, recommendations, or test results provided by MBT do not constitute warranties. In no event shall MBT be liable to owner in tort, for negligence, strict liability, or otherwise for any loss or damage resulting from any material defect.	Remedy provided in the warranty is the sole and exclusive remedy provided by Monsey Bakor to the owner for any and all claims arising under, in connection with, or in any way related to the Monsey Bakor products; excludes all other warranties, guarantees, conditions, and representations; excludes UCC warranties.	The warranty is in lieu of and excludes all other warranties, guarantees, conditions, and representations; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	MBT's determination	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 6, 7, 9, 10, 12, 13, 15, 16, 19, 20, 22, 24, 25. Warranty also specifically excludes losses, damages, or leaks resulting from any animal or insect, willful misrepresentation or fraud by owner, and exposure to ionized radiation or contamination by radioactivity from nuclear fuel or nuclear waste.	1, 3, 4, 5, 8, 9, 11, 17, 19; also excludes normal wear and tear and aesthetic diminution.	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 19, 21; also excludes deterioration of flashings where water has been allowed to enter behind the base flashing from sources other than through the membrane or base flashing.
13. Wind coverage/exclusions	Warranty excludes windstorms and hurricanes. [MBT indicates that there is no coverage for damage caused by wind.]	Monsey Bakor indicates that the warranty covers winds up to fresh gales, which are defined on the Beaufort Scale as winds ranging from 39 to 46 mph. The warranty excludes roof damage from fresh gale force winds.	No coverage for damage caused by wind
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	L	B, C, H, I, R	B, C, H, I, R

15. Cost to obtain	None	None	None
16. Minimum charge	None	Minimum roof size of 50 squares	None
17. Ineligible structure or building use	Coolers, cold-storage, or freezer buildings	None	None
18. Pre-construction notice and approval requirements	None required.	None	None
19. Approved, authorized, or licensed applicator	No	No	No
20. Job inspection policy	No on-site inspections	No on-site inspections	No on-site inspections
21. Contractor's post-installation obligation	None; material-only warranty	None; material-only warranty	None; material-only warranty
22. Backed by named insurance or surety	No; MBT indicates that it carries \$100 million general liability insurance covering its warranty obligations.	No; Monsey Bakor indicates that it carries umbrella liability insurance covering its warranty obligations in the amount of \$10 million.	No; Monsey Bakor indicates that it carries umbrella liability insurance covering its warranty obligations in the amount of \$10 million.
23. Issuing entity manufactures and/or sells products	MBT manufactures and sells product.	Monsey Bakor manufactures and sells the product.	Monsey Bakor manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Not assignable; warranty accrues to original owner named in warranty and shall not accrue to the benefit of or be assignable to any tenant, successor, purchaser, or assignee of original owner.	The warranty is not assignable without Monsey Bakor's prior written consent.	The warranty is not assignable without Monsey Bakor's prior written consent.
26. Special features/conditions	Roofing contractor must complete warranty registration and mail promptly along with proof of purchase to MBT offices to validate warranty.	Pursuant to the warranty, the owner authorizes Monsey Bakor to investigate or cause to be investigated the alleged material defect of the Monsey Bakor products on the owner's behalf. Should the alleged material defect or the remedy sought by the owner lie outside the scope of the warranty, the owner agrees to promptly reimburse Monsey Bakor for the cost of any such investigation, including repair costs. The owner shall bear any expense of removing and replacing traffic walkways or other structures to allow repairs to be made when necessary.	Pursuant to the warranty, the owner authorizes Monsey Bakor to investigate or cause to be investigated the alleged material defect of the Monsey Bakor products on the owner's behalf. Should the alleged material defect or the remedy sought by the owner lie outside the scope of the warranty, the owner agrees to promptly reimburse Monsey Bakor for the cost of any such investigation, including repair costs. Monsey Bakor does not authorize any person, including its representatives, to make any representation or to offer any warranty, condition or guarantee in respect to the product other than this warranty.
27. Executed by owner	No	Yes; the warranty does not come into force until receipt of a signed copy by Monsey Bakor and owner.	Yes; the warranty does not come into force until receipt of a signed copy by Monsey Bakor and owner.

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Monsey Bakor	Mule-Hide Products	Mule-Hide Products
2. Title, original publication date, and identifying symbol, if any	"Gold Seal Roofing & Waterproofing Membrane Warranty"; 09/96	"Mule-Hide Membrane Material Warranty"; May 1, 1994	"Mule-Hide Products Co., Inc. Premium System Warranty for Commercial Buildings"; May 1, 1994
3. Product, specification, or system covered	Modified Plus Modified Bitumen roofing products and systems	EPDM Membranes, Hypalon Membranes, Thermoplastic (PVC) Membranes	EPDM systems: ballasted, mechanically attached, fully adhered; Hypalon systems: ballasted, mechanically attached, fully adhered; Thermoplastic (PVC) systems: mechanically attached, fully adhered
4. Scope of coverage	Material and workmanship: Monsey Bakor warrants that the membrane system, including field and flashing membranes, will remain in a watertight condition. Only water leakage through the membrane shall be considered a defect covered under the warranty.	Material only: Mule-Hide warrants that the Mule-Hide roofing membrane is free of manufacturing defects at the time of delivery, that the membrane will not prematurely deteriorate due to weathering to the extent that it becomes incapable of maintaining a watertight condition as a single-ply roofing membrane, and that the membrane is manufactured in accordance with the manufacturer's specifications.	Material and workmanship: Mule-Hide warrants that it will be responsible for the repair of leaks in the Mule-Hide Standard System. For purposes of this warranty, System means only the membrane, other components supplied by Mule-Hide, and will exclude the roof insulation, deck, support system, and metal flashings.
5. Length of coverage	12, 15, or 20 years (Monsey Bakor indicates that warranty coverage depends upon specification and specific product used. Standard term is 12 years).	EPDM Membrane: 5, 10, 15, 20 years (black only); Hypalon membrane: 5, 10, 15 years; PVC Membrane: 5, 10, 15 years	10 or 15 years
6. Nature of remedy	Monsey Bakor's liability limited to replacement of materials and cost of labor necessary to maintain or restore the surface to which the membrane is applied in a watertight condition.	If the membrane prematurely fails due to weathering or manufacturing defects, Mule-Hide will be liable for the cost of the material affected at the time of the claim, provided for service to date of the claim. Mule-Hide will furnish owner repair material for the affected area or credit to be applied toward the purchase of a new membrane. Warranty does not cover the cost of installation of the repair material. Labor and accessories, including but not limited to flashings, adhesives and caulking are not covered.	The owner's remedies and Mule-Hide's liability shall be limited to Mule-Hide's repair of the system using methods determined to be suitable at Mule-Hide's discretion.
7. Monetary limitations	None stated	The maximum prorated value allowed for repair or credit shall not exceed the original purchase price of the membrane.	None stated.
8. Notification requirements	Written notice of any defect of the membrane within 30 days of the defect to Monsey Bakor, Cold Stream Road, Kimberton, PA 19442	Written notification within 30 days of a failure in the membrane or purported defect by certified mail to Mule-Hide Products Co., Inc., P.O. Box 1057, Beloit, WI 53512-1057. Attention: Warranty Department	Written notice to Mule-Hide and contractor within ten days after owner or any of its agents discover or a reasonable person in owner's or agent's position would have discovered any leak.
9. Exclusive or additional remedy	Remedy provided in the warranty is the sole and exclusive remedy provided by Monsey Bakor to the owner for any and all claims arising under, in connection with, or in any way related to the membrane or its installation; excludes all other warranties, guarantees, conditions, and representations; excludes UCC warranties.	Warranty and remedies provided are exclusive and in lieu of any other remedy or warranty, whether written, oral, implied or statutory; excludes UCC warranties.	Warranty is the owner's sole and exclusive remedy for failure of the Mule-Hide Standard System; warranty supercedes any and all other express warranties; Mule-Hide shall not be liable under any circumstance or theory of action, including contract, tort, products liability, or otherwise for any incidental or consequential damages, including loss of profit or damage to building, merchandise and loss or damage caused or contributed to by Mule-Hide's approval of the contractor or inspection of, or omission to inspect, the building roof; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Mule-Hide's determination	Mule-Hide's determination (See Special Features/ Conditions.)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 6, 8, 11, 12, 17; also excludes normal wear and tear and aesthetic diminution.	1, 2, 3, 12, 16, 23	1, 3, 4, 5, 7, 10, 11, 13, 16, 22, 23, 24. (Warranty also excludes the infestation or presence of insects or an animal.)
13. Wind coverage/exclusions	Monsey Bakor indicates that warranty covers roof damage resulting from wind speeds up to 55 mph. The warranty excludes damage caused by winds exceeding 55 mph as determined by the U.S. or Canadian Weather Bureau, depending on project location.	Warranty excludes wind, hurricanes, and tornadoes. Mule-Hide indicates that there is no coverage for damage caused by wind.	Warranty excludes wind speeds in excess of 55 mph, hurricanes, and tornadoes. Mule-Hide indicates that warranty covers roof damage resulting from wind speeds up to 55 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, H, I, R	C	B, C, F (warranty references owner's care and maintenance information), G, K. Warranty also is cancelled if there is an internal positive pressure condition that causes or contributes to a partial or total failure of the roof.

15. Cost to obtain	12 years: \$6.00/square; 15 years: \$10.00/square; 20 years: \$15.00 square	10 years: \$25.00; 20 years: \$2.00/square (EPDM black only)	10 years: \$8.00/square; 15 years: \$14.00/square
16. Minimum charge	12 years: \$300; 15 years: \$500; 20 years: \$750	10 years: \$25.00	10 years: \$800; 15 years: \$1,250
17. Insignificant structure or building use	Cold-storage facilities; all residential buildings other than multiple dwellings	None	Residences
18. Pre-construction notice and approval requirements	The contractor must submit details of project, including deck construction, vapor retarder, insulation materials, and all flashing details prior to installation and obtain approval.	Submit pre-job survey form and warranty application to Mule-Hide Products Co. prior to job commencement.	Submit pre-job survey form and warranty application to Mule-Hide Products Co. for approval prior to job commencement.
19. Approved, authorized, or licensed applicator	Yes	No	Yes
20. Job inspection policy	Monsey Bakor personnel make on-site inspections prior to, during (as often as required), and after application, as well as two years following completion; no charge.	No on-site inspections	Mule-Hide field representative makes on site inspections prior to, during, and after completion and two years after issuance of warranty; no charge.
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for two years.	None; material-only warranty	Contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Monsey Bakor indicates that it carries umbrella liability insurance covering its warranty obligations in the amount of \$10 million.	No; Mule-Hide indicates that it does not carry insurance covering its warranty obligations.	No; Mule-Hide indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Monsey Bakor manufactures and sells the product.	Mule-Hide sells the product only.	Mule-Hide sells the product only.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	The warranty is not assignable without Monsey Bakor's prior written consent.	No restrictions stated.	Warranty is not assignable by owner; however, Mule-Hide may authorize a new warranty if a written request for a new warranty is submitted to Mule-Hide by the owner and the owner is in good standing under warranty, the roof is inspected by Mule-Hide within a 30-day period prior to the proposed effective date of the new warranty and the condition of the roof is approved by Mule-Hide and an administration and reinspection fee in an amount determined by Mule-Hide is paid to Mule-Hide. A new warranty will then be issued to and executed by the new owner for the remaining term of warranty containing the terms and conditions required by Mule-Hide.
26. Special features/conditions	Pursuant to the warranty, the owner authorizes Monsey Bakor to investigate or cause to be investigated the alleged material defect of the Monsey Bakor products on the owner's behalf. Should the alleged material defect or the remedy sought by the owner lie outside the scope of the warranty, the owner agrees to promptly reimburse Monsey Bakor for the cost of any such investigation, including repair costs.  The owner shall bear any expense of removing and replacing traffic walkways or other structures to allow repairs to be made when necessary.	No representative has the authority to make any representations or promises except as stated in warranty.	Any dispute, controversy, or claim between owner and Mule-Hide arising out of or related to warranty or the building shall be settled by final and binding arbitration in accordance with the rules of the American Arbitration Association for the Construction Industry. A reinspection fee (in accordance with Mule-Hide's standard charges) shall be paid by Owner to Mule-Hide in the event the cause of the leak is not covered by the warranty.  Mule-Hide is not liable for any promise, representation or other responsibility of the contractor. Warranty is not binding upon Mule-Hide unless executed by an executive officer of Mule-Hide. No representative or employee of Mule-Hide may vary this warranty without the prior written consent of the board of directors of Mule-Hide.  The owner acknowledges that owner had a duty to exercise reasonable care in the selection of a contractor.
27. Executed by owner	Yes; the warranty does not come into force until receipt of a signed copy by Monsey Bakor and owner.	No	Yes; owner expressly accepts Mule-Hide's terms, conditions, and limitations.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Mule-Hide Products	Olympic Rubber Roofing Systems	Performance Roof Systems, Inc. (PRS)
2. Title, original publication date, and identifying symbol, if any	"Mule-Hide Products Co., Inc. Standard System Warranty for Commercial Buildings"; May 1, 1994	"Watershield & Waterguard System Warranty"; December 1, 1996	"Derbigum Ten Year Limited Material Warranty"; October 1, 1993
3. Product, specification, or system covered	EPDM systems: ballasted, mechanically attached, fully adhered; Hypalon systems: ballasted, mechanically attached, fully adhered; Thermoplastic (PVC) systems: mechanically attached, fully adhered	Olympic EPDM Rubber Roofing System: Watershield, Waterguard, Waterguard MR	Derbigum XPS, Derbigum XPS/FR, Derbigum GP, Derbigum GP/FR, Derbigum GP/FR, Derbigum GP/FR, Derbigum GP/FR
4. Scope of coverage	Material and workmanship; Mule-Hide warrants that it will be responsible for the repair of leaks in the Mule-Hide Standard System. For purposes of this warranty, System means only the membrane, other components supplied by Mule-Hide, and will exclude the roof insulation, deck, support system, and metal flashings.	Material and workmanship; Olympic warrants that Olympic will provide, at its expense, all materials and all labor necessary to render the installed roofing system watertight.	Material only; PRS warrants that the roofing material and flashing, if properly handled and installed according to current PRS specifications, shall be manufactured to meet all published product specifications and will be free of any defect which would inhibit such material's ability to properly perform.
5. Length of coverage	10 or 15 years	10 years. (Warranty form allows for different warranty periods to be inserted for Olympic to supply materials versus labor necessary to make roof watertight.)	10 years
6. Nature of remedy	The owner's remedies and Mule-Hide's liability shall be limited to Mule-Hide's repair of the system using methods determined to be suitable at Mule-Hide's discretion.	Olympic will provide, at its expense, all materials and all labor necessary to render the installed roofing system watertight.	Should the PRS material not properly perform, PRS shall either refund the original purchase price of the material or replace the material found to be defective.
7. Monetary limitations	None stated.	Expenses incurred by Olympic are cumulative and are limited to the owner's original cost of the Olympic roofing system installed.	PRS' exclusive responsibility and liability will be to replace the material or to give a full refund for the full amount of the purchase price.
8. Notification requirements	Written notice to Mule-Hide and contractor within ten days after owner or any of its agents discover or a reasonable person in owner's or agent's position would have discovered any leak.	Written notification within 30 days following discovery of any failure or possible failure of the installed roofing system.	None stated.
9. Exclusive or additional remedy	Warranty is the owner's sole and exclusive remedy for failure of the Mule-Hide Standard System; warranty supersedes any and all other express warranties; Mule-Hide shall not be liable under any circumstance or theory of action, including contract, tort, products liability, or otherwise for any incidental or consequential damages, including loss of profit or damage to building, merchandise and loss or damage caused or contributed to by Mule-Hide's approval of the contractor or inspection of, or omission to inspect, the building roof; excludes UCC warranties.	Warranty supersedes and is in lieu of all other expressed warranties that are in conflict.	Warranty is in lieu of all other warranties; PRS not liable for any damages based upon negligence, breach of warranty, strict liability, or any other legal theory of liability other than exclusive liability set forth in warranty; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Mule-Hide's determination (See Special Features/ Conditions.)	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 7, 10, 11, 13, 16, 22, 23, 24. (Warranty also excludes the infestation or presence of insects or an animal.)	1, 3, 4, 5, 6, 12 (including care and maintenance guidelines printed on reverse side of warranty), 15, 16, 18	None listed; material-only warranty
13. Wind coverage/exclusions	Warranty excludes wind speeds in excess of 55 mph, hurricanes, and tornadoes. Mule-Hide indicates that warranty covers roof damage resulting from wind speeds up to 55 mph.	Olympic indicates warranty covers roof damage resulting from wind speeds up to 40 mph. Warranty excludes gale force winds, hurricanes and tornadoes.	No coverage for damage caused by wind.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F (warranty references owner's care and maintenance information). G, K. Warranty also is cancelled if there is an internal positive pressure condition that causes or contributes to a partial or total failure of the roof.	A, B, C, D, H, R	None listed.

15. Cost to obtain	10 years: \$5.00/square for Hypalon, thermoplastics; \$6.00/square for EPDM	\$3.00/square	None
16. Minimum charge	10 years: \$500; 15 years: \$900	\$250	None
17. Ineligible structure or building use	Residences	Private residences	None
18. Pre-construction notice and approval requirements	Submit pre-job survey form and warranty application to Mule-Hide Products Co. for approval prior to job commencement.	The contractor is to submit pre-job survey, including drawing and scope of work.	None required.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Mule-Hide field representative makes on site inspections prior to, during, and after completion and two years after issuance of warranty; no charge.	Olympic authorized representative makes on-site inspections after application and prior to issuance of warranty; "spot check" inspections are made after two years; no charge.	No on-site inspections.
21. Contractor's post-installation obligation	Contractor is obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years	None; material-only warranty
22. Backed by named insurance or surety	No; Mule-Hide indicates that it does not carry insurance covering its warranty obligations.	No	No; PRS indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Mule-Hide sells the product only.	Olympic Rubber Roofing Systems manufactures and sells the product.	PRS manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty is not assignable by owner; however, Mule-Hide may authorize a new warranty if a written request for a new warranty is submitted to Mule-Hide by the owner and the owner is in good standing under warranty, the roof is inspected by Mule-Hide within a 30-day period prior to the proposed effective date of the new warranty and the condition of the roof is approved by Mule-Hide and an administration and reinspection fee in an amount determined by Mule-Hide is paid to Mule-Hide. A new warranty will then be issued to and executed by the new owner for the remaining term of warranty containing the terms and conditions required by Mule-Hide.	No restrictions stated; warranty requires that Olympic be notified in writing within 30 days upon transfer of ownership.	No restrictions stated.
26. Special features/conditions	Any dispute, controversy, or claim between owner and Mule-Hide arising out of or related to warranty or the building shall be settled by final and binding arbitration in accordance with the rules of the American Arbitration Association for the Construction Industry. A reinspection fee (in accordance with Mule-Hide's standard charges) shall be paid by Owner to Mule-Hide in the event the cause of the leak is not covered by the warranty. Mule-Hide is not liable for any promise, representation or other responsibility of the contractor. Warranty is not binding upon Mule-Hide unless executed by an executive officer of Mule-Hide. No representative or employee of Mule-Hide may vary this warranty without the prior written consent of the board of directors of Mule-Hide. The owner acknowledges that owner had a duty to exercise reasonable care in the selection of a contractor.		
27. Executed by owner	Yes; owner expressly accepts Mule-Hide's terms, conditions, and limitations.	No	Yes; owner must execute and return to PRS the "Ten Year Limited Material Warranty" notification card.





20. Job inspection policy	PRS employee or an approved roof auditor performs on-site inspections during application (depending on job size), after completion, prior to issuance of guaranty, as well as two years after issuance of guaranty; no charge.	PRS employee or an approved roof auditor performs on-site inspections during application (depending on job size), after completion, prior to issuance of guaranty, as well as two years after issuance of guaranty; no charge.	PRS employee or an approved roof auditor performs on-site inspections during application (depending on job size), after completion, prior to issuance of guaranty, as well as two years after issuance of guaranty; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; PRS indicates that it does not carry insurance covering its warranty obligations.	No; PRS indicates that it does not carry insurance covering its warranty obligations.	No; PRS indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	PRS manufactures and sells product.	PRS manufactures and sells product.	PRS manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	No restrictions stated.	No restrictions stated.	No restrictions stated.
26. Special features/conditions	<p>Owner shall be invoiced for reasonable repair costs for repairs and a nominal inspection charge if leaks reported to PRS are a result of causes not covered by guaranty.</p> <p>In the event an emergency situation exists, owner may make necessary temporary repairs, either directly or by contacting the original roofing contractor. Upon investigation by a PRS representative, owner shall be reimbursed for reasonable emergency repair costs if the leak is the responsibility of PRS.</p> <p>In the event PRS must make repairs, owner is responsible for providing a clean roof surface such that repairs can be made. This shall include, but not be limited to, the removal of water, ice, snow, dirt, and debris, as well as pavers on inverted roof membrane systems, prior to permanent repairs being made.</p> <p>PRS' specifications and all details must be properly selected by an architect or an engineer to meet specific needs and the applicable design loads for each project. The issuance of this guaranty by PRS, the inspection of the system application for any other parts of the roofing assembly, or any review of project specifications or plans, does not extend the terms and conditions of the guaranty and shall not constitute any substitution of professional judgment required in connection with the design of this project by the building owner or its design professional.</p> <p>Contract is not a maintenance agreement or an insurance policy; routine inspections and maintenance of the system must be completed by the building owner on a regular basis and is owner's responsibility.</p> <p>In the event PRS, the roofing contractor, and the owner cannot agree as to responsibilities under the guaranty, the parties agree to submit any such disagreement to arbitration as an exclusive remedy for resolution of such disagreement. All parties specifically waive any litigation alternative for resolution of any such dispute. (a) Any arbitration shall proceed in accordance with the directions of a professional roofing consultant mutually selected by the parties. In the event the parties cannot agree on an arbitrator, each shall select an independent professional roofing consultant as their representative and these consultants shall, in turn, select another, unaffiliated professional roofing consultant who will serve as the arbitrator. (b) All costs of any arbitrator(s) shall be included in the final judgment of the arbitrator. (c) Once a decision is reached by any arbitrator, the prevailing party can pursue whatever judicial action would be appropriate to enforce such decision.</p>	<p>Owner shall be invoiced for reasonable repair costs for repairs and a nominal inspection charge if leaks reported to PRS are a result of causes not covered by guaranty.</p> <p>In the event an emergency situation exists, owner may make necessary temporary repairs, either directly or by contacting the original roofing contractor. Upon investigation by a PRS representative, owner shall be reimbursed for reasonable emergency repair costs if the leak is the responsibility of PRS.</p> <p>In the event PRS must make repairs, owner is responsible for providing a clean roof surface such that repairs can be made. This shall include, but not be limited to, the removal of water, ice, snow, dirt, and debris, as well as pavers on inverted roof membrane systems, prior to permanent repairs being made.</p> <p>PRS' specifications and all details must be properly selected by an architect or an engineer to meet specific needs and the applicable design loads for each project. The issuance of this guaranty by PRS, the inspection of the system application for any other parts of the roofing assembly, or any review of project specifications or plans, does not extend the terms and conditions of the guaranty and shall not constitute any substitution of professional judgment required in connection with the design of this project by the building owner or its design professional.</p> <p>Contract is not a maintenance agreement or an insurance policy; routine inspections and maintenance of the system must be completed by the building owner on a regular basis and is owner's responsibility.</p> <p>In the event PRS, the roofing contractor, and the owner cannot agree as to responsibilities under the guaranty, the parties agree to submit any such disagreement to arbitration as an exclusive remedy for resolution of such disagreement. All parties specifically waive any litigation alternative for resolution of any such dispute. (a) Any arbitration shall proceed in accordance with the directions of a professional roofing consultant mutually selected by the parties. In the event the parties cannot agree on an arbitrator, each shall select an independent professional roofing consultant as their representative and these consultants shall, in turn, select another, unaffiliated professional roofing consultant who will serve as the arbitrator. (b) All costs of any arbitrator(s) shall be included in the final judgment of the arbitrator. (c) Once a decision is reached by any arbitrator, the prevailing party can pursue whatever judicial action would be appropriate to enforce such decision.</p>	<p>Owner shall be invoiced for reasonable repair costs for repairs and a nominal inspection charge if leaks reported to PRS are a result of causes not covered by guaranty.</p> <p>In the event an emergency situation exists, owner may make necessary temporary repairs, either directly or by contacting the original roofing contractor. Upon investigation by a PRS representative, owner shall be reimbursed for reasonable emergency repair costs if the leak is the responsibility of PRS.</p> <p>In the event PRS must make repairs, owner is responsible for providing a clean roof surface such that repairs can be made. This shall include, but not be limited to, the removal of water, ice, snow, dirt, and debris, as well as pavers on inverted roof membrane systems, prior to permanent repairs being made.</p> <p>PRS' specifications and all details must be properly selected by an architect or an engineer to meet specific needs and the applicable design loads for each project. The issuance of this guaranty by PRS, the inspection of the system application for any other parts of the roofing assembly, or any review of project specifications or plans, does not extend the terms and conditions of the guaranty and shall not constitute any substitution of professional judgment required in connection with the design of this project by the building owner or its design professional.</p> <p>Contract is not a maintenance agreement or an insurance policy; routine inspections and maintenance of the system must be completed by the building owner on a regular basis and is owner's responsibility.</p> <p>In the event PRS, the roofing contractor, and the owner cannot agree as to responsibilities under the guaranty, the parties agree to submit any such disagreement to arbitration as an exclusive remedy for resolution of such disagreement. All parties specifically waive any litigation alternative for resolution of any such dispute. (a) Any arbitration shall proceed in accordance with the directions of a professional roofing consultant mutually selected by the parties. In the event the parties cannot agree on an arbitrator, each shall select an independent professional roofing consultant as their representative and these consultants shall, in turn, select another, unaffiliated professional roofing consultant who will serve as the arbitrator. (b) All costs of any arbitrator(s) shall be included in the final judgment of the arbitrator. (c) Once a decision is reached by any arbitrator, the prevailing party can pursue whatever judicial action would be appropriate to enforce such decision.</p>
27. Executed by owner	Yes; owner and roofing contractor must acknowledge and accept the guaranty by signing.	Yes; owner and roofing contractor must acknowledge and accept the guaranty by signing.	Yes; owner and roofing contractor must acknowledge and accept the guaranty by signing.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Premium Polymers, Incorporated	Perspex Roofing Prod. Inc.	Perspex Roofing Prod. Inc.
2. Title, original publication date, and identifying symbol, if any	"Premium Polymers Premium-Ply Roofing System Warranty"; January 1992	Perspex Roofing Products Inc. "Guarantee"; 1982	Perspex Roofing Products Inc. "Guarantee"; 1988; Rev. January 1, 1988
3. Product, specification, or system covered	EPDM—Premium .045, Premium .060, Premium .045 Reinforced, Premium-Ply.	Proseal FA, Proseal LL, Proseal MF, Proseal PMA	Proseal FA, Proseal LL, Proseal MF, Proseal PMA
4. Scope of coverage	Material and workmanship; Premium warrants to repair leaks in the Premium Polymers Roofing System caused by defects in the Premium Roofing System's materials or workmanship of the Premium authorized contractor.	Material and workmanship; Prospex guarantees that it will investigate and repair leaks in the Prospex roofing membrane caused by defects in the roofing membrane supplied by Prospex or the workmanship of the Prospex-authorized roofing contractor.	Material only; Prospex covenants, agrees, and guarantees at its expense to replace any portion of the Prospex roofing membrane that has suffered actual leaks as a result of manufacturing defects in the Prospex roofing membrane.
5. Length of coverage	5 or 10 years from date of acceptance, but not to extend beyond 5 or 10 years from date of substantial completion of roofing system.	5 or 10 years	10 years
6. Nature of remedy	Premium will repair leaks in the Premium roofing system.	Perspex will investigate and repair leaks in the Proseal roofing membrane.	Perspex shall supply and install or supervise the installation by a roofing contractor approved by it of Prospex roofing membrane of equal quality and an adequate quantity to re-place the defective portion of the Prospex roofing membrane.
7. Monetary limitations	None stated.		Perspex's liability to supply and install Prospex roofing membrane is not to exceed the purchaser's installation cost of the original Prospex roofing system.
8. Notification requirements	Written notice within 30 days of discovery of any leaks in the Premium Roofing System to Premium's Warranty Administration Department	Perspex shall have no obligation if owner fails to notify Prospex promptly of any leaks in the roofing membrane.	Written notice to Prospex specifying any defect in the manufacture of the Prospex roofing system after discovery of any leak or damage to the roof
9. Exclusive or additional remedy	Remedies stated in warranty are the sole and exclusive remedies for failure of the Premium Roofing system; excludes UCC warranties.	Guarantee is in lieu of all other warranties.	Guarantee is in lieu of all other guarantees, agreements, warranties, conditions, representations or collateral agreements; seeks to exclude UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Premium's determination	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 5, 7, 13, 16, 17, 18	None listed; guarantee applies only to leaks caused by defects in Prospex roofing membrane or workmanship of Prospex-authorized roofing contractor.	1, 2, 3, 4, 5, 6, 8, 10, 13, 16, 17, 18, 19
13. Wind coverage/exclusions	Warranty excludes winds of peak gust speed of 55 mph or higher measured at 10 meters above ground, hurricanes and tornadoes.	Perspex indicates that there is no coverage for damage caused by wind.	Warranty excludes gales, hurricanes, and tornadoes. [Perspex indicates that there is no coverage for damage caused by wind.]
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F (see Special Features/Conditions), G	B, C, F, H, J, R	C, R
15. Cost to obtain	5 years: \$4.00/square; 10 years: \$6.00/square	5 years: \$3.00/square; 10 years: \$6.00/square	None
16. Minimum charge	5 years: \$350; 10 years: \$600	\$775	None
17. Ineligible structure or building use	Residential structures; however, warranty is available for apartment houses, co-ops, condominiums and the like.	None	None

18. Pre-construction notice and approval requirements	None	Contractor must complete preconstruction notice.	None
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Premium technical representative or consultant makes one on-site inspection prior to, during and after application, prior to issuance of warranty; no charge.	Prospex field representative makes on-site inspections during application and after completion, prior to issuance of guarantee; \$600 charge for final inspection.	Prospex field representative makes on-site inspections during application and after completion, prior to issuance of guarantee; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs due to materials and workmanship for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Although this is a material-only warranty, contractor is obligated to make repairs to materials and workmanship for two years.
22. Backed by named insurance or surety	No; Premium indicates that it does not carry insurance covering its warranty obligations.	No; Prospex indicates that it does not carry insurance covering its warranty obligations.	No; Prospex indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Premium sells product only.	Prospex manufactures and sells product.	Prospex manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision.	No renewal provision	No renewal provision
25. Assignability	No restrictions stated.	No restrictions stated.	Guarantee is nonassignable and shall extend only to purchaser and/or owner of building at the time of sale.
26. Special features/conditions	Warranty states that it will be null and void if owner or lessee fails to use reasonable care in maintaining the roof, including the maintenance listed on the Premium care and maintenance guidelines provided with the warranty.	Owner shall reimburse Prospex for all costs reasonably incurred by Prospex in locating and identifying the cause of an apparent leak if the leak is determined not to have been caused by a defect in Prospex roofing membrane or workmanship.	No change or modification of this guarantee shall be valid un-less in writing signed by Prospex.
27. Executed by owner	No	Yes	Yes

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Protective Coatings, Inc.	Republic Powdered Metals, Inc. (RPM)	Republic Powdered Metals, Inc. (RPM)
2. Title, original publication date, and identifying symbol, if any	"Protective Coatings, Inc. EPDM Roofing Limited Year Warranty"	"Republic Single Ply Systems Warranty"; September 1997; W001 9/97	"Republic Single Ply Systems Total System Warranty"; September 1997; W003 9/97
3. Product, specification, or system covered	ProShield-Black, ProShield-White, ProShield-White Fire Retardant, Black Fire Retardant. Totally Adhered, Plate Bonded, NP Mechanically Attached, Ballasted	Geoflex PIB (Polyisobutylene) and Cooley C3 Single Ply Systems	Geoflex PIB (Polyisobutylene) and Cooley C3 Single Ply Systems
4. Scope of coverage	Material and Workmanship; Protective Coatings warrants that the roofing membrane will be free from defects in workmanship and materials and, when properly installed, will remain watertight.	Material and workmanship; RPM warrants that the Republic Single Ply System will remain free from leaks resulting from defects in the manufacture of the materials or the improper installation thereof and that, should a leak occur in any area of the Republic Single Ply System, RPM will promptly correct such leak at its own expense. Republic Single Ply System shall mean all integral field sheet and accessory materials manufactured and/or supplied by Republic.	Material and workmanship; RPM warrants that the Republic Single Ply System will remain free from leaks resulting from defects in the manufacture of any materials and components as accepted by Republic and utilized in connection with the installation of the Republic Single Ply System or the improper installation and that, should a leak occur in any area of the Republic Single Ply System, RPM warrants that it will promptly correct such leak at its own expense. Republic Single Ply System shall mean all integral field sheet, accessory materials and components manufactured, supplied and/or accepted by Republic.
5. Length of coverage	5 or 10 years	10, 15 or 20 years	10, 15 or 20 years
6. Nature of remedy	Protective Coatings will repair or replace roofing system and pay transportation costs and all other costs necessary to remedy roof failure.	RPM warrants that it will promptly correct leaks in any area of the Republic Single Ply System at its own expense.	RPM warrants that it will promptly correct leaks in any area of the Republic Single Ply System at its own expense.
7. Monetary limitations	Protective Coatings' obligation over the life of the warranty shall not exceed owner's original cost of the installed roof.	None stated.	None stated.
8. Notification requirements	Written notice by registered mail to Protective Coatings' Fort Wayne, IN, office within 30 days of discovery of any defect or leak.	Building owner must notify RPM immediately upon the discovery of any leaks in the Republic Single Ply System and confirm notification in writing within seven days after such discovery.	Building owner must notify RPM immediately upon the discovery of any leaks in the Republic Single Ply System and confirm notification in writing within seven days after such discovery.
9. Exclusive or additional remedy	Owner's sole and exclusive remedy; no other warranties; excludes UCC warranties.	Remedy in the warranty is the sole and exclusive remedy available to the building owner so that RPM's repair constitutes fulfillment of all obligations. Warranty is in lieu of any other guarantees or warranties, express or implied; no representative, employee, or agent of RPM or any other person has any authority to modify or enlarge the scope of the warranty or to assume for RPM any additional or other liability in connection with Republic Single Ply System; excludes UCC warranties.	Remedy in the warranty is the sole and exclusive remedy available to the building owner so that RPM's repair constitutes fulfillment of all obligations. Warranty is in lieu of any other guarantees or warranties, express or implied; no representative, employee, or agent of RPM or any other person has any authority to modify or enlarge the scope of the warranty or to assume for RPM any additional or other liability in connection with the Republic Single Ply System; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral (no provision)	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 9, 10, 12, 13	1, 3, 5, 6, 7, 10, 11, 12, 15, 16, 17, 22, 23	1, 3, 5, 6, 7, 10, 11, 12, 15, 16, 17, 22, 23
13. Wind coverage/exclusions	Warranty excludes damage caused by wind.	Warranty excludes hurricanes and tornadoes. RPM indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.	Warranty excludes hurricanes and tornadoes. RPM indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C	A, B, C, F, G, H, I, J, L, M (See Special Features/Conditions)	A, B, C, F, G, H, I, J, L, M (See Special Features/Conditions)

15. Cost to obtain	5 year: none; 10 year: \$3.00/square.	10 years: \$5.00/square; 15 years: \$10.00/square; 20 years: \$20.00/square	10 years: \$5.00/square; 15 years: \$10.00/square; 20 years: \$20.00/square
16. Minimum charge	5 year: none; 10 year: \$300	10 years: \$500; 15 years: \$1,000; 20 years: \$2,000	10 years: \$500; 15 years: \$1,000; 20 years: \$2,000
17. Ineligible structure or building use	Noncommercial installations	None	None
18. Pre-construction notice and approval requirements	A pre-installation notice form must be submitted and approved in writing 14 days prior to start.	Notice of award from contractor detailing job requirements must be approved by RPM prior to construction.	Notice of award from contractor detailing job requirements must be approved by RPM prior to construction.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Protective Coatings' representative makes on-site inspection upon completion of application; no charge.	RPM technical service representative makes on-site inspections prior to, during application and upon completion, prior to issuance of warranty; no charge.	RPM technical service representative makes on-site inspections prior to, during application and upon completion, prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs due to workmanship deficiencies for two years.	Contractor obligated to make repairs to leaks and workmanship deficiencies for two years.	Contractor obligated to make repairs to leaks and workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Protective Coatings indicates that it carries \$500,000 general liability insurance.	No; RPM indicates that it does not carry insurance covering its warranty obligations.	No; RPM indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Protective Coatings, Inc. manufactures and sells product.	RPM manufactures and sells the materials.	RPM manufactures and sells the materials.
24. Conditions for renewal or extension	No renewal provision.	No renewal extension.	No renewal extension.
25. Assignability	Not assignable, but if the original owner is the developer or builder of the building, he may, within one year of completion of construction, request Protective Coatings, Inc. permit an assignment of the warranty to the purchase of the building from owner.	Warranty is non-transferable.	Warranty is non-transferable.
26. Special features/conditions	No representative has authority to make any representations other than stated in the warranty.	Owner agrees to accept RPM warranty as part of its purchase of the Republic Single Ply System and understands that the liability of RPM relating to the Republic Single Ply System and its installation is limited to the obligation to address warranty concerns. Owner understands and agrees that the construction and interpretation of the warranty shall be governed by the laws of the State of Ohio, excluding principles of conflicts of law. Owner agrees to follow and be bound by all terms and conditions stated in the Republic Care and Maintenance Guide which is incorporated into the warranty by reference.	Owner agrees to accept RPM warranty as part of its purchase of the Republic Single Ply System and understands that the liability of RPM relating to the Republic Single Ply System and its installation is limited to the obligation to address warranty concerns. Owner understands and agrees that the construction and interpretation of the warranty shall be governed by the laws of the State of Ohio, excluding principles of conflicts of law. Owner agrees to follow and be bound by all terms and conditions stated in the Republic Care and Maintenance Guide which is incorporated into the warranty by reference.
27. Executed by owner	Yes	See Special Features above.	See Special Features above.

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

Identity of issuing entity		Republic Powdered Metals, Inc. (RPM)	Roofing Products International Inc. (RPI)	Roofing Products International Inc. (RPI)
1. Title, original publication date, and identifying symbol, if any		"Manufacturer's Limited Warranty Material Only"; September 1997; W004 9/97	"Limited Membrane Only Warranty"; RPI-54-692-5C	"Limited Warranty Form"; Form RPI-91-31-1M
2. Product, specification, or system covered		Geoflex, Cooley C3, HyShield	RPI EPDM .045 Black, .060 White, .045 White, .060 White, RPI FR (Fire Retardant) EPDM .045 Black, .060 Black, .045 White, .060 White.	RPI EPDM .045 Black, .060 Black, .045 White, .060 White, RPI FR (Fire Retardant) EPDM .045 Black, .060 Black, .045 White.
3. Scope of coverage		Material only; RPM warrants that the Republic product(s) were manufactured in accordance with RPM's specifications and, when applied to smooth, dry compatible surfaces in accordance with RPM's application instructions and specifications, will remain free of voids, cracking and/or crazing as a result of defects in the material.	Material only; RPI warrants that the non-reinforced rubber membrane sold as "First Grade" will be free from defects in material and workmanship at time of installation and will not prematurely deteriorate to the point of failure because of weathering if properly installed, maintained, and used for purpose seller intended. This warranty refers to the membrane material only. Flashings, adhesives, and other accessories contained in a membrane system are not covered by warranty.	Material and workmanship; RPI warrants to repair any leaks due to defects in the RPI Roofing System materials or in workmanship of the RPI-authorized roofing applicator.
4. Length of coverage		5, 10 or 15 years (RPM indicates that warranty coverage depends upon specification and substrate used.)	10 or 20 years	5, 10, or 15 years
5. Nature of remedy		Should RPM's product(s) fail to conform to warranty, RPM shall, at its option, supply a sufficient quantity of materials necessary to remedy the defects, or the cash equivalent of same.	If membrane proves to be defective in materials or workmanship, seller's liability and buyer's remedies limited to repair and replacement of the defective membrane at the FOB point in the original contract. If membrane shows premature deterioration because of weathering, seller's liability and buyer's remedies are limited, at seller's option, to providing repair material for the original membrane or credit to be applied toward purchase of new membrane.	RPI will repair leaks in the RPI Rubber Roofing System.
6. Monetary limitations		RPM's total obligation over the life of the warranty shall not exceed the building owner's original cost of the RPM supplied product(s).	Value of remedy to be determined by seller based on number of remaining months of the unexpired warranty, prorated at the current prices for the membrane. Maximum prorated value allowed for repair or credit not to exceed original membrane purchase price.	RPI's obligation to remedy defects shall not exceed owner's original cost of materials and labor for installation of the RPI roofing system.
7. Notification requirements		None	Notification of breach of warranty within 30 days of discovery of premature deterioration of membrane	Written notification within 30 days of discovery of any leaks, by certified mail, return receipt requested, to RPI at 29542 Manchester Drive, Elkhart, IN 46514, or other such address RPI notifies owner
8. Exclusive or additional remedy		Remedy in warranty is the sole and exclusive remedy available to the building owner so that RPM's compliance constitutes fulfillment of all obligations. Warranty is in lieu of all other warranties, express or implied. No representative, employee, or agent of RPM or any other person has any authority to modify or enlarge the scope of the warranty or to assume for RPM any additional or other liability in connection with the product; excludes UCC warranties.	No warranties that extend beyond what is stated on warranty document; excludes UCC warranties.	Warranty is in lieu of any and all other express warranties that are in conflict; no warranties that extend beyond what is stated on warranty document.
9. Inclusion of consequential damages		No	No	No
10. Determination of warranty applicability		Neutral (no provision).	Unclear; warranty states, "If upon inspection by the Seller, the Membrane proves to be defective..."	Neutral (no provision)
11. Specific exclusions from coverage (See item no. 12 in Introduction.)		1, 2, 3, 6, 7, 10, 11, 12, 16, 17, 19, 20, 23	12, 19	1, 3, 4, 6, 7, 11, 12, 16, 17, 18, 22. Warranty also states that RPI shall have no obligation if leaks or damages are caused by failure of owner to comply with every condition, exclusion, or limitation in the warranty document.

13. Wind coverage/exclusions	Warranty excludes gales, hurricanes and tornadoes.		RPI indicates that there is no coverage for damage caused by wind.	RPI indicates that warranty covers roof damage resulting from wind speeds up to 39 mph. Warranty excludes gales, hurricanes, and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, R		None listed.	C
15. Cost to obtain	None		None	Ballasted systems: 5 years: \$5.00/square, 10 years: 8.00/square, 15 years: \$11.00/square; all other systems: 5 years: \$2.00/square; 10 years: \$4.00/square, 15 years: \$8.00/square
16. Minimum charge	None		None	Ballasted systems: 5 years: \$500, 10 years: \$750, 15 years: \$1,150; all other systems: 5 years: \$350, 10 years: \$500, 15 years: \$850
17. Ineligible structure or building use	None		None	Buildings not used for commercial purposes, including buildings used for residential, personal, family or household purposes; cold-storage buildings not approved prior to application; mechanically attached roofs on buildings more than four stories high
18. Pre-construction notice and approval requirements	RPM requires a Notice of Award on all projects showing pertinent information.		None	Submittal of job start notification form, RPI-91 or RPI-50, to RPI headquarters office for review by technical representative
19. Approved, authorized, or licensed applicator	Yes		No	Yes
20. Job inspection policy	No on-site inspections.		No on-site inspections	RPI technical representative makes on-site inspection after application, prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	None; material-only warranty.		None; material-only warranty	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; RPM indicates that it does not carry insurance covering its warranty obligations.		No; RPI indicates that it does not carry insurance covering its warranty obligations.	No; RPI does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	RPM manufactures and sells the product.		RPI sells product only.	RPI sells product only.
24. Conditions for renewal or extension	No renewal provision.		No renewal provision	No renewal provision
25. Assignability	Warranty is non-transferable.		No restrictions stated.	No restrictions stated.
26. Special features/conditions	The owner understands and agrees that the construction and interpretation of the warranty shall be governed by the laws of the State of Ohio, excluding principles of conflicts of law.		Warranty states that no representative of RPI has authority to make any representations or promises except as stated in the warranty document itself.	No representative of RPI or any other person or entity has the authority to make any representations or promises except as stated in warranty document.
27. Executed by owner	No		No	No

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

Sarnafil, Inc.		Sarnafil, Inc.		Seal-Dry/USA, Inc.	
1. Identity of issuing entity	"10 Year System Warranty - Sarnafil Roofing Warranty for Commercial Building;" March 1995	"10 Year Standard Warranty - Sarnafil Roofing Warranty for Commercial Building;" March 1995	"5 Year Limited Warranty (Membrane Only);" revised 9/94	Systems 3000, 5000	
2. Title, original publication date, and identifying symbol, if any	Sarnafil G410, S327, G442, G476	Sarnafil G410, S327, G442, G476	Sarnafil G410, S327, G442, G476	Seal-Dry warrants that the Seal-Dry roofing membrane is free from defects at the time it was supplied. Seal-Dry further warrants that the Seal-Dry roofing membrane, installed to Seal-Dry specifications, will remain free from defects.	
3. Product, specification, or system covered	Material and workmanship; Sarnafil warrants that it will repair leaks originating from the Sarnafil roofing membrane, Sarnatherm insulation, Sarnafil roofing accessories, or a defect in the Sarnafil authorized applicator's workmanship applied to the Sarnafil membrane.	Material and workmanship; Sarnafil warrants that it will repair leaks originating from the Sarnafil roofing membrane, Sarnatherm insulation, Sarnafil roofing accessories, or a defect in the Sarnafil authorized applicator's workmanship applied to the Sarnafil membrane.	Material and workmanship; Sarnafil warrants that it will repair leaks originating from the Sarnafil roofing membrane, Sarnatherm insulation, Sarnafil roofing accessories, or a defect in the Sarnafil authorized applicator's workmanship applied to the Sarnafil membrane.	5 years	
4. Scope of coverage	10 years	10 years	10 years	Owner's sole remedy to a defect in the materials is replacement of the membrane.	
5. Length of coverage	Sarnafil's liability is limited to repair of Sarnafil's roofing membrane, Sarnatherm insulation, or accessory.	Sarnafil's liability is limited to Sarnafil's repair of roofing membrane or accessory.	Sarnafil's liability is limited to Sarnafil's repair of roofing membrane or accessory.	Seal-Dry's total liability shall not exceed the original cost of the Seal-Dry membrane.	
6. Nature of remedy	None stated.	None stated.	None stated.	Written notice to Seal-Dry of any defect in the membrane within fifteen days of discovery.	
7. Monetary limitations	Written notification to Sarnafil, Canton Commerce Center, Canton, MA, within 30 days of discovery of each leak in the roofing system.	Written notification to Sarnafil, Canton Commerce Center, Canton, MA, within 30 days of discovery of each leak in the roofing system.	Written notification to Sarnafil, Canton Commerce Center, Canton, MA, within 30 days of discovery of each leak in the roofing system.	Owner's sole remedy to a defect in the materials is replacement of the membrane; warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	
8. Notification requirements	Warranty is given in lieu of all other warranties; remedies stated in warranty are exclusive; seeks to exclude UCC warranties.	Warranty is given in lieu of all other warranties; remedies stated in warranty are exclusive; seeks to exclude UCC warranties.	Warranty is given in lieu of all other warranties; remedies stated in warranty are exclusive; seeks to exclude UCC warranties.	No	
9. Exclusive or additional remedy	No	No	No	Seal-Dry's determination (See Special Features/Conditions).	
10. Inclusion of consequential damages	Sarnafil's determination	Sarnafil's determination	Sarnafil's determination	1, 2, 3, 4, 5, 7, 12, 16. Warranty also excludes animals and atomic radiation.	
11. Determination of warranty applicability	1, 2, 3, 6, 7, 8, 12, 17, 23. Roofing damage by wind-blown objects is also specifically excluded.	1, 2, 3, 6, 7, 8, 12, 17, 23. Roofing damage by wind-blown objects is also specifically excluded.	1, 2, 3, 6, 7, 8, 12, 17, 23. Roofing damage by wind-blown objects is also specifically excluded.	Warranty excludes damage from winds with peak gusts in excess of strong gales (defined as 47-54 mph on the Beaufort Scale), tornadoes and hurricanes. Seal-Dry indicates there is no coverage for damage caused by wind.	
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	Sarnafil indicates that warranty covers roof damage resulting from wind speeds up to 60 mph. Warranty excludes windstorms in excess of 60 mph, hurricanes, and tornadoes.	Sarnafil indicates that warranty covers roof damage resulting from wind speeds up to 60 mph. Warranty excludes windstorms in excess of 60 mph, hurricanes, and tornadoes.	Sarnafil indicates that warranty covers roof damage resulting from wind speeds up to 60 mph. Warranty excludes windstorms in excess of 60 mph, hurricanes, and tornadoes.	B, C, F, G, I, J, M, N; warranty also states that Seal-Dry has no obligation under warranty unless Seal-Dry agents or authorized installers are allowed access to roof to make inspections and repairs during regular working hours.	
13. Wind coverage/exclusions	C, G	C, G	C, G	None	
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	\$6.00/square	\$6.00/square	\$6.00/square	None	
15. Cost to obtain	\$800	\$800	\$800	None	
16. Minimum charge	Private residences	Private residences	Private residences	Contractor to obtain approval prior to beginning installation.	
17. Ineligible structure or building use	Contractor is to submit a Sarnafil "notice of award" form to Sarnafil's technical department for review and acceptance prior to shipment of Sarnafil membrane and accessories.	Contractor is to submit a Sarnafil "notice of award" form to Sarnafil's technical department for review and acceptance prior to shipment of Sarnafil membrane and accessories.	Contractor is to submit a Sarnafil "notice of award" form to Sarnafil's technical department for review and acceptance prior to shipment of Sarnafil membrane and accessories.	Yes	
18. Pre-construction notice and approval requirements	Yes	Yes	Yes		
19. Approved, authorized, or licensed applicator					



20. Job inspection policy	Sarnafil field technical representatives make on-site inspections during application (determined by field representative schedule) and after completion, as well as two years after issuance of warranty; no charge.	Sarnafil field technical representatives make on-site inspections during application (determined by field representative schedule) and after completion, as well as two years after issuance of warranty; no charge.	No on-site inspections.
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for two years.	The contractor is obligated to make repairs to workmanship deficiencies for two years.	None
22. Backed by named insurance or surety	No; Sarnafil indicates that it does not carry insurance covering its warranty obligations.	No; Sarnafil indicates that it does not carry insurance covering its warranty obligations.	No; Seal-Dry indicates it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Sarnafil manufactures and sells the product.	Sarnafil manufactures and sells the product.	Seal-Dry manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision.	No renewal provision.	No renewal provision.
25. Assignability	The warranty is extended solely and exclusively to the owner of the building at the time the roofing membrane is installed and is not assignable or transferable unless approved in advance and in writing by Sarnafil and the costs to process the transfer and to inspect and repair the roof, if necessary, are paid for by the original owner.	The warranty is extended solely and exclusively to the owner of the building at the time the roofing membrane is installed and is not assignable or transferable unless approved in advance and in writing by Sarnafil and the costs to process the transfer and to inspect and repair the roof, if necessary, are paid for by the original owner.	Warranty may be reissued to a subsequent purchaser for the remainder of the term following an inspection and after indicated repairs have been made at owner's expense. An inspection fee and a warranty issuance fee will be charged. Warranty shall not extend beyond warranty period.
26. Special features/conditions	Should the roofing membrane be concealed, the cost of exposure of the roofing membrane for purposes of Sarnafil's investigation and/or repair, such as removal and replacement of any paving or overburden, shall be the owner's responsibility. Any controversy or claim arising out of or relating to the warranty shall be settled by arbitration in Boston, Mass. by the American Arbitration Association in accordance with the Construction Industry Arbitration Rules, and judgment upon the arbitration award may be entered in any court having jurisdiction thereof. No representative of Sarnafil has authority to make any representations or promises except as stated in the warranty.	Should the roofing membrane be concealed, the cost of exposure of the roofing membrane for purposes of Sarnafil's investigation and/or repair, such as removal and replacement of any paving or overburden, shall be the owner's responsibility. Any controversy or claim arising out of or relating to the warranty shall be settled by arbitration in Boston, Mass. by the American Arbitration Association in accordance with the Construction Industry Arbitration Rules, and judgment upon the arbitration award may be entered in any court having jurisdiction thereof. No representative of Sarnafil has authority to make any representations or promises except as stated in the warranty.	If Seal-Dry's investigation reveals that defects were caused by something other than is covered by this warranty, owner shall be responsible for the cost of investigation and any repairs made by Seal-Dry. Seal-Dry has no warranty obligation when Owner has exercised reasonable care and maintenance in accordance with "Care and Maintenance Guide" on the reverse side of the warranty. Warranty is governed by Arkansas law. No representative of Seal-Dry has any authority to bind Seal-Dry with any representation or warranty other than stated in warranty.
27. Executed by owner	Yes	Yes	Yes

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

Seal-Dry/USA, inc.		Seal-Dry/USA, inc.		Seal-Dry/USA, inc.	
1. Identity of issuing entity		"5 Year Limited Warranty"; revised 9/94	"10 Year Limited Warranty"; revised 9/94	"10 Year Warranty"; revised 9/94	
2. Title, original publication date, and identifying symbol, if any					
3. Product, specification, or system covered		Systems 3000, 5000	Systems 3000, 5000	Systems 3000, 5000	
4. Scope of coverage		Material and workmanship; Seal-Dry warrants that the Seal-Dry roofing materials, if installed to Seal-Dry specifications, will provide watertight protection. Leaks in the Seal-Dry roof materials, which are the result of defects in material and/or workmanship, are covered. The warranty does not cover any other components of the roof or building. Caulking materials and sealants such as pitch pan fillers are considered maintenance items and are not covered by warranty.	Material and workmanship; Seal-Dry warrants that the Seal-Dry roofing materials, if installed to Seal-Dry specifications, will provide watertight protection. Leaks in the Seal-Dry roof materials, which are the result of defects in material and/or workmanship, are covered. The warranty does not cover any other components of the roof or building. Caulking materials and sealants such as pitch pan fillers are considered maintenance items and are not covered by warranty.	Material and workmanship; Seal-Dry warrants that the Seal-Dry roofing materials, if installed to Seal-Dry specifications, will provide watertight protection. Leaks in the Seal-Dry roof materials, which are the result of defects in material and/or workmanship, are covered. The warranty does not cover any other components of the roof or building. Caulking materials and sealants such as pitch pan fillers are considered maintenance items and are not covered by warranty.	
5. Length of coverage		5 years	10 years	10 years	
6. Nature of remedy		Seal-Dry will repair, or cause to be repaired (using Seal-Dry materials), leaks in the Seal-Dry materials, installed to Seal-Dry specifications, that are the result of defects in material and/or workmanship.	Seal-Dry will repair, or cause to be repaired (using Seal-Dry materials), leaks in the Seal-Dry materials, installed to Seal-Dry specifications, that are the result of defects in material and/or workmanship.	Seal-Dry will repair, or cause to be repaired (using Seal-Dry materials), leaks in the Seal-Dry materials, installed to Seal-Dry specifications, that are the result of defects in material and/or workmanship.	
7. Monetary limitations		Seal-Dry's total liability shall not exceed the original cost of the Seal-Dry materials and the labor to install them.	Seal-Dry's total liability shall not exceed the original cost of the Seal-Dry materials and the labor to install them.	None stated.	
8. Notification requirements		Written notice of any defect or leak in the roof within fifteen days of discovery.	Written notice of any defect or leak in the roof within fifteen days of discovery.	Written notice of any defect or leak in the roof within fifteen days of discovery.	
9. Exclusive or additional remedy		The owner's sole remedy to a defect in the materials and/or workmanship is Seal-Dry's repair of the leak; the warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	The owner's sole remedy to a defect in the materials and/or workmanship is Seal-Dry's repair of the leak; the warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	The owner's sole remedy to a defect in the materials and/or workmanship is Seal-Dry's repair of the leak; the warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	
10. Inclusion of consequential damages		No	No	No	
11. Determination of warranty applicability		Seal-Dry's determination (See Special Features/Conditions.)	Seal-Dry's determination (See Special Features/Conditions.)	Seal-Dry's determination (See Special Features/Conditions.)	
12. Specific exclusions from coverage (See item no. 12 in Introduction.)		1, 2, 3, 4, 5, 12, 16, 18. The warranty also excludes animals and atomic radiation.	1, 2, 3, 4, 5, 12, 16, 18. The warranty also excludes animals and atomic radiation.	1, 2, 3, 4, 5, 12, 16, 18. The warranty also excludes animals and atomic radiation.	
13. Wind coverage/exclusions		The warranty covers roof damage resulting from wind speeds up to 47 mph; warranty excludes winds with peak gusts in excess of strong gales (defined as 47-54 mph on the Beaufort Scale), tornadoes, and hurricanes.	The warranty covers roof damage resulting from wind speeds up to 47 mph; warranty excludes winds with peak gusts in excess of strong gales (defined as 47-54 mph on the Beaufort Scale), tornadoes, and hurricanes.	The warranty covers roof damage resulting from wind speeds up to 47 mph; warranty excludes winds with peak gusts in excess of strong gales (defined as 47-54 mph on the Beaufort Scale), tornadoes, and hurricanes.	
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)		B, C, F, G, I, J, M, N, R	B, C, F, G, I, J, M, N, R	B, C, F, G, I, J, M, N, R	
15. Cost to obtain		\$2.00/square	\$4.00/square	\$6.00/square	
16. Minimum charge		\$250	\$450	\$650	
17. Ineligible structure or building use		Residential single-dwelling homes eligible for membrane only warranty.	Residential single-dwelling homes eligible for membrane only warranty.	Residential single-dwelling homes eligible for membrane only warranty.	

18. Pre-construction notice and approval requirements	The contractor to provide pre-installation notice with building and job requirements and obtain approval prior to beginning installation.	Yes	The contractor to provide pre-installation notice with building and job requirements and obtain approval prior to beginning installation.	Yes
19. Approved, authorized, or licensed applicator	Yes		Yes	
20. Job inspection policy	Seal-Dry technical representative makes on-site inspections prior to, during (when necessary), and after application prior to issuance of warranty; two inspections no charge.		Seal-Dry technical representative makes on-site inspections prior to, during (when necessary), and after application prior to issuance of warranty; two inspections no charge.	
21. Contractor's post-installation obligation	No		The contractor obligated to make repairs to workmanship deficiencies for two years when a 10-year warranty is issued and for three years when a 15-year warranty is issued.	
22. Backed by named insurance or surety	No; Seal-Dry indicates that it does not carry insurance covering its warranty obligations.		No; Seal-Dry indicates that it does not carry insurance covering its warranty obligations.	
23. Issuing entity manufactures and/or sells products	Seal-Dry manufactures and sells the product.		Seal-Dry manufactures and sells the product.	
24. Conditions for renewal or extension	No renewal provision		No renewal provision	
25. Assignability	The warranty may be reissued to a subsequent purchaser for the remainder of the term following an inspection and after indicated repairs have been made at the owner's expense. An inspection fee and a warranty issuance fee will be charged. The warranty shall not extend beyond the warranty period.		The warranty may be reissued to a subsequent purchaser for the remainder of the term following an inspection and after indicated repairs have been made at the owner's expense. An inspection fee and a warranty issuance fee will be charged. The warranty shall not extend beyond the warranty period.	
26. Special features/conditions	If Seal-Dry's investigation reveals that leaks are not covered under warranty, the owner shall be responsible for the cost of investigation and any repairs made by Seal-Dry. The warranty is governed by Arkansas law. No representative of Seal-Dry has any authority to bind Seal-Dry with any representation or warranty other than stated in warranty.		If Seal-Dry's investigation reveals that leaks are not covered under warranty, the owner shall be responsible for the cost of investigation and any repairs made by Seal-Dry. The warranty is governed by Arkansas law. No representative of Seal-Dry has any authority to bind Seal-Dry with any representation or warranty other than stated in warranty.	
27. Executed by owner	Yes		Yes	

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Blumen, and Single-Ply)

1. Identity of issuing entity	Seal-Dry/USA, inc.	Seal-Dry/USA, inc.	Seaman Corporation
2. Title, original publication date, and identifying symbol, if any	*15 Year Limited Warranty*; revised 9/94	*15 Year Warranty*; revised 9/94	*Warranty for Commercial Roofing*
3. Product, specification, or system covered	Systems 3000, 5000	Systems 3000, 5000	FiberTite Single-Ply Roof
4. Scope of coverage	Material and workmanship; Seal-Dry warrants that the Seal-Dry roofing materials, if installed to Seal-Dry specifications, will provide watertight protection. Leaks in the Seal-Dry roof materials, which are the result of defects in material and/or workmanship, are covered. The warranty does not cover any other components of the roof or building. Caulking materials and sealants such as pitch pan fillers are considered maintenance items and are not covered by warranty.	Material and workmanship; Seal-Dry warrants that the Seal-Dry roofing materials, if installed to Seal-Dry specifications, will provide watertight protection. Leaks in the Seal-Dry roof materials, which are the result of defects in material and/or workmanship, are covered. The warranty does not cover any other components of the roof or building. Caulking materials and sealants such as pitch pan fillers are considered maintenance items and are not covered by warranty.	Material and workmanship; Seaman warrants that it will repair leaks in the FiberTite roofing system and/or defective workmanship provided by Seaman or its authorized FiberTite single-ply roof applicator.
5. Length of coverage	15 years	15 years	5 or 10 years
6. Nature of remedy	Seal-Dry will repair, or cause to be repaired (using Seal-Dry materials), leaks in the Seal-Dry materials, installed to Seal-Dry specifications, that are the result of defects in material and/or workmanship.	Seal-Dry will repair, or cause to be repaired (using Seal-Dry materials), leaks in the Seal-Dry materials, installed to Seal-Dry specifications, that are the result of defects in material and/or workmanship.	Seaman will repair leaks at its expense.
7. Monetary limitations	Seal-Dry's total liability shall not exceed the original cost of the Seal-Dry materials and the labor to install them.	None stated.	Seaman's obligation over the lifetime of warranty shall not exceed the original cost of the installed roof.
8. Notification requirements	Written notice of any defect or leak in the roof within fifteen days of discovery.	Written notice of any defect or leak in the roof within fifteen days of discovery.	Written notice to Seaman Corporation, 1000 Venture Blvd., Wooster, OH 44691, within 30 days after discovery of any leaks in the roofing system.
9. Exclusive or additional remedy	The owner's sole remedy to a defect in the materials and/or workmanship is Seal-Dry's repair of the leak; the warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	The owner's sole remedy to a defect in the materials and/or workmanship is Seal-Dry's repair of the leak; the warranty supersedes and is in lieu of all other warranties or guarantees; excludes UCC warranties.	The owner's sole and exclusive remedy for failure of the roofing system; no employee or representative has authority to make any representations other than those stated in warranty; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Seal-Dry's determination (See Special Features/Conditions.)	Seal-Dry's determination (See Special Features/Conditions.)	Seaman's good faith determination.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 12, 16, 18. The warranty also excludes animals and atomic radiation.	1, 2, 3, 4, 5, 12, 16, 18. The warranty also excludes animals and atomic radiation.	1, 3, 4, 5, 6, 7, 9, 10, 12, 18, 22, 24
13. Wind coverage/exclusions	The warranty covers roof damage resulting from wind speeds up to 47 mph; warranty excludes winds with peak gusts in excess of strong gales (defined as 47-54 mph on the Beaufort Scale), tornadoes, and hurricanes.	The warranty covers roof damage resulting from wind speeds up to 47 mph; warranty excludes winds with peak gusts in excess of strong gales (defined as 47-54 mph on the Beaufort Scale), tornadoes, and hurricanes.	Warranty excludes hurricanes and tornadoes. Seaman indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F, G, I, J, M, N; the warranty also states that Seal-Dry has no obligation under warranty unless Seal-Dry agents or authorized installers are allowed access to roof to make inspections and repairs during regular working hours.	B, C, F, G, I, J, M, N; the warranty also states that Seal-Dry has no obligation under warranty unless Seal-Dry agents or authorized installers are allowed access to roof to make inspections and repairs during regular working hours.	B, C
15. Cost to obtain	\$6.00/square	\$8.00/square	5 years: no charge; 10 years: \$4.00/square
16. Minimum charge	\$650	\$850	5 years: none; 10 years: \$400

17. Ineligible structure or building use	Residential single-dwelling homes eligible for membrane only warranty.	Residential single-dwelling homes eligible for membrane only warranty.	Roofing installations for personal, family, or household purposes.
18. Pre-construction notice and approval requirements	The contractor to provide pre-installation notice with building and job requirements and obtain approval prior to beginning installation.	The contractor to provide pre-installation notice with building and job requirements and obtain approval prior to beginning installation.	Contractor must submit FiberTite "request for warranty form/roof award information material submittal data" and obtain approval before material can be shipped.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Seal-Dry technical representative makes on-site inspections prior to, during (when necessary), and after application prior to issuance of warranty; two inspections no charge.	Seal-Dry technical representative makes on-site inspections prior to, during (when necessary), and after application prior to issuance of warranty; two inspections no charge.	Seaman technical service representatives make on-site inspections prior to, during (interim inspections coordinated with representative's travel schedule), and after completion, prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	No	The contractor obligated to make repairs to workmanship deficiencies for three years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Seal-Dry indicates that it does not carry insurance covering its warranty obligations.	No; Seal-Dry indicates that it does not carry insurance covering its warranty obligations.	No; Seaman indicates that it is self-insured.
23. Issuing entity manufactures and/or sells products	Seal-Dry manufactures and sells the product.	Seal-Dry manufactures and sells the product.	Seaman manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	The warranty may be reissued to a subsequent purchaser for the remainder of the term following an inspection and after indicated repairs have been made at the owner's expense. An inspection fee and a warranty issuance fee will be charged. The warranty shall not extend beyond the warranty period.	The warranty may be reissued to a subsequent purchaser for the remainder of the term following an inspection and after indicated repairs have been made at the owner's expense. An inspection fee and a warranty issuance fee will be charged. The warranty shall not extend beyond the warranty period.	Warranty may be assignable to a subsequent owner, only if the original owner requests in writing that Seaman Corporation consent to an assignment to the purchaser of the building, which consent will not be unreasonably withheld.
26. Special features/conditions	If Seal-Dry's investigation reveals that leaks are not covered under warranty, the owner shall be responsible for the cost of investigation and any repairs made by Seal-Dry. The warranty is governed by Arkansas law. No representative of Seal-Dry has any authority to bind Seal-Dry with any representation or warranty other than stated in warranty.	If Seal-Dry's investigation reveals that leaks are not covered under warranty, the owner shall be responsible for the cost of investigation and any repairs made by Seal-Dry. The warranty is governed by Arkansas law. No representative of Seal-Dry has any authority to bind Seal-Dry with any representation or warranty other than stated in warranty.	The owner will be responsible for the cost of investigation if any leak is determined not to be covered by warranty.
27. Executed by owner	Yes	Yes	Yes

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Seaman Corporation	Seaman Corporation	Seaman Corporation
2. Title, original publication date, and identifying symbol, if any	"Warranty for Commercial Roofing"	"Materials Warranty for FiberTite Roofing Membrane"	"Warranty for Commercial Roofing"
3. Product, specification, or system covered	FiberTite Single-Ply Roof	FiberTite Single-Ply Roof	FiberTite Single-Ply Roof
4. Scope of coverage	Material and workmanship; Seaman warrants that it will repair leaks in the FiberTite roofing system and/or defective workmanship provided by Seaman or its authorized FiberTite single-ply roof applicator.	Seaman warrants its FiberTite membrane materials to be in accordance with its published specifications and free from material defects in components and workmanship that would affect performance.	Material and workmanship; Seaman warrants that it will repair leaks in the FiberTite roofing system and/or defective workmanship provided by Seaman or its authorized FiberTite single-ply roof applicator.
5. Length of coverage	15 years	10 years	15 years
6. Nature of remedy	Seaman will repair leaks at its expense.	Seaman's obligation is limited to, at its option, allowance for credit, repair, or replacement of any material that may prove defective under normal use and service. Seaman's liability is prorated such that Seaman's liability ranges from 100 percent if the defect occurs in the first year to 8 percent if the defect occurs in the tenth year.	Seaman will repair leaks at its expense.
7. Monetary limitations	Seaman's obligation over the lifetime of warranty shall not exceed the original cost of the installed roof.	Seaman's prorated liability is based upon the original sales price.	None stated.
8. Notification requirements	Written notice to Seaman Corporation, 1000 Venture Blvd., Wooster, OH 44691, within 30 days after discovery of any leaks in the roofing system.	Written notification within 30 days of discovery of the alleged defect to Seaman Corporation.	Written notice to Seaman Corporation, 1000 Venture Blvd., Wooster, OH 44691, within 30 days after discovery of any leaks in the roofing system.
9. Exclusive or additional remedy	The owner's sole and exclusive remedy for failure of the roofing system; no employee or representative has authority to make any representations other than those stated in warranty; excludes UCC warranties.	No other warranties applicable to material; corrections to non-conformities and defects as provided for in the warranty shall constitute fulfillment of all liabilities of Seaman to the customer, whether based on contract, negligence, or otherwise. Should the fabric prove defective to the extent that it precludes the remedying of warranted defects by repair or replacement, customer's sole and exclusive remedy shall be the refund of the purchase price of the fabric or the part thereof that is defective, upon its return to Seaman Corporation. No warranties or representations at any time by any sales representative, dealer, agent, or any person shall be effective to vary or expand the warranty; excludes UCC warranties.	The owner's sole and exclusive remedy for failure of the roofing system; no employee or representative has authority to make any representations other than those stated in warranty; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Seaman's good faith determination.	Seaman's determination.	Seaman's good faith determination.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 6, 7, 9, 10, 12, 18, 22, 24	1, 3, 13, 16, 18, 20, 21, 23	1, 3, 4, 5, 6, 7, 9, 10, 12, 18, 22, 24
13. Wind coverage/exclusions	Warranty excludes hurricanes and tornadoes. Seaman indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.	Warranty excludes hurricanes and tornadoes. Seaman indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.	Warranty excludes hurricanes and tornadoes. Seaman indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C	A, H. Warranty will also be void if any of the specific exclusions listed above occur or if material is exposed to "excessive pressures or sources," external forces, radiation, harmful fumes or foreign substances in the atmosphere, or any use not specifically for roofing application.	B, C

15. Cost to obtain	\$7.00/square	None	\$9.00/square
16. Minimum charge	\$750	None	\$900
17. Ineligible structure or building use	Roofing installations for personal, family, or household purposes.	Roofing installations for personal, family, or household purposes.	Roofing installations for personal, family, or household purposes.
18. Pre-construction notice and approval requirements	Contractor must submit FiberTite "request for warranty form/roof award information material submittal data" and obtain approval before material can be shipped.	Contractor must submit FiberTite "request for warranty form/roof award information material submittal data" and obtain approval before material can be shipped.	Contractor must submit FiberTite "request for warranty form/roof award information material submittal data" and obtain approval before material can be shipped.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Seaman technical service representatives make on-site inspections prior to, during (interim inspections coordinated with representative's travel schedule), and after completion, prior to issuance of warranty; no charge.	Seaman technical service representatives make on-site inspections prior to, during (interim inspections coordinated with representative's travel schedule), and after completion, prior to issuance of warranty; no charge.	Seaman technical service representatives make on-site inspections prior to, during (interim inspections coordinated with representative's travel schedule), and after completion, prior to issuance of warranty; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Seaman indicates that it is self-insured.	No; Seaman indicates that it is self-insured.	No; Seaman indicates that it is self-insured.
23. Issuing entity manufactures and/or sells products	Seaman manufactures and sells the product.	Seaman manufactures and sells the product.	Seaman manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty may be assignable to a subsequent owner, only if the original owner requests in writing that Seaman Corporation consent to an assignment to the purchaser of the building, which consent will not be unreasonably withheld.	No restrictions stated.	Warranty may be assignable to a subsequent owner, only if the original owner requests in writing that Seaman Corporation consent to an assignment to the purchaser of the building, which consent will not be unreasonably withheld.
26. Special features/conditions	The owner will be responsible for the cost of investigation if any leak is determined not to be covered by warranty.	All purchase orders for FiberTite Membrane will be deemed submitted subject to and in accordance with Seaman Corporation standard terms and conditions of sale.	The owner will be responsible for the cost of investigation if any leak is determined not to be covered by warranty.
27. Executed by owner	Yes	No	Yes

# MEMBRANE WARRANTIES

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Seaman Corporation	Siplast, Inc.	Siplast, Inc.
2. Title, original publication date, and identifying symbol, if any	"Materials Warranty for FiberTite Roofing Membrane"	Siplast, Inc. "Roof Membrane Limited Warranty"; October 15, 1987	Siplast, Inc. "Roof Membrane Guarantee"; March 1, 1982
3. Product, specification, or system covered	FiberTite Single-Ply Roof	Paratech	Paradine 20/30, Veral, Paradine 40, Parafor 50 LT
4. Scope of coverage	Seaman warrants its FiberTite membrane materials to be in accordance with its published specifications and free from material defects in components and workmanship that would affect performance.	Siplast warrants that the roof membrane shall remain in watertight condition if roof membrane is installed according to Siplast specifications by an approved roofing contractor and the use of Siplast materials has been approved in advance; unclear from the document itself whether warranty covers workmanship. (Siplast indicates that the workmanship of the contractor is covered.)	Siplast guarantees roof membrane shall remain in watertight condition if roof membrane is installed according to Siplast specifications by an approved roofing contractor and the use of Siplast materials has been approved in advance; unclear from the document itself whether guarantee covers workmanship. (Siplast indicates that the workmanship of the contractor is covered.)
5. Length of coverage	15 years	5 or 10 years	10 years, with additional 5-year and 10-year extension options available
6. Nature of remedy	Seaman's obligation is limited to, at its option, allowance for credit, repair, or replacement of any material that may prove defective under normal use and service. Seaman's liability is prorated such that Seaman's liability ranges from 100 percent if the defect occurs in the first year to 5 percent if the defect occurs in the fifteenth year.	Siplast shall repair the roof membrane at its own expense. (See Special Features/Conditions.)	Siplast shall repair the roof membrane at its own expense. (See Special Features/Conditions.)
7. Monetary limitations	Seaman's prorated liability is based upon the original sales price.		None stated.
8. Notification requirements	Written notification within 30 days of discovery of the alleged defect to Seaman Corporation.		Written notice within 30 days after leak is discovered or should by reasonable diligence have been discovered.
9. Exclusive or additional remedy	No other warranties applicable to material; corrections to non-conformities and defects as provided for in the warranty shall constitute fulfillment of all liabilities of Seaman to the customer, whether based on contract, negligence, or otherwise. Should the fabric prove defective to the extent that it precludes the remedying of warranted defects by repair or replacement, customer's sole and exclusive remedy shall be the refund of the purchase price of the fabric or the part thereof that is defective, upon its return to Seaman Corporation. No warranties or representations at any time by any sales representative, dealer, agent, or any person shall be effective to vary or expand the warranty; excludes UCC warranties.	Owner's exclusive remedy against Siplast regarding the roof membrane; excludes all other warranties; excludes UCC warranties.	Excludes other warranties; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability (See item no. 12 in Introduction.)	Seaman's determination	Neutral (no provision)	Neutral (no provision)
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 13, 16, 18, 20, 21, 23	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 23	1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 15, 23
13. Wind coverage/exclusions	Warranty excludes hurricanes and tornadoes. Seaman indicates that warranty covers roof damage resulting from wind speeds up to 73 mph.	Warranty excludes windstorms, hurricanes and tornadoes.	Warranty excludes windstorms, hurricanes, and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	A. H. Warranty will also be void if any of the specific exclusions listed above occur or if material is exposed to "excessive pressures or sources," external forces, radiation, harmful fumes or foreign substances in the atmosphere, or any use not specifically for roofing application.	C, H, R	C, H, R
15. Cost to obtain	\$2.00/square	5 years, \$4.00/square; 10 years, \$6.00/square	None, if over 50 squares
16. Minimum charge	\$250	\$300 if less than 50 squares	\$300 if less than 50 squares
17. Ineligible structure or building use	Roofing installations for personal, family, or household purposes.	Cold-storage buildings and buildings with high-interior-humidity problems.	Cold-storage buildings and buildings with high-interior-humidity problems.



18. Pre-construction notice and approval requirements	Contractor must submit FiberTite "request for warranty form/roof award information material submittal data" and obtain approval before material can be shipped.	Yes	A guarantee application form listing job conditions and requirements must be submitted and approved by Siplast technical department prior to shipment of materials.	Yes	A guarantee application form listing job conditions and requirements must be submitted and approved by Siplast technical department prior to shipment of materials.
19. Approved, authorized, or licensed applicator	Yes	Yes	Inspections by field technical staff prior to and during application as needed, after application and two years after issuance of warranty; no charge.	Yes	Inspections by field technical staff prior to and during application as needed, after application and two years after issuance of warranty; no charge.
20. Job inspection policy	Seaman technical service representatives make on-site inspections prior to, during (interim inspections coordinated with representative's travel schedule), and after completion, prior to issuance of warranty; no charge.		Contractor is obligated to make repairs to workmanship deficiencies for two years.		Contractor is obligated to make repairs to workmanship deficiencies for two years.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years.		No; Siplast does not carry insurance covering its warranty obligations.		No; Siplast does not carry insurance covering its warranty obligations.
22. Backed by named insurance or surety	No; Seaman indicates that it is self-insured.		Siplast manufactures and sells product.		Siplast manufactures and sells product.
23. Issuing entity manufactures and/or sells products	Seaman manufactures and sells the product.				
24. Conditions for renewal or extension	No renewal provision		No renewal provision		Siplast offers 5-year and 10-year addendum options to extend the roof membrane guarantee. In order to obtain either the 5-year or 10-year extension, the owner must properly execute and return the Siplast Addendum to Roof Membrane Guarantee to Siplast prior to issuance of the original guarantee. In order for the option to become effective, within six months prior to expiration of the original guarantee, the owner shall notify the Siplast technical department, in writing, to arrange for a free job inspection that will be made within 30 days by Siplast. The owner is to have a Siplast-approved contractor effect properly all maintenance and non-roof membrane-related repairs deemed necessary by Siplast in accordance with Siplast's instructions and is to provide written verification that all such maintenance and repairs have been completed. Siplast will then invoice the owner for the guarantee extension charge in effect at time of extension. Current charges to extend the guarantee are \$4.00/square for a 5-year extension and \$10.00/square for a 10-year extension. Owner shall promptly pay to Siplast the renewal charges, after inspection and written verification that all maintenance and repairs have been completed in accordance with Siplast's instructions and specifications.
25. Assignability	No restrictions stated.		No restrictions stated.		No restrictions stated.
26. Special features/conditions	All purchase orders for FiberTite Membrane will be deemed submitted subject to and in accordance with Seaman Corporation standard terms and conditions of sale.		Warranty provides that the expense of removing and replacing traffic surfaces built over the roof shall be borne by the owner.		Guarantee provides that the expense of removing and replacing traffic surfaces built over the roof shall be borne by the owner.
27. Executed by owner	No		No		No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Siplast, Inc.	Soprema, Inc.	Southwestern Petroleum Corporation (SWEPCO)
2. Title, original publication date, and identifying symbol, if any	"Roof System Guarantee"; September 1986	Soprema, Inc. "Limited Warranty For Roofing System"; Jan. 1, 1997	"SWEPCO Brand Roofing Products Limited Warranty"; October 1989; J-7433-08-90-BP
3. Product, specification, or system covered	Siplast roof membrane, Siplast Zonolite, Insulperm, NVS, Insulcel and Zonocel roof insulation, and Zono-tite and NVS fasteners	Sopralene; 180, Flam 180, 180 Granules, Flam 180 Granules, 280, Flam 280, 250 Granules, Flam 250 Granules, 350, 350 Granules, Flam Stick, Flam 250 Alu, Flam 250 Copper, Jardi, Flam Antirock, Soprasael; Elastophene; Flam, Granules, Flam Granules, PS, 180, 180 PS, Flam Granules FR, Granules FR, Flam Stick, Colphene Granules; Sopralast; Aluminum, Copper, Stainless, Memmouth Aluminum.	Uni+Shield Single-Ply Roof System 302; Heavy Duty Cold Process BUR System 301; Uni+Shield II Cold Process BUR System 303
4. Scope of coverage	Material and workmanship; Siplast warrants that the roof system, comprised solely of the Siplast roof membrane, Siplast roof insulation, and Zono-tite or NVS fasteners, will remain in a watertight condition. Siplast warrants that the actual resistance to heat flow through the roof insulation will be at least 80% of design thermal resistance provided that the roofing membrane is maintained free of leaks; if leaks occur, the insulating performance of the roof insulation will be at least 80% of design thermal resistance within a two-year period following repair of the leak; the roof insulation will remain in a reroofable condition should the roof membrane require replacement. Damage to the roof insulation caused by a fastener pull-out during removal of the old membrane is excluded; the roof insulation will not cause structural damage to the building as a result of its expansion from thermal or chemical action. (See Special Features/Conditions.)	Material and workmanship; Soprema warrants that the roofing membrane and flashing materials sold by Soprema will remain in a watertight condition and that the roofing system is free from defects in material and installation at the time of application and that the materials in the roofing system conform to Soprema's specifications.	Material only; SWEPCO warrants that it will furnish sufficient roofing material to correct any roof leaks that occur in warranted applications solely as a result of a proven product defect. SWEPCO does not warrant that products will resist the effects of normal aging for the entire warranty period.
5. Length of coverage	10 years: all systems; 15 and 20 years available for Paradene 20/30 and Veral systems	10, 15, or 20 years	Uni+Shield: 5 years without extended-life coating option; Uni+Shield: 12 years with extended-life coating option; Poly-Shield: 8 years without extended life coating option; Poly-Shield: 12 years with extended-life coating option
6. Nature of remedy	If the roof systems does not remain in a watertight condition, Siplast will repair the roof system at its own expense. If the roof insulation fails to perform as guaranteed, Siplast shall, at its own expense, make or cause to be made repair or modifications to the roof insulation as Siplast deems appropriate so as to enable the roof insulation to perform as guaranteed. Siplast will be liable only for the cost of repair of the roof system by a Siplast approved contractor. The expense of removing and replacing traffic surfaces built over the roof shall be borne by owner.	Soprema will make repairs necessary to correct leaks in the roof membrane and flashing at its own expense, including all labor and materials, resulting from defects in material and faulty or improper installation in the roofing system or the failure of materials to meet Soprema specifications.	Replacement material only; SWEPCO will furnish materials required to repair leaks. Value of materials calculated at list prices current at the time of claim; under no circumstances are cash payments made.
7. Monetary limitations	None stated.	None stated.	Maximum aggregate value of replacement SWEPCO-brand roofing products recoverable over the life of the warranty shall not exceed the original invoiced price for warranted SWEPCO-brand roofing products.
8. Notification requirements	Written notice within 30 days after leak is discovered or should by reasonable diligence have been discovered.	Written notification within 30 days after any defect or leak is discovered or in the exercise of ordinary care should have been discovered to Soprema, Inc. at 310 Quadral Drive, Wadsworth, OH 44281.	Owner shall notify SWEPCO promptly and provide written confirmation by registered mail to SWEPCO at P.O. Box 961005, Ft. Worth, TX 76161-0005, within 14 days of discovery of any leaks.
9. Exclusive or additional remedy	The owner's exclusive remedy against Siplast with respect to the roof system; owner waives any and all other claims, actions, and demands relating to roof system; excludes all other guarantees; excludes UCC warranties.	Warranty is sole and exclusive remedy against Soprema; excludes all other warranties; Soprema not liable for special, incidental or consequential damages of any kind, whether arising from breach of contract, negligence, breach of warranty or any other legal theory including loss of use of building or equipment, cost of capital, cost of substitute equipment, facilities or services, lost profits, downtime costs, or claims of customers.	Owner accepts warranty as its sole and exclusive remedy; owner expressly waives any and all other claims; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral	Neutral (no provision)	SWEPCO's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 15, 23. Guarantee also specifically excludes chemical or organic deposits or other unusual occurrences.	1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13 (including exposure to chlorofluorocarbons, solvents, hydrocarbons, gasoline, acids, corrosives, salts, turpentine, oil, fat, grease, smoke, or fumes), 16, 17, 20, 23. Warranty also excludes damage due to insect infestation, rodents, and vermin.	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16, 17, 19, 20, 22, 23
13. Wind coverage/exclusions	Siplast indicates guarantee covers roof damage resulting from winds, but does not indicate covered wind speed. Guarantee excludes windstorms, hurricanes, and tornadoes. (Beaufort scale defines storm as winds between 55 and 63 mph.)	Warranty excludes windstorms in excess of Beaufort Number 8 of the Beaufort Scale, hurricanes, and tornadoes. Warranty covers roof damage resulting from wind speeds up to 46 mph.	Warranty excludes windstorms, gales, hurricanes, and tornadoes. [SWEPCO indicates that it does not have a definition of windstorm based upon wind speed.]

14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, H, R	A, B, C, F (including keeping all drains unclogged and properly working at all times, preventing excessive traffic across the roof and maintaining pitch pans and flashings in a watertight condition), H, N, R	A, B, C, G, H, M. Also failure to promptly apply replacement products provided under warranty or provide written verification of application will automatically terminate warranty.
15. Cost to obtain	10 years: no charge; 15 years: \$7.50/square; 20 years: \$12.50/square	10 years: no charge; 15 years: \$7.50/square; 20 years: \$12.50/square	None
16. Minimum charge	\$300 if less than 50 squares, plus normal per-square charge	None	None
17. Inhabitable structure or building use	Cold-storage buildings and buildings with high humidity problems	None	None
18. Pre-construction notice and approval requirements	A guarantee application form listing job conditions and requirements must be submitted and approved by Siplast technical department prior to shipment of materials.	Soprema requires a pre-bid approval from the specifier and contractor. Once received and approved, the respective parties receive approval notification. (All approvals are registered with the home office).	None
19. Approved, authorized, or licensed applicator	Yes; the roofing contractor and lightweight concrete applicator must be approved and licensed by Siplast.	Yes	No
20. Job inspection policy	Siplast field technical staff makes inspections prior to, during, and after application prior to issuance of guarantee as well as two years after issuance of guarantee; no charge.	Soprema-authorized representative makes on-site inspections prior, during (depending on the circumstances), and after application prior to issuance of warranty, as well as two years after issuance of warranty; no charge.	No on-site inspections
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	None; material-only warranty
22. Backed by named insurance or surety	No; Siplast does not carry insurance covering its warranty obligations.	No; Soprema indicates that it does not carry insurance covering its warranty obligations.	No
23. Issuing entity manufactures and/or sells products	Siplast manufactures and sells the products.	Soprema manufactures and sells product.	SWEPCO manufactures and sells PolyShield product; SWEPCO sells Uni+Shield product only.
24. Conditions for renewal or extension	Siplast offers 5- and 10-year options to extend the roof system guarantee. In order to obtain either the 5- or 10-year extension, the owner must properly execute and return the Siplast addendum to roof system guarantee to Siplast prior to issuance of the original guarantee. In order for the option to become effective, within six months prior to expiration of the original guarantee, the owner shall notify the Siplast technical department, in writing, to arrange for a free job inspection that will be made within 30 days by Siplast. The owner is to have a Siplast-approved contractor effect properly all maintenance and non-roof membrane-related repairs deemed necessary by Siplast in accordance with Siplast's instructions and is to provide written verification that all such maintenance and repairs have been completed. Siplast will then invoice the owner for the guarantee extension charge in effect at time of extension. Current charges to extend the guarantee are \$4,000/square for a 5-year extension and \$10,000/square for a 10-year extension. The owner shall promptly pay Siplast the renewal charges, after inspection and written verification that all maintenance and repairs have been completed in accordance with Siplast's instructions and specifications.	No renewal provision	Uni+Shield 12-year warranty (with extended-life coating option) may be extended to 20 years. Extension is contingent upon satisfactory inspection and recoating with the original coating at the end of the 12-year term.
25. Assignability	The guarantee is assignable if Siplast is given at least 30 days written notice prior to transfer and the intended building use is stated; an inspection of the roof/roof insulation system is made by Siplast; any repairs to the roof/roof insulation system that may be deemed necessary by Siplast are made at the owner's expense; and, the inspection and processing fee (\$300) is paid to Siplast.	Warranty extends only to original owner and is not transferable or assignable without prior written consent of Soprema. If repairs are required, expense of removing and replacing traffic surfaces or other structures built over the roof shall be borne by owner.	Any transfer of warranty to subsequent owners, purchasers, or tenants must be approved in writing by SWEPCO vice president of customer service.
26. Special features/conditions	No claim may be made with respect to thermal performance of Siplast roof insulation unless based on tests carried out at owner's expense by a qualified laboratory using tests and procedures satisfactory to Siplast. Siplast reserves the right to perform thermal testing of the roof insulation to be carried out at Siplast's direction and expense.	Any product sold by Soprema and not manufactured by Soprema is sold "as is" and without any warranty. Soprema disclaims any liability or responsibility for specifications, design, or construction of any portion of the building, including the roofing system, except as stated in warranty. Warranty shall be construed according to laws of Ohio.	Any replacement products due under warranty will be made FOB SWEPCO's principal place of business or nearest warehouse.
27. Executed by owner	No	No	No; however, SWEPCO's order form, incorporating the warranty, requires buyer's signature

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Tamko Roofing Products, Inc.	Tamko Roofing Products, Inc.	Tamko Roofing Products, Inc.
2. Title, original publication date, and identifying symbol, if any	"Tam-Ply IV Labor and Material Guarantee (A Limited Warranty)"; Jan. 15, 1994; 997296	"Versa-Cap FR Labor and Material Guarantee (A Limited Warranty)"; Jan. 15, 1994; 997297	"Premium Roofing System NDJ Guarantee (A Limited Warranty)"; February 1995; JP22255 997226
3. Product, specification, or system covered	BUR specifications: 601, 602, 603, 604, 605, 607, 612, 614, 615, 616. (Specification 604 is only available in Regions 2 and 3.)	Specification Series 700	BUR specifications 503, 507; modified bitumen specifications 103, 108, 109, 103 HW, 108 HW, 109 HW, 103 FR, 108 FR, 109 FR. Base flashings must use Premium Grade Awaplan.
4. Scope of coverage	Material only; Tamko warrants that the Tam-Ply IV is free from manufacturing defects that result in leaks	Material only; Tamko warrants that the Versa-Cap FR is free from manufacturing defects that result in leaks.	Material and workmanship; Tamko agrees to provide roof repair services for leaks in the roofing system (exclusive of metal work and non-Tamko-approved flashings) attributable to ordinary wear and tear of the roofing system or workmanship deficiencies in application to the extent necessary to return the roofing system to a watertight condition.
5. Length of coverage	10 years	10 years	20 years
6. Nature of remedy	If manufacturing defects result in leaks, Tamko shall have 90 days after receipt of notification to make repairs or cause repairs to be made to the Tam-Ply IV or replace the Tam-Ply IV (exclusive of non-Tamko flashing and metal work and materials used as a roof base over which the Tam-Ply IV is applied and repairs required by defects therein) as required to prevent leaks in the roof resulting from manufacturing defects.	If manufacturing defects result in leaks, Tamko shall have 90 days after receipt of notification to make repairs or cause repairs or replacement of the Versa-Cap FR to be made, (exclusive of non-Tamko flashing and metal work and materials used as a roof base over which the Versa-Cap FR is applied and repairs required by defects therein) as required to prevent leaks in the roof resulting from manufacturing defects.	Tamko will arrange for repair to the roofing membrane and base flashing. Tamko shall have no more than 90 days after receipt of notification of leaks to make or cause to be made repairs or replacement unless otherwise prevented by acts of God. Prior to the expiration of such 90-day period, Tamko will not be liable for any cost of repair or replacement unless Tamko has given its written approval.
7. Monetary limitations	Tamko's maximum liability shall be limited to repair and replacement of Tamko materials up to a maximum liability over the term of the warranty of \$60 for each installed roofing square for the first five years; reduced by 20 percent for each year following the initial five years of the warranty of that portion of the Tam-Ply IV containing a manufacturing defect which has resulted in leaks.	Tamko's maximum liability shall be limited to repair and replacement of Tamko materials up to a maximum liability over the term of the warranty of \$100 per square for the first five years, reduced by 20 percent for each year following the initial five years of the warranty of that portion of the Versa-Cap FR containing a manufacturing defect which has resulted in leaks.	None stated.
8. Notification requirements	Written notification by certified mail to Tamko at P. O. Box 1404, Joplin, MO 64802, within 30 days following discovery of any leaks alleged to result directly from manufacturing defects.	Written notification by certified mail to Tamko at P. O. Box 1404, Joplin, MO 64802 within 30 days following discovery of any leaks alleged to result directly from manufacturing defects.	Written notice to Tamko no later than 30 days after discovery of any leaks.
9. Exclusive or additional remedy	Guarantee is in lieu of any other obligations, guarantees, warranties, or liabilities on the part of Tamko; excludes UCC warranties.	Guarantee is in lieu of any other obligations, guarantees, warranties, or liabilities on the part of Tamko; excludes UCC warranties.	The guarantee is in lieu of any other obligations, guarantees, warranties, or liability on the part of Tamko; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Tamko's determination	Tamko's determination	Tamko will solely determine the condition of watertightness.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (including exposure from aliphatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils, organic or inorganic polar materials, and exposure to ionized radiation or contamination by radioactivity from any nuclear source), 15, 19, 20, 22, 23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (including exposure from aliphatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils, organic or inorganic polar materials, and exposure to ionized radiation or contamination by radioactivity from any nuclear source), 15, 19, 20, 22, 23	1, 2, 3, 4, 6, 7, 8, 11, 12, 13 (including exposure from aliphatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils or organic or inorganic polar materials, and exposure to ionized radiation or contamination by radio-activity from any nuclear source), 15, 18, 20, 23
13. Wind coverage/exclusions	Warranty excludes strong gales, windstorms, violent storms, hurricanes, and tornadoes. [Tamko does not indicate wind speeds covered by guarantee.]	Warranty excludes strong gales, windstorms, violent storms, hurricanes and tornadoes. [Tamko does not indicate that wind speeds are covered by guarantee.]	The warranty excludes strong gales, windstorms, violent storms, hurricanes, and tornadoes. (Tamko does not indicate what wind speeds are covered by guarantee. Strong gales are defined on the Beaufort Scale as storms with winds between 55-63 mph and storms as having winds between 47 and 54 mph.)

14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	K	K	K	B, C, F, K
15. Cost to obtain	None	None	None	\$17.50/square
16. Minimum charge	None	None	None	\$1,200
17. Ineligible structure or building use	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.
18. Pre-construction notice and approval requirements	None	None	None	The contractor is required to submit a request for issuance of guarantee describing the job at least two weeks prior to the commencement of the job. Job specifications must be in accordance with Tamko's published specifications and recommendations unless changes are approved in writing by Tamko's manager of technical services.
19. Approved, authorized, or licensed applicator	No	No	No	Yes
20. Job inspection policy	No on-site inspections	No on-site inspections	No on-site inspections	Tamko representative makes inspection after completion prior to issuance of guarantee and two years after issuance of guarantee. Tamko representative makes on-site inspection during application of specification 243 only; no charge.
21. Contractor's post-installation obligation	None; material-only warranty	None; material-only warranty	None; material-only warranty	The contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Tamko indicates that it does not carry insurance covering its warranty obligations.	No; Tamko indicates that it does not carry insurance covering its warranty obligations.	No; Tamko indicates that it does not carry insurance covering its warranty obligations.	No; Tamko indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Tamko Asphalt Products, Inc. manufactures and sells the product.	Tamko Asphalt Products, Inc. manufactures and sells the product.	Tamko Asphalt Products, Inc. manufactures and sells the product.	Tamko Roofing Products, Inc. manufactures and sells the products.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Not transferable or assignable in any manner.	Not transferable or assignable in any manner.	Not transferable or assignable in any manner.	The guarantee cannot be assigned, sold, or transferred in any manner whatsoever. The warranty inures only to the benefit of the first consumer, purchaser, or owner of the Tamko product.
26. Special features/conditions	Tamko is not responsible for any cost related to the removal or abatement of any asbestos present in the existing roof to which the Tam-Ply IV is applied. Tamko requires the owner to initiate and follow a preventive maintenance program substantially in accordance with the preventive recommendations found on the reverse side of warranty. Specific maintenance items listed on reverse of guarantee must be performed at least semiannually to maintain guarantee coverage. Coatings over smooth surfaced products must be maintained to provide surface protection. No action for breach of guarantee shall be brought later than one year after any cause of action has occurred.	Tamko is not responsible for any cost related to the removal or abatement of any asbestos present in the existing roof to which the Versa-Cap FR is applied. Tamko requires that the owner initiate and follow a preventive maintenance program substantially in accordance with the preventive recommendations found on the reverse side of warranty. Specific maintenance items listed on reverse of guarantee must be performed at least semiannually to maintain guarantee coverage. Coatings over smooth surfaced products must be maintained to provide surface protection. No action for breach of guarantee shall be brought later than one year after any cause of action has occurred.	Tamko is not responsible for any cost related to the removal or abatement of any asbestos present in the existing roof system to which Tamko roof system is applied. No action for breach of warranty shall be brought later than one year after any cause of action has occurred. Nothing contained in the guarantee shall be construed to be a waiver of Tamko's right for contribution or indemnity. No representative, employee, agent of Tamko, or any other person has any authority to assume for Tamko any additional or other liability or responsibility.	Tamko is not responsible for cost related to the removal or abatement of any asbestos present in the existing roof system to which Tamko roof system is applied. No action for breach of warranty shall be brought later than one year after any cause of action has occurred. Nothing contained in the guarantee shall be construed to be a waiver of Tamko's right for contribution or indemnity. No representative, employee, agent of Tamko, or any other person has any authority to assume for Tamko any additional or other liability or responsibility.
27. Executed by owner	No	No	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Tamko Roofing Products, Inc.	Tamko Roofing Products, Inc.	Tamko Roofing Products, Inc.
2. Title, original publication date, and identifying symbol, if any	"Roofing Systems Guarantee (A Limited Warranty)"; February 1996; 937225	"Commercial Roofing Labor and Material Guarantee (A Limited Warranty)"; April 15, 1996; JP21926 937295	"Twelve Year Limited Material Warranty (A Limited Warranty)"; January 1996; JP29295 937572
3. Product, specification, or system covered	BUR specification 500 series, 600 series; modified bitumen specification 100, 100 FR, 100 HW, 100C, 200, 200 FR, 200C, 700 series. This guarantee is intended for recover systems over existing roofs and certain other Tamko specifications.	Awaplan Premium FR, Awaplan Premium, Awaplan Heat Welding, Awaplan 170 FR, Awaplan 170, Awaplan Versa-Smooth, Awalex, Versa-Flash 160, Tam-Glass Premium, Vapor-Chan, Glass-Base Sheet, Base-N-Ply, Versa-Base, Versa-Base FR	Speedwell APP
4. Scope of coverage	Material and workmanship; Tamko agrees to provide roof repair services for leaks in the roof system (exclusive of metal work and non-Tamko-approved flashings) attributable to ordinary wear and tear of the roofing system or workmanship deficiencies in application to the extent necessary to return the roofing system to a watertight condition.	Material only; Tamko warrants that its product is free from manufacturing defects that result in leaks.	Material only; Tamko warrants to the first consumer purchaser or owner that the Tamko product will, at the time of purchase, be free from manufacturing defects that result in leaks.
5. Length of coverage	5, 10, 12, or 15 years	5 years: Versa-Base, Versa-Base FR, Base-N-Ply, Glass-Base Sheet, Vapor Chan; 10 years: Tam-Glass Premium, Versa-Flash 160, Awalex; 12 years: Awaplan Versa-Smooth, Awaplan 170, Awaplan 170 FR; 15 years: Awaplan Heat Welding, Awaplan Premium, Awaplan Premium FR	12 years
6. Nature of remedy	Tamko will arrange for repair to the roofing membrane and base flashing. Tamko shall have no more than 90 days after receipt of notification of leaks to make or cause to be made repairs or replacement unless otherwise prevented by acts of God. Prior to the expiration of such 90-day period, Tamko will not be liable for any cost of repair or replacement unless Tamko has given its written approval.	If manufacturing defects result in leaks, Tamko shall have 90 days after receipt of notification to make repairs or cause repairs to be made to its product or will replace the Tamko product (exclusive of non-Tamko flashing and metal work and materials used as a roof base over which the Tamko product is applied and repairs required by defects therein) as required to prevent leaks in the roof resulting from manufacturing defects.	If Tamko determines there are manufacturing defects covered by the warranty, Tamko shall have 90 days after receipt of notification to either (1) refund the lesser of: (a) the cost of repairs to the roofing membrane to restore its watertight integrity, or (b) the prorated portion of the purchase price of the product; or (2) replace a portion of the product, based upon a prorating schedule ranging from 100% in years one and two to 10% in year ten. Prior to the expiration of such 90-day period, Tamko shall not be liable for any cost of repair or replacement unless Tamko has given its written approval of the repair or replacement of defective product and the cost thereof.
7. Monetary limitations	Tamko inserts maximum total liability in guarantee form prior to issuance. Tamko indicates \$100/square is the usual limitation inserted by Tamko at the time of issuance of guarantee.	Tamko's maximum liability shall be limited to repair and replacement or the reasonable costs thereof of that portion of the Tamko product containing a manufacturing defect that has resulted in leaks.	For first and second year, Tamko's liability limited to the amount of original purchase price; 90% in year three; 70% in year four; 60% in year five; 50% in year six; 40% in year seven; 30% in year eight; 20% in year nine; and 10% in year ten.
8. Notification requirements	Written notice to Tamko no later than 30 days after discovery of any leaks.	Written notice by certified mail to Tamko at P.O. Box 1404, Joplin, MO 64802, within 30 days following discovery of any leaks alleged to result directly from manufacturing defects.	Written notice by certified mail of any leaks alleged to result directly from manufacturing defects within 30 days following discovery to Tamko, P.O. Box 1404, Joplin, MO 64802
9. Exclusive or additional remedy	The guarantee is in lieu of any other obligations, guarantees, warranties, or liability on the part of Tamko; excludes UCC warranties.	The guarantee is in lieu of any other obligations, guarantees, warranties, or liability on the part of Tamko; excludes UCC warranties.	The warranty is expressly in lieu of any and all other obligations, guarantees and warranties; Tamko's obligation to refund the cost of repair, a portion of the product's original purchase cost or to replace a portion of the product, in accordance with the prorating schedule, shall be the sole and exclusive remedy against Tamko under the warranty or otherwise; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Tamko will solely determine the condition of watertightness.	Tamko's determination	Tamko's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 6, 7, 8, 11, 12, 13 (including exposure from aliphatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils or organic or inorganic polar materials, and exposure to ionized radiation or contamination by radioactivity from any nuclear source), 15, 18, 20, 23.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (including exposure from aliphatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils, organic or inorganic polar materials, and exposure to ionized radiation or contamination by radioactivity from any nuclear source), 15, 19, 20, 22, 23.	1, 2, 3, 4, 6, 7, 8, 11, 12, 13 (including exposure from aliphatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils, organic or inorganic polar materials, and exposure to ionized radiation or contamination by radioactivity from any nuclear source), 15, 19, 23. The warranty excludes damage due to spitting, cracking, blistering, delamination, or separation due to underlying materials.
13. Wind coverage/exclusions	The warranty excludes strong gales, windstorms, violent storms, hurricanes and tornadoes. Tamko does not indicate wind speeds covered by guarantee.	The warranty excludes strong gales, windstorms, violent storms, hurricanes, and tornadoes. (Tamko does not indicate what wind speeds are covered by guarantee. Strong gales are defined on the Beaufort Scale as storms with winds between 55-63 mph and storms as having winds between 47 and 54 mph.)	The warranty excludes strong gales, windstorms, violent storms, hurricanes, and tornadoes. (Tamko does not indicate what wind speeds are covered by the warranty; the Beaufort Scale defines a strong gale as winds between 47 and 54 mph.)

14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B (Tamko may, at its option, cancel the guarantee), C	K	C, G, K, R. (The warranty states that Tamko's obligations under the warranty shall terminate if (1) Tamko is not reimbursed for all reasonable expenses, including, but not limited to, transportation, meals and lodging, associated with the inspection of a complaint, within 30 days of receipt of invoice from Tamko when Tamko has determined that the complaint is expressly excluded by the terms of the warranty; or (2) the owner fails to reimburse Tamko for any additional costs incurred by Tamko attributable to the lack of reasonable access to the roof within 30 days of receipt of invoice from Tamko.
15. Cost to obtain	5 years: \$4.00/square; 10 years: \$8.50/square; 12 years: \$9.00/square; 15 years: \$12.50/square	None	None
16. Minimum charge	5 years: \$400; 10 years: \$850; 12 years: \$850; 15 years: \$1,000	None	None
17. Ineligible structure or building use	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools and other structures with high-humidity conditions.	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.
18. Pre-construction notice and approval requirements	The contractor is required to submit a request for issuance of guarantee describing the job at least two weeks prior to the commencement of the job. Job specifications must be in accordance with Tamko's published specifications and recommendations unless changes are approved in writing by Tamko's manager of technical services.	No	None required.
19. Approved, authorized, or licensed applicator	Yes	No	No
20. Job inspection policy	Tamko built-up roofing representative makes inspection after completion prior to issuance of guarantee and two years after issuing of guarantee. Tamko representative makes on-site inspection during application for specification 243 only; no charge.	No on-site inspections	No on-site inspections
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for two years.	None; material-only warranty	None; material-only warranty
22. Backed by named insurance or surety	No; Tamko indicates that it does not carry insurance covering its warranty obligations.	No; Tamko indicates that it does not carry insurance covering its warranty obligations.	No; Tamko indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Tamko Roofing Products, Inc. manufactures and sells product.	Tamko Roofing Products, Inc. manufactures and sells the products.	Tamko manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Not transferable in any manner.	The guarantee cannot be assigned, sold, or transferred in any manner whatsoever. The warranty inures only to the benefit of the first consumer, purchaser, or owner of the Tamko product.	The warranty shall accrue and inure only to the benefit of the first consumer purchaser or owner of the Tamko product and shall not be assigned, sold, or transferred in any manner whatsoever. Any assignment, sale or transfer of the warranty or of the building to which the product is applied shall void all warranties.
26. Special features/conditions	Tamko is not responsible for cost related to the removal or abatement of any asbestos present in the existing roof system to which Tamko roof system is applied. No action for breach of warranty shall be brought later than one year after any cause of action has occurred. Nothing contained in the guarantee shall be construed to be a waiver of Tamko's right for contribution or indemnity. No representative, employee, agent of Tamko, or any other person has any authority to assume for Tamko any additional or other liability or responsibility.	Claims will require proof of purchase. Tamko requires that the owner initiate and follow a preventive maintenance program substantially in accordance with the preventive recommendations found on the reverse side of warranty. Specific maintenance items listed on reverse of guarantee must be performed at least semiannually to maintain guarantee coverage. Coatings over smooth-surfaced products must be maintained to provide surface protection. Tamko is not responsible for any cost related to the removal or abatement of any asbestos present in the existing roof to which the Tamko product is applied. No action for breach of warranty shall be brought later than one year after any cause of action has occurred. No representative, employee, agent of Tamko, or any other person has any authority to assume for Tamko any additional or other liability or responsibility.	Claims under warranty will require proof of purchase by first consumer purchaser or owner. Tamko shall not be responsible for any claims without such proof of purchase. The warranty states that owner acknowledges that it is the owner's sole responsibility to determine that the product has been installed in compliance with (i) any contract specifications provided by the owner to the contractor and (ii) the terms and conditions of warranty. The warranty may not be modified except in a writing signed by Tamko's president. No representative, employee, agent of Tamko or any person other than the president of Tamko has any authority to assume for Tamko any additional or other liability or responsibility. Warranty is not valid in Hawaii, Alaska and California. A separate limited warranty is available for products used in California. Products are sold "as is" and "with all faults" when used outside of the 48 contiguous United States. No action for breach of this limited warranty shall be brought later than one year after any cause of action has accrued. See item 14 above.
27. Executed by owner	No	No	Yes; owner is to sign and retain warranty with the contractor's receipt for future reference.

# Roof Membrane Warranties (Bulk-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Tamko Roofing Products, Inc	Tamko Roofing Products, Inc	Tamko Roofing Products, Inc
2. Title, original publication date, and identifying symbol, if any	"Ten Year Limited Material Warranty (A Limited Warranty)"; January 1996; JF32996 997574	"Roofing System NDL Guarantee (A Limited Warranty)"; February 1995; JF22254 997228	"Total System Coverage Guarantee (A Limited Warranty)"; February 1995; JF22287 997227
3. Product, specification, or system covered	Speedwell (Smooth)	Built-up roofing specifications: 400 Series, 500 Series, 600 Series; modified bitumen specifications: 100, 100 FR, 100 HW, 100 C, 200, 200 FR, 200 C, 700 and 1000 Series	Built-up roofing specifications: All insulated specifications in 400, 500 and 600 series; modified bitumen specifications: All insulated specifications in series 100, 200, 700 and 1000
4. Scope of coverage	Material only; Tamko warrants to the first consumer purchaser or owner that the Tamko product will, at the time of purchase, be free from manufacturing defects that result in leaks.	Material and workmanship; Tamko agrees to provide roof repair services for leaks in the roofing system (e.g., membrane exclusive of metal work and non-Tamko approved flashings) attributable to ordinary wear and tear of the roofing system or workmanship deficiencies in application to the extent necessary to return the roofing system to a watertight condition.	Material and workmanship; Tamko agrees to provide roof repair services for leaks in the roofing system (e.g., membrane exclusive of metal work and non-Tamko approved flashings) attributable to ordinary wear and tear of the roofing system or workmanship deficiencies in application to the extent necessary to return the roofing system to a watertight condition.
5. Length of coverage	10 years	5, 10, 12, or 15 years	5, 10, 12, 15, or 20 years
6. Nature of remedy	If Tamko determines there are manufacturing defects covered by the warranty, Tamko shall have 90 days after receipt of notification to either (1) refund the lesser of: (a) the cost of repairs to the roofing membrane to restore its watertight integrity; or (b) the prorated portion of the purchase price of the product; or (2) replace a portion of the product, based upon a prorated schedule ranging from 100% in years one and two to 10% in year ten. Prior to the expiration of such 90-day period, Tamko shall not be liable for any cost of repair or replacement unless Tamko has given its written approval of the repair or replacement of defective product and the cost thereof.	Tamko will arrange for repairs to the roofing membrane and base flashing and shall have no more than 90 days after receipt of notification of leaks to make or cause to be made repairs or replacements unless prevented by acts of God.	Tamko will arrange for repairs to the roofing membrane and base flashing and shall have no more than 90 days after receipt of notification of leaks to make or cause to be made repairs or replacements unless prevented by acts of God.
7. Monetary limitations	For first and second year, Tamko's liability limited to the amount of original purchase price; 90% in year three; 70% in year four; 60% in year five; 50% in year six; 40% in year seven; 30% in year eight; 20% in year nine; and 10% in year ten.	None stated.	None stated.
8. Notification requirements	Written notice by certified mail of any leaks alleged to result directly from manufacturing defects within 30 days following discovery to Tamko, P.O. Box 1404, Joplin, MO 64802.	Written notice to Tamko, P.O. Box 1404, Joplin, Missouri, 64802, no later than 30 days after discovery of a leak from any cause.	Written notice to Tamko, P.O. Box 1404, Joplin, Missouri, 64802, no later than 30 days after discovery of a leak from any cause.
9. Exclusive or additional remedy	The warranty is expressly in lieu of any and all other obligations, guarantees and warranties; Tamko's obligation to refund the cost of repair, a portion of the product's original purchase cost or to replace a portion of the product, in accordance with the prorated schedule, shall be the sole and exclusive remedy against Tamko under the warranty or otherwise; excludes UCC warranties.	The obligation contained in guarantee is expressly in lieu of any other guarantees, warranties, obligations, or liability on the part of Tamko; excludes UCC warranties.	The obligation contained in guarantee is expressly in lieu of any other guarantees, obligations or liability on the part of Tamko; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Tamko's determination.	Solely Tamko will determine the condition of watertightness.	Solely Tamko will determine the condition of watertightness.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 6, 7, 8, 11, 12, 13 (including exposure from all-phatic or aromatic solvents, chlorinated hydrocarbons, turpentine, oils, organic or inorganic polar materials, and exposure to ionized radiation or contamination by radioactivity from any nuclear source), 16, 19, 23. The warranty excludes damage due to spitting, cracking, blistering, delamination, or separation due to underlying materials.	1, 2, 3, 4, 6, 7, 8, 11, 12, 13, 15, 23, 24; exposure to ionized radiation or contamination by radioactivity from any nuclear source.	1, 2, 3, 4, 6, 7, 8, 11, 12, 13, 15, 23, 24; exposure to ionized radiation or contamination by radioactivity from any nuclear source
13. Wind coverage/exclusions	The warranty excludes strong gales, windstorms, violent storms, hurricanes, and tornadoes. (Tamko does not indicate what wind speeds are covered by the warranty; the Beaufort Scale defines a strong gale as winds between 47 and 54 mph.)	The warranty excludes strong gales, windstorms, hurricanes, tornadoes and violent storms. (Strong gales are defined on the Beaufort Scale as winds between 47 and 54 mph and storms are defined as winds between 55 and 63 mph.)	The warranty excludes strong gales, windstorms, hurricanes, tornadoes and violent storms. (Strong gales are defined on the Beaufort Scale as storms with winds between 47 and 54 mph and storms are defined as winds between 55 and 63 mph.)
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	C, G, K, R. (The warranty states that Tamko's obligations under the warranty shall terminate if (1) Tamko is not reimbursed for all reasonable expenses, including, but not limited to, transportation, meals and lodging, associated with the inspection of a complaint, within 30 days of receipt of invoice from Tamko when Tamko has determined that the complaint is expressly excluded by the terms of the warranty; or (2) the owner fails to reimburse Tamko for any additional costs incurred by Tamko attributable to the lack of reasonable access to the roof within 30 days of receipt of invoice from Tamko.	A, B, C, F, K, N	A, B, C, F, K, N



15. Cost to obtain	None	5 years: \$4.00/square; 10 years: \$8.50/square; 12 years: \$9.00/square; 15 years: \$12.50/square	5 years: \$4.00/square; 10 years: \$8.50/square; 12 years: \$9.00/square; 15 years: \$12.50/square; 20 years: \$17.50/square
16. Minimum charge	None	\$1,000	5 years: \$400; 10 years: \$850; 12 years: \$850; 15 years: \$1,000; 20 years: \$1,200
17. Ineligible structure or building use	Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions		Individual residences, condominiums, cooperative apartments, heated tanks, storage silos, dry kilns, car wash buildings, swimming pools, and other structures with high-humidity conditions.
18. Pre-construction notice and approval requirements	None required.		The contractor is required to submit a request for issuance of guarantee describing the job at least two weeks prior to the commencement of the job. Job specifications must be in accordance with Tamko's published specifications and recommendations unless changes are approved in writing by Tamko's manager of technical services.
19. Approved, authorized, or licensed applicator	No	Yes	Yes
20. Job inspection policy	No on-site inspections		Tamko representative makes inspection after completion, prior to issuing warranty and two years after issuing warranty. Tamko representative makes on-site inspection during application for specification 243 only; no charge.
21. Contractor's post-installation obligation	None; material-only warranty		The contractor is obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; Tamko indicates that it does not carry insurance covering its warranty obligations.		No; Tamko indicates that it does not carry insurance to cover its warranty obligations.
23. Issuing entity manufactures and/or sells products	Tamko manufactures and sells the product.		Tamko manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision		No renewal provision
25. Assignability	The warranty shall accrue and inure only to the benefit of the first consumer purchaser or owner of the Tamko product and shall not be assigned, sold, or transferred in any manner whatsoever. Any assignment, sale or transfer of the warranty or of the building to which the product is applied shall void all warranties.		The guarantee shall accrue and inure only to the benefit of the first consumer purchaser or owner of the Tamko product and shall not be assigned, sold or transferred in any manner whatsoever.
26. Special features/conditions	Claims under warranty will require proof of purchase by first consumer purchaser or owner. Tamko shall not be responsible for any claims without such proof of purchase. The warranty states that owner acknowledges that it is the owner's sole responsibility to determine that the product has been installed in compliance with (i) any contract specifications provided by the owner to the contractor and (ii) the terms and conditions of warranty. The warranty may not be modified except in a writing signed by Tamko's president. No representative, employee, agent of Tamko or any person, other than the president of Tamko, has any authority to assume for Tamko any additional or other liability or responsibility. Warranty is not valid in Hawaii, Alaska and California. A separate limited warranty is available for products used in California. Products are sold "as is" and "with all faults" when used outside of the 48 contiguous United States. No action for breach of this limited warranty shall be brought later than one year after any cause of action has accrued. See item 14. above.		No action for breach of this limited warranty may be brought later than one year after any cause of action has accrued. Nothing contained in the guarantee shall be construed to be a waiver of Tamko's right for contribution or indemnity for any liability incurred as a result of this guarantee. No representative, employee, agent of Tamko, or any other person has any authority to assume for Tamko any additional or other liability or responsibility. Tamko shall not be responsible for or liable if there is any change or amendment to the Tamko built-up roof specification, unless such change or amendment is approved in writing by Tamko.
27. Executed by owner	Yes; owner is to sign and retain warranty with the contractor's receipt for future reference.	No	No

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of Issuing entity	Texas Refinery Corporation (TRC)	Tremco Incorporated	Tremco Incorporated
2. Title, original publication date, and identifying symbol, if any	"Texas Refinery Corporation's Limited Roof System Warranty"; 1988; 2M0488	"Tremco Quality Assurance Program 10 Year Warranty"; 1991; 1/92	"Tremco Quality Assurance Program 5 Year Warranty"; 1991; 1/92
3. Product, specification, or system covered	MightyPlate Single-Ply; MightyPlate Two-Ply System; MightyPlate Liquid Type II Glasbase Roof System; MightyPlate Liquid Poly-Mat Roof System; MightyPlate Liquid MightyPly Roof System.	Therm 100, Therm 200, Burnastic 100, Burnastic 200, BUR Combinations, HP4510, 4PFR, 2C6S, 2C2S, LTD	Therm 100, Therm 200, Burnastic 100, Burnastic 200, BUR Combinations, HP4510, 3G2S FR, 2C6S, 2C2S, LTD
4. Scope of coverage	Material only; TRC agrees to furnish sufficient roofing materials to repair leaks through the roofing system caused by natural deterioration resulting from ordinary wear and tear by the elements; blisters, fishmouths, ridges, wrinkles, and splits, unless due to movement or failure of the substrate over which the roofing system is installed; and slippage of the roofing system.	Material and workmanship; Tremco warrants that it will repair any leaks in the Tremco Roofing System (TRS). TRS shall be defined as the weatherproofing assembly and its components as specified by Tremco, which includes membrane, insulation, flashings, and termination details.	Material and workmanship; Tremco warrants that it will repair any leaks in the Tremco Roofing System (TRS). TRS shall be defined as the weatherproofing assembly and its components as specified by Tremco, which includes membrane, insulation, flashings, and termination details.
5. Length of coverage	5 years: MightyPlate Modified Bitumen Roof Membrane, MightyPly System, MightyPlate Liquid Type II Glasbase Roof System, MightyPlate Liquid Poly-Mat Roof System; 10 years: MightyPlate Modified Bitumen Roof Membrane, MightyPlate Liquid Type II Glasbase Roof System, MightyPlate Liquid Poly-Mat Roof System with aluminum roof coating or Textotric surfacing; MightyPly System with aluminum roof coating, textotric or Ceramic Granules.	10 years	5 years
6. Nature of remedy	TRC agrees to furnish without charge, F.O.B. closest U.S.A. warehouse, sufficient TRC roofing patching material to stop leaks.	Tremco will inspect the TRS roof and at its own expense make or cause to be made all necessary repairs to the TRS roof to put it in watertight condition.	Tremco will inspect the TRS roof and at its own expense make or cause to be made all necessary repairs to the TRS roof to put it in watertight condition.
7. Monetary limitations	TRC's obligation to furnish additional material is not to exceed original purchase amount.	Tremco's total liability during the first year of the warranty shall not exceed the dollar value of the installed contract price of the TRS. Tremco's maximum liability, following year one, shall be prorated on a straight-line declining-value basis over the life of the warranty, and shall not in any event exceed such prorated amount.	Tremco's total liability during the first year of the warranty shall not exceed the dollar value of the installed contract price of the TRS. Tremco's maximum liability, following year one, shall be prorated on a straight-line declining-value basis over the life of the warranty, and shall not in any event exceed such prorated amount.
8. Notification requirements	Notification to TRC within 30 days of discovery of leak, confirming oral notice in writing within 10 days	Owner shall notify Tremco, 3735 Green Rd., Beachwood, OH 44122, as soon as possible, but in no event more than 30 days, after leakage is or should have been discovered.	Owner shall notify Tremco, 3735 Green Rd., Beachwood, OH 44122, as soon as possible, but in no event more than 30 days, after leakage is or should have been discovered.
9. Exclusive or additional remedy	TRC's exclusive responsibility and liability is to furnish sufficient patching materials to maintain the roofing system in a watertight condition; owner recognizes and agrees that TRC has no liability for any alleged breach of warranty, negligence, strict liability or any other theory or damage of any nature whatsoever other than limited and exclusive liability set forth in warranty document.	Remedy stated in warranty is owner's sole and exclusive remedy for any and all claims arising under, or in connection with, or in any way relating to the Tremco roof system. Tremco not liable for any damages that are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in the warranty. Warranty is given in lieu of any and all other warranties; excludes UCC warranties.	Remedy stated in warranty is owner's sole and exclusive remedy for any and all claims arising under, or in connection with, or in any way relating to the Tremco roof system. Tremco not liable for any damages that are based upon negligence, breach of warranty, strict liability, or any other theory of liability other than exclusive liability set forth in the warranty. Warranty is given in lieu of any and all other warranties; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Neutral; TRC arranges for inspection once leak reported.	Unclear; warranty states, "Tremco will inspect the TRS roof and if the leak is within coverage of this warranty, will . . ."	Unclear; warranty states, "Tremco will inspect the TRS roof and if the leak is within coverage of this warranty, will . . ."
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 15, 20, 22, 23 (Also excludes damages due to unauthorized test cuts.)	1, 2, 3, 5, 9, 11, 13, 16, 17	1, 2, 3, 5, 9, 11, 13, 16, 17
13. Wind coverage/exclusions	Warranty excludes windstorms, hurricanes, and tornadoes. (TRC indicates that there is no coverage for damage caused by wind.)	Tremco indicates that warranty covers roof damage resulting from wind speeds up to 74 miles per hour. Warranty excludes hurricane force winds (74 mph or greater) and tornadoes.	Tremco indicates that warranty covers roof damage resulting from wind speeds up to 74 miles per hour. Warranty excludes hurricane force winds (74 mph or greater) and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	M (See Special Features/Conditions.)	B, C, F, H, J, M, S. Warranty also states that Tremco may void warranty for specific exclusions 4, 10, 22.	B, C, F, H, J, M, S. Warranty also states that Tremco may void warranty for specific exclusions 4, 10, 22.

15. Cost to obtain	None	\$8.00/square	\$4.00/square
16. Minimum charge	None	\$500	\$500
17. Ineligible structure or building use	Cold-storage buildings; residential	Residential	Residential
18. Pre-construction notice and approval requirements	None required	None	None
19. Approved, authorized, or licensed applicator	No	Yes	Yes
20. Job inspection policy	Inspection made by TRC sales consultant prior, at least two times during, and after completion, as well as two years after issuance of warranty; no charge.	Tremco technical service and field representatives make on-site inspections prior, during and after application, as well as two years and five years after issuance of warranty; no charge.	Tremco technical service and field representatives make on-site inspections prior, during and after application, as well as two years and five years after issuance of warranty; no charge.
21. Contractor's post-installation obligation	Although this is a material-only warranty, contractor obligated to make repairs to all leaks and any defects, including materials and workmanship, for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.	Contractor obligated to make repairs to workmanship deficiencies for two years.
22. Backed by named insurance or surety	No; TRC indicates that it carries insurance covering its warranty obligations and that TRC home office should be contacted for details.	No; Tremco indicates that it maintains significant levels of product liability insurance covering its warranty obligations.	No; Tremco indicates that it maintains significant levels of product liability insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	TRC manufactures and sells product.	Tremco manufactures and sells product.	Tremco manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	Initial 10-year warranty can be renewed for one additional five-year period at a price of \$5.00/square, with a \$500 minimum. To renew: (a) owner must notify Tremco in writing no later than 90 days prior to original warranty expiration date; (b) upon verification of owner's intent to renew original warranty, Tremco shall inspect roof, report condition, and advise owner of any maintenance or restoration work in the form of an executive summary; (c) owner shall make repairs as specified at owner's sole expense by a Tremco approved roofing contractor within 60 days of report delivery; (d) upon completion, Tremco shall inspect repairs to determine satisfactory completion. If roof passes Tremco's final inspection and upon payment by owner to Tremco warranty renewal fees, warranty will be extended.	No renewal provision
25. Assignability	No restrictions stated.	Owner's rights under warranty are not transferable.	Owner's rights under warranty are not transferable.
26. Special features/conditions	No representative, employee, or agent of TRC or any other person other than the TRC manager of technical services, located in Fort Worth, Texas, has any authority to change, alter, or modify the provisions of this warranty. In the event that (a) owner notifies TRC of the need to repair roof leaks, (b) TRC is unable to promptly inspect the roof, and (c) an emergency condition exists that requires immediate repair to avoid substantial damage, owner may make immediate repair to avoid substantial damage to owner, and owner may make temporary repairs as may be essential and such action shall not be a breach of warranty.	To the extent any repairs to any part of the building other than the TRS roof are required, or the removal or replacement of any traffic surfaces or other appurtenances built over the roof are required in order to put the TRS roof in watertight condition, the liability or expense for such repair, removal or replacement, shall be assumed and paid by the owner. If the leak is not within warranty coverage, Tremco shall advise the owner, and the owner shall have the repairs performed within thirty days, according to Tremco specifications, by a Tremco-approved applicator. In the event an emergency condition exists that requires immediate repair to avoid substantial damage to the building or its contents, Tremco may instruct the owner to make necessary temporary repairs. Tremco will, during the second year of the warranty, inspect and provide a written executive summary of the roof. Tremco will retain the right to make core extractions and properly repair such extractions.	To the extent any repairs to any part of the building other than the TRS roof are required, or the removal or replacement of any traffic surfaces or other appurtenances built over the roof are required in order to put the TRS roof in watertight condition, the liability or expense for such repair, removal or replacement, shall be assumed and paid by the owner. If the leak is not within warranty coverage, Tremco shall advise the owner, and the owner shall have the repairs performed within thirty days, according to Tremco specifications, by a Tremco-approved applicator. In the event an emergency condition exists that requires immediate repair to avoid substantial damage to the building or its contents, Tremco may instruct the owner to make necessary temporary repairs. Tremco will, during the second year of the warranty, inspect and provide a written executive summary of the roof. Tremco will retain the right to make core extractions and properly repair such extractions.
27. Executed by owner	No	No	No

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

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20. Job inspection policy	Tri-Ply technical field representatives may make periodic on-site inspections prior to and during application and after completion prior to issuance of warranty; no charge. Warranty states that Tri-Ply will cause the membrane and roofing system to be in-spected, at its option, within a period one month prior to expiration of two years from warranty issuance to one month after two years or as soon as practicable thereafter and issue a report detailing any application related inadequacies/failures in the membrane and roofing system.	Tri-Ply technical field representatives may make periodic on-site inspections prior to and during application and after completion prior to issuance of warranty; no charge. Warranty states that Tri-Ply will cause the membrane and roofing system to be in-spected, at its option, within a period one month prior to expiration of two years from warranty issuance to one month after two years or as soon as practicable thereafter and issue a report detailing any application related inadequacies/failures in the membrane and roofing system.	Tri-Ply technical field representatives may make periodic on-site inspections prior to and during application and after completion prior to issuance of warranty; no charge. Warranty states that Tri-Ply will cause the membrane and roofing system to be in-spected, at its option, within a period one month prior to expiration of two years from warranty issuance to one month after two years or as soon as practicable thereafter and issue a report detailing any application related inadequacies/failures in the membrane and roofing system.
21. Contractor's post-installation obligation	Warranty states that contractor and owner acknowledge and agree that any application inadequacies/failures in the membrane roofing system will be remedied in a workmanlike manner so as to return roof to warrantable condition within 60 days after receiving two year inspection report prepared by Tri-Ply. Failure of contractor and owner to remedy conditions within 30 days or as soon as practicable after receiving notice renders warranty void immediately.	Warranty states that contractor and owner acknowledge and agree that any application inadequacies/failures in the membrane roofing system will be remedied in a workmanlike manner so as to return roof to warrantable condition within 60 days after receiving two year inspection report prepared by Tri-Ply. Failure of contractor and owner to remedy conditions within 30 days or as soon as practicable after receiving notice renders warranty void immediately.	Warranty states that contractor and owner acknowledge and agree that any application inadequacies/failures in the membrane roofing system will be remedied in a workmanlike manner so as to return roof to warrantable condition within 60 days after receiving two year inspection report prepared by Tri-Ply. Failure of contractor and owner to remedy conditions within 30 days or as soon as practicable after receiving notice renders warranty void immediately.
22. Backed by named insurance or surety	No; Tri-Ply indicates that it does not carry insurance covering its warranty obligations.	No; Tri-Ply indicates that it does not carry insurance covering its warranty obligations.	No; Tri-Ply indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells prod. uses	Tri-Ply manufactures and sells product.	Tri-Ply manufactures and sells product.	Tri-Ply manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty may be transferred only, if within 30 days of transfer of title to property upon which Tri-Ply membrane has been installed, transferee (1) notifies Tri-Ply of transfer by certified mail addressed to Tri-Ply, Attention: Warranty Division, P.O. Box 2685, Port Arthur, TX 77643; (2) requests transfer forms, which must be completed and returned to Tri-Ply according to instructions; and (3) tenders to Tri-Ply the transfer fee of \$750. Further, transfer and/or assignment of warranty is not valid unless owner consents to a roof inspection by Tri-Ply and until owner completes repairs delineated by Tri-Ply necessary to bring the roofing system within compliance with Tri-Ply's most recent specification manual.	Warranty may be transferred only, if within 30 days of transfer of title to property upon which Tri-Ply membrane has been installed, transferee (1) notifies Tri-Ply of transfer by certified mail addressed to Tri-Ply, Attention: Warranty Division, P.O. Box 2685, Port Arthur, TX 77643; (2) requests transfer forms, which must be completed and returned to Tri-Ply according to instructions; and (3) tenders to Tri-Ply the transfer fee of \$750. Further, transfer and/or assignment of warranty is not valid unless owner consents to a roof inspection by Tri-Ply and until owner completes repairs delineated by Tri-Ply necessary to bring the roofing system within compliance with Tri-Ply's most recent specification manual.	Warranty may be transferred only, if within 30 days of transfer of title to property upon which Tri-Ply membrane has been installed, transferee (1) notifies Tri-Ply of transfer by certified mail addressed to Tri-Ply, Attention: Warranty Division, P.O. Box 2685, Port Arthur, TX 77643; (2) requests transfer forms, which must be completed and returned to Tri-Ply according to instructions; and (3) tenders to Tri-Ply the transfer fee of \$750. Further, transfer and/or assignment of warranty is not valid unless owner consents to a roof inspection by Tri-Ply and until owner completes repairs delineated by Tri-Ply necessary to bring the roofing system within compliance with Tri-Ply's most recent specification manual.
26. Special features/conditions	Warranty states that owner and contractor acknowledge, as evidenced by their signatures, that if the membrane fails due to misapplication or failure to install the membrane in compliance with Tri-Ply's most recent specification manual, and if the failure is discovered or discoverable within the first 24 months after validation of warranty, the repair/replacement of the membrane is the sole responsibility of the contractor and Tri-Ply shall have no obligation regarding same. Warranty becomes void immediately if contractor and owner do not remedy application related inadequacies and failures or other conditions within 30 days of being notified by Tri-Ply (see item 21 above). Warranty becomes effective only and if it's validated by an authorized representative of Tri-Ply and executed and approved by both the roofing contractor and the owner, with a copy of same, fully executed, returned to Tri-Ply within 30 days of validation by Tri-Ply at its offices in Port Arthur, Texas. In the event that warranty complaint is expressly excluded by the terms of the warranty, the owner shall be responsible for reimbursement of all reasonable expenses associated with completion of the inspection. Failure of owner to reimburse Tri-Ply for reasonable expenses within 30 days after receipt of an invoice shall void warranty. Aesthetic irregularities or normal aging effects do not constitute a loss of warrantable integrity and are not sufficient cause for maintenance, repair or replacement by Tri-Ply. Unless Tri-Ply has validated warranty, the Tri-Ply may file a claim on one of the following (1) the date of delivery of the product to the owner or (2) the expiration of the warranty, whichever shall occur later. Tri-Ply is not bound by any oral expression or representation made by any agent or party purporting to act for or on behalf of Tri-Ply, or by any commitment, arrangement or representation not specified in the warranty, Tri-Ply, or by any commitment, arrangement or representation not specified in the warranty. By signing warranty, owner acknowledges that it has read roof owners manual and agrees to comply with all terms, obligations and requirements detailed therein.	Warranty states that owner and contractor acknowledge, as evidenced by their signatures, that if the membrane fails due to misapplication or failure to install the membrane in compliance with Tri-Ply's most recent specification manual, and if the failure is discovered or discoverable within the first 24 months after validation of warranty, the repair/replacement of the membrane is the sole responsibility of the contractor and Tri-Ply shall have no obligation regarding same. Warranty becomes void immediately if contractor and owner do not remedy application related inadequacies and failures or other conditions within 30 days of being notified by Tri-Ply (see item 21 above). In the event it is determined by Tri-Ply, after inspection of warranty complaint, that warranty is not valid, the owner shall be responsible for reimbursement of all reasonable expenses associated with completion of the inspection. Failure of owner to reimburse Tri-Ply for reasonable expenses within 30 days after receipt of an invoice shall void warranty. Aesthetic irregularities or normal aging effects do not constitute a loss of warrantable integrity and are not sufficient cause for maintenance, repair or replacement by Tri-Ply. Unless Tri-Ply has validated warranty, the Tri-Ply may file a claim on one of the following (1) the date of delivery of the product to the owner or (2) the expiration of the warranty, whichever shall occur later. Tri-Ply is not bound by any oral expression or representation made by any agent or party purporting to act for or on behalf of Tri-Ply, or by any commitment, arrangement or representation not specified in the warranty, Tri-Ply, or by any commitment, arrangement or representation not specified in the warranty. By signing warranty, owner acknowledges that it has read roof owners manual and agrees to comply with all terms, obligations and requirements detailed therein.	Warranty states that owner and contractor acknowledge, as evidenced by their signatures, that if the membrane fails due to misapplication or failure to install the membrane in compliance with Tri-Ply's most recent specification manual, and if the failure is discovered or discoverable within the first 24 months after validation of warranty, the repair/replacement of the membrane is the sole responsibility of the contractor and Tri-Ply shall have no obligation regarding same. Warranty becomes effective only and if it's validated by an authorized representative of Tri-Ply and executed and approved by both the roofing contractor and the owner, with a copy of same, fully executed, returned to Tri-Ply within 30 days of validation by Tri-Ply at its offices in Port Arthur, Texas. In the event that warranty complaint is expressly excluded by the terms of the warranty, the owner shall be responsible for reimbursement of all reasonable expenses associated with completion of the inspection. Failure of owner to reimburse Tri-Ply for reasonable expenses within 30 days after receipt of an invoice shall void warranty. Aesthetic irregularities or normal aging effects do not constitute a loss of warrantable integrity and are not sufficient cause for maintenance, repair or replacement by Tri-Ply. Unless Tri-Ply has validated warranty, the Tri-Ply may file a claim on one of the following (1) the date of delivery of the product to the owner or (2) the expiration of the warranty, whichever shall occur later. Tri-Ply is not bound by any oral expression or representation made by any agent or party purporting to act for or on behalf of Tri-Ply, or by any commitment, arrangement or representation not specified in the warranty, Tri-Ply, or by any commitment, arrangement or representation not specified in the warranty. By signing warranty, owner acknowledges that it has read roof owners manual and agrees to comply with all terms, obligations and requirements detailed therein.
27. Executed by owner	Owner and contractor must execute warranty (see Special Features Conditions).	Owner and contractor must execute warranty (see Special Features Conditions).	Owner and contractor must execute warranty (see Special Features Conditions).

## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Tri-Ply	Tri-Ply	Tri-Ply
2. Title, original publication date, and identifying symbol, if any	Tri-Ply "The Guarantee"; 1989	"Tri-Ply Ten Year Limited Roofing Warranty"; 1992	Tri-Ply, Inc. "Inspection and Service Contract"; June 1, 1987
3. Product, specification, or system covered	TP-4, TP-4G; Karifalt 306, 307, and 308; Karifalt 306 FR, 307 FR	BUR Specifications: I-5-4P-M, I-4-4P-G, I-4-4P-S, I-4-3P-M, I-3-3P-G, I-3-3P-S, I-3-2P-M, NN-5-B3P-M, NN-4-B3P-G, NN-4-B3P-S, NN-4-B2P-M, NN-3-B2P-G, NN-3-B2P-S, NN-3-BP, N-5-B3P-M, N-4-B3P-G, N-4-B3P-S, N-4-B2P-M, N-3-B2P-G, N-3-B2P-S, N-3-BP-M; Modified Bitumen Specifications: TP-4, TP-4G, TP-170, Karifalt 306, 307, 308, Karifalt 306 FR, 307 FR	Modified Bitumen Specifications: 400M, 400F, 320M, 320F, 310M, 310F
4. Scope of coverage	Tri-Ply warrants that its membrane will be free from defects and deterioration of the membrane as a result of ordinary wear and tear from exposure to the elements or splits, fissures, or tears in the membrane not caused by structural or roof deck movement or failure (see Special Features/Conditions).	Material only; Tri-Ply warrants that the Tri-Ply roofing membrane will be free from manufacturing defects when installed according to the requirements of Tri-Ply specifications.	Tri-Ply warrants that the roof system will retain its watertight integrity in normal use. Aesthetic irregularities or normal aging effects do not constitute a loss of watertight integrity and are not sufficient cause for maintenance, repair, or replacement by Tri-Ply.
5. Length of coverage	6, 10, 12 years for all specifications; 15 years for specifications KA-300-NI, KA-310-NI, KA-320-NI, KA-330-NN, TP-300-NI, TP-310-N, TP-320-NNI, TP-330-NN; 20 years for specifications KA-400-NI, KA-410-N, KA-420-NNI, KA-430-NN	10 years	10 years for all specifications; 15 years for specifications 320M, 320F, 310M, 310F; 20 years for specifications 400M, 400F
6. Nature of remedy	Tri-Ply will repair membrane, including material or workmanship, or replace same at Tri-Ply's option, at no cost to the purchaser or refund the cost of the membrane.	If manufacturing defects develop in the membrane that cause the membrane to leak, Tri-Ply will refund to the owner the original costs incurred of the membrane.	Tri-Ply shall maintain, repair, or replace the roof system at no cost to building owner. Tri-Ply will inspect the roof every five years for the duration of the inspection and service contract and will provide maintenance recommendations.
7. Monetary limitations	Tri-Ply's liabilities shall in no event exceed amount of replacement sale price of the membrane.	Warranty is limited to a refund of the original cost of the Tri-Ply membrane.	Tri-Ply's liabilities shall in no event exceed the amount of the replacement price of the roof system.
8. Notification requirements	Written notification within 15 days following any failure of membrane by registered mail or certified mail to Tri-Ply's offices at 1250 14 Mile Road, Suite 103, Clawson, MI 48017.	Written notification to Tri-Ply's Port Arthur, Texas, office within 10 days after discovery of leak in the roofing membrane (see Special Features/Conditions).	Written notification by registered or certified mail to Tri-Ply's offices in Madison Heights, Mich., within 72 hours of discovery of any loss of watertight integrity of the roof system or by telephone notification to Tri-Ply followed by written confirmation.
9. Exclusive or additional remedy	Owner's exclusive guaranty; excludes UCC warranties.	Warranty shall be sole and exclusive remedies of the owner and owner shall be entitled to no further or additional remedies; owner expressly waives any and all claims for damages, including property damages, personal injury damage to the owner or third parties, and/or loss of business or profits; attempts to exclude UCC warranties.	Inspection and service contract is owner's sole and exclusive remedy; excludes all other warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Tri-Ply's determination	Neutral (no provision)	Tri-Ply's determination as to whether roof system should be maintained, repaired, or replaced.
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 10, 12, 16	1, 2, 4, 6, 7, 8, 9, 10, 13, 17, 22 (also specifically excludes any other causes other than inherent defects in the roofing membrane)	1, 3, 4, 10, 16
13. Wind coverage/exclusions	Warranty excludes gales, hurricanes, and tornadoes. [Tri-Ply indicates that there is no coverage for damage caused by wind.]	Warranty excludes wind damage and tornadoes. [Tri-Ply indicates that there is no coverage for damage caused by wind.]	Warranty excludes gales, hurricanes, and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, G, H, L, R	G, I, L	B, C, F, G, H, R

15. Cost to obtain	None	None	10 years: \$10.00/square; 15 years: \$15.00/square; 20 years: \$20.00/square
16. Minimum charge	None	None	10 years: \$1,000; 15 years: \$1,500; 20 years: \$2,000
17. Ineligible structure or building use	Cold-storage buildings, structures outside of U.S. and Canada, structures with conduit or piping between roof deck and membrane (see Tri-Ply's specification manual for additional ineligible structures)	Cold-storage buildings, structures outside of U.S. and Canada, structures with conduit or piping between roof deck and membrane (see Tri-Ply's specification manual for additional ineligible structures)	Storage silos, heated tanks, cold-storage buildings
18. Pre-construction notice and approval requirements	Contractor must submit Tri-Ply's request for warranty form with notice of start and anticipated completion date.	None	Contractor must submit Tri-Ply request warranty form with notice of start and anticipated completion date.
19. Approved, authorized, or licensed applicator	Yes	No	Yes
20. Job inspection policy	Tri-Ply technical field representative may make periodic on-site inspections prior, during, and after application prior to issuance of warranty; no charge.	No on-site inspections	Tri-Ply technical services representative makes on-site inspection prior to and during application depending on project conditions, and after application, as well as five years after issuance of contract; no charge.
21. Contractor's post-installation obligation	Contractor obligated to make repairs to workmanship deficiencies for two years (see Special Features/Conditions).	None; material-only warranty	Contractor obligated to make repairs to workmanship deficiencies for five years.
22. Backed by named insurance or surety	No; Tri-Ply indicates that it does not carry insurance covering its warranty obligations.	No; Tri-Ply indicates that it does not carry insurance covering its warranty obligations.	No; Tri-Ply indicates that it carries product liability insurance to cover its warranty obligations.
23. Issuing entity manufactures and/or sells products	Tri-Ply manufactures and sells product.	Tri-Ply manufactures and sells products.	Tri-Ply manufactures and sells the product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	Contract can be extended for five years at a charge of \$5.00/square; owner must submit written request for contract extension 60 days prior to expiration and pay for inspection and repair costs.
25. Assignability	Warranty may be transferred if transferee, within 30 days from date of transfer of title, by certified mail to Tri-Ply, 1250 14 Mile Road, Suite 103, Clawson, MI 48017, (1) notifies Tri-Ply of transfer, (2) consents to a roof inspection conducted by a Tri-Ply technical representative and any repairs needed shall be made at owner's sole expense, (3) requests transfer forms which must be completed and returned to Tri-Ply according to instructions, and (4) pays an assignment fee of \$500 to Tri-Ply. Warranty is not otherwise assignable, directly or indirectly.	Not assignable except that it may be assigned to new owner of building if request is made in writing within 30 days of transfer of ownership of building and Tri-Ply acknowledges the transfer in writing.	Assignable upon approval of the proposed assignment by Tri-Ply's Technical Services Department.
26. Special features/conditions	Guarantee document states that no liability for faulty and/or improper installation until 24 months following installation, and the obligation to repair and/or replace the membrane due to improper installation shall be the exclusive obligation of the contractor who installed same. Guarantee is executed by Tri-Ply authorized contractor.	Installation of the Tri-Ply membrane is the sole responsibility of the owner and the owner's contractors, and Tri-Ply does not warrant the quality of installation under any circumstances. Owner must sign and mail warranty registration form to Tri-Ply within 10 days of date of installation.	Document states that this warranty is specifically conditioned upon the building owner's observance of and compliance with the general terms and provisions of the contract and the requirements of Tri-Ply as stated in the Tri-Ply Systems Manual. The terms and conditions in the inspection and service contract may not be enlarged or altered by anyone in any manner unless by an officer of Tri-Ply in writing. Roof must be installed by a Tri-Ply "Eagle Elite" contractor according to written and Tri-Ply approved specifications and drawings.
27. Executed by owner	No	Owner signs Tri-Ply warranty registration form.	Yes



## Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Uniroof Corporation	Uniroof Corporation	Uniroof Corporation
2. Title, original publication date, and identifying symbol, if any	Uniroof Corporation "Trafficgard Limited Warranty"; January 1, 1994	Uniroof Corporation "Uniroof Membrane Roofing Limited Warranty"; April 1989; 4/24/89	U.S. Intec, Inc.
3. Product, specification, or system covered	Trafficgard	Uniroof Membrane Roofing	"U.S. Intec, Inc. Roofing and Waterproofing Products Full Value Warranty", 1995.
4. Scope of coverage	Material only; Uniroof warrants the Trafficgard material will not deteriorate in its condition to the extent of ceasing to be capable of providing an effective weatherproof membrane. Only deterioration as a result of faulty manufacture of Trafficgard or defective products used in such manufacture is covered. Uniroof does not warrant to color match replacement material to surrounding area. Elements, regardless of size, shall not be considered to be a defect.	Material and workmanship; applicator warrants for a period of two years that Uniroof roofing membrane will remain in a watertight condition. For the next eight or thirteen years, depending upon the length of the warranty selected, Uniroof warrants that the Uniroof roofing membrane will remain watertight.	Modified Bitumen Specifications: B-SP-4000-N, B-SP-4000-NI, B-SP-4000-NN, B-SP-4000-NNI, B-SP-7000-N, B-SP-7000-NI, B-SP-7000-NN, B-SP-7000-NNI, B-SP-9000-N, B-SP-9000-NI, B-SP-9000-NN, B-SP-9000-NNI, BF-200-N, BF-210-N, BF-250-N, BF-300-N, BF-310-NI, BF-350-N, BF-350-NI, BF-400-N, BF-410-NI, BF-450-N, BF-500-N. Other systems must be approved in writing by technical services department.
5. Length of coverage	10 years	10 or 15 years	Material and workmanship (See Special Features/Conditions); U.S. Intec guarantees it will repair or replace, at its sole discretion, the Intec roofing membranes and base flashings, as is necessary to correct leaks resulting from (a) manufacturing defects; (2) deterioration as a result of ordinary wear and tear from exposure to the elements; (3) splits, fissures, or tears not caused by structural or roof deck movement or failure; and (4) workmanship in installing the roofing membrane and base flashing.
6. Nature of remedy	Uniroof will furnish Trafficgard material as may be required to repair those areas that have failed as a result of the deterioration of the originally furnished Trafficgard material. Labor to install this material is not included.	Applicator will, for the first two years, and Uniroof will thereafter, each at its own expense, cause the repairs or modifications to the membrane to be made to the extent necessary to enable the membrane to perform as warranted.	10, 12, 15 or 20 years (Length of coverage depends on membrane, system configuration and contractor status).
7. Monetary limitations	The total cost of materials provided under warranty shall not exceed in the aggregate over the life of warranty a sum greater than the original cost of the Uniroof supplied material.	The total cost of repairs provided under warranty shall not exceed in the aggregate over the life of warranty a sum greater than the original cost of Uniroof-supplied material and the labor used to install such material.	U.S. Intec will repair or replace, at its sole discretion, the Intec roofing membranes and base flashings, or portion thereof, as is necessary to correct leaks. During first two years, Intec shall have no obligation to repair any leaks due to misapplication.
8. Notification requirements	Prompt written notification to Uniroof within thirty days after owner's discovery of any failure of the roof to perform as warranted.	Written notification sent by certified mail to applicator and Uniroof at P.O. Box 160133, Altamonte Springs, FL 32716-0133, during the respective warranty periods within 30 days after owner's discovery of any failure of the roof to perform as warranted.	None stated.
9. Exclusive or additional remedy	Warranty states that its provisions shall constitute the exclusive remedy; warranty is in lieu of all other guarantees and warranties; excludes UCC warranties.	Warranty states that its provisions shall constitute the exclusive remedy. Warranty is in lieu of all other guarantees and warranties; excludes UCC warranties.	Written notice to U.S. Intec within 15 days of discovering conditions which are the basis of a warranty claim against U.S. Intec.
10. Incision of consequential damages	No	No	Remedy set forth in warranty shall be the sole and exclusive remedy available to owner. Guarantees in lieu of any other warranties or warranties, and any other obligation or liability on the part of U.S. Intec whether any claim is based upon strict liability, negligence, breach of warranty or any other theory or cause of action; excludes UCC warranties.
11. Determination of warranty applicability	Warranty will be ineffective if, in Uniroof's judgement, the performance of the material is impaired by any alterations or repairs made without Uniroof's written approval or by work done by anyone other than a Uniroof-approved applicator.	Uniroof's determination if warranty ineffective because performance of the roof and/or the membrane is impaired by (1) any alterations or repairs made without Uniroof's written approval, (2) by work done on the roof by anyone other than a Uniroof-approved roofer/applicator, or (3) by change in use of the roof or building.	No
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 3, 4, 5, 13, 10, 18, 22	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15, 22, 23. Warranty also excludes tests or test cuts not authorized by Uniroof.	U.S. Intec's determination.
13. Wind coverage/exclusions	Uniroof indicates that there is no coverage for damage caused by wind.	Warranty excludes windstorms, hurricanes, and tornadoes.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 22. Warranty states that Specific Condition H also makes the warranty inapplicable.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B, C, F, H, N	A, B, C, F, H, I, J, L, N, R	Warranty excludes windstorms, hurricanes, and tornadoes. U.S. Intec indicates that there is no coverage for damage caused by wind.
15. Cost to obtain	None	10 years: \$4.00/square; 15 years: \$7.00/square	C, G, H, I, L, M
16. Minimum charge	None	10 years: \$200; 15 years: \$350	10 years: no charge; 12 years: no charge; 15 years: \$10.00/square (for Intec Flex); 20 years: \$15.00/square (for Intec Flex)
17. Ineligible structure or building use	None	None	10 years: no charge; 12 years: no charge; 15 years: \$1,000; 20 years: \$1,500.
18. Pre-construction notice and approval requirements	Contractor required to give pre-construction notice and to obtain pre-construction approval from Uniroof by fax, mail, or telephone.	Contractor required to give pre-construction notice and to obtain pre-construction approval from Uniroof in writing or by telephone.	See U.S. Intec's specification manual.
19. Approved, authorized, or licensed applicator	Yes	Yes	Contractor provides notice to U.S. Intec through submittal or request for inspection form.



20. Job inspection policy	Uniroof makes on-site inspections prior to and during application at its discretion and after completion prior to issuance of warranty. Uniroof charges out-of-pocket expenses for inspections on jobs that are out of state.	Uniroof makes on-site inspections prior to, during, and after application, as well as two years after issuance of warranty. Uniroof does charge for inspections on jobs that are out-of-state. Charges may be waived on larger jobs.	U.S. Intec technical field representatives may make periodic on-site inspections prior to and during application. Technical field representative performs on-site inspections after completion prior to issuance of warranty; no charge. U.S. Intec may at its option make an inspection of the roofing system during the period between 23 and 25 months after validation of the guarantee and protect the Owner and contractor with a report detailing any application related inadequacies or leaks in the membrane or base flashing.
21. Contractor's post-installation obligation	None; material-only warranty	Contractor obligated to repair all leaks and any defects for two years.	Warranty states that owner and contractor agree that all such application inadequacies or leaks will be repaired within 30 days of receipt of the report, weather permitting, in order to return the roof system to a warrantable condition.
22. Backed by named insurance or surety	No; Uniroof indicates that it carries product liability insurance.	No; Uniroof indicates that it does not carry insurance covering its warranty obligations.	No; U.S. Intec indicates that it carries product liability insurance covering its guarantee obligations.
23. Issuing entity manufactures and/or sells products	Uniroof manufactures and sells the product.	Uniroof sells product only.	U.S. Intec manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision.
25. Assignability	Warranty is nontransferable.	Nontransferable	Guarantee is assignable to another owner of the building if the following conditions are met: (1) The request is sent by certified mail to U.S. Intec, Inc., 10000 North Stemmons Freeway, Suite 2800, P.O. Box 2800, Fort Worth, Texas 76143 within 30 days after ownership transfer; (2) the membrane is inspected by Intec and any required repairs are completed at the owner's expense; (3) the proposed assignment is approved in writing by an authorized Intec Technical Services Manager; and (4) an assignment fee of \$750 is paid to Intec. Guarantee is not otherwise transferable or assignable, directly or indirectly.
26. Special features/conditions	The owner is responsible for all costs for inspection and/or repair. If condition is found not to be covered by warranty, responsibility of owner to insure at all times that all required routine maintenance is performed, including cleaning drains, repairing damaged areas, and replacing deteriorated caulking.	This is a joint contractor/manufacture warranty in that the warranty document itself states that the applicator warrants that the roof will remain in a watertight condition for the first two years. In addition to execution by building owner and Uniroof, the warranty is to be signed by the applicator, who warrants by his signature that the material has been applied as specified in the supplier's application manual. Owner responsible for all costs for inspection and/or repairs if reported condition is found not to be covered under the warranty. Responsibility of Owner to insure at all times that all required routine roof maintenance is performed, including cleaning roof drains and replacing deteriorated caulking.	Warranty states that owner and roofing contractor expressly agree that if the owner discovers or should have discovered within the first two years leaks in the membrane or base flashings due to misapplication or to the roofer's failure to install the membrane and base flashings in compliance with the Intec specification manual in effect at the time the roof was installed, it is the roofing contractor's sole responsibility to repair those leaks and Intec shall have no obligation to repair any such leaks. If Intec determines after inspection that a complaint is expressly stated by the terms of the guarantee, Owner shall be responsible for purchasing Intec for the reasonable costs associated with making the inspection. If the Owner fails to reimburse U.S. Intec within 30 days of receipt of an invoice, U.S. Intec's guarantee obligations are terminated. If the inspection occurs within the first two years after validation of the guarantee, the reimbursable expenses are the just obligation of the Owner and roofing contractor. If Intec discovers conditions in the Intec membrane or base flashing or adjacent to the roof system that are not covered by the guarantee but which have affected or may affect the integrity of the Intec roofing membrane or base flashings, Owner agrees to completely remedy the conditions within 30 days after notice from Intec, weather permitting. Owner shall send an inspection report to Intec detailing such repairs within 15 days of their completion. Owner may make essential emergency temporary repairs at Owner's expense. Owner's failure to comply with terms and conditions shall immediately terminate Intec's obligations under the guarantee in full without further notice.
27. Executed by owner	Yes	Yes (See Special Features/Conditions.)	Yes; warranty will be effective only if validated by a signature of an authorized representative of U.S. Intec and is signed and approved by both the roofing contractor and owner and a copy of the signed original is returned to U.S. Intec within 60 days of validation by U.S. Intec at its offices in Fort Worth, Texas. Warranty states that the owner and contractor acknowledge the terms, conditions and limitations and, by signing the guarantee, agree to be bound by them.

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Versico Incorporated, a subsidiary of Carlisle Corporation	Versico Incorporated, a subsidiary of Carlisle Corporation	Versico Incorporated, a subsidiary of Carlisle Corporation
2. Title, original publication date, and identifying symbol, if any	"Versico Roofing System Warranty (With Extended Membrane Material Warranty)"; June 1995	"Versico Total Roofing System Warranty"; June 1995	"Versico Roofing System Warranty"; June 1995
3. Product, specification, or system covered	VersiGard roofing systems, VersiWeld roofing systems; available for black VersiGard membranes only	VersiGard roofing systems, VersiWeld roofing systems	VersiGard roofing systems, VersiWeld roofing systems
4. Scope of coverage	Material and workmanship for initial 5 or 10 years; material-only for as long as 20 years. For initial term, Versico warrants it will repair leaks in the Versico roofing systems caused by defects in the roofing system's material or workmanship of the Versico authorized roofing contractor in installing the same. For the balance of 20 years, Versico will provide to the owner a credit to be applied toward the purchase of new membrane material in the event of premature deterioration of the Versico membrane material to the point of failure. The Versico roofing system is defined as the Versico membrane, flashings, adhesives and sealants, and any other Versico brand products utilized in the installation.	Material and workmanship; Versico warrants that it will repair leaks in the Versico total roofing system caused by defects in the roofing system's material or workmanship of the Versico authorized roofing contractor in installing the same. The Versico total roofing system is defined as the Versico membrane, flashings, adhesives and sealants, fastener assemblies, metal edging, any Versico-brand products utilized in the installation, and any other products specifically approved by Versico for coverage under warranty.	Material and workmanship; Versico warrants that it will repair leaks in the Versico total roofing system caused by defects in the roofing system's material or workmanship of the Versico authorized roofing contractor in installing the same. The Versico total roofing system is defined as the Versico membrane, flashings, adhesives and sealants, fastener assemblies, metal edging, any Versico-brand products utilized in the installation, and any other products specifically approved by Versico for coverage under warranty.
5. Length of coverage	5 or 10 years material and workmanship; coverage for black VersiGard membrane material only can be extended up to 20 years.	10 or 15 years; white VersiGard limited to 10 years.	10 or 15 years
6. Nature of remedy	For the initial 5- or 10-year term, the owner's remedies and Versico's liability shall be limited to Versico's repair of the leak in the roofing system. For balance of 20 years, Versico will provide a credit to be applied toward the purchase of new membrane material, based on the number of remaining months of warranty and prorated at current prices.	The owner's remedies and Versico's liability shall be limited to Versico's repair of the leak in the roofing system.	The owner's remedies and Versico's liability shall be limited to Versico's repair of the leak in the roofing system.
7. Monetary limitations	For 5- or 10-year material and workmanship warranty: no monetary limitation stated; extended warranty on membrane material: credit based on the number of remaining months of warranty and prorated at current prices.	None stated.	None stated.
8. Notification requirements	The owner shall provide Versico with written notice to Versico at 3485 Fortuna Drive, Akron, OH 44312, within 30 days of the discovery of any leaks in the roofing system.	The owner shall provide Versico with written notice to Versico at 3485 Fortuna Drive, Akron, OH 44312, within 30 days of the discovery of any leaks in the roofing system.	The owner shall provide Versico with written notice to Versico at 3485 Fortuna Drive, Akron, OH 44312, within 30 days of the discovery of any leaks in the roofing system.
9. Exclusive or additional remedy	Remedies stated in warranty are the sole and exclusive remedies for failure of the roofing system or its components; excludes UCC warranties.	Remedies stated in warranty are the sole and exclusive remedies for failure of the roofing system or its components; excludes UCC warranties.	Remedies stated in warranty are the sole and exclusive remedies for failure of the roofing system or its components; excludes UCC warranties.
10. Inclusion of consequential damages	No	No	No
11. Determination of warranty applicability	Versico's determination	Versico's determination	Versico's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4 (including damage by the building structure failing to have adequate strength to support all live and dead loads, including water and snow loads), 9 (including recreational activities), 10, 11, 13, 16, 22. Warranty excludes damage caused by insects.	1, 2, 3, 4 (including damage by the building structure failing to have adequate strength to support all live and dead loads, including water and snow loads), 9 (including recreational activities), 10, 11, 13, 16, 22. Warranty excludes damage caused by insects.	1, 2, 3, 4 (including damage by the building structure failing to have adequate strength to support all live and dead loads, including water and snow loads), 9 (including recreational activities), 10, 11, 13, 16, 22. Warranty excludes damage caused by insects.

13. Wind coverage/exclusions	Versico indicates that warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes winds in excess of 55 mph measured at roof level and tornadoes.	Versico indicates that warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes winds in excess of 55 mph measured at roof level and tornadoes.	Versico indicates that warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes winds in excess of 55 mph measured at roof level and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B (including taking of test cuts), C, F (including periodic cleaning of drains and removal of harmful debris from roof), G	B (including taking of test cuts), C, F (including periodic cleaning of drains and removal of harmful debris from roof), G	B (including taking of test cuts), C, F (including periodic cleaning of drains and removal of harmful debris from roof), G
15. Cost to obtain			5 years: \$3.00/square; 10 years: \$8.00/square
16. Minimum charge			5 years: \$400; 10 years: \$400
17. Ineligible structure or building use	Single-family residences	Single-family residences	Single-family residences
18. Pre-construction notice and approval requirements	The contractor is required to submit job approval forms before project is authorized for warranty.	The contractor is required to submit job approval forms before project is authorized for warranty.	The contractor is required to submit job approval forms before project is authorized for warranty.
19. Approved, authorized, or licensed applicator	Yes	Yes	Yes
20. Job inspection policy	Versico inspector makes on-site inspection after completion, prior to issuance of warranty.	Versico inspector makes on-site inspection after completion, prior to issuance of warranty.	Versico inspector makes on-site inspection after completion, prior to issuance of warranty; \$300 inspection charge.
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for three years.	The contractor is obligated to make repairs to workmanship deficiencies for three years.	The contractor is obligated to make repairs to workmanship deficiencies for three years.
22. Backed by named insurance or surety	No; Versico indicates that it does not carry insurance covering its warranty obligations.	No; Versico indicates that it does not carry insurance covering its warranty obligations.	No; Versico indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Versico manufactures and sells product.	Versico manufactures and sells product.	Versico manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision	No renewal provision	No renewal provision
25. Assignability	Warranty states that it is not assignable by operation of law or otherwise. Application may be made by a new building owner for reissuance of the warranty during the original warranty period. Certain procedures, including an inspection of the roofing system by Versico representative, and fees will apply to any reissuance. Versico reserves the right, in its sole discretion, to refuse to reissue this warranty.	Warranty states that it is not assignable by operation of law or otherwise. Application may be made by a new building owner for reissuance of the warranty during the original warranty period. Certain procedures, including an inspection of the roofing system by Versico representative, and fees will apply to any reissuance. Versico reserves the right, in its sole discretion, to refuse to reissue this warranty.	Warranty states that it is not assignable by operation of law or otherwise. Application may be made by a new building owner for reissuance of the warranty during the original warranty period. Certain procedures, including an inspection of the roofing system by Versico representative, and fees will apply to any reissuance. Versico reserves the right, in its sole discretion, to refuse to reissue this warranty.
26. Special features/conditions	By notifying Versico of a leak, the owner authorizes Versico to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of the warranty, investigation and repair costs shall be paid by owner.	By notifying Versico of a leak, the owner authorizes Versico to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of the warranty, investigation and repair costs shall be paid by owner.	By notifying Versico of a leak, the owner authorizes Versico to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of the warranty, investigation and repair costs shall be paid by owner.
27. Executed by owner	No	No	No

# Roof Membrane Warranties (Built-up, Modified Bitumen, and Single-Ply)

1. Identity of issuing entity	Versico Incorporated, a subsidiary of Carlisle Corporation
2. Title, original publication date, and identifying symbol, if any	"Versico Total Roofing System Warranty (With Extended Membrane Material Warranty)"; June 1995
3. Product, specification, or system covered	VersiGard roofing systems, VersiWeld roofing systems; available for black VersiGard membranes only.
4. Scope of coverage	Material and workmanship for initial 10 or 15 years; material-only for as long as 20 years. For initial term, Versico warrants it will repair leaks in the Versico total roofing system caused by defects in the roofing system's material or workmanship of the Versico authorized roofing contractor in installing the same. For the balance of 20 years, Versico will provide to the owner a credit to be applied toward the purchase of new membrane material in the event of premature deterioration of the Versico membrane material to the point of failure. The Versico total roofing system is defined as the Versico membrane, flashings, adhesives and sealants, any other Versico-brand products utilized in the installation, and any other products specifically approved by Versico for coverage under the warranty.
5. Length of coverage	10 or 15 years material and workmanship; coverage for black VersiGard membrane material only can be extended up to 20 years.
6. Nature of remedy	For initial 10- or 15-year term, the owner's remedies and Versico's liability shall be limited to Versico's repair of the leak in the roofing system. For balance of 20 years, Versico will provide a credit to be applied toward the purchase of new membrane material based on the number of remaining months of warranty and prorated at current prices.
7. Monetary limitations	For 10- or 15-year material and workmanship warranty: no monetary limitation stated; extended warranty on membrane material: credit based on the number of remaining months of warranty and prorated at current prices.
8. Notification requirements	The owner shall provide Versico with written notice to Versico at 3485 Fortuna Drive, Akron, OH 44312, within 30 days of the discovery of any leaks in the roofing system.
9. Exclusive or additional remedy	Remedies stated in warranty are the sole and exclusive remedies for failure of the roofing system or its components; excludes UCC warranties.
10. Inclusion of consequential damages	No
11. Determination of warranty applicability	Versico's determination
12. Specific exclusions from coverage (See item no. 12 in Introduction.)	1, 2, 3, 4 (including damage by the building structure failing to have adequate strength to support all live and dead loads, including water and snow loads), 9 (including recreational activities), 10, 11, 13, 16, 22. Warranty excludes damage caused by insects.
13. Wind coverage/exclusions	Versico indicates that warranty covers roof damage resulting from wind speeds up to 55 mph. Warranty excludes winds in excess of 55 mph measured at roof level and tornadoes.
14. Specific conditions to make warranty ineffective or null and void (See item no. 14 in Introduction.)	B (including taking of test cuts), C, F (including periodic cleaning of drains and removal of harmful debris from roof), G

15. Cost to obtain	10 years: \$7.00/square; 15 years: \$12.00/square; 20-year extended membrane material: add \$200 to per-square fee when above minimum size.
16. Minimum charge	10 years: \$600; 15 years: \$800; 20-year extended membrane material: add \$200 to per-square fee when above minimum size.
17. Ineligible structure or building use	Single-family residences
18. Pre-construction notice and approval requirements	The contractor is required to submit job approval forms before project is authorized for warranty.
19. Approved, authorized, or licensed applicator	Yes
20. Job inspection policy	Versico inspector makes on-site inspection after completion, prior to issuance of warranty; \$300 inspection charge.
21. Contractor's post-installation obligation	The contractor is obligated to make repairs to workmanship deficiencies for three years.
22. Backed by named insurance or surety	No; Versico indicates that it does not carry insurance covering its warranty obligations.
23. Issuing entity manufactures and/or sells products	Versico manufactures and sells product.
24. Conditions for renewal or extension	No renewal provision
25. Assignability	Warranty states that it is not assignable by operation of law or otherwise. Application may be made by a new building owner for reissuance of the warranty during the original warranty period. Certain procedures, including an inspection of the roofing system by Versico representative, and fees will apply to any reissuance. Versico reserves the right, in its sole discretion, to refuse to reissue this warranty.
26. Special features/conditions	By notifying Versico of leak, the owner authorizes Versico to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of the warranty, investigation and repair costs shall be paid by owner.
27. Executed by owner	No



## *Section 4*

# *Roof Board Insulation*

# Information on Commercial Roof Board Insulation

## General Information

Rigid roof board insulation materials are manufactured from a variety of base materials and chemical compounds and are typically categorized as either homogeneous or composite constructions. Homogeneous insulating boards are prefabricated products with one insulation layer component manufactured from any one of several base materials. Top and/or bottom surfaces may or may not be coated or impregnated with asphalt or other binders and/or covered with facer materials, such as foils, organic felts, glass fibers, and kraft paper.

Composite insulating boards consist of multiple layers of insulations and/or a variety of other board materials (typically perlite, polyisocyanurate, fiberboard, plywood, and gypsum board) that form a unified, bonded multilayer component. Top and/or bottom surfaces may or may not be coated or impregnated with asphalt or other binders and/or covered with facer materials, such as foils, organic felts, glass fibers, and kraft paper. Composite insulations containing polyisocyanurate are listed in the 1997 edition of the *Guide* together with homogeneous boards because of the applicability to both of ASTM 1289-95.

The generic classes of homogeneous roofing insulation boards are:

- Expanded polystyrene
- Extruded polystyrene
- Glass fiber/mineral fiber
- Cellular glass
- Phenolic
- Fiberboard
- Perlite
- Polyisocyanurate

Following is additional information on each of these product types.

**Expanded (molded) polystyrene (EPS)** EPS board is formed from a plastic polymer (polystyrene), which is supplied by several companies to regional converters. The process includes molding into blocks, manufacturing sheets, and, optionally, applying facer materials.

The converted materials generally conform to material specifications published by the Society of the Plastics Industry (SPI). Some of these specifications, together with other calculated data, are shown in the material data sheet in this section.

**Extruded polystyrene** Extruded polystyrene board is also formed from a polystyrene polymer. Closed cells are integrally formed within the insulation materials during the expansion process. Continuous extrusion produces a

tight and complete skin (free of open cells) to form on each side of the insulation board. Boards are expanded to a specific thickness during manufacture.

**Glass fiber** Glass fiber roof board insulation is a rigid insulating material composed of fine glass fibers, which provide the insulating properties of the product. The glass-fiber-reinforced asphalt and kraft paper top surface of the insulation boards provides a tough, impact-resistant mopping surface upon which a built-up roof system may be applied.

**Cellular glass** Cellular glass roof insulation is a rigid insulating material composed of heat-fused, closed glass cells. It is available in standard insulation board or block form and in special tapered boards that provide drainage slope for roof decks.

**Phenolic foam** Phenolic foam insulation board is a closed-cell, rigid, thermosetting phenolic foam core material manufactured in various thicknesses. Because no manufacturers have listed phenolic products in the 1994 edition of the *Commercial Guide*, the product category has been omitted from the index.

**Fiberboard** Fiberboard insulation is a preformed rigid fibrous-felted panel, composed principally of wood or cane fibers integrally treated with waterproofing binders.

**Perlite** Perlite roof board insulation is a rigid insulating material manufactured from expanded volcanic minerals combined with organic fibers and waterproofing binders. The top surface is generally treated to minimize bitumen absorption and to provide an intimate bond with built-up roofing materials.

**Polyisocyanurate** Polyisocyanurate foam board insulation is produced from a polyisocyanurate-based chemical. The polyisocyanurate material is usually sandwiched between asphalt-saturated organic or inorganic felt facer sheets. Glass fiber reinforcement used in some foam cores provides additional fire resistance and greater dimensional stability.

## Selection Criteria

The selection of the appropriate roof insulation materials for a building application involves consideration of the insulation as a component of a specific roof system. Some issues that should be considered are compatibility of the insulation with other roof system components, the nature of the substrate, thermal objectives, durability, resistance to climatic conditions, stability, installed weight, method of attachment, fire and wind resistance, life-cycle cost, and slope and drainage requirements. In practice, no single commercial product possesses all of the ideal properties. The designer therefore must choose materials with properties that, on balance, are best suited to the specific project.



## Thermal Values

Thermal values are provided in the insulation section of the *Guide* in the item called "Common Available Thicknesses." These properties are stated as thermal conductance (C) and thermal resistance (R). The data provided are C-values and R-values at both 40 and 75 degrees F for the different thicknesses. A brief explanation of these terms is provided below; for a complete discussion of issues relating to insulating value of roof board insulation, see the *NRCA Energy Manual*, available from the National Roofing Contractors Association.

A BTU (British Thermal Unit) is the amount of heat required to raise the temperature of one pound of water 1 degree F. The k-value of a material is a measurement of the number of BTUs that pass through a 1-in.-thick sample of material 1 ft. by 1 ft. square in one hour with a difference in temperature between the top and bottom of 1 degree F. The C-value is simply the conductance of a material at any thickness; for example, if an insulating material has a k-value of 0.16, then 2 inches of the material will have a C-value of 0.08 ( $0.16/2$ ). The R-value is the resistance to heat flow, not its conductance; it's the reciprocal of the C-value, so the larger the number of the R-value, the better insulating value the material has. R-values are more commonly used because they can be added together, whereas C-values cannot.

## Technical Information

For a general discussion of fire ratings according to Underwriters Laboratories (UL) and/or Factory Mutual (FM) test methods and ASTM performance-related standard specifications and/or standard test methods, see Technical Information on Products in the *Commercial Guide*, in the Introduction. There you will also find a list of ASTM standards pertaining specifically to insulation. Omitted from the list is reference to expanded polystyrene insulation, the test methods for which are enumerated in the material data sheet shown below.

Throughout the insulation section of the *Commercial Guide*, there are provisions for information on UL design numbers and code approvals. These can be found as the third-to-last item in the insulation board listings for each product. Called "UL 'P' Design Numbers; Building Code Agency Approved Design Numbers; ICBO...," this space is for the manufacturer to enter UL design numbers and code agency approvals. If there is insufficient room is the space provided, this data will be found in the insulation appendix.

The term "*P* Design Number" refers to the UL numbering system for rated fire assemblies. The fire ratings are based on the test method and acceptance criteria found in Fire Tests of Building Construction and Materials, ANSI/UL 263 (ASTM E 119). When a test assembly meets the criteria, a description of the assembly, its performance, and such other information as the specifica-

tion of materials and alternate details, are included in a report to the test sponsor. The summarized form of the test assembly is identified by an alphanumeric design number, the prefix letter for which designates the construction group. A P is used for roof-ceiling designs. So, the fact that a product has a "P" Design Number indicates that it is included in an assembly with the specific number as a component in one of the configurations. The assemblies can be found in the *UL Directory* entitled *Fire Resistance—Vol. 1*.

As indicated, there is space for listers to enter code approvals; this is where the acronyms for code-setting organizations, which include Building Officials & Code Administrators International, Inc. (BOCA), Southern Building Code Congress International (SBCCI), and International Conference of Building Officials (ICBO), will be found and also where some government jurisdictions that use their own code approvals will be listed (e.g., Metro.-Dade County, [Fla.]). This information is provided as a quick reference for the *Guide* user only; it is necessary to refer to the publications of the organizations to understand the context in which these approvals are given. Each of the organizations has its own set of criteria, and each region of the country sets codes based on the recommendations of one or another of the code-setting bodies. The *Guide* user needs to determine which set of criteria in general is relevant to his particular locality and then understand what the approval process for the particular code-setting organization implies.

Follow are the publications produced by the code-setting organizations and where they may be obtained:

BOCA publishes *The BOCA National Building Code/Year*; 4051 W. Flossmor Rd., Country Club Hills, Ill. 60477

ICBO publishes *Uniform Building Code (UBC)*; 5360 So. Workman Mill Rd., Whittier, Calif., 90601.

SBCCI publishes *Standard Building Code — Edition*; 900 Montclair Rd., Birmingham, Ala. 35213.

Manufacturers will also enter other approvals, such as those from government agencies (e.g., HUD) and any other approvals that the product may have received. In such cases, it will be necessary to contact the manufacturer directly to obtain further details on the nature and significance of these approvals.

### Product Types for Part 2 of Polyisocyanurate Roof Board Insulation Section

Following is a description of the product types in Item 3.1 of the of the test results section for polyisocyanurate insulation as they appear in ASTM Standard C 1289-95.

## Polyisocyanurate Insulation Product Types

Product Type	Type I, Class 1	Type I, Class 2	Type II	Type III	Type IV	Type V	Type VI
Facer covering one surface	Aluminum foil	Aluminum foil	Fibrous felt or glass fiber mat membrane	Perlite insulation board	Cellulosic fiber insulating board	Oriented- strand board or waferboard	Perlite insulation board
Facer covering opposite surface	Aluminum foil	Aluminum foil	Fibrous felt or glass fiber mat membrane	Fibrous felt or glass fiber mat membrane	Fibrous felt or glass fiber mat membrane	Fibrous felt or glass fiber mat membrane or aluminum foil	Perlite insulation board

## Expanded Polystyrene Homogeneous Roof Roof Board Insulation Material Data Sheet

Density		Typical Thicknesses																				
		3/4"			1"			2"			3"			4"			5"			6"		
		Thermal Values		lbs/sq ft	Thermal Values		lbs/sq ft	Thermal Values		lbs/sq ft	Thermal Values		lbs/sq ft	Thermal Values		lbs/sq ft	Thermal Values		lbs/sq ft	Thermal Values		lbs/sq ft
		C	R		C	R		C	R		C	R		C	R		C	R		C	R	
1.0 lbs/cu ft	040 075	0.32 0.346	3.13 2.89	0.63	0.24 0.26	4.17 3.85	0.083	0.12 0.13	8.30 7.69	0.166	0.08 0.087	12.50 11.49	0.249	0.06 0.065	16.6 15.38	0.332	0.05 0.052	20.8 19.23	0.415	0.04 0.043	25.00 23.26	0.498
1.25 lbs/cu ft	040 075	0.313 0.34	3.19 2.94	0.078	0.235 0.255	4.26 3.92	0.104	0.118 0.128	8.47 7.81	0.208	0.078 0.085	12.82 11.76	0.312	0.059 0.064	16.95 15.63	0.416	0.047 0.051	21.28 19.61	0.52	0.039 0.043	25.64 23.26	0.624
1.50 lbs/cu ft	040 075	0.293 0.32	3.41 3.13	0.094	0.22 0.24	4.55 4.17	0.125	0.11 0.12	9.09 8.33	0.25	0.073 0.08	13.70 12.50	0.375	0.055 0.06	18.18 16.67	0.50	0.044 0.048	22.73 20.83	0.625	0.037 0.04	27.03 25.00	0.75
2.0 lbs/cu ft	040 075	0.30 0.307	3.33 3.26	0.125	0.21 0.23	4.76 4.35	0.167	0.105 0.115	9.52 8.70	0.334	0.07 0.077	14.29 12.29	0.501	0.053 0.058	18.87 17.24	0.668	0.042 0.046	23.81 21.74	0.835	0.035 0.038	28.57 26.32	1.00

Density per ASTM C303 (lbs/cu ft)	1.0	1.25	1.50	2.0
Applicable Standard Specifications:				
ASTM C 578-95 (Types I, II, and III);				
Fed. Spec. HHI-524C	X	X	X	X
Compressive Strength per ASTM				
D 1621 (psi @10 percent deformation)	10-14	13-18	15-21	25-33
Water Absorption per ASTM C 272				
(percent by volume, not including facer)	<2.5	<2.5	<2.0	<1.0
Flexural Strength per ASTM C 203				
(percent by volume, not including facer)	25-30	32-38	40-50	55-75

Above data courtesy of the Society of the Plastics Industry, Inc.

Note: Sized material is typically fabricated to order and is commonly available in dimensions of 2 ft x 4 ft, 3 ft x 4 ft, 4 ft x 4 ft, and 4 ft x 8 ft, and custom sized in any dimension from 20 inches thick, 48 inches wide, and 16 feet long. The thicknesses used in this table were selected to show relative C-values and weight per square foot. Expanded polystyrene can be fabricated up to 24 inches.

# Index to Listed Roof Board Insulations

	EXPANDED POLYSTYRENE	EXTRUDED POLYSTYRENE	GLASS FIBER	CELLULAR GLASS	FIBERBOARD	PERLITE	POLYISOCYANURATE	COMPOSITE		EXPANDED POLYSTYRENE	EXTRUDED POLYSTYRENE	GLASS FIBER	CELLULAR GLASS	FIBERBOARD	PERLITE	POLYISOCYANURATE	COMPOSITE
<b>A F M CORP.</b> P. O. Box 246 Excelsior, MN 55331 800/255-0176 FAX E-mail Web										<b>CARPENTER INSULATION CO.</b> P. O. Box 27205 Richmond, VA 23261 800/288-3836 FAX E-mail Web							
<b>ALLIEDSIGNAL INC. COMMERCIAL ROOFING SYSTEMS</b> 2000 Regency Parkway Suite 255 Cary, NC 27511-8507 919/461-4701 (NC) 800/221-6490 FAX 919/461-4720 E-mail Web										<b>CELOTEX CORP.</b> 4010 Boy Scout Blvd. Tampa, FL 33607 813/873-1700 FAX E-mail Web	568						600
<b>APACHE PRODUCTS COMPANY</b> 107 Service Road Anderson, SC 29625 800/777-3707 FAX E-mail Web										<b>DOW CHEMICAL COMPANY, THE</b> Fabricated Products Business Center 1605 Joseph Drive, Larkin 200 Building Midland, MI 48674 517/638-5225 FAX E-mail Web		571					601
<b>ARVRON INC.</b> 4720 Clay S.W. Grand Rapids, MI 49548 616/530-1888 FAX E-mail Web										<b>FIRESTONE BUILDING PRODUCTS, INC.</b> 525 Congressional Blvd. Carmel, IN 46032-5607 800/428-4442 FAX E-mail Web							
<b>ATLAS ROOFING CORPORATION</b> 1775 The Exchange, Suite 160 Atlanta, GA 30339 770/933-4478 FAX 770/952-3170 E-mail Web										<b>FOAM PLASICS OF NEW ENGLAND</b> Route 69 Prospect, CT 06712 203/758-6651 (CT) 800/237-3763 FAX 203/758-3162 E-mail: foamplastic@sprintmail.com Web							
<b>BENCHMARK FOAM INC.</b> 3200 9th Ave., S.E. Watertown, SD 57201-9102 800/658-3444 FAX 605/886-8099 E-mail Web										<b>GAF MATERIALS CORP.</b> 1361 Alps Road Wayne, NJ 07470 973/628-3000 FAX 973/628-3356 E-mail Web							
<b>BIG SKY INULATIONS INC.</b> 15 Arden Drive P.O. Box 838 Belgrade, MT 59714 406/388-4146 FAX E-mail Web										<b>GEORGIA PACIFIC CORP.</b> 133 Peachtree St. NE P.O. Box 105624 Atlanta, GA 30348-5624 404/652-5547 800/879-7781 FAX 404/230-7845 E-mail Web							
<b>BMCA INSULATION PRODUCTS INC.</b> 300 N. Haven Avenue Ontario, CA 91761 800/858-8868 FAX 909/390-8764 E-mail Web										<b>HUEBERT FIBERBOARD CO.</b> 1545 E Morgan Street, Box 167 Boonville, MO 65233 660/882-2704 FAX 660/882-2704 E-mail Web							
<b>CARLISLE SYNTEC INCORPORATED</b> P.O. Box 7000 Carlisle, PA 17013 717/245-7000 FAX E-mail Web										<b>INSUL-BOARD, INC.</b> 2120 Colonial Avenue P.O. Box 8103 Erie, PA 16505 814/833-7400 FAX 814/838-4774 E-mail Web							

# Index to Listed Roof Board Insulations

	EXPANDED POLYSTYRENE	EXTRUDED POLYSTYRENE	GLASS FIBER	CELLULAR GLASS	FIBERBOARD	PERLITE	POLYISOCYANURATE	COMPOSITE		EXPANDED POLYSTYRENE	EXTRUDED POLYSTYRENE	GLASS FIBER	CELLULAR GLASS	FIBERBOARD	PERLITE	POLYISOCYANURATE	COMPOSITE
<b>INSULATED BUILDING SYSTEMS, INC.</b> 9912 Georgetown Pike, Suite D2 Great Falls, VA 22066 703/757-0118 FAX 703/757-0119 E-mail: aol.com/insblgsys/lbs.htm Web									<b>PITTSBURGH CORNING CORP.</b> 800 Presque Isle Drive Pittsburg, PA 15239 800/359-8433 FAX E-mail Web								
<b>INSULATION CORP. OF AMERICA</b> 2571 Mitchell Avenue Allentown, PA 18103 610/791-4200 FAX E-mail: Web									<b>PLYMOUTH FOAM INCORPORATED</b> 1800 Sunset Drive Plymouth, WI 53073 920/893-0535 FAX 920/892-4986 E-mail Web: www.scottw@plymouthfoam.com								
<b>JOHNS MANVILLE INTERNATIONAL INC.</b> Roofing Systems Group P.O. Box 5108 Denver, CO 80217 303/978-2000 FAX 303/978-3904 E-mail Web									<b>POLY FOAM INC.</b> 116 Pine Street South Lester Prairie, MN 55354-0218 320/395-2551 FAX E-mail Web								
<b>KNAUF USA POLYSTYRENE</b> 2725 Henkle Drive Lebanon, OH 45036 513/922-6823 FAX 513/932-3506 E-mail Web									<b>POLYFOAM PACKERS CORP.</b> CONSTRUCTION PRODUCTS DIV. 3751 Sunset Ave. Waukegan, IL 60067 800/800-0359 847/263-0200 FAX 847/263-0350 E-mail Web								
<b>KOPPERS INDUSTRIES INC.</b> Commercial Roofing Dept. 436 Seventh Avenue Pittsburgh, PA 15219-1800 800/558-2706 FAX E-mail Web									<b>R-MAX INC.</b> 13524 Welch Road Dallas, TX 75244 214/387-4500 FAX E-mail Web								
<b>LUCAS SALES CO., INC.</b> 10623 Baur Blvd. St. Louis, MO 63132 314/993-9610 FAX 314/993-4836 E-mail Web									<b>T-CLEAR CORPORATION</b> P. O. Box 416 Hamilton, OH 45012 513/870-9243 FAX 513/870-9606 E-mail: tclear@earthlink.net Web								
<b>OWENS CORNING</b> 275 Southwest Avenue Tallmadge, OH 44278 330/633-6735 FAX E-mail Web									<b>TEMPLE</b> P.O. Drawer N Diboll, TX 75941 800/231-6060 FAX E-mail Web								
<b>OWENS CORNING FALCON FOAM CORP</b> 8240 Byron Center Road Byron Center, MI 49315 616/878-1588  FAX 616/878-0874 E-mail Web									<b>TENNECO BUILDING PRODUCTS</b> 2907 Log Cabin Drive Smyrna, GA 30080-7013 800/241-4402 FAX 404/350-1489 E-mail Web								
<b>PACEMAKER PLASTICS CO., INC.</b> 126 New Pace Road., P.O. Box 279 Newcomerstown, OH 43832 800/446-2188 FAX E-mail: pacemaker@tusco.net Web site: www.tusco.pacemaker.net									<b>THERMCO INDUSTRIES INC.</b> 809 East 15th St., P.O. Box 49 Washington, IA 52353 800/247-7831 319/653-6216 FAX E-mail Web								

Index to Listed Roof Board Insulations

										EXPANDED POLYSTYRENE	EXTRUDED POLYSTYRENE	GLASS FIBER	CELLULAR GLASS	FIBERBOARD	PERLITE	POLYISOCYANURATE	COMPOSITE
U.S. INTEC, INC.																	
1700 W. Big Beaver Rd., Suite 360																	
Troy, MI 48084																	
248/816-8013																	
FAX 248/816-8014																	
E-mail: usintec@mich.com																	
Web:																	

										EXPANDED POLYSTYRENE	EXTRUDED POLYSTYRENE	GLASS FIBER	CELLULAR GLASS	FIBERBOARD	PERLITE	POLYISOCYANURATE	COMPOSITE
WOOLLEY & COMPANY																	
6865 Mimms Drive																	
Doraville, GA 30340																	
770/448-8473																	
FAX 770/448-3061																	
E-mail																	
Web:																	

# Expanded Polystyrene Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	AFM CORP	AFM CORP	AFM CORP	APACHE PRODUCTS COMPANY	ARVRON INC.
2. STATE	MN	MN	MN	SC	MI
3. PRODUCT NAME	AFM PERFORM	AFM CONTOUR TAPER TILE	AFM PERFORM PROTECT	EPS ROOF INSULATION	STEER-O-CELL
4. DENSITIES PER ASTM C 303 OR OTHER					
4.1 1.00 lbs/ft <sup>2</sup>	X	X	X	X	X
4.2 1.25 lbs/ft <sup>2</sup>	X	X	X	X	X
4.3 1.50 lbs/ft <sup>2</sup>	X	X	X	X	X
4.4 2.00 lbs/ft <sup>2</sup>	X	X	X	X	X
5. SURFACE TREATMENTS					
5.1 ROOFING FELT	X	X			
5.2 FOIL FACED KRAFT	X	X		X	X
5.3 TREATED KRAFT					
5.4 KRAFT					X
5.5 OTHER	X	X	X		
6. AVAILABLE AS TAPERED MATERIAL					
6.1 WITH FACER		YES		NO	YES
6.2 WITHOUT FACER		YES		YES	YES
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1966	1966	1994	1957	1978
8. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content)	100	100	100	100	100
@ 5 years	100	100	100	100	100
@ 10 years	100	100	100	100	100
9. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	SEE APPENDIX	UL 1256 CO. NO. 411 CO. NO. 412  SEE APPENDIX	SBCCI 9443 P213, P251, P255, P410, P411, P509, P513, P810, P901 P905, P906, P910, P911, P913, P914, P916, P917, P919, P920, P923	
10. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	
11. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	

1. COMPANY NAME	BENCHMARK FOAM INC.	BIG SKY INSULATIONS INC.	CARLISLE SYNTec INCORPORATED	CARPENTER INSULATION COMPANY	FOAM PLASTICS OF NEW ENGLAND
2. STATE	SD	MT	PA	VA	CT
3. PRODUCT NAME	PERMA-FOAM	SNOFOAM EPS	SURE-SEAL EPS	CARPENTER STYRODECK	DURAFOAM
4. DENSITIES PER ASTM C-303 OR OTHER					
4.1 1.00 lbs/ft <sup>2</sup>	X	X	X	X	X
4.2 1.25 lbs/ft <sup>2</sup>	X	X	X	X	X
4.3 1.50 lbs/ft <sup>2</sup>	X	X	X	X	X
4.4 2.00 lbs/ft <sup>2</sup>	X	X	X	X	X
5. SURFACE TREATMENTS					
5.1 ROOFING FELT		X		X	
5.2 FOIL FACED KRAFT		X		X	X
5.3 TREATED KRAFT				X	X
5.4 KRAFT		X		X	X
5.5 OTHER	X		X	X	X
6. AVAILABLE AS TAPERED MATERIAL					
6.1 WITH FACER	YES	YES	NO	YES	YES
6.2 WITHOUT FACER	YES	YES	YES	YES	YES
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1977	1977	1981	1977	1976
8. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content)	100	100	100	100	100
@ 5 years	100	100	100	100	100
@ 10 years	100	100	100	100	100
9. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	ASTM C 578-87A RADCO 1165 P225, P701 P801, P803 P814, P815 P817 UL 1256 FM 4450	SEE APPENDIX	BOCA 93-39 ICBO 3826 SBCCI 9457 DADE COUNTY: 97-1110 NEW YORK CITY	ASTM C 578-91	P225,P231 P234,P703 ICBO 3504 BOCA 79-06 HH-I-524-C ASTM C578-87a
10. LIMITATIONS AND/OR RESTRICTIONS		SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	
11. SEE INSULATION APPENDIX IF CHECKED		X	X	X	

For thermal conductance (C) and thermal resistance (R), see the expanded polystyrene material data sheet.  
NA=not applicable

# Expanded Polystyrene Roof Board Insulation

(Homogeneous Only)

GAF MATERIALS CORP.	INSUL-BOARD INC.	INSULATED BUILDING SYSTEMS	INSULATED BUILDING SYSTEMS	INSULATION CORPORATION OF AMERICA	KNAUF USA POLYSTYRENE	OWENS CORNING FALCON FOAM CORP	OWENS CORNING FALCON FOAM CORP	OWENS CORNING FALCON FOAM CORP
NJ	PA	VA	VA	PA	OH	MI	MI	CA
EVERGARD EPS	INSUL-BOARD	AFM PERFORM	AFM CONTOUR TAPER TILE	ICA LITE ROOF INSUL	EPS	FALCON FOAM	FALCON FOAM	FALCON FOAM
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X
	X	X	X			X	X	
	X	X	X			X	X	
YES	YES		YES	NO	NO	YES	YES	
YES	YES		YES	YES	YES	YES	YES	
1,985	1978	1966	1966	1979	1970	1980	1980	1980
	100	100	100	100	100	100	100	100
	100	100	100	100	100	100	100	100
>90	100	100	100	100	100	100	100	100
CONTACT GAF	P225, P701 P801, P803 P814, P815 P817 UL-13450 UL CO. NO. 458	SEE APPENDIX	SEE APPENDIX	ASTM C 578-87 NY-13B86,P211 P701,P801 P803, P814 P815, P817 BOCA 876-5 ICBO 1717 PA1349B UL 9702	UL R8997 FM 2W1A7.AM ASTM C 578-91	ICBO 4059, 3401 3504, 3530	UL R6705 ICBO 4059 FM J10T0A6 P211, P225 P701, P801 P803, P814 P815, P817 UL 458	UL 418415 ICBO 4059 P211, P225 P 701, P801 P803, P817 P815, P817 UL 458

PACEMAKER PLASTICS CO. INC.	PLYMOUTH FOAM INCORPORATED	POLY FOAM INC.	POLYFOAM PACKERS CORP	THERMCO INDUSTRIES INC.	WOOLLEY & CO.
OH	WI	MN	IL	IA	GA
CHEMFOAM (PERFORM)	POLYTEC	DRI-LITE	THERMOSAFE	THERMCO EPS	ACRASSPAN
X	X	X	X	X	X
X	X	X	X	X	X
X	X	X	X	X	X
X	X	X	X	X	X
	X	X	X	X	
	X	X	X	X	
	X		X	X	
	X	X	X		
YES	YES	YES	YES	YES	YES
YES	YES	YES	YES	YES	YES
1975	1978	1960	1990	1963	1976
100	100	100	100	100	100
100	100	100	100	100	100
100	100	100	100	100	100
SEE APPENDIX		ICBO 4169 P225,P701 P801,P803 P814,P815 P817	UL R14213, CONSTR. NO 458 FM OV8A0.AC, FM OV8A1.AC FM OV8A2.AC CABO 236, 238, 384, 479 WISC. APPROVAL NO. 960041-I	ASTM C-578-92 UL 5287	
		SEE APPENDIX	SEE APPENDIX		
X		X	X		

# Extruded Polystyrene Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	AFM CORP	AFM CORP	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED
2. STATE	MN	MN	PA	PA	PA
3. PRODUCT NAME	AFM CONTOUR TAPER TILE-X	AFM CONTOUR TAPER TILE-X	FOAMULAR THERMAPINK 18	FOAMULAR THERMAPINK 25	FOAMULAR THERMAPINK 40
4. DENSITY PER ASTM C 303 OR OTHER (lbs/ft <sup>3</sup> )	1.8	1.4	1.3 MIN	1.6 MIN	1.8 MIN
5. SURFACE TREATMENT					
TOP SURFACE	CONTINUOUS SKIN 1 SIDE TAPER=ONE SIDE	CONTINUOUS SKIN 1 SIDE TAPER=ONE SIDE	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN
BOTTOM SURFACE	CONTINUOUS SKIN ONE SIDE TAPER=ONE SIDE	CONTINUOUS SKIN ONE SIDE TAPER=ONE SIDE	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN
6. AVAILABLE AS TAPERED MATERIAL	YES	YES	NO	YES	NO
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1980	1980	1996	1996	1996
8. MEETS APPLICABLE STANDARDS	ASTM C 578-95a TYPE IV	ASTM C 578-95a TYPE X	ASTM C 578-92 TYPE X HHI524C	ASTM C 578-92 TYPE IV	ASTM C 578-92 TYPE VI
9. COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	25 MIN	15	18 MIN	25 MIN	40 MIN
10. WATER ABSORPTION PER ASTM C 272 OR OTHER (% by volume)	0.15	0.20	<0.10	<0.10	<0.05
11. FLEXURAL STRENGTH PER ASTM C 203 (psi)	100 LG,62 TR	100 LG,62 TR	60 MIN	70 MIN	115 MIN
12. COMMON AVAILABLE SIZES					
12.1 2' x 4'					
12.2 3' x 4'					
12.3 4' x 4'					
12.4 4' x 8'	X	X	X	X	X
12.5 OTHER	X (2'x 8')	X (2'x 8')			
13. COMMON AVAILABLE THICKNESSES (C-VALUE, R-VALUE, WEIGHT/FT <sup>2</sup> )					
13.1 THICKNESS (inches)	1.0	1.0	1.0	1.0	
THERMAL CONDUCTANCE (C) @40 F	0.18	0.18	0.185	0.185	
THERMAL CONDUCTANCE (C) @75 F	0.20	0.20	0.20	0.20	
THERMAL RESISTANCE (R) @40 F	5.56	5.56	5.4	5.4	
THERMAL RESISTANCE (R) @75 F	5.0	5.0	5.0	5.0	
WEIGHT (lbs/ft <sup>2</sup> )			0.11	0.13	
13.2 THICKNESS (inches)	1.5	1.5	1.5	1.5	1.5
THERMAL CONDUCTANCE (C) @40 F	0.123		0.123	0.123	0.123
THERMAL CONDUCTANCE (C) @75 F	0.133	0.133	0.133	0.133	0.133
THERMAL RESISTANCE (R) @40 F	8.13		8.1	8.1	8.1
THERMAL RESISTANCE (R) @75 F	7.52	7.52	7.5	7.5	7.5
WEIGHT (lbs/ft <sup>2</sup> )			0.17	0.20	0.23
13.3 THICKNESS (inches)	2.0	2.0	2.0	2.0	2.0
THERMAL CONDUCTANCE (C) @40 F	0.092		0.093	0.093	0.093
THERMAL CONDUCTANCE (C) @75 F	0.10	0.10	0.10	0.10	0.10
THERMAL RESISTANCE (R) @40 F	10.87		10.8	10.8	10.8
THERMAL RESISTANCE (R) @75 F	10.0	10.0	10.0	10.0	10.0
WEIGHT (lbs/ft <sup>2</sup> )			0.23	0.27	0.30
13.4 THICKNESS (inches)	2.5	2.5			
THERMAL CONDUCTANCE (C) @40 F	0.074				
THERMAL CONDUCTANCE (C) @75 F	0.08	0.08			
THERMAL RESISTANCE (R) @40 F	13.51				
THERMAL RESISTANCE (R) @75 F	12.5	12.5			
WEIGHT (lbs/ft <sup>2</sup> )					
13.5 THICKNESS (inches)	3.0	3.0	3.0	3.0	3.0
THERMAL CONDUCTANCE (C) @40 F	0.061		0.062	0.062	0.062
THERMAL CONDUCTANCE (C) @75 F	0.066	0.066	0.067	0.067	0.067
THERMAL RESISTANCE (R) @40 F	16.39		16.2	16.2	16.2
THERMAL RESISTANCE (R) @75 F	15.15	15.15	15.0	15.0	15.0
WEIGHT (lbs/ft <sup>2</sup> )			0.34	0.40	0.45
13.6 THICKNESS (inches)			4.0	4.0	
THERMAL CONDUCTANCE (C) @40 F			0.046	0.046	
THERMAL CONDUCTANCE (C) @75 F			0.05	0.05	
THERMAL RESISTANCE (R) @40 F			21.6	21.6	
THERMAL RESISTANCE (R) @75 F			20.0	20.0	
WEIGHT (lbs/ft <sup>2</sup> )			0.45	0.53	
14. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content) @ 5 years @ 10 years	100 100 >90	100 100 >90	95 95 90	95 95 90	95 95 90
15. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	SEE APPENDIX	ICBO 3826 BOCA 93-39 SBCCI 9457 DADE COUNTY: 97-1110 NEW YORK CITY	ICBO 3826 BOCA 93-39 SBCCI 9457 DADE COUNTY: 97-1110 NEW YORK CITY	ICBO 3826 BOCA 93-39 SBCCI 9457 DADE COUNTY: 97-1110 NEW YORK CITY
16. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
17. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

NA=not applicable



# Extruded Polystyrene Roof Board Insulation

(Homogeneous Only)

THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY	THE DOW CHEMICAL COMPANY
MI	MI	MI	MI	CANADA	CANADA	MI	CANADA	MI
STYROFOAM ROOFMATE BRAND INSULATION	STYROFOAM PLAZAMATE BRAND INSULATION	STYROFOAM DECKMATE	STYROFOAM DECKMATE PLUS	STYROFOAM DECKMATE	STYROFOAM DECKMATE 200	STYROFOAM RECOVERMATE	STYROFOAM ROOFMATE	STYROFOAM HIGH LOAD 100
1.8 MIN	2.2 MIN	1.35 MIN	1.6 MIN			2.0		3.00
CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN
CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS CLOSED-CELL EX- TRUDED SKIN	CONTINUOUS CLOSED-CELL EXTRUDED SKIN
YES	YES	YES	YES	YES	YES	NO	YES	YES
1971	1981	1995	1995	1990	1990	1994	1971	1981
ASTM C 578-92 TYPE VI	ASTM C 578-92 TYPE VII	ASTM C 578-92 TYPE X	ASTM C 578-92 TYPE IV	CAN/CGSB 51- 20-M87 TYPE 2	CAN/CGSB 51- 20-M87 TYPE 3		CAN/CGSB 51- 20-M87	ASTM C 578-92 TYPE V
40 MIN <0.1 60 MIN	60 MIN <0.1 75 MIN	18 MIN <0.1 40 MIN	25 MIN <0.1 50 MIN	16 MIN <0.1 35 MIN	20 MIN <0.1 44 MIN	15 MIN	35 MIN <0.1 50 MIN	100 MIN 0.3 MAX 100 MIN
					X		X	
X (2'x 8')	X (2'x 8')	X X (2'x 8')	X X (2'x 8')	X X (2'x 8')	X (2'x 8')	X		X (2' X 8')
1.5 0.123 0.133 8.1 7.5 0.23	1.5 0.123 0.133 8.1 7.5 0.28	2.0 0.093 0.10 10.8 10.0 0.25	2.0 0.093 0.10 10.8 10.0 0.27	1.0 0.185 0.20 5.4 5.0	1.0 0.185 0.20 5.4 5.0	0.5 0.212 0.2 4.7 4.7 0.08	1.0 0.185 0.20 5.4 5.0	2.00 0.093 0.10 10.8 10.0 0.50
2.0 0.093 0.10 10.8 10.0 0.30	2.0 0.093 0.10 10.8 10.0 0.37	2.5 0.074 0.08 13.5 12.5 0.31	2.5 0.074 0.08 13.5 12.5 0.33	1.5 0.123 0.133 8.1 7.5	1.5 0.123 0.133 8.1 7.5		1.5 0.123 0.133 8.1 7.5	3.0 0.062 0.067 16.2 15.0 0.75
2.5 0.074 0.08 13.5 12.5 0.38		3.0 0.062 0.067 16.2 15.0 0.38	3.0 0.062 0.067 16.2 15.0 0.40	2.0 0.093 0.10 10.8 10.0	2.0 0.093 0.10 10.8 10.0		2.0 0.093 0.10 10.8 10.0	
3.0 0.062 0.067 16.2 15.0 0.45		1.0 0.185 0.20 5.40 5.0 0.13	1.0 0.185 0.20 5.40 5.0 0.14	2.5 0.074 0.08 13.5 12.5	2.5 0.074 0.08 13.5 12.5		2.5 0.074 0.08 13.5 12.5	
3.5 0.053 0.057 18.9 17.5 0.53		4.0 0.046 0.050 21.6 20.0 0.50	4.0 0.046 0.050 21.6 20.0 0.55	3.0 0.062 0.067 16.2 15.0	3.0 0.062 0.067 16.2 15.0		3.0 0.062 0.067 16.2 15.0	
4.0 0.046 0.05 21.6 20.0 0.60							4.0 0.046 0.050 21.6 20.0	
>98 >96 >95	>98 >96 >95	98 96 95	98 96 95			100 96 94		>98 >96 >96
ICBO 2257 BOCA 95-33 SBCCI 9576A SEE APPENDIX	ICBO 2257 BOCA 95-33 SBCCI 9576A SEE APPENDIX	ICBO 2257 BOCA 95-33 SBCCI 9576A SEE APPENDIX	ICBO 2257 BOCA 95-33 SBCCI 9576A SEE APPENDIX			ICBO 2257 BOCA 95-33 SBCCI 9576A SEE APPENDIX		ICBO 2257 BOCA 95-33 SBCCI 9516B SEE APPENDIX
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX			SEE APPENDIX		SEE APPENDIX
X	X	X	X			X		X

# Extruded Polystyrene Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	GAF MATERIALS CORP.	GAF MATERIALS CORP.	LUCAS SALES COMPANY INC	LUCAS SALES COMPANY INC	LUCAS SALES COMPANY INC
2. STATE	NJ	NJ	MO	MO	MO
3. PRODUCT NAME	EVERGUARD XPS	EVERGUARD XPS FAN-FOLD	LUCAS LITE TAPERED	LUCAS LITE TAPERED	LUCAS LITE TAPERED
4. DENSITY PER ASTM C 303 OR OTHER (lbs/ft <sup>3</sup> )	2.00	3.60	1.35 MIN	1.6 MIN	1.8 MIN
5. SURFACE TREATMENT					
TOP SURFACE	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	PLASTIC CAP SHEET	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN
BOTTOM SURFACE	CONTINUOUS CLOSED-CELL EXTRUDED SKIN	PLASTIC CAP SHEET	SAW CUT SURFACE	SAW CUT SURFACE	SAW CUT SURFACE
6. AVAILABLE AS TAPERED MATERIAL	YES	NO	YES	YES	YES
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1989	1987	1983	1983	1984
8. MEETS APPLICABLE STANDARDS	ASTM C 578-92 TYPE IV TYPE VI		ASTM C 578-87a TYPE X	ASTM C 578-87a TYPE IV	ASTM C 578-87a TYPE VI
9. COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	1-40 AVE	20 AVE.	15 MIN	25 MIN	40 MIN
10. WATER ABSORPTION PER ASTM C 272 OR OTHER (% by volume)	0.10	0.40	<0.10	<0.10	<0.05
11. FLEXURAL STRENGTH PER ASTM C 203 (psi)	50 MIN		60 MIN	100 MIN	115 MIN
12. COMMON AVAILABLE SIZES					
12.1 2' x 4'					
12.2 3' x 4'					
12.3 4' x 4'					
12.4 4' x 8'	XPS		X	X	
12.5 OTHER		X (4'X50')	X (2'x 8')	X (2'x 8')	X (2'x 8')
13. COMMON AVAILABLE THICKNESSES (C-VALUE, R-VALUE, WEIGHT/FT <sup>2</sup> )					
13.1 THICKNESS (inches)	1.00	0.38	1.0	1.0	1.5
THERMAL CONDUCTANCE (C) @40 F	0.185		0.185	0.185	0.123
THERMAL CONDUCTANCE (C) @75 F	0.20		0.20	0.20	0.133
THERMAL RESISTANCE (R) @40 F	5.41		5.4	5.4	8.1
THERMAL RESISTANCE (R) @75 F	5.00		5.0	5.0	7.5
WEIGHT (lbs/ft <sup>2</sup> )	0.18		0.11	0.13	0.23
13.2 THICKNESS (inches)	1.50		1.5	1.5	2.0
THERMAL CONDUCTANCE (C) @40 F	0.123		0.123	0.123	0.093
THERMAL CONDUCTANCE (C) @75 F	0.133		0.133	0.133	0.10
THERMAL RESISTANCE (R) @40 F	8.10		8.1	8.1	10.8
THERMAL RESISTANCE (R) @75 F	7.50		7.5	7.5	10.0
WEIGHT (lbs/ft <sup>2</sup> )	0.26		0.165	0.20	0.30
13.3 THICKNESS (inches)	2.00		2.0	2.0	3.0
THERMAL CONDUCTANCE (C) @40 F	0.093		0.093	0.093	0.062
THERMAL CONDUCTANCE (C) @75 F	0.10		0.10	0.10	0.067
THERMAL RESISTANCE (R) @40 F	10.80		10.8	10.8	16.2
THERMAL RESISTANCE (R) @75 F	10.00		10.0	10.0	15.0
WEIGHT (lbs/ft <sup>2</sup> )	0.35		0.22	0.27	0.45
13.4 THICKNESS (inches)	2.50		3.0	3.0	
THERMAL CONDUCTANCE (C) @40 F	0.074		0.062	0.062	
THERMAL CONDUCTANCE (C) @75 F	0.08		0.067	0.067	
THERMAL RESISTANCE (R) @40 F	13.50		16.2	16.2	
THERMAL RESISTANCE (R) @75 F	12.50		15.0	15.0	
WEIGHT (lbs/ft <sup>2</sup> )	0.44		0.33	0.40	
13.5 THICKNESS (inches)	3.00				
THERMAL CONDUCTANCE (C) @40 F	0.062				
THERMAL CONDUCTANCE (C) @75 F	0.067				
THERMAL RESISTANCE (R) @40 F	16.20				
THERMAL RESISTANCE (R) @75 F	15.00				
WEIGHT (lbs/ft <sup>2</sup> )	0.53				
13.6 THICKNESS (inches)					
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F					
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F					
WEIGHT (lbs/ft <sup>2</sup> )					
14. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature differential and constant moisture content)					
@ 1 year					
@ 5 years			>95	>95	>95
@ 10 years	>90	>90	>90	>90	>90
15. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	CONTACT GAF	CONTACT GAF			
16. LIMITATIONS AND/OR RESTRICTIONS			SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
17. SEE INSULATION APPENDIX IF CHECKED			X	X	X

NA=not applicable

# Extruded Polystyrene Roof Board Insulation

(Homogeneous Only)

LUCAS SALES COMPANY INC	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING
MO	OH	OH	OH	OH	OH	OH	OH	OH
LUCAS LITE TAPERED	FOAMULAR 150	FOAMULAR 250	FOAMULAR 400	FOAMULAR 404	FOAMULAR 404RB	FOAMULAR 600	FOAMULAR 604	FOAMULAR 604RB
2.2 MIN	1.30 MIN	1.6 MIN	1.8 MIN	1.8 MIN	1.8 MIN	2.2 MIN	2.2 MIN	2.2 MIN
CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CHANNELED	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CHANNELED
SAW CUT SURFACE	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN
YES	NO	NO	NO	NO	NO	NO	NO	NO
1984	1983	1983	1984	1984	1991	1984	1984	1991
ASTM C 578-87a TYPE VII	ASTM C 578 TYPE X	ASTM C 578 TYPE IV	ASTM C 578 TYPE VI	ASTM C 578 TYPE VI	ASTM C 578 TYPE VI	ASTM C 578 TYPE VII	ASTM C 578 TYPE VII	ASTM C 578 TYPE VII
60 MIN <0.05	15 MIN <0.10	25 MIN <0.10	40 MIN <0.05	40 MIN <0.05	40 MIN <0.05	60 MIN <0.05	60 MIN <0.05	60 MIN <0.05
140 MIN	60 MIN	75 MIN	115 MIN	115 MIN	115 MIN	140 MIN	140 MIN	140 MIN
X (2'x 8')	X X (2'x 8')	X X (2'x 8')	X (2'x 8')	X (2'x 8')	X (2'x 8')	X (2'x 8')	X (2'x 8')	X (2'x 8')
1.5 0.123 0.133 8.1 7.5 0.28	1.0 0.185 0.20 5.4 5.0 0.11	0.5 0.370 0.40 2.70 2.50 0.07	1.0 0.19 0.20 5.4 5.0	1.5 0.123 0.133 8.1 7.5 0.23	1.5 0.143 7.0 0.21	1.5 0.123 0.133 8.1 7.5 0.28	1.5 0.123 0.133 8.1 7.5 0.28	1.5 0.143 7.0 0.26
2.0 0.093 0.10 10.8 10.0 0.37	1.5 0.123 0.133 8.1 7.5 0.17	1.0 0.185 0.20 5.4 5.0 0.13	1.5 0.123 0.133 8.1 7.5 0.23	2.0 0.093 0.10 10.8 10.0 0.30	2.0 0.105 9.5 0.29	2.0 0.093 0.10 10.8 10.0 0.37	2.0 0.93 0.10 10.8 10.0 0.37	2.0 0.105 9.5 0.35
3.0 0.062 0.067 16.2 15.0 0.55	2.0 0.093 0.10 10.8 10.0 0.23	1.5 0.123 0.133 8.1 7.5 0.20	2.0 0.093 0.10 10.8 10.0 0.30	2.5 0.074 0.08 13.5 12.5 0.38	3.0 0.069 14.5 0.44	2.5 0.074 0.08 13.5 12.5 0.46	2.5 0.074 0.08 13.5 12.5 0.46	3.0 0.105 14.5 0.54
	2.5 0.074 0.08 13.5 12.5 0.28	2.0 0.093 0.10 10.8 10.0 0.27	2.5 0.074 0.08 13.5 12.5 0.38	3.0 0.062 0.067 16.2 15.0 0.45		3.0 0.062 0.067 16.2 15.0 0.55	3.0 0.062 0.067 16.2 15.0 0.55	
	3.0 0.062 0.067 16.2 15.0 0.34	3.0 0.062 0.067 16.2 15.0 0.40	3.0 0.062 0.067 16.2 15.0 0.45	4.0 0.046 0.05 21.6 20.0 0.60		4.0 0.046 0.05 21.6 20.0 0.73		
	4.0 0.046 0.05 21.6 20.0 0.45	4.0 0.046 0.05 21.6 20.0 0.53						
>95	95	95	95	95	95	95	95	95
>90	90	90	90	90	90	90	90	90
	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX	ICBO 3628 BOCA 91-54 SBCCI PST & ESI 9727 SEE APPENDIX
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
X	X	X	X	X	X	X	X	X

# Extruded Polystyrene Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING	OWENS CORNING
2. STATE	OH	OH	OH	OH	OH
3. PRODUCT NAME	FOAMULAR 1000	DURAPINK	DURAPINK FA	DURAPINK PLUS	THERMAPINK 18
4. DENSITY PER ASTM C 303 OR OTHER (lbs/ft <sup>3</sup> )	3.0 MIN	1.6 MIN	1.6 MIN	1.5 MIN	1.3 MIN
5. SURFACE TREATMENT					
TOP SURFACE	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	LAMINATED GLASS FIBER	CONTINUOUS EXTRUDED SKIN
BOTTOM SURFACE	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	LAMINATED POLYETHYLENE	LAMINATED POLYETHYLENE	CONTINUOUS EXTRUDED SKIN
6. AVAILABLE AS TAPERED MATERIAL	NO	NO	NO	NO	NO
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1997	1993	1993	1994	1996
8. MEETS APPLICABLE STANDARDS	ASTM C 578 TYPE V	ASTM C 578 TYPE IV	ASTM C 578	ASTM C 578	ASTM C 578 TYPE X
9. COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	100 MIN	25 MIN	25 MIN	18 MIN	18 MIN
10. WATER ABSORPTION PER ASTM C 272 OR OTHER (% by volume)	<0.05	< 0.10	< 0.10	< 0.10	< 0.10
11. FLEXURAL STRENGTH PER ASTM C 203 (psi)	140 MIN	NA	75 MIN	80 MIN	60 MIN
12. COMMON AVAILABLE SIZES					
12.1 2' x 4'					
12.2 3' x 4'					
12.3 4' x 4'					
12.4 4' x 8'		X	X	X	X
12.5 OTHER	X (2x 8')				
13. COMMON AVAILABLE THICKNESSES (C-VALUE, R-VALUE, WEIGHT/FT <sup>2</sup> )					
13.1 THICKNESS (inches)	2.0	0.5	0.75	0.5	1.0
THERMAL CONDUCTANCE (C) @40 F	0.093	0.37	0.25	0.37	0.185
THERMAL CONDUCTANCE (C) @75 F	0.10	0.40	0.27	0.40	0.20
THERMAL RESISTANCE (R) @40 F	10.8	2.70	4.05	2.70	5.4
THERMAL RESISTANCE (R) @75 F	10.0	2.50	3.75	2.50	5.0
WEIGHT (lbs/ft <sup>2</sup> )	0.50	0.06	0.10	0.12	0.11
13.2 THICKNESS (inches)		0.75	1.0		1.5
THERMAL CONDUCTANCE (C) @40 F		0.25	0.185		0.123
THERMAL CONDUCTANCE (C) @75 F		0.27	0.20		0.133
THERMAL RESISTANCE (R) @40 F		4.05	5.4		8.1
THERMAL RESISTANCE (R) @75 F		3.75	5.0		7.5
WEIGHT (lbs/ft <sup>2</sup> )		0.10	0.13		0.17
13.3 THICKNESS (inches)		1.0	1.5		2.0
THERMAL CONDUCTANCE (C) @40 F		0.185	0.123		0.093
THERMAL CONDUCTANCE (C) @75 F		0.20	0.133		0.10
THERMAL RESISTANCE (R) @40 F		5.4	8.1		10.8
THERMAL RESISTANCE (R) @75 F		5.0	7.5		10.0
WEIGHT (lbs/ft <sup>2</sup> )		0.13	0.20		0.23
13.4 THICKNESS (inches)			2.0		3.0
THERMAL CONDUCTANCE (C) @40 F			0.093		0.062
THERMAL CONDUCTANCE (C) @75 F			0.10		0.067
THERMAL RESISTANCE (R) @40 F			10.8		16.2
THERMAL RESISTANCE (R) @75 F			10.0		15.0
WEIGHT (lbs/ft <sup>2</sup> )			0.27		0.34
13.5 THICKNESS (inches)					4.0
THERMAL CONDUCTANCE (C) @40 F					0.046
THERMAL CONDUCTANCE (C) @75 F					0.05
THERMAL RESISTANCE (R) @40 F					21.6
THERMAL RESISTANCE (R) @75 F					20.0
WEIGHT (lbs/ft <sup>2</sup> )					0.45
13.6 THICKNESS (inches)					
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F					
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F					
WEIGHT (lbs/ft <sup>2</sup> )					
14. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content) @ 5 years @ 10 years	95 90	95 90	95 90	95 90	95 90
15. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
16. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
17. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

NA=not applicable

# Extruded Polystyrene Roof Board Insulation

(Homogeneous Only)

OWENS CORNING	OWENS CORNING	OWENS CORNING	TENNECO BUILDING PRODUCTS	TENNECO BUILDING PRODUCTS	TENNECO BUILDING PRODUCTS
OH	OH	OH	GA	GA	GA
THERMAPINK 25	THERMAPINK 40	THERMAPINK 60	AMOCOR-PB6	AMOCOR PLYGOOD PG38 & PG39	AMOFOAM
1.6 MIN	1.8 MIN	2.2 MIN	3.6	3.6	2.0
CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	EXTRUDED CORE, PLASTIC CAPSHEETS	EXTRUDED CORE, PLASTIC CAPSHEETS	CONTINUOUS CLOSED-CELL EXTRUDED SKIN
CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	CONTINUOUS EXTRUDED SKIN	EXTRUDED CORE, PLASTIC CAPSHEETS	EXTRUDED CORE, PLASTIC CAPSHEETS	CONTINUOUS CLOSED-CELL EXTRUDED SKIN
YES	YES	YES	NO	NO	YES
1996	1996	1996	1987	1988	1989
ASTM C 578 TYPE IV	ASTM C 578 TYPE VI	ASTM C 578 TYPE VII			ASTM C 578-92 TYPE IV, TYPE VI
25 MIN < 0.10 70 MIN	40 MIN < 0.05 115 MIN	60 MIN < 0.05 140 MIN	12 AVG. 0.40	12 AVG. 0.40	1"-40 AVG. 0.10 50 MIN
X	X	X (2' X 8')	X (4' x 50')	X X (4' x 9')	X X (2' x 8')
1.0 0.185 0.20 5.4 5.0 0.13	1.5 0.123 0.133 8.1 7.5 0.23	1.5 0.123 0.133 8.1 7.5 0.28	0.38 0.67 1.5 0.11	0.38 0.67 1.5 0.11	1.0 0.185 0.20 5.41 5.0 0.18
1.5 0.123 0.133 8.1 7.5 0.20	2.0 0.093 0.10 10.8 10.0 0.30	2.0 0.093 0.10 10.8 10.0 0.37			1.5 0.123 0.133 8.1 7.5 0.26
2.0 0.093 0.10 10.8 10.0 0.27	3.0 0.062 0.067 16.2 15.0 0.45	3.0 0.062 0.067 16.2 15.0 0.55			2.0 0.093 0.10 10.8 10.0 0.35
3.0 0.062 0.067 16.2 15.0 0.40					2.5 0.074 0.08 13.5 12.5 0.44
4.0 0.046 0.05 21.6 20.0 0.53					3.0 0.062 0.067 16.2 15.0 0.53
95 90	95 90	95 90	>90	>90	>90
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	UL A184 ICBO 4280 BOCA 95-44 SBCCI 9736	UL A184 ICBO 4280 BOCA 95-44 SBCCI 9736	UL A183 ICBO 4280 BOCA 90-78 SBCCI 9736
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX			
X	X	X	X	X	X

# Glass Fiber/Mineral Fiber Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	ALLIEDSIGNAL	JOHNS MANVILLE INTERNATIONAL INC.
2. STATE	NC	CO
3. PRODUCT NAME	ARMO-R GLAS	FIBER GLASS ROOF INSULATION
4. SURFACE TREATMENT TOP SURFACE	GLASS REINFORCED ASPHALT AND KRAFT CAP SHEET	GLASS REINFORCED ASPHALT AND KRAFT CAP SHEET
BOTTOM SURFACE	NONE	NONE
5. AVAILABLE AS TAPERED MATERIAL	YES	YES
6. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1941	1941
7. MEETS APPLICABLE STANDARDS	ASTM C 726	ASTM C 726
8. COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	ABOVE 12	12
9. WATER ABSORPTION PER ASTM C 272 OTHER (% by volume)	BELOW 10	10
10. FLEXURAL STRENGTH PER ASTM C 203 (psi)		
11. COMMON AVAILABLE SIZES		
11.1 2' x 4'		
11.2 3' x 4'		
11.3 4' x 4'	X	X
11.4 4' x 8'	X	X
11.5 OTHER		
12. COMMON AVAILABLE THICKNESSES (C-VALUE, R-VALUE, WEIGHT/ft <sup>2</sup> )		
12.1 THICKNESS (inches)	0.75	0.75
THERMAL CONDUCTANCE (C) @40 F		
THERMAL CONDUCTANCE (C) @75 F	0.36	0.36
THERMAL RESISTANCE (R) @40 F		
THERMAL RESISTANCE (R) @75 F	2.78	2.78
WEIGHT (lbs/ft <sup>2</sup> )	0.98	0.78
12.2 THICKNESS (inches)	0.938	0.938
THERMAL CONDUCTANCE (C) @40 F		
THERMAL CONDUCTANCE (C) @75 F	0.27	0.27
THERMAL RESISTANCE (R) @40 F		
THERMAL RESISTANCE (R) @75 F	3.70	3.70
WEIGHT (lbs/ft <sup>2</sup> )	1.03	0.94
12.3 THICKNESS (inches)	1.063	1.063
THERMAL CONDUCTANCE (C) @40 F		
THERMAL CONDUCTANCE (C) @75 F	0.24	0.24
THERMAL RESISTANCE (R) @40 F		
THERMAL RESISTANCE (R) @75 F	4.17	4.17
WEIGHT (lbs/ft <sup>2</sup> )	1.06	0.94
12.4 THICKNESS (inches)	1.313	1.63
THERMAL CONDUCTANCE (C) @40 F		
THERMAL CONDUCTANCE (C) @75 F	0.19	0.15
THERMAL RESISTANCE (R) @40 F		
THERMAL RESISTANCE (R) @75 F	5.26	6.67
WEIGHT (lbs/ft <sup>2</sup> )	1.30	1.32
12.5 THICKNESS (inches)	2.063	2.000
THERMAL CONDUCTANCE (C) @40 F		
THERMAL CONDUCTANCE (C) @75 F	0.12	0.13
THERMAL RESISTANCE (R) @40 F		
THERMAL RESISTANCE (R) @75 F	8.33	8.00
WEIGHT (lbs/ft <sup>2</sup> )	1.70	1.59
12.6 THICKNESS (inches)	2.437	2.25
THERMAL CONDUCTANCE (C) @40 F		
THERMAL CONDUCTANCE (C) @75 F	0.10	0.11
THERMAL RESISTANCE (R) @40 F		
THERMAL RESISTANCE (R) @75 F	10.0	9.09
WEIGHT (lbs/ft <sup>2</sup> )	1.95	1.71
13. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content @ 5 years @ 10 years)	100 100 100	100 100 100
14. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)		SEE APPENDIX
15. LIMITATIONS AND/OR RESTRICTIONS		SEE APPENDIX
16. SEE INSULATION APPENDIX IF CHECKED		X

NA=not applicable

# Cellular Glass Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	PITTSBURGH CORNING CORP
2. STATE	PA
3. PRODUCT TRADE NAME	FOAMGLAS
4. SURFACE TREATMENT	
TOP SURFACE	KRAFT SHEET
BOTTOM SURFACE	KRAFT SHEET
5. AVAILABLE AS TAPERED MATERIAL	YES
6. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1943
7. MEETS APPLICABLE STANDARDS	ASTM C 552
8. COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	87
9. WATER ABSORPTION PER ASTM C 272 OR OTHER (psi)	0.2
10. FLEXURAL STRENGTH PER ASTM C 203 (psi)	64
11. COMMON AVAILABLE SIZES	
11.1 2' x 4'	X
11.2 3' x 4'	
11.3 4' x 4'	
11.4 4' x 8'	
11.5 OTHER	
12. COMMON AVAILABLE THICKNESSES (C-VALUE, R-VALUE, WEIGHT/FT2)	
12.1 THICKNESS (inches)	1.5
THERMAL CONDUCTANCE (C) @40 F	0.21
THERMAL CONDUCTANCE (C) @75 F	0.22
THERMAL RESISTANCE (R) @40 F	4.76
THERMAL RESISTANCE (R) @75 F	4.55
WEIGHT (lbs/ft2)	0.94
12.2 THICKNESS (inches)	2.0
THERMAL CONDUCTANCE (C) @40 F	0.155
THERMAL CONDUCTANCE (C) @75 F	0.165
THERMAL RESISTANCE (R) @40 F	6.45
THERMAL RESISTANCE (R) @75 F	6.06
WEIGHT (lbs/ft2)	1.25
12.3 THICKNESS (inches)	3.0
THERMAL CONDUCTANCE (C) @40 F	0.103
THERMAL CONDUCTANCE (C) @75 F	0.11
THERMAL RESISTANCE (R) @40 F	9.71
THERMAL RESISTANCE (R) @75 F	9.09
WEIGHT (lbs/ft2)	1.88
12.4 THICKNESS (inches)	4.0
THERMAL CONDUCTANCE (C) @40 F	0.078
THERMAL CONDUCTANCE (C) @75 F	0.083
THERMAL RESISTANCE (R) @40 F	12.82
THERMAL RESISTANCE (R) @75 F	11.90
WEIGHT (lbs/ft2)	2.5
12.5 THICKNESS (inches)	
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	
WEIGHT (lbs/ft2)	
12.6 THICKNESS (inches)	
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	
WEIGHT (lbs/ft2)	
13. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature differential and constant moisture content)	
@ 1 year	100
@ 5 years	100
@ 10 years	100
14. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	P 227, P 508, P 701 P 717, P 801 P 819, NYCMEA 138 81-M, BSA 131-44-SM, LA APVL #RR22534
15. LIMITATIONS AND/OR RESTRICTIONS	
16. SEE INSULATION APPENDIX IF CHECKED	

NA=not applicable

# Fiberboard Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	ALLIEDSIGNAL	ALLIEDSIGNAL	CARLISLE SYNTEC INCORPORATED	CELOTEX CORP.	CELOTEX CORP.
2. STATE	NC	NC	PA	FL	FL
3. PRODUCT NAME	ARMOR BOARD REGULAR	ARMOR BOARD HIGH DENSITY	HP RECOVERY BOARD	REGULAR FBRBD ROOF INSUL	HIGH-DENSITY FBRBD RF INS
4. SURFACE TREATMENT TOP SURFACE	SURFACE TREATMENT	SURFACE TREATMENT	ASPHALT EMULSION	SURFACE TREATMENT	SURFACE TREATMENT
BOTTOM SURFACE	NONE	NONE	NONE	NONE	NONE
5. AVAILABLE AS TAPERED MATERIAL	NO	NO	NO	YES	YES
6. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1928	1928	1981	1928	1928
7. MEETS APPLICABLE STANDARDS	LLLI535B ASTM C 208	LLLI535B ASTM C 208	ASTM C 208 TYPE II, GRADE 2	LLLI535B ASTM C 208, TYPE II, GRADE 1	LLLI535B ASTM C 208, TYPE II, GRADE 1
8. COMMON AVAILABLE SIZES					
8.1 2' x 4'	X			X	
8.2 3' x 4'					
8.3 4' x 4'	X	X	X	X	X
8.4 4' x 8'	X	X	X	X	X
8.5 OTHER					
9. COMMON AVAILABLE THICKNESSES WATER ABSORPTION, TRANSVERSE STRENGTH, C-VALUES, R-VALUES, PERCENT BY VOLUME					
9.1 THICKNESS (inches)	0.5	0.5	0.5	0.5	0.5
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)			7 MAX		
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)			12		
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.72	0.77	0.80	0.72	0.77
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	1.39	1.3	1.25	1.39	1.3
WEIGHT (lbs/ft <sup>2</sup> )	0.70	0.80	0.65	0.70	0.80
9.2 THICKNESS (inches)	1.0	1.0	1.0	1.0	1.0
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)			7 MAX		
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)			14		
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.36	0.40	0.4	0.36	0.40
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	2.78	2.5	2.5	2.78	2.5
WEIGHT (lbs/ft <sup>2</sup> )	1.4	1.6	1.4	1.4	1.6
9.3 THICKNESS (inches)	1.5	1.5		1.5	1.5
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)					
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)					
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.24	0.26		0.24	0.26
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	4.17	3.8		4.17	3.8
WEIGHT (lbs/ft <sup>2</sup> )	2.1	2.4		2.1	2.4
9.4 THICKNESS (inches)	2.0			2.0	
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)					
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)					
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.18			0.18	
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	5.56			5.56	
WEIGHT (lbs/ft <sup>2</sup> )	2.8			2.8	
9.5 THICKNESS (inches)					
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)					
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)					
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F					
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F					
WEIGHT (lbs/ft <sup>2</sup> )					
9.6 THICKNESS (inches)					
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)					
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)					
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F					
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F					
WEIGHT (lbs/ft <sup>2</sup> )					
10. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content) @ 5 years @ 10 years	100 100 100	100 100 100		100 100 100	100 100 100
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)			BOCA 93-39, ICBO: 3826; SBCCI: 9457 DADE CTY 97-1110		
12. LIMITATIONS AND/OR RESTRICTIONS					
13. SEE INSULATION APPENDIX IF CHECKED					

NA=not applicable



# Fiberboard Roof Board Insulation

(Homogeneous Only)

GAF MATERIALS CORP.	GAF MATERIALS CORP.	GEORGIA PACIFIC CORP.	GEORGIA PACIFIC CORP.	HUEBERT FIBERBOARD CO.	HUEBERT FIBERBOARD CO.	KOPPERS INDUSTRIES INC.	KOPPERS INDUSTRIES INC.	TEMPLE
NJ	NJ	VA	VA	MO	MO	PA	PA	TX
GAFTEMP REG. FBRBRD	GAFTEMP HIGH DEN. FBRBRD	HIGH- DENSITY	REGULAR DENSITY	HFB	H.D. COATED	REGULAR FIBERBOARD	DENSE FIBERBOARD	FIBER BASE
SURFACE TREATMENT	SURFACE TREATMENT	ASPHALT EMULSION	ASPHALT EMULSION	NONE	ASPHALT EMULSION	ASPHALT EMULSION	ASPHALT EMULSION	ASPHALT COATED, OR UNCOATED
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	ASPHALT COATED, OR UNCOATED
NO	YES	NO	NO	NO	NO	NO	NO	NO
1928	1928	1986	1986	1961	1990	1986	1986	1982
LLLI535B ASTM C 208, ASTM C 209	LLLI535B ASTM C 208, ASTM C 209	ASTM C208-94, GRADE 2 ANSI/AHA 194.1-1985 TYPE IV, CLASS 1	ASTM C208-94, GRADE 1 ANSI/AHA 194.1-1985 TYPE VI	ASTM C 208 LLLI535B, ClsC PS57-73	ASTM C 208 LLLI535B	LLLI535B ASTM C 208-94 GRADE 1	LLLI535B ASTM C 208-94 GRADE 2	ASTM C 208
X		X		X	X	X	X	
X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X
0.5	0.5	0.5 7 MAX 14	0.5 10 MAX 7	0.5 5 to 10 7 MIN	0.5 7 MAX 12 MIN	0.5 10 MAX 7	0.5 7 MAX 14	0.5 7 MAX 14
0.72	0.77	0.78	0.78	0.72	0.72	0.78	0.78	0.758
1.39	1.3	1.25	1.25	1.39	1.39	1.25	1.28	1.32
0.70	0.80	0.67	0.65	0.75	0.81	0.65	0.67	0.75
1.0	1.0	1.0 7 MAX 30		0.75 5 to 10 12 MIN	0.75 7 MAX 18 MIN		0.75 7 MAX 24	0.781 7 MAX 25
0.36	0.40	0.36		0.48	0.48		0.48	0.50
2.78	2.5	0.28		1.1	1.1		2.10	1.95
1.4	1.6	1.13		1.1	1.1		0.875	1.35
1.5	1.5	0.75 7 MAX 24		1.0 5 to 10 14 MIN	1.0 7 MAX 24 MIN		1.0 7 MAX 30	
0.24	0.26	0.48		0.36	0.36		0.36	
4.17	3.8	2.1		2.78	2.78		2.78	
2.1	2.4	0.875		1.5	1.6		1.13	
2.0	2.0			1.5				
0.18	0.16			0.24				
5.56	5.0			0.24				
2.8	3.2			2.3				
				4.17				
				2.3				
				2.0				
				0.19				
				5.26				
				3.0				
100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100
								UL 51P7
		SEE APPENDIX		SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	
		X		X	X	X	X	X

# Fiberboard Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	TEMPLE
2. STATE	TX
3. PRODUCT NAME	FIBER BASE HD
4. SURFACE TREATMENT TOP SURFACE	ASPHALT COATED, OR UNCOATED
BOTTOM SURFACE	ASPHALT COATED, OR UNCOATED
5. AVAILABLE AS TAPERED MATERIAL	NO
6. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1982
7. MEETS APPLICABLE STANDARDS	ASTM C 208
8. COMMON AVAILABLE SIZES	
8.1 2' x 4'	
8.2 3' x 4'	
8.3 4' x 4'	
8.4 4' x 8'	X
8.5 OTHER	
9. COMMON AVAILABLE THICKNESSES WATER ABSORPTION, TRANSVERSE STRENGTH, C-VALUES, R-VALUES, PERCENT BY VOLUME	
9.1 THICKNESS (inches)	0.5
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)	7 MAX
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)	14
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	0.758
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	1.32
WEIGHT (lbs/ft <sup>2</sup> )	0.75
9.2 THICKNESS (inches)	0.781
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)	7 MAX
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)	25
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	0.50
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	1.95
WEIGHT (lbs/ft <sup>2</sup> )	1.35
9.3 THICKNESS (inches)	
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)	
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)	
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	
WEIGHT (lbs/ft <sup>2</sup> )	
9.4 THICKNESS (inches)	
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)	
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)	
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	
WEIGHT (lbs/ft <sup>2</sup> )	
9.5 THICKNESS (inches)	
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)	
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)	
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	
WEIGHT (lbs/ft <sup>2</sup> )	
9.6 THICKNESS (inches)	
WATER ABSORPTION PER ASTM C-209 OR OTHER (% by volume)	
TRANSVERSE STRENGTH ASTM C-203 OR OTHER (psi)	
THERMAL CONDUCTANCE (C) @40 F	
THERMAL CONDUCTANCE (C) @75 F	
THERMAL RESISTANCE (R) @40 F	
THERMAL RESISTANCE (R) @75 F	
WEIGHT (lbs/ft <sup>2</sup> )	
10. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature @ 1 year differential and constant moisture content) @ 5 years @ 10 years	100 100 100
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	UL 51P7
12. LIMITATIONS AND/OR RESTRICTIONS	
13. SEE INSULATION APPENDIX IF CHECKED	X

NA=not applicable

# Perlite Roof Board Insulation

(Homogeneous Only)

1. COMPANY NAME	ALLIEDSIGNAL	ALLIEDSIGNAL	BMCA INSULATION PRODUCTS INC.	BMCA INSULATION PRODUCTS INC.	CELOTEX CORP.
2. STATE	NC	NC	CA	CA	FL
3. PRODUCT NAME	ARMOR LITE	ARMOR LITE 1/2" RECOVER BOARD	PERMALITE ROOF INSULATION	1/2" RECOVER BOARD	CELOTHERM PERLITE
4. SURFACE TREATMENT TOP SURFACE	LIMIT BITUMEN SOAK-UP		COATED	COATED	
BOTTOM SURFACE	NONE	NONE	NONE	NONE	NONE
5. AVAILABLE AS TAPERED MATERIAL	YES	NO	YES	NO	YES
6. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1962	1985	1962	1985	1958
7. MEETS APPLICABLE STANDARDS	HHI529b ASTM C 728-91		HHI529b ASTM C 728-91	ASTM C 728-91	HHI529b ASTM C 728-91
8. COMPRESSIVE STRENGTH PER ASTM D 1621 OR OTHER (psi)	35 NOM.	40 NOM.	35 NOM.	40 NOM.	35
9. WATER ABSORPTION PER ASTM C 272 OR OTHER (% by volume)	1.2 NOM.	3.5 MAX.	1.5 MAX.	3.5 MAX.	1.5
10. FLEXURAL STRENGTH PER ASTM C 203 (psi)	60 NOM.		60 NOM.	100 NOM.	40
11. COMMON AVAILABLE SIZES					
11.1 2' x 4'	X	X	X	X	X
11.2 3' x 4'					
11.3 4' x 4'	X	X	X	X	X
11.4 4' x 8'				X	
11.5 OTHER				X	
12. COMMON AVAILABLE THICKNESSES (C-VALUE, R-VALUE, WEIGHT/FT <sup>2</sup> )					
12.1 THICKNESS (inches)	0.50	0.50	0.75	0.50	0.75
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.76	0.72	0.48	0.72	0.48
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	1.32	1.39	2.08	1.32	2.08
WEIGHT (lbs/ft <sup>2</sup> )	0.45	0.55	0.6	0.50	0.6
12.2 THICKNESS (inches)	0.75		1.0		1.0
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.48		0.36		0.36
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	2.08		2.78		2.78
WEIGHT (lbs/ft <sup>2</sup> )	0.68		0.8		0.8
12.3 THICKNESS (inches)	1.0		1.5		1.5
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.36		0.24		0.24
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	2.78		4.17		4.17
WEIGHT (lbs/ft <sup>2</sup> )	0.90		1.2		1.2
12.4 THICKNESS (inches)	1.5		2.0		2.0
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.24		0.18		0.18
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	4.17		5.56		5.56
WEIGHT (lbs/ft <sup>2</sup> )	1.35		1.6		1.6
12.5 THICKNESS (inches)	2.0		2.5		
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.18		0.15		
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	5.56		6.67		
WEIGHT (lbs/ft <sup>2</sup> )	1.8		2.0		
12.6 THICKNESS (inches)	2.5		3.0		
THERMAL CONDUCTANCE (C) @40 F					
THERMAL CONDUCTANCE (C) @75 F	0.15		0.12		
THERMAL RESISTANCE (R) @40 F					
THERMAL RESISTANCE (R) @75 F	6.67		8.33		
WEIGHT (lbs/ft <sup>2</sup> )	2.25		2.4		
13. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION (assuming a continuous mean temperature differential and constant moisture content)					
@ 1 year	100	100	100	100	100
@ 5 years	100	100	100	100	100
@ 10 years	100	100	100	100	100
14. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)					
15. LIMITATIONS AND/OR RESTRICTIONS					
16. SEE INSULATION APPENDIX IF CHECKED					

NA=not applicable

# Perlite Roof Board Insulation

(Homogeneous Only)

GAF MATERIALS CORP.	GAF MATERIALS CORP.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	KOPPERS INDUSTRIES INC	KOPPERS INDUSTRIES INC	LUCAS SALES COMPANY, INC
NJ	NJ	CO	CO	CO	PA	PA	MO
GAFTEMP PERMALITE	1/2" RECOVER BOARD	NORD BOARD	FESCO BOARD	1/2" RETROFIT BOARD	PERLITE ROOF INSULATION	1/2" RECOVER BOARD	LUCAS TAPERED PERLITE
COATED	COATED	MODIFIED APP ASPHALT			COATED	COATED	
NONE	NONE	NONE	NONE	NONE	NONE	NONE	SAW CUT SURFACE
YES	NO	NO	YES	NO	YES	NO	YES
1958	1985	1987	1958	1982	1962	1985	1974
HHI529b ASTM C 728-91	ASTM C 728-91	ASTM C 728	ASTM C 728	ASTM C 728	HHI529b ASTM C 728-91	ASTM C 728-91	ASTM C 728-91
32 1.5 40	35 NOM 3.5 MAX. 1.0 NOM.	35 3.5 60 MIN.	20 NOM. 1.5 MAX. 40 MIN.	35 NOM. 3.5 MAX. 60 MIN.	35 NOM. 1.5 MAX. 60 NOM.	40 NOM. 3.5 MAX. 1.0 NOM.	35 1.5 40
X	X		X	X	X	X	X
X	X X X	X	X	X X X	X	X X X	X
0.75 0.48 2.08 0.6	0.50 0.72 1.39 0.50	0.50 0.76 1.32 0.8	0.75 0.48 2.08 0.6	0.5 0.76 1.32 0.46	0.75 0.48 2.08 0.6	0.50 0.72 1.32 0.50	0.75 0.48 2.08 0.6
1.0 0.36 2.78 0.98			1.0 0.36 2.78 0.8		1.0 0.36 2.78 0.8		1.0 0.36 2.78 0.08
1.5 0.24 4.17 1.2			1.5 0.24 4.17 1.2		1.5 0.24 4.17 1.2		1.5 0.24 4.17 1.2
2.0 0.18 5.56 1.6			2.0 0.18 5.56 1.6		2.0 0.18 5.56 1.6		2.0 0.18 5.56 1.6
2.5 0.15 6.67 2.0			3.0 0.12 8.33 2.4		2.5 0.15 6.67 2.0		3.0 0.12 8.33 2.4
3.0 0.12 8.33 2.4					3.0 0.12 8.33 2.4		
100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100
SEE APPENDIX							SEE APPENDIX
SEE APPENDIX		SEE APPENDIX	SEE APPENDIX	SEE APPENDIX			SEE APPENDIX
X		X	X	X			X

# Polyisocyanurate Roof Board Insulation Part 1: General Information

(Homogeneous and Composite Boards )

1. COMPANY NAME	ALLIEDSIGNAL	APACHE PRODUCT COMPANY	APACHE PRODUCT COMPANY	APACHE PRODUCT COMPANY	APACHE PRODUCT COMPANY
2. STATE	NC	SC	SC	SC	SC
3. PRODUCT TRADE NAME	ARMOR-R PLUS	PYROX	ISOFOIL	MILLOX FIBERBOARD	MILLOX PERLITE
4. HOMOGENEOUS OR COMPOSITE	HOMOGENOUS	HOMOGENOUS	HOMOGENOUS	COMPOSITE	COMPOSITE
5. DENSITY PER ASTM D 1622 OR OTHER (homogeneous boards only) (lbs/ft <sup>3</sup> )	2.0 NOM.	2.0 NOM.	2.0 NOM.		
6. COMPOSITE COMPONENTS POLYISOCYANURATE INSULATION AND: 6.1 EXPANDED POLYSTYRENE 6.2 EXTRUDED POLYSTYRENE 6.3 POLYURETHANE 6.4 PERLITE 6.5 GYPSUM BOARD 6.6 FIBER BOARD 6.7 PLYWOOD 6.8 OTHER				X	X
7. SURFACE TREATMENT TOP SURFACE  BOTTOM SURFACE	GLASS REINFORCED FELT  GLASS REINFORCED FELT	ORG./INORG. NON-ASPH. FELT  ORG./INORG. NON-ASPH. FELT	TRI-LAMINATE FOIL  TRI-LAMINATE FOIL	H. D. FIBER- BOARD  ORG./INORG. NON-ASPH. FELT	PERLITE BOARD  ORG./INORG. NON-ASPH. FELT
8. AVAILABLE AS TAPERED MATERIAL (yes/no)	YES	YES	YES	YES	YES
9. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1987	1985	1985	1985	1985
10. COMMON AVAILABLE SIZES 10.1 2' x 4' 10.2 3' x 8' 10.3 4' x 4' 10.4 4' x 8' 10.5 OTHER (specify)	X X	X X	X X	X X X	X X X
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	CONTACT APACHE IC-3240, SB-9443, BO-2603	CONTACT APACHE IC-3240, SB-9443, BO-2603	CONTACT APACHE IC-3240, SB-9443, BO-2603	CONTACT APACHE IC-3240, SB-9443, BO-2603
12. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
13. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

1. COMPANY NAME	APACHE PRODUCT COMPANY	APACHE PRODUCT COMPANY	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION
2. STATE	SC	SC	GA	GA	GA
3. PRODUCT TRADE NAME	NAIL LINE	NAIL LINE V	ACFOAM-II	ACFOAM-III	GEMINI CRICKET
4. HOMOGENEOUS OR COMPOSITE	COMPOSITE	COMPOSITE	HOMOGENEOUS	HOMOGENEOUS	HOMOGENEOUS
5. DENSITY PER ASTM D 1622 OR OTHER (homogeneous boards only) (lbs/ft <sup>3</sup> )			2.0 NOM.	2.0 NOM.	2.0 NOM.
6. COMPOSITE COMPONENTS POLYISOCYANURATE INSULATION AND: 6.1 EXPANDED POLYSTYRENE 6.2 EXTRUDED POLYSTYRENE 6.3 POLYURETHANE 6.4 PERLITE 6.5 GYPSUM BOARD 6.6 FIBER BOARD 6.7 PLYWOOD 6.8 OTHER			PERLITE OSB		
7. SURFACE TREATMENT TOP SURFACE  BOTTOM SURFACE	ORIENTED STRUCTURAL BOARD  ORG./INORG. NON-ASPH. FELT	ORIENTED STRUCTURAL BOARD  ORG./INORG. NON-ASPH. FELT	GLASS REINFORCED FELT  GLASS REINFORCED FELT	COATED GLASS  COATED GLASS	GLASS REINFORCED FELT  GLASS REINFORCED FELT
8. AVAILABLE AS TAPERED MATERIAL (yes/no)	NO	NO	YES	YES	YES
9. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1985	1985	1987	1995	1998
10. COMMON AVAILABLE SIZES 10.1 2' x 4' 10.2 3' x 8' 10.3 4' x 4' 10.4 4' x 8' 10.5 OTHER (specify)	X	X	X X	X X	PRECUT CRICKET SHAPE
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	CONTACT APACHE IC-3240, SB-9443, BO-2603	CONTACT APACHE IC-3240, SB-9443, BO-2603	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
12. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
13. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

# Polyisocyanurate Roof Board Insulation Part 1: General Information

ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CELOTEX CORP.
GA	GA	GA	GA	GA	PA	PA	PA	FL
ACFOAM RECOVER BOARD	ACFOAM SUPREME	ACFOAM COMPOSITE	ACFOAM NAIL- BASE INSULATION	AC FOAM VENTED-R	POLYISO-HP	POLYISO-HP-N	POLYISO-HP-W	HY-THERM COMPOSITE
HOMOGENEOUS	HOMOGENOUS	COMPOSITE	COMPOSITE	COMPOSITE	HOMOGENOUS	HOMOGENOUS	HOMOGENOUS	COMPOSITE
1.8 NOM.	2.0 NOM.				2.0 NOM.	2.0 NOM.	2.0 NOM.	
		X						
			X	X				X
COATED GLASS	MULTILAYER FOIL	PERLITE INSULATION	OSB	VENTED OSB	FIBROUS FELT	FIBROUS FELT	FIBROUS FELT	FIBERBOARD
COATED GLASS	MULTILAYER FOIL	FIBER REINFORCED FELT	FIBER REINFORCED FELT	FIBER REINFORCED FELT	FIBROUS FELT	FIBROUS FELT	FIBROUS FELT	GLASS REINFORCED FELT
NO	NO	YES			YES	YES	YES	NO
1995	1988	1985	1985	1991	1985	1985	1985	
X X	X X	X X	X	X	X X	X X	X X	X
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	BOCA 93-39 ICBO 3826 SBCII 9457 METRO-DADE, FL 97-1110	BOCA 93-39 ICBO 3826 SBCII 9457 METRO-DADE, FL 97-1110	BOCA 93-39 ICBO 3826 SBCII 9457 METRO-DADE, FL 97-1110	ICBO 2602 BOCA 2603.0 SBCCI 2603 ASTM C 1289-95, TYPE IV
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	
X	X	X	X	X	X	X	X	

CELOTEX CORP.	CELOTEX CORP.	FIRESTONE BUILDING PRODUCTS, INC.	FIRESTONE BUILDING PRODUCTS, INC.	FIRESTONE BUILDING PRODUCTS, INC.	FIRESTONE BUILDING PRODUCTS, INC.	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION
FL	FL	IN	IN	IN	IN	NJ	NJ	NJ
HY-THERM NAIL-LINE	HY-THERM AP	ISO 95 + ISOCYANURATE	FIRESTONE NAILBASE	FIRESTONE COMPOSITE	FIRESTONE COMPOSITE	EVERGUARD ISO	GAFTEMP ISOTHERM R	GAFTEMP ISOTHERM RA
COMPOSITE	HOMOGENEOUS	HOMOGENEOUS	COMPOSITE	COMPOSITE	COMPOSITE	HOMOGENEOUS	HOMOGENEOUS	HOMOGENEOUS
	2.0 NOM.	2.0 NOM.				2.0 NOM.		
				X X X	X			
ORIENTED STRAND BOARD			7/16-IN. OSB	1/2-IN STOCK	3/4-IN. STOCK			
OSB	GLASS REINFORCED FELT	GLASS REINFORCED ORGANIC MAT	ORIENTED STRAND BOARD	PERLITE OR WOOD FIBER	PERLITE OR WOOD FIBER	ORG/INORG NON ASPHALT FELT	COMPOSITE FACER	GLASS FACER
GLASS REINFORCED FELT	GLASS REINFORCED FELT	GLASS REINFORCED ORGANIC MAT	GLASS REINFORCED ORGANIC MAT	GLASS REINFORCED ORGANIC MAT	GLASS REINFORCED ORGANIC MAT	ORG/INORG NON ASPHALT FELT	COMPOSITE FACER	GLASS FACER
NO	YES	YES	NO	YES	YES	YES	YES	YES
		1980	1980	1980	1980	1985	1988	1992
X X	X X	X X X	X X	X X	X X	X X	X X X	X X X
ASTM C 1289-95, TYPE V	ASTM C 1289-95, TYPE II	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	CONTACT GAF	SEE APPENDIX	SEE APPENDIX
		SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX		SEE APPENDIX	SEE APPENDIX
	X	X	X	X	X		X	X

# Polyisocyanurate Roof Board Insulation Part 1: General Information

(Homogeneous and Composite Boards )

1. COMPANY NAME	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	JOHNS MANVILLE INTERNATIONAL INC.
2. STATE	NJ	NJ	NJ	NJ	CO
3. PRODUCT TRADE NAME	GAFTEMP ISOTHERM RN	GAFTEMP COMPOSITE BOARD	GAFTEMP RA COMPOSITE BOARD	GAFTEMP RN COMPOSITE BOARD	ISO 1
4. HOMOGENEOUS OR COMPOSITE	HOMOGENOUS	COMPOSITE	COMPOSITE	COMPOSITE	HOMOGENOUS
5. DENSITY PER ASTM D 1622 OR OTHER (homogeneous boards only) (lbs/ft <sup>3</sup> )					2.0 NOM.
6. COMPOSITE COMPONENTS POLYISOCYANURATE INSULATION AND: 6.1 EXPANDED POLYSTYRENE 6.2 EXTRUDED POLYSTYRENE 6.3 POLYURETHANE 6.4 PERLITE 6.5 GYPSUM BOARD 6.6 FIBER BOARD 6.7 PLYWOOD 6.8 OTHER					
7. SURFACE TREATMENT TOP SURFACE	GLASS FACER				FIBERGLASS-REINFORCED FACER
BOTTOM SURFACE	GLASS FACER	COMPOSITE FACER	COMPOSITE FACER	COMPOSITE FACER	FIBERGLASS-REINFORCED FACER
8. AVAILABLE AS TAPERED MATERIAL (yes/no)	YES	YES	YES	YES	YES
9. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1992	1988	1992	1992	1987
10. COMMON AVAILABLE SIZES 10.1 2' x 4' 10.2 3' x 8' 10.3 4' x 4' 10.4 4' x 8' 10.5 OTHER (specify)	X X X X	X X	X X	X X	X X
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
12. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
13. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.
2. STATE	CO	ME	ME	ME	ME
3. PRODUCT TRADE NAME	FESCO FOAM	E'NRG'Y 2	E'NRG'Y 2 COMPOSITE	E'NRG'Y 2 PLUS	NAILBOARD
4. HOMOGENEOUS OR COMPOSITE	COMPOSITE	HOMOGENEOUS	COMPOSITE	COMPOSITE	COMPOSITE
5. DENSITY PER ASTM D 1622 OR OTHER (homogeneous boards only) (lbs/ft <sup>3</sup> )					
6. COMPOSITE COMPONENTS POLYISOCYANURATE INSULATION AND: 6.1 EXPANDED POLYSTYRENE 6.2 EXTRUDED POLYSTYRENE 6.3 POLYURETHANE 6.4 PERLITE 6.5 GYPSUM BOARD 6.6 FIBER BOARD 6.7 PLYWOOD 6.8 OTHER					
7. SURFACE TREATMENT TOP SURFACE	FIBERGLASS-REINFORCED FACER	GLASS REINFORCED FELT	PERLITE FELT	WOOD FIBERBOARD	OSB
BOTTOM SURFACE	PERLITE	GLASS REINFORCED FELT	PERLITE FELT	GLASS REINFORCED FELT	GLASS REINFORCED FELT
8. AVAILABLE AS TAPERED MATERIAL (yes/no)	YES	YES	YES	YES	NO
9. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1970	1983			
10. COMMON AVAILABLE SIZES 10.1 2' x 4' 10.2 3' x 8' 10.3 4' x 4' 10.4 4' x 8' 10.5 OTHER (specify)	X X	X X X	X X	X X	X X
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	SEE UL DIRECT. NBC 2603, SBC 717, UBC 1713	SEE UL DIRECT. NBC 2603, SBC 717, UBC 1713	SEE UL DIRECT. NBC 2603, SBC 717, UBC 1713	SEE UL DIRECT. NBC 2603, SBC 717, UBC 1713
12. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
13. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

## Polyisocyanurate Roof Board Insulation Part 1: General Information

KOPPERS INDUSTRIES INC.	KOPPERS INDUSTRIES INC.	RMAX, INC.	RMAX, INC.	RMAX, INC.	RMAX, INC.	U.S. INTEC INC.
PA	PA	TX	TX	TX	TX	TX
KOP-R ISOCYANURATE	KOP-R COMPOSITE	MULTI-MAX	MULTI-MAX FA	TAPERED THERMAROOF	THERMAROOF PLUS	USISO
HOMOGENOUS	COMPOSITE	HOMOGENOUS	HOMOGENOUS	HOMOGENOUS	HOMOGENOUS	HOMOGENOUS
2.0 NOM.		2	2.0	2.0	2.0	2.0 NOM.
	X					
GLASS REINFORCED FELT	PERLITE INSULATION	GLASS FIBER	GLASS FIBER	GLASS FIBER	GLASS FIBER ALUM FOIL	GLASS REINFORCED FELT
GLASS REINFORCED FELT	FIBER REINFORCED FELT	GLASS FIBER	GLASS FIBER	GLASS FIBER	GLASS FIBER ALUM FOIL	GLASS REINFORCED FELT
YES		YES	NO	YES	NO	YES
1987	1985	1985	1988	1986	1978	1987
X X	X X	X  X	X X X	X	X X X	X  X
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	
SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	
X	X	X	X	X	X	



# Polyisocyanurate Roof Board Insulation Part 2: Test Results

Test description and suggested values as specified in ASTM C 1289-95

1. COMPANY NAME		ALLIEDSIGNAL	APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY
2. PRODUCT NAME		ARMOR-R PLUS	PYROX	ISOFOIL	MILLOX WITH FIBERBOARD	MILLOX WITH PERLITE
3.1 PRODUCT TYPE *						
3.1.1 TYPE 1, CLASS 1 OR CLASS 2				X		
3.1.2 TYPE II		X	X			
3.1.3 TYPE III						X
3.1.4 TYPE IV					X	
3.1.5 TYPE V						
3.1.6 TYPE VI						
3.2 PHYSICAL PROPERTY						
3.2.1 COMPRESSIVE STRENGTH (min., psi, nominal 1-in. core foam)	16	20	16	16	16	16
3.2.2 DIMENSIONAL STABILITY (nominal, 1-in. core foam)						
3.2.2.1 Percent linear change, max. (-40°F)						
Type I, Class 1; Types II-VI	2.0	< 2	2.0	2.0	2.0	2.0
Type I, Class 2	1.5					
(amb. RH 158°F)						
Type I, Class 1	2.0					
Type II-VI	4.0	< 4	2.0	2.0	2.0	2.0
Type I, Class 2	1.5					
(97% RH 200°F)						
Type I, Class 1; Types II-VI	4.0	< 4	2.0	2.0	2.0	2.0
Type I, Class 2	1.5					
3.2.3 FLEXURAL STRENGTH (nominal, 1-in. core foam)						
3.2.3.1 Modulus of rupture, psi, min.						
Types I-V	40		40	40	40	40
Type VI	50					
3.2.3.2 Break load, lbf, min.						
Type I	8		8			
Types II-V	17			17		17
Type VI	33					
3.2.4 TENSILE STRENGTH (psf, min., perpendicular to board surface, nominal 1-in. core foam)	500		500	500	500	500
3.2.5 WATER ABSORPTION (2H % by vol., max., nom. 1-in. core surface)						
Types I, III, V	1.0		1.0	1.0		1.0
Types II, VI	1.5	< 1	1.0		2.0	
Type IV	2.0					
3.2.6 WATER TRANSMISSION (perm., max., nominal 1-in. core surface)						
Type I	0.3			0.3		
Type II	1.0	1	1.0			
Types III-VI	NA					
3.3 MINIMUM MEAN THERMAL RESISTANCE						
3.3.1 @ 40 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	7.2			7.1		
1-inch product Type I, Class 2	7.9					
1-inch product Type II	6.6		6.6			
1.5-inch product Type I, Class 1	10.8			11.1		
1.5-inch product Type I, Class 2; Type II	11.0		10.0			
1.5-inch product Type III	8.1				8.0	8.1
1.5-inch product Type IV	8.0					
1.5-inch product Type V	7.1					
2-inch product Type I, Class 1	14.3			14.3		
2-inch product Type I, Class 2	15.8					
2-inch product Type II	15.7		15.7			
2-inch product Type III	12.5					12.5
2-inch product Type IV	12.4				12.4	
2-inch product Type V	11.5					
2-inch product Type VI	8.6					
3.3.2 @ 75 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	6.5			7.1		
1-inch product Type I, Class 2	7.2					
1-inch product Type II	6.0	6.0	6.0			
1.5-inch product Type I, Class 1	9.8			11.1		
1.5-inch product Type I, Class 2; Type II	10.0	10.0	10.0			
1.5-inch product Type III	7.4				7.2	7.2
1.5-inch product Type IV	7.3					
1.5-inch product Type V	6.5					
2-inch product Type I, Class 1	13.0			14.3		
2-inch product Type I, Class 2	14.4					
2-inch product Type II	14.3	14.3	14.3			
2-inch product Type III	11.4					11.1
2-inch product Type IV	11.3				11.1	
2-inch product Type V	10.5					
2-inch product Type VI	7.5					
3.3.3 @ 110 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	5.9			5.9		
1-inch product Type I, Class 2	6.5					
1-inch product Type II	5.4		5.4			
1.5-inch product Type I, Class 1	8.8			8.8		
1.5-inch product Type I, Class 2; Type II	9.0		9.0			
1.5-inch product Type III	6.7					6.7
1.5-inch product Type IV	6.6				6.6	
1.5-inch product Type V	5.9					
2-inch product Type I, Class 1	11.7			11.7		
2-inch product Type I, Class 2	13.0					
2-inch product Type II	12.9		12.9			
2-inch product Type III	10.3					10.3
2-inch product Type IV	10.2				10.2	
2-inch product Type V	9.5					
2-inch product Type VI	6.7					
4. SEE INSULATION APPENDIX IF CHECKED		X				

\* See Introduction to insulation section for full descriptions of product types  
NA=not applicable

# Polyisocyanurate Roof Board Insulation Part 2: Test Results

APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION	ATLAS ROOFING CORPORATION
NAIL LINE	NAIL LINE V	ACFOAM-II	ACFOAM-III	ACFOAM RECOVER BOARD	ACFOAM SUPREME	ACFOAM COMPOSITE	ACFOAM NAIL- BASE INSULATION	ACFOAM VENTED-R
					CLASS 1			
X	X	X	X	X		X	X	X
16	16	20	20	16	20	20	20	20
2.0	2.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2
2.0	2.0	< 4	< 4	< 4	< 2	< 4	< 4	< 4
2.0	2.0					< 4	< 4	< 4
40	40	40	40	40	40	40	40	40
17	17	17	17	17	8	17	17	17
500	500	500	500	500	500	500	500	500
1.0	1.0	< 1	< 1	< 1	< 1	< 1	< 1	< 1
		<1.0	<1.0	<1.0	0.3			
7.1								
11.5								
6.6		6.0 10.0	6.0 10.0	6.0	7.2	7.4	7.3	
10.5		14.3	14.3		15.2	11.4	11.3	7.1
5.9								
9.5								
		X	X	X	X	X	X	X

# Polyisocyanurate Roof Board Insulation Part 2: Test Results

Test description and suggested values as specified in ASTM C 1289-95

1. COMPANY NAME		ATLAS ROOFING CORPORATION	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CARLISLE SYNTEC INCORPORATED	CELOTEX CORP.
2. PRODUCT NAME		GEMINI CRICKET	POLYISO-HP	POLYISO-HP-N	POLYISO-HP-W	HY-THERM COMPOSITE
3.1 PRODUCT TYPE *						
3.1.1 TYPE I, CLASS 1 OR CLASS 2						
3.1.2 TYPE II		X	X	X	X	
3.1.3 TYPE III						
3.1.4 TYPE IV						X
3.1.5 TYPE V						
3.1.6 TYPE VI						
3.2 PHYSICAL PROPERTY						
3.2.1 COMPRESSIVE STRENGTH (min., psi, nominal 1-in. core foam)	16	20	16	16	16	16
3.2.2 DIMENSIONAL STABILITY (nominal, 1-in. core foam)						
3.2.2.1 Percent linear change, max. (-40°F)						
Type I, Class 1; Types II-VI	2.0	< 2	2.0	2.0	4.0	2.0
Type I, Class 2	1.5					
(amb. RH 158°F)						
Type I, Class 1	2.0					
Type II-VI	4.0	< 4	2.0	2.0	2.0	4.0
Type I, Class 2	1.5					
(97% RH 200°F)						
Type I, Class 1; Types II-VI	4.0	< 4	4.0	4.0	4.0	4.0
Type I, Class 2	1.5					
3.2.3 FLEXURAL STRENGTH (nominal, 1-in. core foam)						
3.2.3.1 Modulus of rupture, psi, min.						
Types I-V	40	40	40	40	40	40
Type VI	50					
3.2.3.2 Break load, lbf, min.						
Type I	8					
Types II-V	17	17	17	17	17	17
Type VI	33					
3.2.4 TENSILE STRENGTH (psf, min., perpendicular to board surface, nominal 1-in. core foam)	500	500	500	500	500	500
3.2.5 WATER ABSORPTION (2H % by vol., max., nom. 1-in. core surface)						
Types I, III, V	1.0	< 1				
Types II, VI	1.5		1.5	1.5	1.5	
Type IV	2.0					2.0
3.2.6 WATER TRANSMISSION (perm., max., nominal 1-in. core surface)						
Type I	0.3					
Type II	1.0	<1.0	1.0	1.0	1.0	
Types III-VI	NA					
3.3 MINIMUM MEAN THERMAL RESISTANCE						
3.3.1 @ 40 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	7.2					
1-inch product Type I, Class 2	7.9					
1-inch product Type II	6.6		6.6	6.6	6.6	
1.5-inch product Type I, Class 1	10.8					
1.5-inch product Type I, Class 2; Type II	11.0		11.0	11.0	11.0	
1.5-inch product Type III	8.1					
1.5-inch product Type IV	8.0					8.0
1.5-inch product Type V	7.1					
2-inch product Type I, Class 1	14.3					
2-inch product Type I, Class 2	15.8					
2-inch product Type II	15.7		15.7	15.7	15.7	
2-inch product Type III	12.5					
2-inch product Type IV	12.4					12.4
2-inch product Type V	11.5					
2-inch product Type VI	8.6					
3.3.2 @ 75 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	6.5					
1-inch product Type I, Class 2	7.2					
1-inch product Type II	6.0	6.0	6.0	6.0	6.0	
1.5-inch product Type I, Class 1	9.8					
1.5-inch product Type I, Class 2; Type II	10.0		10.0	10.0	10.0	
1.5-inch product Type III	7.4					
1.5-inch product Type IV	7.3					7.3
1.5-inch product Type V	6.5					
2-inch product Type I, Class 1	13.0					
2-inch product Type I, Class 2	14.4					
2-inch product Type II	14.3		14.3	14.3	14.3	
2-inch product Type III	11.4					
2-inch product Type IV	11.3					11.3
2-inch product Type V	10.5	7.1				
2-inch product Type VI	7.5					
3.3.3 @ 110 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	5.9					
1-inch product Type I, Class 2	6.5					
1-inch product Type II	5.4		5.4	5.4	5.4	
1.5-inch product Type I, Class 1	8.8					
1.5-inch product Type I, Class 2; Type II	9.0		9.0	9.0	9.0	
1.5-inch product Type III	6.7					
1.5-inch product Type IV	6.6					6.6
1.5-inch product Type V	5.9					
2-inch product Type I, Class 1	11.7					
2-inch product Type I, Class 2	13.0					
2-inch product Type II	12.9		12.9	12.9	12.9	
2-inch product Type III	10.3					
2-inch product Type IV	10.2					10.2
2-inch product Type V	9.5					
2-inch product Type VI	6.7					
4. SEE INSULATION APPENDIX IF CHECKED		X	X	X	X	

\* See Introduction to insulation section for full descriptions of product types

NA=not applicable

# Polyisocyanurate Roof Board Insulation Part 2: Test Results

CELOTEX CORP.	CELOTEX CORP.	FIRESTONE BUILDING PRODUCTS INC.	FIRESTONE BUILDING PRODUCTS INC.	FIRESTONE BUILDING PRODUCTS INC.	FIRESTONE BUILDING PRODUCTS INC.	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION
HY-THERM NAIL-LINE	HY-THERM AP	ISO 95+ ISOCYANURATE	FIRESTONE COMPOSITE	FIRESTONE COMPOSITE	FIRESTONE NAILBASE	GAFTEMP ISOTHERM R	GAFTEMP ISOTHERM RA	GAFTEMP ISOTHERM RN
	X	X	X	X	X	X	X	X
X								
16	16	20	20	20	20	20	20	20
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
4.0		4.0	4.0	4.0	4.0	2.0	2.0	2.0
4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
40	40	40	40	40	40	40	40	40
17	17	17	17	17	17	17	17	17
500	500	500	500	500	500	500	500	500
1.0	1.5	1.5	1.0	2.0	1.0	1.5	1.5	1.5
	1.0	1.0				1.0	1.0	1.0
		6.6				6.6	6.6	6.6
		11.0				11.0	11.0	11.0
7.1			8.1	8.0	7.1			
		15.7				15.7	15.7	15.7
			12.5	12.4				
11.5					11.5			
	6.0	6.0				6.0	6.0	6.0
	10.0	10.0				10.0	10.0	10.0
6.5			7.4	7.3	6.5			
	14.3	14.3				14.3	14.3	14.3
			11.4	11.3				
10.5					10.5			
		5.4				5.4	5.4	5.4
		9.0				9.0	9.0	9.0
5.9			6.7	6.6	5.9			
		12.9				12.9	12.9	12.9
			10.3	10.2				
9.5					9.5			
		X	X	X	X			

# Polyisocyanurate Roof Board Insulation Part 2: Test Results

Test description and suggested values as specified in ASTM C 1289-95

1. COMPANY NAME		GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	GAF MATERIALS CORPORATION	JOHNS MANVILLE INTERNATIONAL INC.
2. PRODUCT NAME		EVERGUARD ISO	GAFTEMP COMPOSITE BOARD	GAFTEMP RA COMPOSITE BOARD	GAFTEMP RN COMPOSITE BOARD	ULTRAGARD
3.1 PRODUCT TYPE *						
3.1.1 TYPE I, CLASS 1 OR CLASS 2						
3.1.2 TYPE II		X				X
3.1.3 TYPE III				X	X	
3.1.4 TYPE IV			X	X		
3.1.5 TYPE V						
3.1.6 TYPE VI						
3.2 PHYSICAL PROPERTY						
3.2.1 COMPRESSIVE STRENGTH (min., psi, nominal 1-in. core foam)	16	16	20	20	20	20
3.2.2 DIMENSIONAL STABILITY (nominal, 1-in. core foam)						
3.2.2.1 Percent linear change, max. (-40°F)						
Type I, Class 1; Types II-VI	2.0	2.0	2.0	2.0	2.0	< 2.0
Type I, Class 2	1.5					
(amb. RH 158°F)						
Type I, Class 1	2.0					
Type II-VI	4.0	2.0	2.0	2.0	2.0	< 4.0
Type I, Class 2	1.5					
(97% RH 200°F)						
Type I, Class 1; Types II-VI	4.0	2.0	4.0	4.0	4.0	< 4.0
Type I, Class 2	1.5					
3.2.3 FLEXURAL STRENGTH (nominal, 1-in. core foam)						
3.2.3.1 Modulus of rupture, psi, min.						
Types I-V	40	40	40	40	40	> 40
Type VI	50					
3.2.3.2 Break load, lbf, min.						
Type I	8					
Types II-V	17	8	17	17	17	> 17
Type VI	33					
3.2.4 TENSILE STRENGTH (psf, min., perpendicular to board surface, nominal 1-in. core foam)	500	500	500	500	500	> 500
3.2.5 WATER ABSORPTION (2H % by vol., max., nom. 1-in. core surface)						
Types I, III, V	1.0			1.0	1.0	
Types II, VI	1.5	1.0				< 1.5
Type IV	2.0		2.0	2.0		
3.2.6 WATER TRANSMISSION (perm., max., nominal 1-in. core surface)						
Type I	0.3					
Type II	1.0	1.0				> 1.0
Types III-VI	NA					
3.3 MINIMUM MEAN THERMAL RESISTANCE						
3.3.1 @ 40 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	7.2					
1-inch product Type I, Class 2	7.9					
1-inch product Type II	6.6	6.6				> 6.6
1.5-inch product Type I, Class 1	10.8					
1.5-inch product Type I, Class 2; Type II	11.0	1.0				> 11.0
1.5-inch product Type III	8.1			8.1	8.1	
1.5-inch product Type IV	8.0			8.0		
1.5-inch product Type V	7.1		8.0			
2-inch product Type I, Class 1	14.3					
2-inch product Type I, Class 2	15.8					
2-inch product Type II	15.7	15.7				> 15.7
2-inch product Type III	12.5			12.5	12.5	
2-inch product Type IV	12.4		12.4	12.4		
2-inch product Type V	11.5					
2-inch product Type VI	8.6					
3.3.2 @ 75 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	6.5					
1-inch product Type I, Class 2	7.2					
1-inch product Type II	6.0	6.0				> 6.0
1.5-inch product Type I, Class 1	9.8					
1.5-inch product Type I, Class 2; Type II	10.0	10.0				> 10.0
1.5-inch product Type III	7.4			7.4	7.4	
1.5-inch product Type IV	7.3			7.3		
1.5-inch product Type V	6.5		7.3			
2-inch product Type I, Class 1	13.0					
2-inch product Type I, Class 2	14.4					
2-inch product Type II	14.3	14.3				> 14.3
2-inch product Type III	11.4					
2-inch product Type IV	11.3					
2-inch product Type V	10.5		11.3	11.3	11.4	
2-inch product Type VI	7.5					
3.3.3 @ 110 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	5.9					
1-inch product Type I, Class 2	6.5					
1-inch product Type II	5.4	5.4				> 5.4
1.5-inch product Type I, Class 1	8.8					
1.5-inch product Type I, Class 2; Type II	9.0	9				> 9.0
1.5-inch product Type III	6.7			6.7	6.7	
1.5-inch product Type IV	6.6			6.6		
1.5-inch product Type V	5.9		6.6			
2-inch product Type I, Class 1	11.7					
2-inch product Type I, Class 2	13.0					
2-inch product Type II	12.9	12.9				> 12.9
2-inch product Type III	10.3					
2-inch product Type IV	10.2			10.3	10.3	
2-inch product Type V	9.5		10.2	10.2		
2-inch product Type VI	6.7					
4. SEE INSULATION APPENDIX IF CHECKED						X

\* See Introduction to insulation section for full descriptions of product types  
NA=not applicable

# Polyisocyanurate Roof Board Insulation Part 2: Test Results

JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	JOHNS MANVILLE INTERNATIONAL INC.	KOPPERS INDUSTRIES, INC.	KOPPERS INDUSTRIES, INC.
FESCO FOAM	E'NRGY 2	E'NRGY 2 FF	E'NRGY 2 COMPOSITE	E'NRGY 2 PLUS	NAILBOARD	E'NRGY 2 GYPSUM COMPOSITE	KOP-R ISOCYANURATE	KOP-R COMPOSITE
X	X	X	X	X	X		X	X
16	20/25	20/25	20/25	20/25	20/25	20/25	20	20
< 2.0	2.0	2.0	2.0	2.0	2.0	2.0	< 2.0	< 2.0
< 4.0	2.0	2.0	2.0	2.0	2.0	2.0	< 4.0	< 4.0
< 4.0	2.0	2.0	2.0	2.0	2.0	2.0		< 4.0
> 40	40	40	40	40	40			40
> 17	17	8	17	17	17			17
500	500	500	500	500	500	500		500
< 1.0	1.5	1.0	1.0		1.0	1.5		< 1.0
				2.0				
	1.0	0.3				1.0	1.0	
		7.9						
	6.6							
> 8.1	11.0	11.0						
			8.0	8.0				
		15.7			8.0			
> 12.5	15.7		12.5	12.5				
					12.4			
		7.2						
	6.0						6.0	
> 7.4	10.0	10.8	7.4	7.3	7.3	7.4	10.0	7.4
		14.4						
> 11.4	14.3		11.4	11.3			14.3	11.4
					11.4	12.0		
		5.9						
	6.4							
> 6.7	9.0	8.8	6.7	6.6				
					6.9			
		13.0						
> 10.3	12.9		10.3	10.2				
					10.3			
X							X	X

# Polyisocyanurate Roof Board Insulation Part 2: Test Results

Test description and suggested values as specified in ASTM C 1289-95

1. COMPANY NAME		RMAX, INC.	RMAX, INC.	RMAX, INC.	RMAX, INC.	U.S. INTEC INC.
2. PRODUCT NAME		MULTI-MAX	MULTI-MAX FA	TAPERED THERMAROOF	THERMAROOF PLUS	USISO
3.1 PRODUCT TYPE *						
3.1.1 TYPE 1, CLASS 1 OR CLASS 2					CLASS 1	
3.1.2 TYPE II		X	X	X		X
3.1.3 TYPE III						
3.1.4 TYPE IV						
3.1.5 TYPE V						
3.1.6 TYPE VI						
3.2 PHYSICAL PROPERTY						
3.2.1 COMPRESSIVE STRENGTH (min., psi, nominal 1-in. core foam)	16	> 16	> 16	> 16	> 16	20
3.2.2 DIMENSIONAL STABILITY (nominal, 1-in. core foam)						
3.2.2.1 Percent linear change, max. (-40°F)						
Type I, Class 1; Types II-VI	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Type I, Class 2	1.5					
(amb. RH 158°F)						
Type I, Class 1	2.0				< 2.0	
Type II-VI	4.0	< 4.0	< 4.0	< 4.0		< 4.0
Type I, Class 2	1.5					
(97% RH 200°F)						
Type I, Class 1; Types II-VI	4.0	< 4.0	< 4.0	< 4.0	< 4.0	
Type I, Class 2	1.5					
3.2.3 FLEXURAL STRENGTH (nominal, 1-in. core foam)						
3.2.3.1 Modulus of rupture, psi, min.						
Types I-V	40	> 40	> 40	> 40	> 40	
Type VI	50					
3.2.3.2 Break load, lbf, min.						
Type I	8				> 8	
Types II-V	17	> 17	> 17	> 17		
Type VI	33					
3.2.4 TENSILE STRENGTH (psf, min., perpendicular to board surface, nominal 1-in. core foam)	500	> 500	> 500	> 500	> 500	
3.2.5 WATER ABSORPTION (2H % by vol., max., nom. 1-in. core surface)						
Types I, III, V	1.0				1.0	
Types II, VI	1.5	< 1.5	< 1.5	< 1.5		<1.0
Type IV	2.0					
3.2.6 WATER TRANSMISSION (perm., max., nominal 1-in. core surface)						
Type I	0.3				<1.0	
Type II	1.0	> 1.0	> 1.0	> 1.0		
Types III-VI	NA					
3.3 MINIMUM MEAN THERMAL RESISTANCE						
3.3.1 @ 40 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	7.2					
1-inch product Type I, Class 2	7.9					
1-inch product Type II	6.6					
1.5-inch product Type I, Class 1	10.8					
1.5-inch product Type I, Class 2; Type II	11.0					
1.5-inch product Type III	8.1					
1.5-inch product Type IV	8.0					
1.5-inch product Type V	7.1					
2-inch product Type I, Class 1	14.3					
2-inch product Type I, Class 2	15.8					
2-inch product Type II	15.7					
2-inch product Type III	12.5					
2-inch product Type IV	12.4					
2-inch product Type V	11.5					
2-inch product Type VI	8.6					
3.3.2 @ 75 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	6.5					
1-inch product Type I, Class 2	7.2					
1-inch product Type II	6.0					6.0
1.5-inch product Type I, Class 1	9.8					
1.5-inch product Type I, Class 2; Type II	10.0					10.0
1.5-inch product Type III	7.4					
1.5-inch product Type IV	7.3					
1.5-inch product Type V	6.5					
2-inch product Type I, Class 1	13.0					
2-inch product Type I, Class 2	14.4					
2-inch product Type II	14.3					14.3
2-inch product Type III	11.4					
2-inch product Type IV	11.3					
2-inch product Type V	10.5					
2-inch product Type VI	7.5					
3.3.3 @ 110 ± 2°F MEAN TEMPERATURE						
1-inch product Type I, Class 1	5.9					
1-inch product Type I, Class 2	6.5					
1-inch product Type II	5.4					
1.5-inch product Type I, Class 1	8.8					
1.5-inch product Type I, Class 2; Type II	9.0					
1.5-inch product Type III	6.7					
1.5-inch product Type IV	6.6					
1.5-inch product Type V	5.9					
2-inch product Type I, Class 1	11.7					
2-inch product Type I, Class 2	13.0					
2-inch product Type II	12.9					
2-inch product Type III	10.3					
2-inch product Type IV	10.2					
2-inch product Type V	9.5					
2-inch product Type VI	6.7					
4. SEE INSULATION APPENDIX IF CHECKED						

\* See Introduction to insulation section for full descriptions of product types

NA=not applicable

# Composite Roof Board Insulation

1. COMPANY NAME	AFM CORP	AFM CORP	APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY
2. STATE	MN	MN	SC	SC	SC
3. PRODUCT NAME	AFM PERFORM 1, 2 & 3	AFM CONTOUR TAPER TILE	EPS PERLITE	EPS PLYWOOD	EPS GYPSUM BOARD
4. COMPOSITE COMPONENTS					
4.1 EXPANDED POLYSTYRENE	X	X	X	X	X
4.2 EXTRUDED POLYSTYRENE					
4.3 POLYURETHANE					
4.4 POLYISOCYANURATE					
4.5 PERLITE	X	X	X		X
4.6 GYPSUM BOARD					
4.7 FIBER BOARD	X	X			
4.8 PLYWOOD	X	X		X	
4.9 OTHER	X	X			
5. SURFACE TREATMENT					
5.1 ASPHALT ROOFING FELT					
5.2 FOIL FACER	X	X			
5.3 KRAFT FACER					
5.4 OTHER	X	X			
6. AVAILABLE AS TAPERED MATERIAL	NO	YES	YES	YES	YES
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1971	1966	1957	1957	1957
8. COMMON AVAILABLE SIZES					
8.1 2' x 4'	X	X			
8.2 3' x 4'					
8.3 4' x 4'	X	X	X	X	X
8.4 4' x 8'	X	X	X	X	X
8.5 OTHER	X	X			
9. COMMON AVAILABLE THICKNESSES					
WATER ABSORPTION, TRANSVERSE STRENGTH, C-VALUES, R-VALUES, PERCENT BY VOLUME					
9.1 THICKNESS (inches)	2.67	2.67	1.5	1.5	1.5
THERMAL CONDUCTANCE (C) @75 F	0.103	0.103	0.19	0.22	0.23
THERMAL RESISTANCE (R) @75 F	9.73	9.73	5.26	4.55	4.35
WEIGHT (lbs/ft <sup>2</sup> )	0.8	0.8			
9.2 THICKNESS (inches)	4.16	4.16	2.0	2.0	2.0
THERMAL CONDUCTANCE (C) @75 F	0.065	0.065	0.15	0.16	0.16
THERMAL RESISTANCE (R) @75 F	15.47	15.47	6.67	6.25	6.25
WEIGHT (lbs/ft <sup>2</sup> )	0.93	0.93			
9.3 THICKNESS (inches)	7.36	7.36	2.5	2.5	2.5
THERMAL CONDUCTANCE (C) @75 F	0.036	0.036	0.12	0.12	0.12
THERMAL RESISTANCE (R) @75 F	27.79	27.79	8.33	8.33	8.33
WEIGHT (lbs/ft <sup>2</sup> )	1.2	1.2			
9.4 THICKNESS (inches)	2.67	2.67	3.0	3.0	3.0
THERMAL CONDUCTANCE (C) @75 F	0.093	0.093	0.10	0.097	0.098
THERMAL RESISTANCE (R) @75 F	10.77	10.77	10.0	10.31	10.20
WEIGHT (lbs/ft <sup>2</sup> )	0.98	0.98			
9.5 THICKNESS (inches)	4.16	4.16	3.5	3.5	3.5
THERMAL CONDUCTANCE (C) @75 F	0.058	0.058	0.08	0.081	0.082
THERMAL RESISTANCE (R) @75 F	17.3	17.3	12.5	12.34	12.20
WEIGHT (lbs/ft <sup>2</sup> )	1.23	1.23			
9.6 THICKNESS (inches)	7.36	7.36	4.0	4.0	4.0
THERMAL CONDUCTANCE (C) @75 F	0.032	0.032	0.07	0.07	0.071
THERMAL RESISTANCE (R) @75 F	31.21	31.21	14.29	14.29	14.08
WEIGHT (lbs/ft <sup>2</sup> )	1.76	1.76			
10. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION					
(assuming a continuous mean temperature @ 1 year	100	100	100	100	100
differential and constant moisture content) @ 5 years	100	100	100	100	100
@ 10 years	100	100	100	100	100
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	SEE APPENDIX	SEE APPENDIX	SBCCI 9443	SBCCI 9443	SBCCI 9443
12. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX	SEE APPENDIX
13. SEE INSULATION APPENDIX IF CHECKED	X	X	X	X	X

NA=not applicable



# Composite Roof Board Insulation

APACHE PRODUCTS COMPANY	APACHE PRODUCTS COMPANY	BENCHMARK FOAM INC	BENCHMARK FOAM INC	BENCHMARK FOAM INC	BENCHMARK FOAM INC	BIG SKY INSULATIONS INC	BIG SKY INSULATIONS INC	BIG SKY INSULATIONS INC
SC	SC	SD	SD	SD	SD	MT	MT	MT
EPS WAVER BOARD	EPS FIBERBOARD	PERMAFOAM COMPOSITE	ENERCEPT PANELS	PERMAFOAM COMPOSITE	PERMAFOAM COMPOSITE	EPS-PERLITE COMPOSITE	EPS-GYPSUM COMPOSITE	EPS-FIBERBOARD COMPOSITE
X	X	X	X	X	X	X	X	X
				X		X	X	
	X		X		X			X
WAVER BOARD		X						
YES	YES	YES	NO	YES	YES	YES	YES	YES
1975	1957	1977	1982	1977	1977	1981	1981	1981
		X		X	X	X	X	X
X	X	X		X	X	X		X
X	X	X	X 4 x 12 OR 4 x 16	X	X	X	X	X
1.5	1.5	2.0	8.0	2.0	2.0	1.75	1.5	1.5
0.22	0.19	0.10	0.033	0.10	0.10	0.169	0.233	0.193
4.55	5.26	10.0	30.30	10.0	10.0	5.92	4.29	5.18
						0.769	1.062	0.753
2.0	2.0	4.0	6.0	4.0	4.0	2.25	2.0	2.0
0.16	0.14	0.06	0.045	0.05	0.06	0.127	0.161	0.14
6.25	7.14	16.67	22.22	20.0	16.67	7.87	6.21	7.14
						0.811	1.104	0.795
2.5	2.5	6.0		6.0	6.0	2.75	2.5	2.5
0.12	0.11	0.04		0.04	0.04	0.102	0.123	0.11
8.33	9.09	25.0		25.0	25.0	9.80	8.13	9.09
						0.853	1.146	0.837
3.0	3.0	8.0		8.0	8.0	3.25	3.0	3.0
0.097	0.09	0.03		0.03	0.03	0.085	0.099	0.091
10.31	11.11	33.33		33.33	33.33	11.76	10.10	10.99
						0.845	1.187	0.878
3.5	3.5					3.75	3.5	3.5
0.081	0.076					0.073	0.083	0.077
12.34	13.16					13.70	12.05	12.99
						0.936	1.229	0.92
4.0	4.0					4.25	4.0	4.0
0.07	0.066					0.064	0.072	0.067
14.29	15.15					15.63	13.89	14.93
						0.978	1.271	0.96
100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100
SBCCI 9443	SBCCI 9443		ICBO 4246 HUD 1067 RADCO 1165					
SEE APPENDIX	SEE APPENDIX							
X	X							

# Composite Roof Board Insulation

1. COMPANY NAME	CARPENTER INSULATION COMPANY	CARPENTER INSULATION COMPANY	CARPENTER INSULATION COMPANY	CARPENTER INSULATION COMPANY	CARPENTER INSULATION COMPANY
2. STATE	VA	VA	VA	VA	VA
3. PRODUCT NAME	CARPENTER EPS/PLYWOOD	CARPENTER EPS/PERLITE	CARPENTER EPS/STYROFOIL	CARPENTER EPS/GYPSUM	CARPENTER EPS/WAFER- BOARD
4. COMPOSITE COMPONENTS					
4.1 EXPANDED POLYSTYRENE	X	X	X	X	X
4.2 EXTRUDED POLYSTYRENE					
4.3 POLYURETHANE					
4.4 POLYISOCYANURATE					
4.5 PERLITE		X			
4.6 GYPSUM BOARD				X	
4.7 FIBER BOARD					
4.8 PLYWOOD	X				
4.9 OTHER			X		X
5. SURFACE TREATMENT					
5.1 ASPHALT ROOFING FELT			X		
5.2 FOIL FACER			X		
5.3 KRAFT FACER					
5.4 OTHER					
6. AVAILABLE AS TAPERED MATERIAL	YES	YES	YES	YES	YES
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1977	1977	1977	1977	1977
8. COMMON AVAILABLE SIZES					
8.1 2' x 4'		X			
8.2 3' x 4'					
8.3 4' x 4'	X	X	X	X	X
8.4 4' x 8'	X		X	X	X
8.5 OTHER			X		
9. COMMON AVAILABLE THICKNESSES					
WATER ABSORPTION, TRANSVERSE STRENGTH, C-VALUES, R-VALUES, PERCENT BY VOLUME					
9.1 THICKNESS (inches)	1.5	1.75	1.0	1.5	1.5
THERMAL CONDUCTANCE (C) @75 F	0.22	0.168	0.259	0.23	0.20
THERMAL RESISTANCE (R) @75 F	4.48	5.94	3.86	4.28	5.08
WEIGHT (lbs/ft <sup>2</sup> )	1.5	0.68	0.085	2.18	1.5
9.2 THICKNESS (inches)	2.0	2.25	2.0	2.0	2.0
THERMAL CONDUCTANCE (C) @75 F	0.156	0.126	0.129	0.16	0.14
THERMAL RESISTANCE (R) @75 F	6.40	7.86	7.75	6.21	7.0
WEIGHT (lbs/ft <sup>2</sup> )	1.53	0.73	0.17	2.23	1.53
9.3 THICKNESS (inches)	2.5	2.75	2.5	2.5	2.5
THERMAL CONDUCTANCE (C) @75 F	0.12	0.102	0.104	0.12	0.11
THERMAL RESISTANCE (R) @75 F	8.33	9.78	9.62	8.13	8.93
WEIGHT (lbs/ft <sup>2</sup> )	1.57	0.77	0.22	2.27	1.57
9.4 THICKNESS (inches)	3.0	3.25	3.0	3.0	3.0
THERMAL CONDUCTANCE (C) @75 F	0.097	0.085	0.086	0.099	0.092
THERMAL RESISTANCE (R) @75 F	10.35	11.71	11.63	10.06	10.85
WEIGHT (lbs/ft <sup>2</sup> )	1.61	0.81	0.255	2.31	1.61
9.5 THICKNESS (inches)	3.5	3.75	3.5	3.5	3.5
THERMAL CONDUCTANCE (C) @75 F	0.082	0.073	0.074	0.083	0.078
THERMAL RESISTANCE (R) @75 F	12.18	13.63	13.51	11.98	12.77
WEIGHT (lbs/ft <sup>2</sup> )	1.65	0.85	0.30	2.35	1.65
9.6 THICKNESS (inches)	4.0	4.25	4.0	4.0	4.0
THERMAL CONDUCTANCE (C) @75 F	0.07	0.064	0.065	0.072	0.068
THERMAL RESISTANCE (R) @75 F	14.11	15.55	15.38	13.90	14.70
WEIGHT (lbs/ft <sup>2</sup> )	1.7	0.90	0.34	2.4	1.7
10. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION					
(assuming a continuous mean temperature @ 1 year	100	100	100	100	100
differential and constant moisture content) @ 5 years	100	100	100	100	100
@ 10 years	100	100	100	100	100
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)					
12. LIMITATIONS AND/OR RESTRICTIONS					
13. SEE INSULATION APPENDIX IF CHECKED					

NA=not applicable

# Composite Roof Board Insulation

CARPENTER INSULATION COMPANY	DOW CHEMICAL COMPANY	INSULATED BUILDING SYSTEMS	INSULATED BUILDING SYSTEMS	INSULATION CORP OF AMERICA	INSULATION CORP OF AMERICA	INSULATION CORP OF AMERICA	INSULATION CORP OF AMERICA	POLYFOAM PACKERS CORP
VA	CANADA	VA	VA	PA	PA	PA	PA	IL
CARPENTER EPS/FIBERBOARD	ROOFMATE CT	AFM PERFORM 1, 2 & 3	AFM CONTOUR TAPER TILE	ICALITE EPS/FIBERBOARD	ICALITE EPS/PLYWOOD	ICALITE EPS/PERLITE	ICALITE EPS/GYPSUM- BOARD	THERMOSAFE- PLUS WITH FIBER- BOARD
X	X	X	X	X	X	X	X	X
		X	X			X	X	
X		X	X	X	X			X
		X	X					
		X	X					
								X
		X	X		X			X
	X	X	X		X			X
YES	NO	NO	YES	YES	YES	YES	YES	YES
1977	1985	1971	1966	1979	1979	1979	1979	1990
		X	X	X	X	X	X	X
		X	X	X	X	X	X	X
X		X	X	X	X	X	X	X
X		X	X	X	X	X	X	X
1.5		1.5	1.5	1.5	1.0	1.75	1.625	1.5
0.19		0.193	0.193	0.19	0.26	0.14	0.19	0.174
5.17		5.18	5.18	5.26	3.84	7.14	5.26	5.74
0.83		0.83	0.83	0.5	0.5	0.75	2.0	0.76
2.0		2.0	2.0	2.0	1.5	2.25	2.125	2.5
0.14		0.141	0.141	0.15	0.17	0.13	0.17	0.099
7.10		7.09	7.09	6.67	5.88	7.69	5.88	10.09
0.88		0.85	0.85	0.625	0.125	1.0	2.125	0.93
2.5		2.5	2.5	2.5	2.0	2.75	2.625	3.5
0.11		0.111	0.111	0.11	0.13	0.11	0.13	0.069
9.02		9.01	9.01	9.09	7.69	9.09	7.69	14.44
0.92		0.88	0.88	0.75	0.167	1.25	2.25	1.1
3.0		3.0	3.0					4.5
0.091		0.091	0.091					0.053
10.95		10.99	10.99					18.79
0.96		0.92	0.92					1.27
3.5		3.5	3.5					5.5
0.078		0.078	0.078					0.043
12.87		12.82	12.82					23.14
0.99		0.964	0.964					1.43
4.0		4.0	4.0					6.5
0.068		0.068	0.068					0.036
14.80		14.71	14.71					27.49
1.04		1.0	1.0					1.6
100		100	100	100	100	100	100	100
100		100	100	100	100	100	100	100
100		100	100	100	100	100	100	100
		SEE APPENDIX	SEE APPENDIX	P211,P701 P801,P803 P814,P815 UL-9702	P211,P701 P801,P803 P814,P815 UL-9702	P211,P701 P801,P803 P814,P815 UL-9702	P211,P701 P801,P803 P814,P815 UL-9702	UL R14213, FM OV8A0.AC, FM OV8A1.AC, FM OV8A2.AC, CABO 236, 238, 384, 479
		SEE APPENDIX	SEE APPENDIX					SEE APPENDIX
		X	X					X

# Composite Roof Board Insulation

1. COMPANY NAME	POLYFOAM PACKERS CORP	POLYFOAM PACKERS CORP	T. CLEAR CORPORATION	T. CLEAR CORPORATION
2. STATE	IL	IL	OH	OH
3. PRODUCT NAME	THERMOSAFE- PLUS WITH PERLITE	THERMOSAFE- PLUS WITH FIBER- BOARD AND PERLITE	LIGHTGUARD	HEAVYGUARD
4. COMPOSITE COMPONENTS				
4.1 EXPANDED POLYSTYRENE	X	X		
4.2 EXTRUDED POLYSTYRENE			X	X
4.3 POLYURETHANE				
4.4 POLYISOCYANURATE				
4.5 PERLITE	X	X		
4.6 GYPSUM BOARD				
4.7 FIBER BOARD		X		
4.8 PLYWOOD				
4.9 OTHER			CONCRETE	CONCRETE
5. SURFACE TREATMENT				
5.1 ASPHALT ROOFING FELT	X			
5.2 FOIL FACER	X			
5.3 KRAFT FACER	X			
5.4 OTHER	X		3/8" CONCRETE ONE SIDE	15/16" CONCRETE ONE SIDE
6. AVAILABLE AS TAPERED MATERIAL	YES	YES	NO	NO
7. YEAR FIRST USED IN COMMERCIAL ROOFING SYSTEM	1990	1990	1976	1983
8. COMMON AVAILABLE SIZES				
8.1 2' x 4'	X	X	X	X
8.2 3' x 4'	X	X		
8.3 4' x 4'	X	X		
8.4 4' x 8'	X	X		
8.5 OTHER	X	X		
9. COMMON AVAILABLE THICKNESSES				
WATER ABSORPTION, TRANSVERSE STRENGTH, C-VALUES, R-VALUES, PERCENT BY VOLUME				
9.1 THICKNESS (inches)	1.75	2.25	2	2.0
THERMAL CONDUCTANCE (C) @75 F	0.155	0.127	0	0.1
THERMAL RESISTANCE (R) @75 F	6.43	7.82	10	10
WEIGHT (lbs/ft <sup>2</sup> )	0.76	1.36	5	11
9.2 THICKNESS (inches)	2.75	3.25	3	3
THERMAL CONDUCTANCE (C) @75 F	0.092	0.082	0	0.06
THERMAL RESISTANCE (R) @75 F	10.78	12.17	15	15
WEIGHT (lbs/ft <sup>2</sup> )	0.93	1.53	5	11
9.3 THICKNESS (inches)	3.75	4.25	4	
THERMAL CONDUCTANCE (C) @75 F	0.066	0.06	0	
THERMAL RESISTANCE (R) @75 F	15.13	16.52	18	
WEIGHT (lbs/ft <sup>2</sup> )	1.1	1.7	5	
9.4 THICKNESS (inches)	4.75	5.25		
THERMAL CONDUCTANCE (C) @75 F	0.051	0.048		
THERMAL RESISTANCE (R) @75 F	19.48	20.87		
WEIGHT (lbs/ft <sup>2</sup> )	1.27	1.87		
9.5 THICKNESS (inches)	5.75	6.25		
THERMAL CONDUCTANCE (C) @75 F	0.042	0.04		
THERMAL RESISTANCE (R) @75 F	23.83	25.22		
WEIGHT (lbs/ft <sup>2</sup> )	1.43	2.03		
9.6 THICKNESS (inches)	6.75	7.25		
THERMAL CONDUCTANCE (C) @75 F	0.035	0.034		
THERMAL RESISTANCE (R) @75 F	28.18	29.57		
WEIGHT (lbs/ft <sup>2</sup> )	1.6	2.2		
10. ESTIMATED PERCENTAGE OF THERMAL VALUE RETENTION				
(assuming a continuous mean temperature @ 1 year	100	100	100	100
differential and constant moisture content) @ 5 years	100	100	98	98
@ 10 years	100	100	95	95
11. UL "P" DESIGN NUMBERS; BUILDING CODE AGENCY APPROVED DESIGN NUMBERS; ICBO, BOCA, SBCCI (OTHERS)	UL R14213, FM OV8A0.AC, FM OV8A1.AC, FM OV8A2.AC, CABO 236, 238, 384, 479	UL R14213, FM OV8A0.AC, FM OV8A1.AC, FM OV8A2.AC, CABO 236, 238, 384, 479	P 225, 229, 230, 235, 404, 505, 507, 714, 803, 904	P 225, 229, 230, 235, 404, 505, 507, 714, 803, 904
12. LIMITATIONS AND/OR RESTRICTIONS	SEE APPENDIX	SEE APPENDIX	PMR INSULATION	PMR INSULATION
13. SEE INSULATION APPENDIX IF CHECKED	X	X		

NA=not applicable

## Appendix, Roof Board Insulation

### AFM CORPORATION

The following companies, included in the *Low-Slope Guide* Index to Listed Roof Board Insulations, manufacture AFM Perform, AFM Contour Taper Tile, and AFM Perform Protect expanded polystyrene insulations; AFM Contour Taper Tile-X extruded polystyrene insulation in both 1.4 and 1.8 densities; and AFM Perform 1, 2, and 3 and AFM Perform Contour Taper Tile composite insulations: Advance Foam Plastics, Inc., Colo. (5250 N. Sherman St., Denver 80216, 303/297-3844); Advance Foam Plastics, Inc., Utah (111 W. Fireclay Ave., Murray, UT 84107, 801/265-3465); Advance Foam Plastics, Inc., Nevada (902 Kleppe Lane, Sparks, NV 89431); Allied Foam Products, Inc. (1604 Athens Hwy/Box 2861, Gainesville, GA 30503, 404/536-7900); Big Sky Insulations, Inc., 15 Arden Drive, P.O. Box 838, Belgrade, MT 59714, 406/388-4146; Branch River Foam Plastics, Inc., 15 Thruber Blvd., Smithfield, RI 02917, 401/232-0270; Contour Products, Inc. Kansas City and Newton, Kansas (4001 Kaw Drive, Kansas City, KS 66102, 913/321-4114); Flexible Packaging, Co. (P.O. Box Y, Bayamon, PR 00620, 809/786-8405); Insulated Building Systems, Inc., 326 McGhee Road, Winchester, VA 22603, 540/662-1065); Team Industries, Inc. (4580 Airwest Drive S.E., Grand Rapids, MI 49508, 616/698-2001; NPS Corporation (Industrial Drive/POB 31, Perryville, MO 63775, 314/547-8388); Pacemaker Plastics Co., Inc. (126 New Pace Rd. P.O. Box 279, Newcomerstown, OH 43832, 800/446-2188); Pacific Allied Products, Ltd. (Campbell Industrial Park, 91-102B Kaomi Loop, Kapolei, HI 96707, 808/682-2038); Plasti-Fab, British Columbia (679 Aldford Avenue, Annacis Industrial Estates, Delta, BC V3M 5P5, 604/526-2771); Plasti-Fab, Alberta (820-28 Street N.E., Calgary, Alberta T2A 6K1, 403/248-3990); Plasti-Fab, Manitoba (Unit #6 Sioux Ind. Park, 845 Lagimodiere Blvd., Winnipeg, Manitoba R2J 3M2, 204/237-7711); Plasti-Fab, Ontario (152 Birch Avenue, Kitchener, Ontario N2G 4E1, 519/570-6100; Plasti-Fab, Saskatchewan (837 57th Street East; Saskatoon, Saskatchewan S7K 5Z2, 306/934-3345); Poly Foam, Inc. (116 Pine Street So., Lester Prairie, MN 55354); Stanark Plastics (Highway 70 East/Box 3231, North Little Rock, AR 72117, 501/945-1114); Therma Foams, Inc. (P.O. Box 161128, Ft. Worth, TX 76161, 817/624-7204); Thermal Foam, Inc., 2101 Kenmore Ave., Buffalo, NY 14207 (716/87406474); Thermal Foams/Syracuse, Inc. (6173 South Bay Rd/Box 396, Cicero, NY 13039,

315/699-8734 800/873-6267). Wisconsin EPS, (90 Trowbridge Drive/FOB 669, Fond Du Lac, WI 54935; 414/923-4146). See the appropriate listing under AFM Corporation for a description of these products.

AFM Perform, Contour Taper Tile, and AFM Perform Protect Roof Insulations: UL listing: AFM Perform and Contour Taper Tile EPS Roof Insulations have been tested under UL 790 and ASTM E108 for flame-spread classification. The AFM listing provides for the use of Perform and Contour Taper Tile in unlimited thickness in any UL-classified roof membrane assembly. EPS may be of uniform thickness or tapered. AFM UL-classified EPS may be used in the following assemblies as designated in the 1990 UL Fire Resistance Directory: P211, P225, P230, P231, P238, P246, P250, P251, P254, P255, P261, P410, P262, P410, P411, P508, P509, P510, P511, P513, P514, P515, P701, P710, P711, P713, P715, P717, P801, P803, P814, P815, P817, P818, P902, P909, P912, P915, P919, P920, P921, P922, P923, J999, K902, Const. No. 237, Cons. No. 458. AFM EPS may be substituted for other UL-listed insulation products in UL-rated roof assemblies. See UL Roofing Materials Directory for complete listing. Building Codes: ICBO 4169, , BOCA 94-65, SBCCI 94136, AFM UL file number R11812. The AFM Quality-Control Program and Third-Party Certification Program meet or exceed all requirements for ICBO, BOCA, and SBCCI.

Installation: Follow recommended installation guidelines contained in AFM Perform, Contour Taper Tile Spec-Data form. Warranty: AFM Perform and Contour Taper Tile, and Perform Protect are covered by a 20-year, 100 percent R-value-retention warranty. Consult AFM for specific details.

### ALLIEDSIGNAL

AlliedSignal Armor-R Plus features a closed-cell polyisocyanurate foam core laminated to heavy black (nonasphaltic) glass fiber reinforced felt facers. Compliances: Federal specifications: HH-I-1972/GEN; HH-I-1972/2, Class 1; HH-I-1972/1, Class 1; H-I-1972/3; Metro-Dade County, Fla.; California State Insul. Qual. Standards & Title 25 Foam Flammability Criteria (License #TC 1231); BOCA, ICBO, and SBCCI sections on foam insulation; FM Standard 4450/4470 approval for Class 1 insulated roof deck construction; UL Standard 1256 Classification: insulated metal deck construction assemblies, Construction Nos. 120 & 123; UL Standard 790 Classification: Class A; UL Standard 263 Fire Resistance Classification listings: P225, P230, P259, P263, P508, P510, P514, P701, P 713,

P717, P718, P719, P720, P722, P723, P724, P725, P728, P729, P730, P732, P801, P814, P815, P817, P818, P819, and P823. Canada/CGSB 51.26-M86-Type 3 CCMC No. 12-464-R.

## APACHE PRODUCTS COMPANY

Please refer to Apache Products catalogs for application and installation information. Please follow all restrictions, limitations, and warnings contained therein. Following are Apache plant locations: isocyanurate insulation only: Belvidere, Ill., 1005 McKinley Ave. P.O. Box 7, 61008, 815/544-3193, 800/435-5493; Jackson, Miss., 100 Apache Road, P.O. Box 7111, 39282-7111, 601/373-1222, 800/648-2154; Linden, N.J., 2025 East Linden Ave., P.O. Box 1009, 07036, 908/486-6723, 800/526-4056; and Riverside, Calif., 6942 Ed Perkić St., 92504, 909/687-7070, 800/241-7444; isocyanurate and expanded polystyrene: Anderson, S.C., 5720 Highway 81 South, Starr, SC 29684, 803/296-3424, 800/845-3080; expanded polystyrene only: Lakeland, Fla., 4500 South Frontage Rd., 33801, 813/688-8879; Miami, Fla., 1020 S.W. 69th Ave., P.O. Box 4440488, 33144, 305/261-4637; Union, Miss., Industrial Park, P.O. Box 160, Union, MS 39365, 601/774-8285, 800/530-7762.

## ATLAS ROOFING CORPORATION

ACFoam-II features a closed-cell polyisocyanurate foam core laminated to heavy black (nonasphaltic) glass-fiber reinforced felt facers. This product is suitable for all single-ply systems. Available in non-HCFC formulation.

ACFoam III also features the closed-cell foam core integrally laminated to heavy coated glass facers. It is specifically designed for all single-ply, cold-applied BUR, and cold-applied modified bitumen membrane systems. Do not use with hot-applied membranes.

ACFoam Supreme has a polyisocyanurate foam core with tri-laminate foil facers and provides highest R-value of all ACFoam products. Specifically designed for use with mechanically fastened and loose laid ballasted single-ply systems. ACFoam Supreme cannot be used directly with hot asphalt or torch-applied systems.

ACFoam Composite consists of a polyisocyanurate foam core bonded to 1/2-in. perlite on one side and a heavy black (nonasphaltic) glass-fiber reinforced felt on the other side. The perlite eliminates the need for cover boards or vented base sheets normally recommended over foam insulation. The product is recommended for use with BUR, modified bitumen, and single-ply roofing systems.

ACFoam Recover Board is part of the Atlas family of thermally efficient polyiso foam board insulations.

The foam core of Recover Board is a Class 1 fire-rated foam core and is covered on both sides with a heavy, strong coated fibrous facer.

Tapered ACFoam features a closed-cell polyisocyanurate foam core laminated to heavy black (nonasphaltic) glass-fiber reinforced felt facers. It is available in 4' x 4' panels with slopes of 1/8-in., 1/4-in., and 1/2-in. for crickets.

ACFoam Nail Base Insulation provides a base for non-asphaltic shingles, tile, or metal roof panels and may be applied over wood or steel decking. Particularly suited for cathedral ceiling and log home applications, the product is a polyisocyanurate foam core that is faced with glass-fiber reinforced facers and bonded to 7/16-in. APA-rated OSB.

Vented-R is a polyiso insulation, laminated to OSB, constructed with ventilation spaces to dissipate moisture vapor and heat buildup.

Compliances: (Check with Atlas for specific applications for each product.) federal specifications HH-I-1972/GEN; HH-I-1972/2, Class 1; HH-I-1972/1, Class 1; HH-I-1972/3; Metro-Dade County, FL No. 96-0612.01; Calif. State Insul. Qual. Standards & Title 25 Foam Flammability Criteria (License #TC 1231); BOCA, ICBO, and SBCCI sections on foam insulation; FM Standard 4450/4470 approval for Class 1 insulated roof deck construction; UL Standard 1256 Classification: insulated metal deck construction assemblies, Construction Nos. 120 & 123; UL Standard 790 Classification: Class A with most roof membrane systems; UL Standard 263 Fire Resistance Classification (ACFoam-II/ACFoam Composite): some listings are P225, P230, P232, P259, P263, P508, P510, P514, P701, P710, P713, P717, P718, P719, P720, P722, P723, P724, P725, P728, P729, P730, P732, P801, P814, P815, P817, P818, P819, and P823. ASTM C1289-95, Type II; C1289-95, Type V; C1289-95, Type I, Class I; C1289-95, Type III. Meets Can/CGSB Standards, CCMC No. 12464-L, CCMC No. 12423-L, and CCMC No. 12422-R.

## BIG SKY INSULATIONS, INC.

SnoFoam EPS: Approvals: ASTM C-578-87a, ICBO 4169, UL P design numbers: P211, P225, P230, P231, P232, P238, P246, P250, P251, P254, P255, P261, P262, P410, P411, P508, P509, P510, P511, P513, P514, P515, P701, P710, P713, P715, P717,

P801, P803, P814, P815, P817, P818, P902, P909, P912, P915, P919, P920, P 921, P922, P923, J999, K901, K902, K903.

## **CARLISLE SYNTEC INCORPORATED**

Sure-Seal EPS Insulation: UL Classified, FM Approved; Sure-Seal EPS Foam must be protected from: (a) temperatures greater than 160 F.; (b) oil, solvents, and other aliphatic or hydrocarbon substances that could degrade the foam. When used over coal tar roof membranes, the following procedures apply: (a) The coal tar roof membrane to be covered must have been exposed in field surface environment for at least five years. (b) A minimum one-half inch butt-joined wood fiberboard separation barrier is installed prior to laying of the EPS. (c) The system design temperature does not exceed 130 F. at the coal tar membrane/wood fiberboard interface. Protect from sunlight during storage. Review the Carlisle EPS Material Safety Data Sheet for complete safety information prior to use.

Thermapink 18/25/40: FM approved. Product should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 F. Product should be installed under a membrane applied to a substrate having an adequate fire rating as required by building codes, over metal or combustible deck. Separator sheet should be used where insulation may come in contact with PVC membrane if required by membrane manufacturer. Any material containing organic solvents should not be used in direct contact with polystyrene insulation unless previously evaluated. Protect from extended exposure of sunlight. The product will ignite if exposed to fire of sufficient heat and intensity, although it does contain a flame retardant additive to inhibit ignition from small fire sources.

Polyisocyanurate HP, HP-N, HP-W: UL Classified, FM Approved: Carlisle SynTec's Polyisocyanurate products are non-structural, non-load bearing materials. They are not designed for direct traffic usage unless adequately protected. All roof insulation should be kept dry and protected from the elements. No more insulation should be installed than can be covered in the same day. Isocyanurate foam will burn if exposed to a flame of sufficient heat and intensity. Contact Carlisle SynTec for advice on the use of these products if there is any doubt concerning the proper product for the job, the proper installation procedure or the proper code approvals.

HP Recovery Board: UL classified, FM approved. HP Recovery Board is a wood fiberboard underlayment for use with Carlisle roofing systems. All roof insulation should be kept dry and protected from

the elements. No more insulation should be installed than can be covered in the same day. Wood fiberboard will burn if exposed to a flame of sufficient heat and intensity.

## **CARPENTER INSULATION COMPANY**

Styrodeck flat and tapered expanded polystyrene: Styrodeck is preferred for building roofs having normal temperature conditions but should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 F. It is not recommended for unballasted applications where sustained roof temperatures exceed 165 degrees F and intermittent temperatures exceed 180 F. Consult the roofing department at Carpenter Insulation Company before using EPS with coal tar pitch. Contact Carpenter Insulation for compliance with UL design "P" assemblies.

## **CELOTEX CORPORATION**

Hy-Therm AP: UL Design Numbers: P225, P230, P232, P263, P508, P510, P514, P701, P710, P713, P717, P719, P720, P722, P723, P724, P727, P 728, P729, P730, P732, P734, P735, P739, P801, P814, P815, P818, P819, P823, P827, P828. UL 1256 Roof Deck constructions: 99, 120 and 123. FM approved FMRC Standard 4450/4470 for Class 1 Insulated Steel Deck Roofs.

## **THE DOW CHEMICAL COMPANY**

Blue Styrofoam Brand Roofmate Insulation, Blue Styrofoam Brand Plazamate Insulation, Blue Styrofoam Brand Square Edge Insulation, Blue Styrofoam Brand Tongue & Groove Insulation, Blue Styrofoam Brand Recovermate, Blue Styrofoam Brand Deckmate Insulation, Blue Styrofoam Brand Deckmate Plus Insulation, Styrofoam Brand Insulations: UL Design Numbers: D2708, P225, P229, P 230, P235, P248, P250, P251, P254, P255, P 259, P261, P404, P505, P507, P508, P510, P513, P514, P701, P710, P711, P713, P714, P715, P717, P801, P803, P805, P811, P813, P814, P815, P817, P818, P902, P904, P907, P908, P909, P912, P915, P921, U326, U330, U460, U902, U912, P923. UL Roof Deck Construction Numbers: 1, 2, 3, 9, 14, 58, 87, 200, 237, 260, 276, 380, 287, 440.

Limitations and/or restrictions: Styrofoam Brand Roofing Material insulation is designed for use above waterproofing membranes in roof construction. Styrofoam Brand Plazamate and Styrofoam Brand High Load 100 insulations are designed for use above waterproofing membranes in plaza and parking roof deck construction and in other areas where high

compressive strength insulation is required. Styrofoam-Brand Roofing Recovery Board, Styrofoam brand Recovermate, and Styrofoam Deckmate and Deckmate Plus insulations are intended for use beneath loose-laid and ballasted or mechanically fastened sheet membranes in roof construction. Styrofoam brand insulations have poor resistance to aromatic hydrocarbons, chlorinated hydrocarbons, olefins, naphthas, ketones, gasoline, fuel oil, and oil-based paint. Maximum service temperature: 165 F, except for Styrofoam brand Recovermate, which has a maximum service temperature of 200 F. Light stability: When stored outdoors for extended periods, Styrofoam brand insulations should be shielded from the sunlight with an opaque, light-colored covering. Notice: Styrofoam brand insulation are combustible and should be stored, handled, and used properly. They should be installed with code-acceptable thermal barriers or used in approved alternative constructions. For more information, contact Dow (800-441-4DOW).

## **FIRESTONE BUILDING PRODUCTS, INC.**

ISO 95+: FM Class 1, 1-60 or 1-90. Firestone roof insulation products are non-structural, non-load bearing materials. They are not designed for direct traffic usage unless adequately protected. All roof insulation should be kept dry and protected from the elements. Asphalt mopping temperature must not exceed 450 F. No more insulation should be installed than can be covered in the same day. Isocyanurate foam will burn if exposed to a flame of sufficient heat and intensity. Contact Firestone for advice on the use of these products if there is any doubt concerning the proper product for the job, the proper installation procedure or the proper code approvals. Code approvals: Classified in UL designs, P225, P230, P232, P259, P263, P508, P510, P514, P701, P710, P717, P718, P719, P722, P723, P724, P725, P727, P728, P729, P730, P732, P801, P814, P815, P818, P819, P823, P828; meets the requirements of ICBO Section 2602, SBCCI Section 2603, and BOCA Section 2603; Classified in UL deck construction 120 and 123.

Composite Roof Insulation: UL Classification, FM Class 1, 1-60 or 1-90. Firestone's roof insulation products are non-structural, non-load bearing materials. They are not designed for direct traffic usage unless adequately protected. All roof insulation should be kept dry and protected from the elements. Asphalt mopping temperature must not exceed 450 F. No more insulation should be installed than can be covered in the same day. Isocyanurate foam will burn if exposed to flame of sufficient heat and intensity. Contact Firestone for advice on the use of these

products if there is any doubt concerning the proper product for the job, the proper installation procedure, or the proper code approvals. Classified in UL designs, P225, P230, P232, P508, P510, P514, P701, P710, P717, P718, P719, P723, P801, P815, P818, P828; BOCA 2603; meets the requirements of ICBO Section 2602, SBCCI Section 2603, and BOCA Section 2603; Classified in UL deck construction 120 and 123.

## **GAF MATERIALS CORPORATION**

GAFTEMP Permalite: UL Design Numbers: P001, P004, P201, P 202, P 203, P 204, P206, P210, P211, P224, P225, P230, P232, P237, P238, P250, P254, P259, P263, P 267, P404, P508, P514, P701, P708, P710, P713, P718, P801, P803, P805, P810, P814, P815, P817, P818, P819, P904, P909, P912, P915, S601, S702, S716, S717, S718.

Limitations and Restrictions: GAFTEMP Permalite roof insulation should not be left exposed to the weather. GAFTEMP Permalite insulation products are not recommended for continuous use at temperatures over 200 F. All insulation boards must be maintained in a dry condition prior to installation. For ambient temperatures below 40 degrees F, the use of hot bitumen application is not recommended due the rapid cooling of the bitumen. Direct torching: GAF does not recommend that modified bitumen roof membranes be directly torched to any insulation. A base sheet should be applied to the surface of the insulation and the torchable membrane torched to the base sheet.

GAFTEMP Isotherm: GAFTEMP Isotherm roof insulation is a non-structural, non-loadbearing material. It is not designed for direct traffic usage unless adequately protected. GAFTEMP Isotherm roof insulation should be stored dry and protected from the elements. No more insulation should be installed than can be completely covered with roofing on the same day. As unprotected urethane will burn, fire safety precautions should be observed wherever any isocyanurate products are used. GAFTEMP Isotherm is an insulation board made up of composite mat facers bonded to a core of isocyanurate foam. UL Design Numbers: P225, P230, P232, P259, P508, P510, P514, P710, P713, P715, P717, P718, P719, P720, P722, P723, P724, P727, P728, P729, P730, P732, P735, P738, P801, P815, P814, P818, P819, P823, 0827.

Mechanical Fasteners: GAF recommends the use of GAF TITE Coated or Stainless Steel mechanical fasteners for the attachment of GAFTEMP roof insulation products to steel decks. The correct number and type, per the Factory Mutual Approval Guide, should be used. Limitations: The values listed herein are typical, nominal values obtained under laboratory



conditions using industry-standard test methods. These values are subject to change at any time without notice.

## **GEORGIA-PACIFIC CORP.**

Georgia-Pacific cellulosic wood fiberboard insulation is produced in 1/2" and 1" thick homogenous (non-laminated) panels and are available in sizes 4 x 8, 4 x 4 and, upon request, 2 x 4. High Density is produced in 1/2" and 1" thickness for adhered roof systems and Regular Density is produced in 1/2" for ballasted or mechanically fastened systems. High Density is FM approved for adhered roof systems for I-60 and I-90 wind uplift in FM report J.I. OV7A2.AM and is also available, upon request, UL classified.

Compliances: ASTM C-208-1994, Grade 1 (Regular Density) and Grade II (High Density). It should be noted that Georgia-Pacific High Density roof fiberboard insulation is produced under ASTM C-208-1994 (14# transverse strength), and not under ASTM C-208-1995 (12# transverse strength) which is important for adhered roof systems and wind uplift design.

## **HUEBERT FIBERBOARD, CO.**

HFB Insulation Board: Contact Huebert Fiberboard, Co. for any information on limitations or restrictions.

## **KOPPERS INDUSTRIES, INC.**

Refer to Koppers current literature for additional product information, application instructions, and technical details. Contact Koppers Sales and Service Center at 800-558-2706 for additional information and assistance.

## **LUCAS SALES COMPANY, INC.**

Lucas Lite Tapered Extruded Polystyrene: Lucas Lite is practical for building roofs having normal roof temperature conditions, but should not be used in contact with chimneys, heat vents, steam pipes, or other surfaces where temperatures exceed 150 F. It is not recommended for unballasted applications where sustained roof temperatures exceed 165 F. or intermittent temperatures exceeding 180 F. Lucas Lite is recommended for flat roofs only (less than 2:12 slope). Lucas Lite is not to be applied with plastic, oil, or solvent-based roof cements. Lucas Lite will provide

Foamular 150/250: FM Class I and 60 or 90 PSF, Insulated Roof Deck; UL Roof Deck Constr. 200, 219, 237, 289; UL Class A; See UL Fire Resistance directory for below membrane design numbers P225, P230, P251, P513, P701, P801, P803, P814, P815, P902, P922, P923.

slope on flat roof decks. Deflected areas or low spots should be filled to provide a relatively level deck for the new tapered system.

The Lucas Tapered System: UL Design Numbers: P001, P004, P201, P202, P203, P204, P205, P206, P210, P211, P221, P224, P225, P230, P232, P233, P237, P238, P243, P252, P404. Building Codes: ICBO 3549, BOCA 8336, SBCCI 80108. Limitations and/or restrictions: Lucas Tapered System is not structural in nature; while highly moisture resistant, it should not be left exposed to the elements. Therefore, no more insulation should be applied than can be completely protected the same day. Lucas Tapered System is not designed for direct traffic unless appropriately protected. Lucas Tapered System is not acceptable for applications where it shall be exposed to direct interface with continuous soaking temperatures of 250 F. Lucas Tapered System will provide slope on flat roof decks. Deflected areas or low spots should be filled to provide a relatively level deck for new tapered roof insulation system. When applying directly over metal decks, 3/4" thickness at low points is recommended as a minimum. Check flute span requirements for specific minimum thickness requirements.

## **OWENS CORNING SPECIALTY & FOAM PRODUCTS**

General: Product should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 F. Product should be applied to a substrate having an adequate fire rating as required by building codes, over metal or combustible deck. Some Thermapink applications may be directly over steel decking without the need for a thermal barrier, such as, gypsum board. Durapink Plus or a separator sheet should be used where insulation may come in contact with PVC membrane if required by membrane manufacturer. Any material containing organic solvents should not be used in direct contact with polystyrene insulation unless previously evaluated. Protect from extended exposure to sunlight. Product will ignite if exposed to fire of sufficient heat and intensity, although it does contain a flame retardant additive to inhibit ignition from small fire sources. For additional information, contact Owens Corning S&FP technical service (800) GET-PINK.

Foamular 404: UL Roof Deck Constr. 1, 2, 3, 9, 14, 27, 58, 87, 200; UL Class A; FM Class I & 60 or 90 PSF, Insulated Steel Roof Deck; UL Design Numbers for inverted roof insulation: P225, P226, P229, P235, P248, P404, P505, P507, P701, P801, P803, P805, P811, P813, P902, P908, P909, P912, P915, P708.

Thermapink 18/25/40/60: Thermapink products are used in all applications where the Foamular product of similar compressive strength is used. Thermapink has the added advantage of being listed for use by UL in Roof Deck construction #457, applied directly over steel roof decks without the use of a thermal barrier. Roofing assemblies that require timed fire resistance or surface flame spread ratings may still require a gypsum board layer. See the UL Roofing Materials and Systems Directory for necessary details.

Tapered Insulation: Tapered Thermapink 25, 40, and 60 are available for use in UL listed assemblies. See the appropriate listing directory for complete details.

Foamular 404 RB/Foamular 604 RB: For use in protected roof membrane assemblies and plaza decks when pavers are used as ballast or as a wearing surface. These are high-compressive-strength extruded polystyrene boards with drainage channels on the bottom four edges, as well as channels cut in the top of the board to separate the paver from the insulation.

Foamular 400/Foamular 600: High-compressive-strength products able to withstand heavy loads without damage to the panels or deterioration of the insulating value.

Durapink/Durapink FA, Durapink Plus: Specially designed for use in reroofing applications, either total tear-off or over existing BUR under single-ply mechanically fastened black EPDM without the need for any overlayment protection, ballast, or pavers and, in the case of Durapink Plus, directly under PVC. These products are not intended for use as a cover board in new roof construction or over added insulation in reroofing. Durapink FA can be used directly under fully adhered single-ply membranes, including black EPDM, by using water-based adhesives. Durapink and Durapink Plus provide excellent moisture resistance properties and a 25-psi compressive strength that endures foot traffic abuse and exposure to moisture; UL Class A and FM Class I-60 or 90 recover systems available with a wide variety of single-ply membranes. Durpink Plus has an 18 psi compressive strength and excellent moisture resistance. See UCI guide specification for detailed instructions.

Insul-Drain: Designed to be installed on below-grade foundation walls to the exterior side of the waterproofing membrane, the product has a network of precision-cut channels covered with filter fabric to provide drainage, protection, and insulation for the foundation.

## **PACEMAKER PLASTICS CO., INC.**

Expanded polystyrene roof insulation available flat or

tapered in sheet sizes to 48-in. x 96-in. Products manufactured under quality control program are UL classified and can be used in place of other roof insulations in UL-classified assemblies. Factory Mutual listed products; 20-year, 100 percent R-value warranty; laminated products; and Dow tapered insulation are also available.

Chemfoam: Approvals: ASTM C-578-87a, ICBO 4169, BOCA 8715, SBCII 8735, UL R 12372, FM. UL P design numbers: P211, P225, P230, P232, P238, P246, P250, P251, P254, P261, P262, P410, P411, P508, P509, P510, P511, P514, P701, P710, P713, P715, P717, P803, P814, P815, P817, P818, P902, P909, P912, P915, P919, P920, P921, P922, P923, J999, K901, K902, K903.

## **POLYFOAM PACKERS CORPORATION**

ThermoSafe EPS and EPS/Composite Board Insulation: Available in sizes up to 192 inches long by 48.5 inches wide by 1/2-in to 40 inches thick. Boards between 2 and 8 inches thick are cut with 1/2-in. x 1/2-in. thickness shiplap edges on all sides as standard (ThermoLock) and at no additional charge. Boards with square edges are available on request. Tapered boards (ThermoSafe DrainMaster), for slope-to-drain systems are available with complete shop drawings. Both flat and tapered insulation boards are available with factory-laminated thermal barriers, facers, and coverboards (ThermoSafe-Plus) on one or two sides. Approvals: ASTM C-578; CABO 236, 238, 384 and 479; Factory Mutual file no. 0V8A0.AC, 0V8A1.AC, 0V8A2.AC; UL classification file R14213: tested under UL 790, 1256, and modified full-scale, ASTM E-108, and ASTM E-84 for flame spread and smoke, developed for use as designated in the UL Fire Resistance Directory. UL Design numbers: P211, P225, P226, P230, P232, P235, P238, P254, P325, P404, P413, P508, P510, P514, P904, P909, P912, J925, J941, J970. UL Construction number 458, and Wisconsin DILHR number 960041-I.

Quality Control: The ThermoSafe quality control program and UL classification meet or exceed requirements for building codes across the United States. ThermoSafe EPS roof insulation may be used with UL-approved (or equivalent) roof membrane systems and in place of other roof insulation in UL-classified assemblies.

Installation: Follow guideline specifications in current ThermoSafe EPS roof insulation literature or contact Polyfoam Packers Corp., 3751 Sunset Ave., Waukegan, IL 60087; (800) 800-0359.

Warranty: 20 year for 100 percent R-value retention and dimensional stability when installed as specified. See current literature for details.

## **R-MAX, INC.**

**Thermarroof Plus:** Uses: Designed for use under mechanically fastened or ballasted single-ply systems only over steel or non-combustible roof decks. Attachment: Use four FM-approved screw and plate fasteners per 4' x 8' sheet under mechanically fastened single-ply membranes. Consult membrane supplier for additional fastening requirements. Restrictions: Not for use under fully adhered single-ply, modified bitumen, or built-up roof membranes. Not to be used in exposed insulation systems.

**Multi-Max:** Uses: Designed for use under mechanically fastened or ballasted single-ply, built-up roof, or modified bitumen membranes. Consult Rmax for applications. Attachment: Use one FM-approved screw and plate mechanical fastener per three or four square feet of insulation under built-up roof membranes. Use one FM-approved mechanical fastener per two square feet of insulation under modified bitumen systems.

**Multi-Max FA:** Uses: Designed and suitable for use under built-up roofs or modified bitumen membrane systems. May be overlaid with perlite, wood fiberboard, or other suitable overlay to obtain membrane warranty from membrane manufacturer. Consult membrane manufacturer for requirements. Designed for use under all types of single-ply membranes: fully adhered, loose-laid and ballasted, and mechanically fastened. Attachment: Suitable for attachment with hot bitumens according to NRCA specifications, or use FM-listed and approved mechanical screw-and-plate fasteners at recommended density according to Rmax, Inc.: typically, one per four square feet for BUR or solid mopped-in overlay. Use one per two square feet for fully adhered single-ply membranes.

**Thermarroof Composite:** Uses: Designed for use under built-up roof or modified bitumen membranes. May be used under single-ply membranes when perlite layer specified over roof deck. May be applied to deck with perlite layer up to receive torch applied modified

bitumen or hot mopped built-up roof membrane. Attachment: Use one FM-approved screw and plate mechanical fastener per three or four square feet of insulation under built-up roof membranes. Use one FM-approved mechanical fastener per two square feet of insulation under modified bitumen systems.

## **TEMPLE**

**Fiber Base HD:** FM-approved roof insulation for I-60 and I-90 wind uplift rated system as outlined in FM report J.I. 2M3A2.AM and J.I. 1T6A2.AM. FM allows Fiber Base HD wherever a generically described wood fiber insulation is listed. Fiber Base HD is available by special order as UL-classified product for the built-up roof covering material. See R11115(N) under TFJR in UL Building Materials directory for specific details. Consult the roofing membrane manufacturer and the current FM approval guide for system compatibility and specific application instructions. Warning: Do not apply flame directly to Fiber Base HD. When applying modified bitumen membranes, a base sheet is required. Fiber Base HD may smolder or burn. Extinguish completely if ignited. Refer to Fiber Base HD applications instructions for specific recommendations. Compliances: Industry Standard ANSI/AHA A 194.1 and ASTM C208.

## **TENNECO BUILDING PRODUCTS**

**Extruded Polystyrene Roofing Recover Board** (3/8-in. thickness): available as 4 ft. x 50 ft. fanfolded bundle (Amocor-PB6), 4 ft. x 8 ft. sheets (Amocor Plygood-PG38), or 4 ft. x 9 ft. sheets (Amocor Plygood-PG39).

**Extruded Polystyrene Insulation Board:** Available as Amifoam-CM (square edge), or Amifoam-SL (sidelap edge), Amifoam-DC (drainage channels). Amifoam available as 2 ft. x 8 ft. and 4 ft. x 8 ft. sizes. R-values and C-value for Amifoam are for Type IV. Underwriters Laboratories, Inc. Roof deck construction numbers: Amifoam-CM, SL, 1, 2, 3, 9, 14, 58, 87, 200.

Limitations and/or restrictions: Amocor-PB6, Amocor-Plygood-PG38, and Amocor Plygood-PG39 Roofing Recovery Boards are designed for use in mechanically fastened or loose-laid and ballasted single-ply roofing systems. Amofoam Roofing Insulation Boards are designed for use in partially or fully adhered (1/2-in. wood fiberboard must be applied prior to membrane application), mechanically fastened or loose-laid and ballasted, protected roof membrane assemblies, and tapered systems. All Amocor Roofing Recovery and Amofoam Insulation Boards have poor resistance to fuel oil, oil-based paint, olefins, ketones, gasoline, chlorinated and aromatic hydrocarbons, and naphthas. Although these products contain a flame retardant additive intended to inhibit a small source fire, they, like most commercially available foam plastic insulations, are combustible and should not be exposed to flame or other ignition sources. These materials may constitute a fire hazard if improperly used. Fire and building codes should be followed.

Specific information: Obtain installation instructions from your supplier or Tenneco Building Products, 2907 Log Cabin Drive, Smyrna, GA 30080-7013.

## *Section 5*

# *Roof Fasteners*

# Information on Roof Fasteners

## General Information

The Roof Fastener Section of the *Commercial Low-Slope Roofing Materials Guide* provides information on a variety of types of fasteners used for attaching roofing materials to the deck. It is divided into four separate parts depending on the type of deck that the fastener is intended to be used with: (1) Steel Decks; (2) Wood Decks; (3) Concrete Decks; and (4) Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks. No attempt has been made to categorize the listed fastener by fastener type (e.g., screws, staples); the name and description of the product should be informative in this regard. The data in this section has been provided the *Commercial Guide* by the manufacturer and/or company that markets its name-brand fastener product.

## Material Type

In some instances, a number will be added to carbon steel, hardened carbon steel, and stainless steel. Such designations as 1022 for carbon steel and 304 for stainless steel refer to certain properties of the steel involving strength, corrosion resistance, and alloys used. The descriptive standards for these designations are promulgated by the American Iron & Steel Institute (AISI) and are available from AISI.

## Shank Type

There is a variety of terms used to describe the shanks in threaded fasteners. Some listers simply indicate that the shank is *threaded* (or *spiral threaded* or *annular threaded*), others that the shank has a *standard thread*, a *buttress thread*, or a *modified buttress thread*, and still others that the threads are *single lead* or *twin lead*. There are basically three types of spiral threaded shanks: standard thread, buttress thread, and modified buttress thread. The standard thread projects top and bottom at a 30-degree angle. The buttress thread projects at the top at a 4-degree angle and at the bottom at a 30-degree angle; it is, in effect, more nearly perpendicular to the shank at the top. The modified buttress thread projects at an angle anywhere between the angles of the standard thread and the buttress thread. Twin-lead threads are two separate threads that wind around the shank, in contrast to the single-lead threaded screw. Annular-threaded shanks consist of a series of ringed grooves rather than a spiral. Fluted shanks have wider spirals and flutes, or vertical parallel grooves.

## Point Types

The terms *self-drilling* and *self-piercing* are commonly used, sometimes in combination with other descriptions, such as *pinch* and *gimlet*. Often, the latter terms are used independently. There are a variety of descriptions of point types (*pinch*, *x*) that are self-drilling, that is, the point drills a pilot hole for the screw. The term *gimlet* refers to a self-piercing point, which, unlike the self-drilling point, punches a hole for the threaded fastener. *Nail point* and *diamond point* fasteners are varieties of non-self-drilling fasteners.

## Head Shape

Head shapes are described variously, and manufacturers do not always agree as to nomenclature. Common terms are *No. 3 phillips head* or *No. 2 phillips head*, which refer to the size of the phillips grooves; however, these terms can be combined with such terms as *pan head*, *truss head*, and the like, which describe the shape of the head. Among the more common shapes are hex-head, which has a hexagonal shape; flat head, which is flat at the top and is designed for countersinking; pan head, which is rounded at the top; and truss head, which is basically a flattened pan head. Many additional terms are used by manufacturers; if in doubt, the *Commercial Guide* user should refer to their literature to determine the exact head shape.

## Technical Information on Roof Fastener Products

### Factory Mutual Requirements

Specific reference is made in the Fastener Section to FM Approval Standard for Class I Roof Covers Class Number 4470. (For information concerning the totality of the 4470 standard, see the general introduction.) In addition, results are requested on individual tests that are associated with this standard, that FM commonly performs for manufacturers when products are submitted for evaluation, or that may be performed by independent laboratories. An enumeration of these follow.

**Item 17 Average Pullout Resistance (lbs.); (Item 18 Lightweight Concrete,...Section)** In the sections for steel, concrete, and wood decks, reference is made to FM Tinius Olsen pullout resistance tests. Factory Mutual does not report on fastener pullout resistance tests as a part of its approval requirements for Standard 4470 Class I Roof Covers or Standard 4450 Class I Insulated Steel Deck Roofs. Manufacturers may request that FM conduct

such tests or may use either their own resources or other laboratories to conduct them. The inference should not be made that the test results published in this section were necessarily conducted by Factory Mutual. The gauges listed for steel decks and the wood and concrete specifications are simply those normally associated with the Tinius Pullout Resistance tests.

In the section for lightweight concrete, gypsum, and cementitious wood fiber decks, results of any pullout tests that the manufacturer may have conducted are requested.

**Item 18 Meets FM Approval Requirements as a Component of Class I...Deck** It should be stressed that Factory Mutual issues approvals based on an evaluation of total roof systems, not for individual components, such as fasteners. This category only requests that the manufacturer indicate whether the fastener is approved by FM as a component of a system. Readers should refer to the *FM Approval Guide* and its supplements for details concerning the applicable roof systems in which the fasteners are used.

**Item 19 (Steel Decks) Passes Test Procedure for Corrosion Resistance for Standard 4470** FM Standard 4470 includes a test for corrosion resistance. Known as DIN 50018 Standard Kesternick Test, it is designed to assess the potential damage to metal fasteners used for mechanically attached roof covers and mechanical fasteners used for insulation.

**Item 20 (Steel Decks) Item 19 Other Sections Accepted by the Following Codes:** This is where the acronyms for code-setting organizations, which include Building Officials & Code Administrators International, Inc. (BOCA), Southern Building Code Congress International (SBCCI), and International Conference of Building Officials (ICBO), will be found and also where some government jurisdictions that use their own code approvals will be listed (e.g., Metro.-Dade County, [Fla.]). This information is provided as a quick reference for the *Guide* user only; it is necessary to refer to the publications of the organizations to understand the context in which these approvals are given. Each of the organizations has its own set of criteria, and each region of the country sets codes based on the recommendations of one or another of the code-setting bodies. The *Guide* user needs to determine which set of criteria in general is relevant to his particular locality and then understand what the approval process for the particular code-setting organization implies.

Follow is a list of the publications produced by the code-setting organizations and where they may be obtained:

BOCA publishes *The BOCA National Building*

*Code/Year*; 4051 W. Flossmor Rd., Country Club Hills, Ill. 60477

ICBO publishes *Uniform Building Code (UBC)*; 5360 So. Workman Mill Rd., Whittier, Calif., 90601.

SBCCI publishes *Standard Building Code — Edition*; 900 Montclair Rd., Birmingham, Ala. 35213.

Manufacturers will also enter other approvals, such as those from government agencies (e.g., HUD) and any other approvals that the product may have received. In such cases, it will be necessary to contact the manufacturer directly to obtain further details on the nature and significance of these approvals.

**Item 21 (Steel Decks) Item 20 Other Sections**  
**Warranty Available from the Manufacturer** The warranty available from the manufacturer may refer to a roof system warranty of which the fastener product is only a component. For details, contact the manufacturer.





# Index to Listed Roof Fasteners

	STEEL DECKS	WOOD DECKS	CONCRETE DECKS	LIGHTWEIGHT CON- CRETE, GYPSUM, OR WOOD FRMR DECKS		STEEL DECKS	WOOD DECKS	CONCRETE DECKS	LIGHTWEIGHT CON- CRETE, GYPSUM, OR WOOD FRMR DECKS
<b>BMCA INSULATION PRODUCTS INC.</b> 300 N. Haven Avenue Ontario, CA 91761 800/858-8868 FAX 909/390-8764 E-mail Web					<b>HILTI INC.</b> P.O. Box 21148 Tulsa, OK 74121 800/879-8000 FAX 918/252-6988 E-mail: ushilti.com Web				
<b>CARLISLE SYNTEC INCORPORATED</b> 1285 Ritner Hwy. P.O. Box 7000 Carlisle, PA 17013 717/245-7000 FAX 717/245-7053 E-mail Web					<b>ITW BUILDDEX</b> 1349 W. Bryn Mawr Ave. Itasca, IL 60143 800/284-5339 630/595-3500 FAX 630/595-6329 E-mail Web				
<b>CELOTEX CORP.</b> 4010 Boy Scout Blvd. Tampa, FL 33607 813/873-4000 FAX E-mail Web					<b>JOHNS MANVILLE INTERNATIONAL INC.</b> Roofing Systems Group P.O. Box 5108 Denver, CO 80217 303/978-2000 FAX 303/978-3904 E-mail Web				
<b>CONSTRUCTION FASTENERS INC.</b> DEKFAST PRODUCT GROUP Spring & Van Reed Box 6326 Wyomissing, PA 19610 610/376-5751 FAX 610/376-8551 E-mail Web					<b>NATIONAL NAIL CORP.</b> 2964 Clydon SW Grand Rapids, MI 49509 800/746-5659 FAX 616/531-5970 E-mail Web				
<b>DURO-LAST INC.</b> 525 Morley Drive Saginaw, MI 48601 800/248-0280 FAX 800/432-9331 E-mail Web					<b>OLYMPIC MANUFACTURING GROUP INC.</b> P.O. Box 508 153 Bowles Road Agawam, MA 01001 800/633-3800 or 413/789-0252 FAX 413/789-1069 E-mail Web				
<b>ES PRODUCTS INC.</b> 280 Franklin Street P.O. Box 810 Bristol, RI 02809 401/253-8600 FAX 401/253-8896 E-mail Web					<b>POWERS RAWL, POWERS FASTENERS, INC.</b> New Rochelle, NY 10801 914/235-6300 FAX 914/576-6483 E-mail Web: www.powers.com				
<b>FIRESTONE BUILDING PRODUCTS</b> 525 Congressional Blvd. Carmel, IN 46032 800/428-4442 FAX 317/575-7100 E-mail Web					<b>SENCO PRODUCTS</b> 8485 Broadwell Road Cincinnati, OH 45244 800/543-4596 FAX 800/543-3299 E-mail Web				
<b>GAF MATERIALS CORP.</b> 1361 Alps Road Wayne, NJ 07470 973/628-3000 FAX 973/628-3356 E-mail Web					<b>SFS STADLER INC.</b> 5460 Wegman Drive Valley City, OH 44280 330/273-7171 or 800/648-6032 FAX 330/273-7181 E-mail Web				

# Index to Listed Roof Fasteners

STEEL DECKS  
WOOD DECKS  
CONCRETE DECKS  
LIGHTWEIGHT CON-  
CRETE, GYPSUM, OR  
WOOD FIBER DECKS

STEEL DECKS  
WOOD DECKS  
CONCRETE DECKS  
LIGHTWEIGHT CON-  
CRETE, GYPSUM, OR  
WOOD FIBER DECKS

<b>SIMPLEX NAILS &amp; FASTENERS, INC.</b> 100 Petty Road, Suite A Lawrenceville, GA 30043-4813 800/622-3354 FAX 770/822-6822 E-Mail: technical@www.simplexnails.com Web				
<b>TRI-PLY</b> P.O. Box 2685 Port Arthur, TX 77643 800/331-3007 FAX: 409/727-0771 Web				

<b>TRU-FAST CORPORATION</b> U.S. Hwy. 6 and State Route 2 Bryan, OH 43506 800/443-9602 FAX 419/636-1784 E-mail: tru-fast@bright.net Web Site: trufast.com				
<b>U.S. INTEC, INC.</b> P.O. Box 2845 Port Arthur, TX 77643 800/624-6832 (Tech Hotline) 800/231-4631 (US) 800/392-4216 (TX) Web				

# Roof Fasteners: Steel Decks

1. COMPANY NAME	BMCA INSULATION PRODUCTS INC.				CARLISLE SYNTEC INCORPORATED			
2. PRODUCT NAME	LEXSUCO INSULATION CLIP				HP FASTENER			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X							
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED STEEL				CARBON STEEL			
6. COATING TYPE	PROPRIETARY				EPOXY ELECTRODEPOSITION			
7. SHANK TYPE	MULTI-HOOK				SINGLE LEAD, BUTTRESS THREAD			
8. POINT TYPE	HARDENED PIERCING				MINI-DRILL POINT			
9. METHOD OF ATTACHMENT	MECHANICAL LOCKING TONGUES				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	NA	2 3/8	1 3/8	15/16	0.180	1 1/4	1/2	3/4
	NA	3 5/8	2 5/8	15/16	0.180	1 3/4	1	3/4
	NA	4 5/8	3 5/8	15/16	0.180	2 1/4	1 1/2	3/4
					0.180	2 3/4	2	3/4
					0.180	3 1/4	2 1/2	3/4
					0.180	3 3/4	3	3/4
					0.180	4 1/4	3 1/2	3/4
					0.180	5	4 1/4	3/4
					0.180	6	5 1/4	3/4
					0.180	7	6 1/4	3/4
					0.180	8	7 1/4	3/4
					0.180	9	8 1/4	3/4
					0.180	10	9 1/4	3/4
					0.180	11	10 1/4	3/4
					0.180	12	11 1/4	3/4
					0.180	13	12 1/4	3/4
					0.180	14	13 1/4	3/4
					0.180	15	14 1/4	3/4
11. HEAD SHAPE	FLAT RECTANGLE				WAFER			
12. HEAD DIMENSIONS (inches)								
THICKNESS					0.105			
DIAMETER	1.00 X 0.6875				0.430			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	3 1/8	STEEL		SQUARE W/ ROUNDED CORNERS	2 7/8	GALVALUME	
					ROUND LOCKING	2	GALVALUME GALVALUME W/ PLASTIC	
					ROUND	2	PLASTIC	
					ROUND	3	PLASTIC	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)					REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)	RUBBER Mallet (REQUIRED)				AUTOMATIC FASTENING TOOL			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE								
20 GAUGE								
22 GAUGE	325							
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	NO				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	NO				YES			
19. ACCEPTED BY THE FOLLOWING CODES	UL				FM			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	NO				YES			
21. SEE APPENDIX IF CHECKED	X							

NA=not applicable

# Roof Fasteners: Steel Decks

CARLISLE SYNTEC INCORPORATED HP PURLIN FASTENER				CARLISLE SYNTEC INCORPORATED HP-X FASTENER				CELOTEX CORP. ANCHORBOND #12			
U.S.				U.S.				U.S.			
X								X			
X				X				X			
CARBON STEEL				CARBON STEEL				HARDENED CARBON STEEL			
EPOXY ELECTRODEPOSITION				EPOXY ELECTRODEPOSITION				ORGANIC FLUOROPOLYMERS			
SINGLE LEAD, "V" THREAD				SINGLE LEAD, BUTTRESS THREAD				SPIRAL THREAD			
DRILL POINT				MINI-DRILL POINT				SELF-DRILLING			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.160	3	2	1		2	1 1/4	3/4	0.222	1 5/8	1 1/4	3/8
0.160	4	3	1		3	2 1/4	3/4	0.222	2 1/4	1 7/8	3/8
0.160	5	4	1		4	3 1/4	3/4	0.222	2 7/8	2 1/2	3/8
0.160	6	5	1		5	4 1/4	3/4	0.222	3 3/4	3 3/8	3/8
0.160	7	6	1		6	5 1/4	3/4	0.222	4 1/2	4 1/8	3/8
					7	6 1/4	3/4	0.222	5	4 5/8	3/8
					8	7 1/4	3/4				
					10	9 1/4	3/4				
					12	11 1/4	3/4				
					14	13 1/4	3/4				
HEX				TRUSS, #3 PHILLIPS				#3 PHILLIPS TRUSS & 1/4" HEX WASHER HEAD			
0.140				0.115				0.109			
0.430				0.435				0.438			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
LOCKING ROUND	2 2	GALVALUME WITH PLASTIC PLASTIC		ROUND	2 3/8	CARBON STEEL		HEXAGONAL	2 7/8	GALVALUME	
REQUIRED				REQUIRED				REQUIRED OPTIONAL			
								637			
								551			
								430			
NO				YES				YES			
				YES				YES			
				FM				FM			
YES				YES				YES			
								X			

# Roof Fasteners: Steel Decks

1. COMPANY NAME	CELOTEX CORP.				CELOTEX CORP.			
2. PRODUCT NAME	ANCHORBOND #14				ANCHORBOND #15 HEAVY DUTY			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				HARDENED CARBON STEEL			
6. COATING TYPE	ORGANIC FLUOROPOLYMERS				ORGANIC FLUOROPOLYMERS			
7. SHANK TYPE	SPIRAL THREAD				SPIRAL THREAD			
8. POINT TYPE	SELF-DRILLING				SELF-DRILLING			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.238	1 1/4	7/8	3/8	0.264	1 1/4	3/4	1/2
	0.238	1 5/8	1 1/4	3/8	0.264	2	1 1/2	1/2
	0.238	1 7/8	1 7/8	3/8	0.264	3	2 1/2	1/2
	0.238	2 7/8	2 1/2	3/8	0.264	4	3 1/2	1/2
	0.238	3 1/4	2 7/8	3/8	0.264	5	4 1/2	1/2
	0.238	3 3/4	3 3/8	3/8	0.264	6	5 1/2	1/2
	0.238	4 1/2	4 1/8	3/8	0.264	7	6 1/2	1/2
	0.238	5	4 5/8	3/8	0.264	8	7 1/2	1/2
	0.238	6	5 5/8	3/8	0.264	10	9 1/2	1/2
	0.238	7	6 5/8	3/8	0.264	12	11 1/2	1/2
	0.238	8	7 5/8	3/8	0.264	14	13 1/2	1/2
					0.264	16	15 1/2	1/2
11. HEAD SHAPE	#3 PHILLIPS FLAT TRUSS				#3 PHILLIPS TRUSS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.109				0.109			
DIAMETER	0.438				0.438			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	HEXAGONAL	2 7/8	STAINLESS STEEL		HEXAGONAL	2 7/8	STAINLESS STEEL	
	HEXAGONAL	2 7/8	GALVALUME		HEXAGONAL	2 7/8	GALVALUME	
	HEXAGONAL	3	PLASTIC		ROUND	2	GALVALUME	
	ROUND	2	GALVALUME					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL				OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	721				735			
20 GAUGE	639				689			
22 GAUGE	507				493			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, UL				FM			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

CELOTEX CORP.				CONSTRUCTION FASTENERS, INC.				CONSTRUCTION FASTENERS, INC.			
ANCHORBOND #14 STAINLESS STEEL				DEKFAST #12				DEKFAST #14			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
STAINLESS STEEL (#304)				HARDENED CARBON STEEL				HARDENED CARBON STEEL			
ORGANIC FLUOROPOLYMERS				ORGANIC				ORGANIC			
SPIRAL THREAD				SPIRAL THREAD				SPIRAL THREAD			
SELF-DRILLING				SELF-DRILLING				SELF-DRILLING			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.264	3	2	1	0.222	1 5/8	7/8	3/4	0.238	1 1/4	1/2	3/4
0.264	4	3	1	0.222	2 1/4	1 1/2	3/4	0.238	1 5/8	7/8	3/4
0.264	5	4	1	0.222	2 7/8	2 1/8	3/4	0.238	2 1/4	1 1/2	3/4
0.264	6	5	1	0.222	3 1/4	2 1/2	3/4	0.238	2 7/8	2 1/8	3/4
0.264	7	6	1	0.222	3 3/4	3	3/4	0.238	3 1/4	2 1/2	3/4
0.264	8	7	1	0.222	4 1/2	3 3/4	3/4	0.238	3 3/4	3	3/4
				0.222	5	4 1/4	3/4	0.238	4 1/2	3 3/4	3/4
				0.222	6	5 1/4	3/4	0.238	5	4 1/4	3/4
				0.222	7	6 1/4	3/4	0.238	6	5 1/4	3/4
				0.222	8	7 1/4	3/4	0.238	7	6 1/4	3/4
								0.238	8	7 1/4	3/4
								0.238	10	9 1/4	3/4
								0.238	12	11 1/4	3/8
#3 PHILLIPS TRUSS				#3 PHILLIPS TRUSS & 1/4" HEX WASHER HEAD				#3 PHILLIPS FLAT TRUSS			
0.109				0.109,				0.109			
0.438				0.438,				0.438			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
HEXAGONAL	2 7/8	STAINLESS STEEL		HEXAGONAL	2 7/8	GALVALUME		HEXAGONAL	2 7/8	GALVALUME	
HEXAGONAL	2 7/8	GALVALUME		HEXAGONAL	2 7/8	RECESS GALVALUME		HEXAGONAL	3	PLASTIC	
HEXAGONAL	3	PLASTIC		HEXAGONAL	3	PLASTIC		HEXAGONAL	2	GALVALUME	
ROUND	2	GALVALUME		ROUND	2	GALVALUME		ROUND			
790				637				721			
550				551				639			
457				430				507			
YES				YES				YES			
YES				YES				YES			
FM				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			
				X							

# Roof Fasteners: Steel Decks

1. COMPANY NAME	CONSTRUCTION FASTENERS, INC.				CONSTRUCTION FASTENERS, INC.			
2. PRODUCT NAME	DEKFAST #15 HI-STRENGTH				#14 DEKFAST STAINLESS STEEL			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				STAINLESS STEEL (TRIMRITE)			
6. COATING TYPE	ORGANIC				NONE			
7. SHANK TYPE	SPIRAL THREAD				SPIRAL THREAD			
8. POINT TYPE	SELF-DRILLING				SELF-DRILLING			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.264	1 1/4	1/2	1/4	0.235	1 1/2	1	3/4
	0.264	2	1 1/4	1/4	0.235	2	1 1/2	3/4
	0.264	3	2 1/4	1/4	0.235	3	2 1/2	3/4
	0.264	4	3 1/4	1/4	0.235	4	3 1/2	3/4
	0.264	5	4 1/4	1/4	0.235	5	4 1/2	3/4
	0.264	6	5 1/4	1/4	0.235	6	5 1/2	3/4
	0.264	7	6 1/4	1/4	0.235	7	6 1/2	3/4
	0.264	8	7 1/4	1/4	0.235	8	7 1/2	3/4
	0.264	10	9 1/4	1/4	0.235	10	9 1/2	3/4
	0.264	12	11 1/4	1/4	0.235	12	11 1/2	3/4
	0.264	14	13 1/4	1/4				
	0.264	16	15 1/4	1/4				
	0.264	18	17 1/4	1/4				
	0.264	20	19 1/4	1/4				
	0.264	22	21 1/4	1/4				
	0.264	24	23 1/4	1/4				
	0.264	26	25 1/4	1/4				
11. HEAD SHAPE	#3 PHILLIPS TRUSS				#3 PHILLIPS TRUSS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.118				0.118			
DIAMETER	0.438				0.440			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	HEXAGONAL	2 7/8	GALVALUME		ROUND	2	GALVALUME	
	ROUND	2	GALVALUME		ROUND	3	GALVALUME	
	ROUND	2 1/2	GALVALUME		ROUND	3	PLASTIC	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL				OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	935				830			
20 GAUGE	689				656			
22 GAUGE	493				472			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

DURO LAST INC.				FIRESTONE BUILDING PRODUCTS				FIRESTONE BUILDING PRODUCTS			
DURO LAST SCREWS #14				FIRESTONE ALL PURPOSE				FIRESTONE HEAVY DUTY			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
STEEL				SAE 1022, HEAT TREATED				SAE 1022, HEAT TREATED			
FLUOROCARBON				ORGANIC				FLUOROCARBON			
SPIRAL THREAD				SPIRAL THREADED				BUTTRESS THREAD			
SELF-DRILLING				SELF-DRILLING				DRILL POINT			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.190	1 3/4	1	3/4	0.235	1 1/4	1/2	3/4	0.264	1 1/4	1/2	3/4
0.190	2	1 1/4	3/4	0.235	1 5/8	7/8	3/4	0.264	2	1 1/4	3/4
0.190	2 1/2	1 3/4	3/4	0.235	2 1/4	1 1/2	3/4	0.264	3	2 1/4	3/4
0.190	3	2 1/4	3/4	0.235	2 7/8	2 1/8	3/4	0.264	4	3 1/4	3/4
0.190	3 1/2	2 3/4	3/4	0.235	3 1/4	2 1/2	3/4	0.264	5	4 1/4	3/4
0.190	4	3 1/4	3/4	0.235	3 3/4	3	3/4	0.264	6	5 1/4	3/4
0.190	4 1/2	3 3/4	3/4	0.235	4 1/2	3 3/4	3/4	0.264	7	6 1/4	3/4
0.190	5	4 1/4	3/4	0.235	5	4 1/4	3/4	0.264	8	7 1/4	3/4
0.190	5 1/2	4 3/4	3/4	0.235	6	5 1/4	3/4	0.264	10	9 1/4	3/4
0.190	6	5 1/4	3/4	0.235	7	6 1/4	3/4	0.264	12	11 1/4	3/4
0.190	7	6 1/4	3/4	0.235	8	7 1/4	3/4	0.264	14	13 1/4	3/4
0.190	8	7 1/4	3/4								
0.190	9	8 1/4	3/4								
0.190	10	9 1/4	3/4								
0.190	11	10 1/4	3/4								
0.190	12	11 1/4	3/4								
TRUSS				ROUND MUSHROOM #3 PHILLIPS				ROUND MUSHROOM #3 PHILLIPS			
0.103				0.110				0.110			
0.438				0.437				0.437			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	POLYCARBONATE		HEX (INSULATION) ROUND (IN-SEAM)	2 7/8	GALVALUME		HEX (INSULATION) ROUND (IN-SEAM)	2 7/8	GALVALUME	
					2	GALVALUME			2	GALVALUME	
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL											
517				450				600			
YES				YES				YES			
YES				YES				YES			
FM, ICBO, BOCA, SBCCI				FM, ICBO, UL, SBCCI				FM, ICBO, UL, SBCCI			
YES				YES				YES			



# Roof Fasteners: Steel Decks

1. COMPANY NAME	GAF MATERIALS CORP.				GAF MATERIALS CORP.			
2. PRODUCT NAME	GAFTITE #12-11/EVERGUARD EGIN				GAFTITE #14-10/EVERGUARD EGHG			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	STAINLESS STEEL, SPECIAL 400-SERIES BLEND				HARDENED CARBON STEEL			
6. COATING TYPE	CR-10 FLUOROCARBON				CR-10 FLUOROCARBON			
7. SHANK TYPE	THREADED				THREADED			
8. POINT TYPE	PINCH, SELF-DRILLING				PINCH, SELF-DRILLING OR TAPEX			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.172	1 5/8	1 3/8	1/2	0.190	1 1/4	3/4	1/2
	0.172	2 1/4	1 3/4	1/2	0.190	1 3/4	1 1/4	1/2
	0.172	2 7/8	2 3/8	1/2	0.190	2	1 1/2	1/2
	0.172	3 1/4	2 3/4	1/2	0.190	3	2 1/2	1/2
	0.172	3 3/4	3 1/4	1/2	0.190	4	3 1/2	1/2
	0.172	4 1/2	4	1/2	0.190	5	4 1/2	1/2
	0.172	5	4 1/2	1/2	0.190	6	5 1/2	1/2
	0.172	6	5 1/2	1/2	0.190	7	6 1/2	1/2
	0.172	7	6 1/2	1/2	0.190	8	7 1/2	1/2
	0.172	8	7 1/2	1/2	0.190	9	8 1/2	1/2
					0.190	10	9 1/2	1/2
					0.190	11	10 1/2	1/2
					0.190	12	11 1/2	1/2
					0.190	14	13 1/2	1/2
					0.190	16	15 1/2	1/2
					0.201	17	16 1/2	1/2
					0.201	18	17 1/2	1/2
					0.201	20	19 1/2	1/2
					0.201	21	20 1/2	1/2
					0.201	22	21 1/2	1/2
					0.201	24	23 1/2	1/2
11. HEAD SHAPE	ROUND TRUSS, #3 PHILLIPS				ROUND TRUSS, #3 PHILLIPS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.110				0.110			
DIAMETER	0.435				0.435			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	STAINLESS STEEL		ROUND	2	STEEL	
	ROUND	3	STAINLESS STEEL		ROUND	2	PLASTIC	
	ROUND	2	STEEL		ROUND	3	STEEL	
	ROUND	2	PLASTIC		ROUND	3	PLASTIC	
	ROUND	3	STEEL		ROUND	2	STAINLESS STEEL	
	ROUND	3	PLASTIC		ROUND	3	STAINLESS STEEL	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL				OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	540				585			
20 GAUGE	501				535			
22 GAUGE	456				505			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY			
20. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)								
	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

GAF MATERIALS CORP.				GAF MATERIALS CORP.				GAF MATERIALS CORP.			
GAFTITE #12-11/EVERGUARD EGIN				GAFTITE #14-10/EVERGUARD EGHD				EVERGUARD EGX			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HARDENED CARBON STEEL				STAINLESS STEEL, SPECIAL 400-SERIES BLEND				HARDENED CARBON STEEL			
CR-10 FLUOROCARBON				CR-10 FLUOROCARBON				CR-10 FLUOROCARBON			
THREADED				THREADED				THREADED			
PINCH, SELF-DRILLING; GIMLET, OR TAPEX				PINCH, SELF-DRILLING				DOUBLED-EDGE DRILL			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.160	1 5/8	1 1/8	1/2	0.201	1 1/4	3/4	1/2	0.201	2	1 1/4	1/4
0.160	2 1/4	1 3/4	1/2	0.201	1 3/4	1 1/4	1/2	0.201	3	2 1/4	1/4
0.160	2 7/8	2 3/8	1/2	0.201	2	1 1/2	1/2	0.201	4	3 1/4	1/4
0.160	3 1/4	2 3/4	1/2	0.201	3	2 1/2	1/2	0.201	5	4 1/4	1/4
0.160	3 3/4	3 1/4	1/2	0.201	4	3 1/2	1/2	0.201	6	5 1/4	1/4
0.160	4 1/2	4	1/2	0.201	5	4 1/2	1/2	0.201	7	6 1/4	1/4
0.160	5	4 1/2	1/2	0.201	6	5 1/2	1/2	0.201	8	7 1/4	1/4
0.160	6	5 1/2	1/2	0.201	7	6 1/2	1/2	0.201	10	9 1/4	1/4
0.160	8	7 1/2	1/2	0.201	8	7 1/2	1/2	0.201	12	11 1/4	1/4
				0.201	9	8 1/2	1/2	0.201	14	13 1/4	1/4
				0.201	10	9 1/2	1/2	0.201	16	15 1/4	1/4
				0.201	12	11 1/2	1/2				
				0.201	14	13 1/2	1/2				
				0.201	16	15 1/2	1/2				
				0.201	18	17 1/2	1/2				
				0.201	20	19 1/2	1/2				
				0.201	21	20 1/2	1/2				
				0.201	22	21 1/2	1/2				
				0.201	24	23 1/2	1/2				
ROUND TRUSS, #3 PHILLIPS				ROUND TRUSS, #3 PHILLIPS				ROUND TRUSS, #3 PHILLIPS			
0.110				0.108				0.110			
0.435				0.435				0.435			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	STEEL		ROUND	2	STAINLESS STEEL		ROUND	2 3/8	STEEL	
ROUND	2	PLASTIC		ROUND	3	STAINLESS STEEL					
ROUND	3	STEEL		ROUND	2	STEEL					
ROUND	2	STAINLESS STEEL		ROUND	2	PLASTIC					
ROUND	3	STAINLESS STEEL		ROUND	3	STEEL					
ROUND	3	PLASTIC		ROUND	3	PLASTIC					
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				OPTIONAL				OPTIONAL			
540				585				1114			
501				535				937			
436				505				718			
YES				YES				YES			
YES				YES				YES			
FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL			
YES				YES				YES			

# Roof Fasteners: Steel Decks

1. COMPANY NAME	GAF MATERIALS CORP./N.T.B. FASTENING SYSTEM INC.				HILTI INC.			
2. PRODUCT NAME	N-C				HILTI FASTENERS #12			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	NYLON				CARBON STEEL C-1022			
6. COATING TYPE	NA				TRU-KOTE PC-3 (FLOUOROCARBON PAINT)			
7. SHANK TYPE	SPIRAL THREAD				THREADED			
8. POINT TYPE					DOUBLE FLUTESELF-DRILLING			
9. METHOD OF ATTACHMENT	THREADED, SPIN WELD				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.250	4	3 3/4	1/2	0.160	1 5/8	1 1/8	1/2
	0.250	6	5 3/4	1/2	0.160	2 1/4	1 3/4	1/2
	0.250	8	7 3/4	1/2	0.160	2 7/8	2 3/8	1/2
	0.250	10	9 3/4	1/2	0.160	3 1/4	2 3/4	1/2
	0.250	12	11 3/4	1/2	0.160	3 3/4	3 1/2	1/2
					0.160	4 1/2	4	1/2
					0.160	5	4 1/2	1/2
					0.160	6	5 1/2	1/2
					0.160	7	6 1/2	1/2
					0.160	8	7 1/2	1/2
					0.160	10	9 1/2	1/2
					0.160	12	11 1/2	1/2
11. HEAD SHAPE	DOUBLE HEX				TRUSS #3 PHILLIPS, 1/4 HEX WASHER			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.100				0.105			
DIAMETER	1.0				0.440			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND WITH SPIKES	2	NYLON		ROUND	2	GALVALUME	
	ROUND				ROUND	3	GALVALUME	
	WITH SPIKES	3	CARBON STEEL		ROUND	3	PLASTIC	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)					OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.) (FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	500+				558			
20 GAUGE	500+				456			
22 GAUGE	500+				452			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK (yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)	NA				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM				FM, METRO.-DADE COUNTY			
20. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

HILTI INC.				HILTI INC.				HILTI INC.			
HILTI FASTENERS #12 S.S.				HILTI FASTENERS #10				HILTI FASTENERS #14			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
STAINLESS STEEL (TRIMRITE ALLOY #S42010)				CARBON STEEL C-1022				CARBON STEEL C-1022			
				TRU-KOTE PC-3 (FLOUOROCARBON PAINT)				TRU-KOTE PC-3 (FLOUOROCARBON PAINT)			
THREADED				THREADED				THREADED			
SELF-DRILLING				GIMLET				DOUBLE FLUTESELF-DRILLING			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.160	1 5/8	1 1/8	1/2	0.150	1 5/8	1 1/8	1/2	0.180	1 1/2	1	1/2
0.160	2 1/4	1 3/4	1/2	0.150	2 1/4	1 3/4	1/2	0.180	2	1 1/2	1/2
0.160	2 7/8	2 3/8	1/2	0.150	2 7/8	2 3/8	1/2	0.180	3	2 1/2	1/2
0.160	3 3/4	3 1/2	1/2	0.150	3 3/4	3 1/2	1/2	0.180	4	3 1/2	1/2
0.160	4 1/2	4	1/2	0.150	4 1/2	4	1/2	0.180	5	4 1/2	1/2
0.160	5	4 1/2	1/2	0.150	5	4 1/2	1/2	0.180	6	5 1/2	1/2
0.160	6	5 1/2	1/2	0.150	6	5 1/2	1/2	0.180	7	6 1/2	1/2
0.160	7	6 1/2	1/2	0.160	7	6 1/2	1/2	0.180	8	7 1/2	1/2
0.160	8	7 1/2	1/2	0.160	8	7 1/2	1/2	0.180	10	9 1/2	1/2
0.160	10	9 1/2	1/2	0.160	10	9 1/2	1/2	0.180	12	11 1/2	1/2
0.160	12	11 1/2	1/2	0.160	12	11 1/2	1/2				
TRUSS #3 PHILLIPS				#10 TRUSS, PHILLIPS #3				#10 TRUSS, PHILLIPS #3			
0.105				0.110				0.105			
0.440				0.390				0.440			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	GALVALUME		ROUND	2	GALVALUME		ROUND	2	GALVALUME	
ROUND	3	GALVALUME		ROUND	3	GALVALUME		ROUND	3	GALVALUME	
ROUND	3	PLASTIC		ROUND	3	PLASTIC		ROUND	3	PLASTIC	
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				OPTIONAL				OPTIONAL			
720				610				850			
620				494				656			
473								472			
YES				YES				YES			
YES				YES				YES			
FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			

# Roof Fasteners: Steel Decks

1. COMPANY NAME	ITW BUILDEX				ITW BUILDEX			
2. PRODUCT NAME	HEXTRA				ROOFGRIP			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				HARDENED CARBON STEEL			
6. COATING TYPE	CLIMASEAL OR SPEX				SPEX			
7. SHANK TYPE	MODIFIED BUTTRESS THREAD				MODIFIED BUTTRESS THREAD			
8. POINT TYPE	X-POINT				X-POINT			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.215	1 5/8	7/8	3/4	0.215	1 5/8	7/8	3/4
	0.215	2 1/4	1 1/2	3/4	0.215	2 1/4	1 1/2	3/4
	0.215	2 7/8	2 1/8	3/4	0.215	2 7/8	2 1/8	3/4
	0.215	3 1/4	2 1/2	3/4	0.215	3 1/4	2 1/2	3/4
	0.215	3 3/4	3	3/4	0.215	3 3/4	3	3/4
	0.215	4 3/8	3 5/8	3/4	0.215	4 3/8	3 5/8	3/4
	0.215	5	4 1/4	3/4	0.215	5	4 1/4	3/4
	0.215	6	5 1/4	3/4	0.215	6	5 1/4	3/4
	0.215	7	6 1/4	3/4	0.215	7	6 1/4	3/4
	0.215	8	7 1/4	3/4	0.215	8	7 1/4	3/4
11. HEAD SHAPE	1/4-IN. HEX HEAD				#3 PHILLIPS PAN HEAD			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.180				0.118			
DIAMETER	0.392				0.448			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	SQUARE	3 X 3	GALVALUME		SQUARE	3 X 3	GALVALUME	
	GEARLOCK	3	POLYOLEFIN		GEARLOCK	3	POLYOLEFIN	
	ROUND	2	GALVALUME		ROUND	2	GALVALUME	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	ACCUDRIVE XL PLUS (OPTIONAL)				ACCUDRIVE XL PLUS (OPTIONAL)			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	894				894			
20 GAUGE	565				656			
22 GAUGE	488				488			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

ITW BUILDDEX				ITW BUILDDEX				ITW BUILDDEX			
ROOFGRIP PLUS				ACCUTRAC FASTENER				#14 ROOFGRIP			
U.S.				U.S.				U.S.			
X				X				X X X			
CARBON STEEL				HARDENED CARBON STEEL				HARDENED CARBON STEEL			
CLIMASEAL				SPEX OR CLIMASEAL				CLIMASEAL			
MODIFIED BUTTRESS THREAD				MODIFIED BUTTRESS THREAD				MODIFIED STANDARD THREAD			
X-POINT				X-POINT				X-POINT			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.215	2 1/4	1 1/2	3/4	0.215	1 5/8	7/8	3/4	0.252	1 1/2	3/4	3/4
0.215	2 7/8	2 1/8	3/4	0.215	2 1/4	1 1/2	3/4	0.252	2	1 1/4	3/4
0.215	3 1/4	2 1/2	3/4	0.215	2 7/8	2 1/8	3/4	0.252	3	2 1/4	3/4
0.215	3 3/4	3	3/4	0.215	3 1/4	2 1/2	3/4	0.252	4	3 1/4	3/4
0.215	4 3/8	3 5/8	3/4	0.215	3 3/4	3	3/4	0.252	5	4 1/4	3/4
0.215	5	4 1/4	3/4	0.215	4 3/8	3 5/8	3/4	0.252	6	5 1/4	3/4
0.215	6	5 1/4	3/4	0.215	5	4 1/4	3/4	0.252	7	6 1/4	3/4
0.215	7	6 1/4	3/4	0.215	6	5 1/4	3/4	0.252	8	7 1/4	3/4
0.215	8	7 1/4	3/4								
1/4-IN. HEX HEAD				1/4 IN. HEX HEAD				#3 PHILLIPS PAN HEAD			
0.180				0.180				0.118			
0.392				0.392				0.448			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	3	GALVALUME		SQUARE	3 X 3	GALVALUME		ROUND SQUARE ROUND	2 3 3	GALVALUME GALVALUME PLASTIC	
REQUIRED				REQUIRED				REQUIRED			
ACCUFAST STAND-UP TOOL (OPTIONAL)				ACCUTRAC I, II, OR III (REQUIRED)				ACCU DRIVE XL PLUS (OPTIONAL)			
894				894				918			
656				656				693			
488				488				534			
YES				YES				YES			
YES				YES				YES			
FM				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			
X				X							

# Roof Fasteners: Steel Decks

1. COMPANY NAME	ITW BUILDEX				ITW BUILDEX			
2. PRODUCT NAME	#15 ROOFGRIP				HEXTRA PLUS			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X							
C. SINGLE-PLY MEMBRANES	X							
5. MATERIAL TYPE	HARDENED CARBON STEEL				CARBON STEEL			
6. COATING TYPE	CLIMASEAL				CLIMASEAL			
7. SHANK TYPE	STANDARD THREAD				MODIFIED BUTTRESS THREAD			
8. POINT TYPE	DRILL POINT				X-POINT			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.260	1 1/4	1/2	3/4	0.215	2 1/4	1 1/2	3/4
	0.260	2	1 1/4	3/4	0.215	2 7/8	2 1/8	3/4
	0.260	3	1 3/4	3/4	0.215	3 1/4	2 1/2	3/4
	0.260	4	3 1/4	3/4	0.215	3 3/4	3	3/4
	0.260	5	4 1/4	3/4	0.215	4 3/8	3 5/8	3/4
	0.260	6	5 1/4	3/4	0.215	5	4 1/4	3/4
	0.260	7	6 1/4	3/4	0.215	6	5 1/4	3/4
	0.260	8	7 1/4	3/4	0.215	7	6 1/4	3/4
	0.260	10	9 1/4	3/4	0.215	8	7 1/4	3/4
	0.260	12	11 1/4	3/4				
	0.260	14	13 1/4	3/4				
11. HEAD SHAPE	#3 PHILLIPS PAN HEAD				1/4-IN. HEX HEAD			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.118				0.180			
DIAMETER	0.448				0.392			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	GALVALUME		ROUND	3	GALVALUME	
	SQUARE	3	GALVALUME					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	ACCUDRIVE XL PLUS (OPTIONAL)				ACCUFAST STAND-UP TOOL (OPTIONAL)			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	971				894			
20 GAUGE	686				656			
22 GAUGE	560				488			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM				FM			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED					X			

NA=not applicable

# Roof Fasteners: Steel Decks

JOHNS MANVILLE INTERNATIONAL INC.				JOHNS MANVILLE INTERNATIONAL INC.				JOHNS MANVILLE INTERNATIONAL INC.			
ULTRAFAST/HEX HEAD				ULTRAGRIP/PHILLIPS HEAD #12				HIGHLOAD FASTENER			
U.S.				U.S.				U.S.			
X				X				X			
HARDENED CARBON STEEL				HARDENED CARBON STEEL				HARDENED CARBON STEEL			
CLIMASEAL				SPEX				CLIMASEAL			
MODIFIED BUTTRESS THREAD				MODIFIED BUTTRESS THREAD				MODIFIED BUTTRESS THREAD			
SELF-DRILLING X-POINT				SELF-DRILLING X-POINT				SELF-DRILLING X-POINT			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.215	1 5/8	1 1/8	1/2	0.215	1 5/8	1 1/8	1/2	0.20	1 1/4	3/4	1/2
0.215	2 1/4	1 3/4	1/2	0.215	2 1/4	1 3/4	1/2	0.20	2	1 1/2	1/2
0.215	2 7/8	2 3/8	1/2	0.215	2 7/8	2 3/8	1/2	0.20	3	2 1/2	1/2
0.215	3 1/4	2 3/4	1/2	0.215	3 1/4	2 3/4	1/2	0.20	4	3 1/2	1/2
0.215	3 3/4	3 1/4	1/2	0.215	3 3/4	3 1/4	1/2	0.20	5	4 1/2	1/2
0.215	4 3/8	3 7/8	1/2	0.215	4 3/8	3 7/8	1/2	0.20	6	5 1/2	1/2
0.215	5	4 1/2	1/2	0.215	5	4 1/2	1/2	0.20	7	6 1/2	1/2
0.215	6	5 1/2	1/2	0.215	6	5 1/2	1/2	0.20	8	7 1/2	1/2
0.215	7	6 1/2	1/2	0.215	7	6 1/2	1/2	0.20	10	9 1/2	1/2
0.215	8	7 1/2	1/2	0.215	8	7 1/2	1/2	0.20	12	11 1/2	1/2
1/4-IN. HEX HEAD				#3 PHILLIPS HEAD				#3 PHILLIPS HEAD			
0.180				0.118				0.435			
0.392				0.448							
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
SQUARE	3 X 3	CARBON STEEL WITH GALVALUME		SQUARE	3 X 3	CARBON STEEL WITH GALVALUME		ROUND PREM. LOCKING PLATE	2	CARBON STEEL W/ POLYOLEFIN (LOCKING)	
J. MANVILLE ROUND LOCK- ING PLATE	3	POLYOLEFIN		J. MANVILLE ROUND LOCK- ING PLATE	3	POLYOLEFIN		ALL PURPOSE BARBED PLATE	2	CARBON STEEL	
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL (ACCUDRIVE XL)				OPTIONAL (ACCUDRIVE XL)							
674				674				850			
502				502				675			
425				425				500			
YES				YES				YES			
YES				YES				YES			
FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY				FM			
YES				YES				YES			
								X			



# Roof Fasteners: Steel Decks

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.				OLYMPIC MAN. GROUP/N.T.B.			
2. PRODUCT NAME	HIGHLOAD ASAP				N-C			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT					X			
B. BUILT-UP MEMBRANES					X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				NYLON			
6. COATING TYPE	CR-10				NA			
7. SHANK TYPE	MODIFIED BUTTRESS THREAD				SPIRAL THREAD			
8. POINT TYPE	SPADE POINT							
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness	Required Deck Penetration (inches)
	0.16	2 1/4	1 3/4	1/2	0.250	4	3 3/4	1/2
	0.16	2 7/8	2 3/8	1/2	0.250	6	5 3/4	1/2
	0.16	3 1/4	2 3/4	1/2	0.250	8	7 3/4	1/2
	0.16	3 3/4	3 1/4	1/2	0.250	10	9 3/4	1/2
	0.16	4 1/2	4	1/2	0.250	12	11 3/4	1/2
	0.17	5	4 1/2	1/2				
	0.17	6	5 1/2	1/2				
	0.17	7	6 1/2	1/2				
	0.17	8	7 1/2	1/2				
11. HEAD SHAPE	#3 PHILLIPS HEAD				DOUBLE HEX			
12. HEAD DIMENSIONS (inches)								
THICKNESS					0.100			
DIAMETER	0.435				1.0 and 2.0			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	NYLON (LOCKING)		ROUND WITH SPIKES	2	NYLON	
					ROUND WITH SPIKES	3	CARBON STEEL	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	575				500+			
20 GAUGE	525				500+			
22 GAUGE	475				500+			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				NA			
19. ACCEPTED BY THE FOLLOWING CODES	FM				FM			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED	X							

NA=not applicable

# Roof Fasteners: Steel Decks

OLYMPIC MANUFACTURING GROUP				OLYMPIC MANUFACTURING GROUP				OLYMPIC MANUFACTURING GROUP			
OLYMPIC FASTENER #12-11 (C.STEEL)				OLYMPIC FASTENER #12-11 (S.STEEL)				OLYMPIC FASTENER #14-10 (C.STEEL)			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HARDENED CARBON STEEL				STAINLESS STEEL, SPECIAL 400-SERIES BLEND				HARDENED CARBON STEEL			
CR-10 FLUOROCARBON				CR-10 FLUOROCARBON				CR-10 FLUOROCARBON			
THREADED				THREADED				THREADED			
PINCH, SELF-DRILLING; GIMLET, OR TAPEX				PINCH, SELF-DRILLING				PINCH, SELF-DRILLING OR TAPEX			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.160	1 5/8	1 1/8	3/4	0.168	1 5/8	1 1/8	3/4	0.190	1 1/4	3/4	3/4
0.160	2 1/4	1 3/4	3/4	0.168	2 1/4	1 3/4	3/4	0.190	1 3/4	1 1/4	3/4
0.160	2 7/8	2 3/8	3/4	0.168	2 7/8	2 3/8	3/4	0.190	2	1 1/2	3/4
0.160	3 1/4	2 3/4	3/4	0.168	3 1/4	2 3/4	3/4	0.190	3	2 1/2	3/4
0.160	3 3/4	3 1/4	3/4	0.168	3 3/4	3 1/4	3/4	0.190	4	3 1/2	3/4
0.160	4 1/2	4	3/4	0.168	4 1/2	4	3/4	0.190	5	4 1/2	3/4
0.168	5	4 1/2	3/4	0.168	5	4 1/2	3/4	0.190	6	5 1/2	3/4
0.168	6	5 1/2	3/4	0.168	6	5 1/2	3/4	0.190	7	6 1/2	3/4
0.168	7	6 1/2	3/4	0.168	7	6 1/2	3/4	0.190	8	7 1/2	3/4
0.168	8	7 1/2	3/4	0.168	8	7 1/2	3/4	0.190	9	8 1/2	3/4
								0.190	10	9 1/2	3/4
								0.190	11	10 1/2	3/4
								0.190	12	11 1/2	3/4
								0.190	14	13 1/2	3/4
								0.190	16	15 1/2	3/4
								0.201	17	16 1/2	3/4
								0.201	18	17 1/2	3/4
								0.201	20	19 1/2	3/4
								0.201	21	20 1/2	3/4
								0.201	22	21 1/2	3/4
								0.201	24	23 1/2	3/4
ROUND TRUSS, #3 PHILLIPS, OR HEX HEAD				ROUND TRUSS, #3 PHILLIPS				ROUND TRUSS, #3 PHILLIPS			
0.110				0.110				0.110			
0.435				0.435				0.435			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	STEEL		ROUND	2	STAINLESS STEEL		ROUND	2	STEEL	
ROUND	2	PLASTIC		ROUND	3	STAINLESS STEEL		ROUND	2	PLASTIC	
ROUND	3	STEEL		ROUND	2	STEEL		ROUND	3	STEEL	
ROUND	3	PLASTIC		ROUND	2	PLASTIC		ROUND	3	PLASTIC	
ROUND	3 1/2	STEEL		ROUND	3	STEEL		ROUND	3 1/2	STEEL	
ROUND	2	STAINLESS STEEL		ROUND	3	PLASTIC		ROUND	2	STAINLESS STEEL	
ROUND	3	STAINLESS STEEL		ROUND	3 1/2	STEEL		ROUND	3	STAINLESS STEEL	
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				OPTIONAL				OPTIONAL			
540				540				585			
501				501				535			
456				456				505			
YES				YES				YES			
YES				YES				YES			
FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY			
YES				YES				YES			

# Roof Fasteners: Steel Decks

1. COMPANY NAME	OLYMPIC MANUFACTURING GROUP				POWERS FASTENERS, INC.			
2. PRODUCT NAME	OLYMPIC FASTENER #14-10 (S.STEEL)				POWERS RAWL SPEED-LOCK TOGGLE			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	STAINLESS STEEL, SPECIAL 400-SERIES BLEND				CARBON STEEL & STAINLESS STEEL			
6. COATING TYPE	CR-10 FLUOROCARBON				PERMA-SEAL FLUOROPOLYMER (ON CARBON STEEL BOLT ONLY)			
7. SHANK TYPE	THREADED				ANNULAR THREAD			
8. POINT TYPE	PINCH, SELF-DRILLING				NA			
9. METHOD OF ATTACHMENT	THREADED				CLAMPING			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.201	1 1/4	3/4	3/4	0.250	5	3 1/2	1 1/2
	0.201	1 3/4	1 1/4	3/4	0.250	6	4 1/2	1 1/2
	0.201	2	1 1/2	3/4	0.250	7	5 1/2	1 1/2
	0.201	3	2 1/2	3/4	0.250	8	6 1/2	1 1/2
	0.201	4	3 1/2	3/4	0.250	9	7 1/2	1 1/2
	0.201	5	4 1/2	3/4	0.250	10	8 1/2	1 1/2
	0.201	6	5 1/2	3/4	0.250	12	10 1/2	1 1/2
	0.201	7	6 1/2	3/4	0.250	14	12 1/2	1 1/2
	0.201	8	7 1/2	3/4				
	0.201	9	8 1/2	3/4				
	0.201	10	9 1/2	3/4				
	0.201	12	11 1/2	3/4				
	0.201	14	13 1/2	3/4				
	0.201	16	15 1/2	3/4				
	0.201	18	17 1/2	3/4				
	0.201	20	19 1/2	3/4				
	0.201	21	20 1/2	3/4				
	0.201	22	21 1/2	3/4				
	0.201	24	23 1/2	3/4				
11. HEAD SHAPE	ROUND TRUSS, #3 PHILLIPS				PHILLIPS FLAT HEAD #3 RECESS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.108				0.042			
DIAMETER	0.435				0.426			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	STAINLESS STEEL		ROUND	3	GALVALUME	
	ROUND	3	STAINLESS STEEL					
	ROUND	2	STEEL					
	ROUND	2	PLASTIC					
	ROUND	3	STEEL					
	ROUND	3	PLASTIC					
	ROUND	3 1/2	STEEL					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				OPTIONAL			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL				OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)					APPROPRIATE DRILL & BIT FOR DRILLING THROUGH DECK (REQUIRED)			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	585							
20 GAUGE	535							
22 GAUGE	505				975			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, UL, ICBO, METRO -DADE COUNTY				FM			
20. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED					X			

NA=not applicable

# Roof Fasteners: Steel Decks

POWERS FASTENERS, INC.				POWERS FASTENERS, INC.				POWERS FASTENERS, INC.			
POWERS RAWL#12 DECK SCREW				POWERS RAWL #14 DECK SCREW				POWERS RAWL #15 DECK SCREW			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
CASE HARDENED CARBON STEEL				CASE HARDENED CARBON STEEL				CASE HARDENED CARBON STEEL			
PERMA-SEAL FLUOROPOLYMER				PERMA-SEAL FLUOROPOLYMER				PERMA-SEAL FLUOROPOLYMER			
SPIRAL THREAD				SPIRAL THREAD				SPIRAL THREAD			
RICOH "S" POINT/DRILL TYPE				DRILL TYPE				RICOH "S" POINT			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.226	1 5/8	7/8	3/4	0.238	1 5/8	7/8	3/4	0.264	1 1/4	1/2	3/4
0.226	2 1/4	1 1/2	3/4	0.238	2 1/4	1 1/2	3/4	0.264	2	1 1/4	3/4
0.226	2 7/8	2 1/8	3/4	0.238	2 7/8	2 1/8	3/4	0.264	3	2 1/4	3/4
0.226	3 1/4	2 1/2	3/4	0.238	3 3/4	3	3/4	0.264	4	3 1/4	3/4
0.226	3 3/4	3	3/4	0.238	4 1/2	3 3/4	3/4	0.264	5	4 1/4	3/4
0.226	4 1/2	3 3/4	3/4	0.238	5	4 1/4	3/4	0.264	6	5 1/4	3/4
0.226	5	4 1/4	3/4	0.238	6	5 1/4	3/4	0.264	7	6 1/4	3/4
0.226	6	5 1/4	3/4	0.238	7	6 1/4	3/4	0.264	8	7 1/4	3/4
0.226	7	6 1/4	3/4	0.238	8	7 1/4	3/4	0.264	10	9 1/4	3/4
0.226	8	7 1/4	3/4	0.238	10	9 1/4	3/4	0.264	12	11 1/4	3/4
				0.238	12	11 1/4	3/4	0.264	14	13 1/4	3/4
								0.264	16	15 1/4	3/4
PHILLIPS TRUSS HEAD #3 RECESS WASHER / 1/4" HEX HEAD				PHILLIPS FLAT TRUSS HEAD #3 RECESS				PHILLIPS TRUSS HEAD #3 RECESS			
0.130, 0.140				0.118				0.130			
0.448, 0.385				0.448				0.448			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	GALVALUME		ROUND	2	GALVALUME		ROUND	2	GALVALUME	
BARBED	3	GALVALUME		BARBED	3	GALVALUME		BARBED	3	GALVALUME	
ROUND	3	STAINLESS STEEL		ROUND	3	STAINLESS STEEL		ROUND	3	STAINLESS STEEL	
ROUND	3	PLASTIC		ROUND	3	PLASTIC		ROUND	3	PLASTIC	
REQUIRED				REQUIRED				REQUIRED			
STAND UP TOOL (OPTIONAL)				STAND UP TOOL (OPTIONAL)				STAND UP TOOL (OPTIONAL)			
725				735				800			
655				630				690			
550				505				485			
YES				YES				YES			
YES				YES				YES			
FM				FM				FM			
YES				YES				YES			
X											

# Roof Fasteners: Steel Decks

1. COMPANY NAME	SFS STADLER INC.				SFS STADLER INC.			
2. PRODUCT NAME	ISOFAST IF2-M				ISOFAST IF2-C-M			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	CARBON STEEL				CARBON STEEL			
6. COATING TYPE	TUFF-TITE II				TUFF-TITE II			
7. SHANK TYPE	THREADED				THREADED			
8. POINT TYPE	SELF-DRILLING 2-FLUTE DRILL POINT				SELF-DRILLING 2-FLUTE DRILL POINT			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.189	2	1 1/2	1/2	0.189	2 1/8	1 5/8	1/2
	0.189	2 1/4	1 3/4	1/2	0.189	2 1/4	1 3/4	1/2
	0.189	2 3/4	2 1/4	1/2	0.189	2 3/4	2 1/4	1/2
	0.189	3 1/8	2 5/8	1/2	0.189	3 1/8	2 5/8	1/2
	0.189	3 7/8	3 3/8	1/2	0.189	3 7/8	3 3/8	1/2
	0.189	4 3/4	4 1/4	1/2	0.189	4 3/4	4 1/4	1/2
	0.189	5 1/2	4 3/4	1/2	0.189	5 1/2	4 3/4	1/2
	0.189	6 1/4	5 1/2	1/2	0.189	6 1/4	5 1/2	1/2
11. HEAD SHAPE	5/16 HEX HEAD				#2 POSI-DRIVE COUNTERSUNK			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.156				0.156			
DIAMETER	0.406				0.406			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	OVAL	3 1/4 X 1 5/8	GALVALUME		OVAL	3 1/4 X 1 5/8	GALVALUME	
	SQUARE	2 3/4 X 2 3/4	GALVALUME		SQUARE	2 3/4 X 2 3/4	GALVALUME	
	DOMED CONVEX	3 1/4 X 1 5/8	GALVALUME		DOMED CONVEX	3 1/4 X 1 5/8	GALVALUME	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	REQUIRED				REQUIRED			
SPECIAL TOOL NEEDED (optional/required)	REQUIRED				REQUIRED			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	552				552			
20 GAUGE	505				505			
22 GAUGE								
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED	X				X			

NA=not applicable

# Roof Fasteners: Steel Decks

SFS STADLER INC.				SFS STADLER INC.				SFS STADLER INC.			
ISOFAST IF2-S				SYSTEM METAL ES				INSUL-FIXX #12-11			
SWITZERLAND				U.S				U.S.			
X				X				X			
X								X			
X											
300 SERIES STAINLESS STEEL				HARDENED STEEL				HARDENED STEEL			
				TUFF TITE II				TUFF-TITE II			
THREADED				SPIRAL THREAD				SPIRAL THREAD			
SELF-DRILLING 2-FLUTE DRILL POINT				SELF-DRILLING AND FLUTE DRILL POINT				DRILL POINT			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.189	2	1 1/2	1/2	0.189	2	1 1/2	1/2	0.172	1 5/8	1 3/8	1/2
0.189	3 1/8	2 5/8	1/2	0.189	2 1/4	1 3/4	1/2	0.172	2 1/4	1 3/4	1/2
0.189	3 7/8	3 3/8	1/2	0.189	2 3/4	2 1/4	1/2	0.172	2 7/8	2 3/8	1/2
0.189	4 3/4	4 1/4	1/2	0.189	3 1/8	2 5/8	1/2	0.172	3 1/4	2 3/4	1/2
0.189	5 1/2	4 3/4	1/2	0.189	3 7/8	3 3/8	1/2	0.172	3 3/4	3 1/4	1/2
0.189	6 1/4	5 1/2	1/2	0.189	4 3/4	4 1/4	1/2	0.172	4 1/2	4	1/2
				0.189	5 1/2	4 3/4	1/2	0.172	5	4 1/2	1/2
				0.189	6 1/4	5 1/2	1/2	0.172	6	5 1/2	1/2
								0.172	7	6 1/2	1/2
								0.172	8	7 1/2	1/2
8mm HEX HEAD				8mm HEX HEAD				ROUND WITH #3 PHILLIPS TRUSS			
0.156				0.156				0.103			
0.406				0.406				0.425			
				YES				YES			
				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
OVAL	3 1/4 X 1 5/8	GALVALUME		ROUND	3	GALVALUME		ROUND ROUND	3 3	POLYETHYLENE GALVALUME	
SQUARE	2 3/4 X 2 3/4	GALVALUME									
DOMED CONVEX	3 1/4 X 1 5/8	GALVALUME									
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				OPTIONAL				OPTIONAL			
OPTIONAL											
552				552				660			
451				451				575			
								481			
YES				YES				YES			
				YES				YES			
FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			
X				X				X			

# Roof Fasteners: Steel Decks

1. COMPANY NAME	SFS STADLER INC.				SFS STADLER INC.			
2. PRODUCT NAME	INSUL-FIXX #14-10				SYSTEM ES I #14-10			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED STEEL				HARDENED STEEL			
6. COATING TYPE	TUFF-TITE II				TUFF-TITE II			
7. SHANK TYPE	THREADED				THREADED			
8. POINT TYPE	DRILL POINT				DRILL POINT			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.190	1 1/4	3/4	1/2	0.190	2	1 3/8	1/2
	0.190	2	1 1/2	1/2	0.190	3	2 1/2	1/2
	0.190	3	2 1/2	1/2	0.190	4	3 1/2	1/2
	0.190	4	3 1/2	1/2	0.190	5	4 1/2	1/2
	0.190	5	4 1/2	1/2	0.190	6	5 1/2	1/2
	0.190	6	5 1/2	1/2	0.190	7	6 1/2	1/2
	0.190	7	6 1/2	1/2	0.190	8	7 1/2	1/2
	0.190	8	7 1/2	1/2	0.190	10	9 1/2	1/2
	0.190	10	9 1/2	1/2	0.190	12	11 1/2	1/2
	0.190	12	11 1/2	1/2				
	0.190	14	13 1/2	1/2				
	0.190	16	15 1/2	1/2				
	0.190	18	17 1/2	1/2				
	0.190	20	19 1/2	1/2				
	0.190	22	21 1/2	1/2				
	0.190	24	23 1/2	1/2				
	0.190	26	25 1/2	1/2				
11. HEAD SHAPE	ROUND WITH #3 PHILLIPS TRUSS				ROUND WITH #3 PHILLIPS TRUSS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.103				0.103			
DIAMETER	0.425				0.425			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	3	POLYETHYLENE		ROUND	3	POLYETHYLENE	
	ROUND	3	GALVALUME					
	ROUND	2	GALVALUME					
	ROUND	2	NYLON WITH GLASS					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)					OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)					OPTIONAL			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	690				690			
20 GAUGE	610				610			
22 GAUGE	535				535			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED					X			

NA=not applicable

# Roof Fasteners: Steel Decks

SFS STADLER INC.				SFS STADLER INC.				SFS STADLER INC.			
SYSTEM ES I #12-11				SYSTEM ES L #14-10				EXTRA LOAD FASTENER HD			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HARDENED STEEL				HARDENED STEEL				HARDENED STEEL			
TUFF-TITE II				TUFF-TITE II				TUFF-TITE II			
SPIRAL THREAD				THREADED				THREADED			
DRILL POINT				DRILL POINT				DRILL POINT			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.172	2 1/4	1 3/4	1/2	0.190	2	1 3/8	1/2	0.205	1 1/4	3/4	1/2
0.172	2 7/8	2 3/8	1/2	0.190	3	2 1/2	1/2	0.205	2	1 1/2	1/2
0.172	3 1/4	2 3/4	1/2	0.190	4	3 1/2	1/2	0.205	3	2 1/2	1/2
0.172	3 3/4	3 1/4	1/2	0.190	5	4 1/2	1/2	0.205	4	3 1/2	1/2
0.172	4 1/2	4	1/2	0.190	6	5 1/2	1/2	0.205	5	4 1/2	1/2
0.172	5	4 1/2	1/2	0.190	7	6 1/2	1/2	0.205	6	5 1/2	1/2
0.172	6	5 1/2	1/2	0.190	8	7 1/2	1/2	0.205	8	7 1/2	1/2
0.172	7	6 1/2	1/2	0.190	10	9 1/2	1/2	0.205	10	9 1/2	1/2
0.172	8	7 1/2	1/2	0.190	12	11 1/2	1/2	0.205	12	11 1/2	1/2
								0.205	14	13 1/2	1/2
								0.205	16	15 1/2	1/2
ROUND WITH #3 PHILLIPS TRUSS				ROUND WITH #3 PHILLIPS TRUSS				ROUND WITH #3 PHILLIPS TRUSS			
0.103				0.103				0.103			
0.425				0.425				0.425			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND ROUND	3 3	POLYETHYLENE GALVALUME		ROUND	2	NYLON WITH GLASS		ROUND ROUND	3 2	GALVALUME GALVALUME	
REQUIRED OPTIONAL OPTIONAL				REQUIRED REQUIRED REQUIRED				REQUIRED			
650 575 481				690 610 535				782			
YES				YES				YES			
YES				YES				YES			
FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			
X				X				X			



# Roof Fasteners: Steel Decks

1. COMPANY NAME	SFS STADLER INC.				TRI-PLY			
2. PRODUCT NAME	TPR-THE PEEL RIVET				TRI-FAST DP			
3. COUNTRY OF MANUFACTURE	ISRAEL				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	ALUMINUM ALLOY				CARBON STEEL			
6. COATING TYPE	NA				TRU-KOTE PC-3 (FLUOROCARBON PAINT)			
7. SHANK TYPE	HOLLOW RIVET BODY				THREADED			
8. POINT TYPE	PIERCING MANDREL				DOUBLE FLUTE SELF-DRILLING			
9. METHOD OF ATTACHMENT	CLAMPING				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.250	1 1/4	1/4	1	0.160	1 5/8	1 1/8	1/2
	0.250	2	1	1	0.160	2 1/4	1 3/4	1/2
	0.250	3	2	1	0.160	2 7/8	2 3/8	1/2
	0.250	4	3	1	0.160	3 3/4	3 1/4	1/2
	0.250	5	4	1	0.160	4 1/2	4	1/2
	0.250	6	5	1	0.160	5	4 1/2	1/2
	0.250	7	6	1	0.160	6	5 1/2	1/2
	0.250	8	7	1	0.160	7	6 1/2	1/2
	0.250	9	8	1	0.160	8	7 1/2	1/2
	0.250	10	9	1	0.160	10	9 1/2	1/2
					0.160	12	11 1/2	1/2
11. HEAD SHAPE	LOW PROFILE MUSHROOM				1/4" HEX HEAD			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.075				0.105			
DIAMETER	0.480				0.440			
13. PLATES								
A. REQUIRED (yes/no)	YES							
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES							
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	3	GALVALUME		ROUND	2	GALVALUME	
	ROUND	2	GALVALUME		ROUND	3	GALVALUME	
					ROUND	3	PLASTIC	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL				REQUIRED			
SPECIAL TOOL NEEDED (optional/required)	REQUIRED				OPTIONAL			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE					795			
20 GAUGE	605				605			
22 GAUGE	576				428			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES								
	FM				FM			
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

TRU-FAST CORPORATION				TRU-FAST CORPORATION				TRU-FAST CORPORATION			
HD DRILL POINT STAINLESS STEEL				TP				DP (DRILL POINT)			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
STAINLESS STEEL (TRIMRITE ALLOY #S-42010)				CARBON STEEL C-1022				CARBON STEEL C-1022			
				TRU-KOTE PC-3 (FLUOROCARBON PAINT)				TRU-KOTE PC-3 (FLUOROCARBON PAINT)			
THREADED				THREADED				THREADED			
DOUBLE FLUTE SELF-DRILLING				GIMLET				DOUBLE FLUTE SELF-DRILLING			
THREADED				THREADED				THREADS			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.180	1 1/2	1	1/2	0.150	1 5/8	1 1/8	1/2	0.160	1 5/8	1 1/8	1/2
0.180	2	1 1/2	1/2	0.150	2 1/4	1 3/4	1/2	0.160	2 1/4	1 3/4	1/2
0.180	3	2 1/2	1/2	0.150	2 7/8	2 3/8	1/2	0.160	2 7/8	2 3/8	1/2
0.180	4	3 1/2	1/2	0.150	3 3/4	3 1/4	1/2	0.160	3 1/4	2 3/4	1/2
0.180	5	4 1/2	1/2	0.150	4 1/2	4	1/2	0.160	3 3/4	3 1/4	1/2
0.180	6	5 1/2	1/2	0.150	5	4 1/2	1/2	0.160	4 1/2	4	1/2
0.180	7	6 1/2	1/2	0.150	6	5 1/2	1/2	0.160	5	4 1/2	1/2
0.180	8	7 1/2	1/2					0.160	6	5 1/2	1/2
0.180	10	9 1/2	1/2					0.160	7	6 1/2	1/2
0.180	12	11 1/2	1/2					0.160	8	7 1/2	1/2
TRUSS #3 PHILLIPS				TRUSS #3 PHILLIPS							
0.105				0.110				0.105			
0.440				0.390				0.440			
YES								YES			
YES								YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	GALVALUME		ROUND	2	GALVALUME		ROUND	2	GALVALUME	
ROUND	3	GALVALUME		ROUND	3	GALVALUME		ROUND	3	GALVALUME	
ROUND	3	PLASTIC		ROUND	3	PLASTIC		ROUND	3	PLASTIC	
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				OPTIONAL				OPTIONAL			
830								558			
656				610				456			
472				494				452			
YES				YES				YES			
YES				YES				YES			
FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			

# Roof Fasteners: Steel Decks

1. COMPANY NAME	TRU-FAST CORPORATION				TRU-FAST CORPORATION			
2. PRODUCT NAME	HD (HEAVY DUTY) #14				EHD (EXTRA HEAVY DUTY) #15			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	CARBON STEEL C-1022				CARBON STEEL C-1022			
6. COATING TYPE	TRU-KOTE PC-3 (FLUOROCARBON PAINT)				TRU-KOTE PC-3 (FLUOROCARBON PAINT)			
7. SHANK TYPE	THREADED				THREADED			
8. POINT TYPE	DOUBLE FLUTE SELF-DRILLING				DOUBLE FLUTE SELF-DRILLING			
9. METHOD OF ATTACHMENT	THREADS				THREADS			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.180	1 1/2	1	1/2	0.204	1 1/4	3/4	1/2
	0.180	2	1 1/2	1/2	0.204	2	1 1/2	1/2
	0.180	3	2 1/2	1/2	0.204	3	2 1/2	1/2
	0.180	4	3 1/2	1/2	0.204	4	3 1/2	1/2
	0.180	5	4 1/2	1/2	0.204	5	4 1/2	1/2
	0.180	6	5 1/2	1/2	0.204	6	5 1/2	1/2
	0.180	7	6 1/2	1/2	0.204	7	6 1/2	1/2
	0.180	8	7 1/2	1/2	0.204	8	7 1/2	1/2
	0.180	10	9 1/2	1/2	0.204	9	8 1/2	1/2
	0.180	12	11 1/2	1/2	0.204	10	9 1/2	1/2
					0.204	11	10 1/2	1/2
					0.204	12	11 1/2	1/2
					0.204	14	13 1/2	1/2
					0.204	16	15 1/2	1/2
					0.204	18	17 1/2	1/2
					0.204	20	19 1/2	1/2
11. HEAD SHAPE	TRUSS #3 PHILLIPS				TRUSS #3 PHILLIPS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.105				0.105			
DIAMETER	0.440				0.440			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	GALVALUME		ROUND	2	GALVALUME	
	ROUND	3	GALVALUME		ROUND	3	GALVALUME	
	ROUND	3	PLASTIC		ROUND	3	PLASTIC	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)	REQUIRED				REQUIRED			
SPECIAL TOOL NEEDED (optional/required)	OPTIONAL				OPTIONAL			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)								
18 GAUGE	850							
20 GAUGE	656							
22 GAUGE	472							
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I STEEL ROOF DECK								
(yes/no)	YES				YES			
18. PASSES FM TEST PROCEDURE 4470 FOR CORROSION RESISTANCE (yes/no)								
	YES				YES			
19. ACCEPTED BY THE FOLLOWING CODES	FM, METRO-DADE COUNTY							
20. WARRANTY AVAILABLE FROM MANUFACTURER								
(yes/no)	YES				YES			
21. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Steel Decks

U.S. INTEC			
DRILL-TEC CDP			
U.S.			
X			
X			
X			
CARBON STEEL			
FLUOROPOLYMER PAINT			
THREADED			
DRILL POINT			
MECHANICAL			
Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.180	1 1/4	1/4	1
0.180	1 3/4	3/4	1
0.180	2 1/4	1 1/4	1
0.180	2 3/4	1 3/4	1
0.180	3 1/4	2 1/4	1
0.180	3 3/4	2 3/4	1
0.180	4 1/4	3 1/4	1
0.180	5	4	1
0.180	6	5	1
0.180	7	6	1
0.180	8	7	1
HEX OR #3 PHILLIPS			
YES			
YES			
Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material	
ROUND	2.7	GALVALUME	
ROUND	3	PLASTIC	
REQUIRED			
OPTIONAL			
OPTIONAL			
558			
456			
452			
YES			
YES			
FM, METRO.-DADE COUNTY			
YES			

# Roof Fasteners: Wood Decks

1. COMPANY NAME	CARLISLE SYNTEC INCORPORATED					CARLISLE SYNTEC INCORPORATED				
2. PRODUCT NAME	HP FASTENER					HP WOODIE				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES										
5. MATERIAL TYPE	CARBON STEEL					ZAMAC				
6. COATING TYPE	EPOXY ELECTRODEPOSITION									
7. SHANK TYPE	SINGLE LEAD, BUTTRESS THREAD					SPIRAL THREAD				
8. POINT TYPE	MINI-DRILL POINT					PIERCE-POINT				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.180	1 1/4	1/4	1	1	0.500	1 3/4	0		
	0.180	1 3/4	3/4	1	1	0.500	2 1/2	1/2 to 3/4		
	0.180	2 1/4	1 1/4	1	1	0.500	3 1/4	1 to 1 1/2		
	0.180	2 3/4	1 3/4	1	1					
	0.180	3 1/4	2 1/4	1	1					
	0.180	3 3/4	2 3/4	1	1					
	0.180	4 1/4	3 1/4	1	1					
	0.180	5	4	1	1					
	0.180	6	5	1	1					
	0.180	7	6	1	1					
	0.180	8	7	1	1					
	0.180	9	8	1	1					
	0.180	10	9	1	1					
	0.180	11	10	1	1					
	0.180	12	11	1	1					
	0.180	13	12	1	1					
	0.180	14	13	1	1					
	0.180	15	14	1	1					
11. HEAD SHAPE	WAFER					FLUSH RECESS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.105					0.073				
DIAMETER	0.430					0.600				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material				
	SQUARE WITH ROUNDED CORNERS	2 7/8	GALVALUME	ROUND	2	GALVALUME				
	ROUND	2	GALVALUME	ROUND	3	GALVALUME				
	LOCKING	2	GALVALUME WITH PLASTIC							
	ROUND	2	PLASTIC							
	ROUND	3	PLASTIC							
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)										
SPECIAL TOOL NEEDED (optional/required)	AUTOMATIC FASTENING TOOL									
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD										
2-INCH PINE PLANK										
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF (yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM					FM				
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED										

NA=not applicable

# Roof Fasteners: Wood Decks

CARLISLE SYNTEC INCORPORATED					CELOTEX CORP.					CELOTEX CORP.					
HP-X FASTENER					ANCHORBOND #12					ANCHORBOND #14					
U.S.					U.S.					U.S.					
					X					X					
					X					X					
X					X					X					
CARBON STEEL					HARDENED CARBON STEEL					HARDENED CARBON STEEL					
EPOXY ELEXTRODEPOSITION					ORGANIC FLUOROPOLYMERS					ORGANIC FLUOROPOLYMERS					
SINGLE LEAD, BUTTRESS THREAD					SPIRAL THREAD					SPIRAL THREAD					
DRILL POINT					SELF-DRILLING					SELF-DRILLING					
THREADED					THREADED					THREADED					
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	
0.201	2	1	1		0.222	1 5/8	5/8	3/4	1	0.238	1 1/4	1/4	3/4	1	
0.201	3	2	1		0.222	2 1/4	1 1/4	3/4	1	0.238	1 5/8	5/8	3/4	1	
0.201	4	3	1		0.222	2 7/8	1 7/8	3/4	1	0.238	1 7/8	1 1/4	3/4	1	
0.201	5	4	1		0.222	3 3/4	2 3/4	3/4	1	0.238	2 7/8	1 7/8	3/4	1	
0.201	6	5	1		0.222	4 1/2	3 1/2	3/4	1	0.238	3 1/4	2 1/4	3/4	1	
0.201	7	6	1		0.222	5	4	3/4	1	0.238	3 3/4	2 3/4	3/4	1	
0.201	8	7	1							0.238	4 1/2	3 1/2	3/4	1	
0.201	10	9	1							0.238	5	4	3/4	1	
0.201	12	11	1							0.238	6	5	3/4	1	
0.201	14	13	1							0.238	7	6	3/4	1	
											0.238	8	7	3/4	1
TRUSS, #3 PHILLIPS					#3 PHILLIPS TRUSS & 1/4" HEX WASHER HEAD					#3 PHILLIPS FLAT TRUSS					
0.115					0.109					0.109					
0.435					0.438					0.438					
YES					YES					YES					
YES					YES					YES					
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			
ROUND	2 3/8	CARBON STEEL			HEXAGONAL	2 7/8	GALVALUME			HEXAGONAL HEXAGONAL HEXAGONAL ROUND	2 7/8 2 7/8 3 2	STAINLESS STEEL GALVALUME PLASTIC GALVALUME			
REQUIRED					REQUIRED OPTIONAL					REQUIRED OPTIONAL					
					617 1,265					671 1,470					
					YES					YES					
					FM					FM					
YES					YES					YES					
					X										

# Roof Fasteners: Wood Decks

1. COMPANY NAME	CELOTEX CORP.					CELOTEX CORP.				
2. PRODUCT NAME	ANCHORBOND #15 HEAVY DUTY					ANCHORBOND #14 STAINLESS STEEL				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	HARDENED CARBON STEEL					STAINLESS STEEL (#304)				
6. COATING TYPE	ORGANIC FLUOROPOLYMERS					ORGANIC FLUOROPOLYMERS				
7. SHANK TYPE	SPIRAL THREAD					SPIRAL THREAD				
8. POINT TYPE	SELF-DRILLING					SELF-DRILLING				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.264	1 1/4	1/4	3/4	1	0.264	3	1 1/2	3/4	1
	0.264	2	1	3/4	1	0.264	4	2 1/2	3/4	1
	0.264	3	2	3/4	1	0.264	5	3 1/2	3/4	1
	0.264	4	3	3/4	1	0.264	6	4 1/2	3/4	1
	0.264	5	4	3/4	1	0.264	7	5 1/2	3/4	1
	0.264	6	5	3/4	1	0.264	8	6 1/2	3/4	1
	0.264	7	6	3/4	1					
	0.264	8	7	3/4	1					
	0.264	10	9	3/4	1					
	0.264	12	11	3/4	1					
	0.264	14	13	3/4	1					
	0.264	16	15	3/4	1					
11. HEAD SHAPE	#3 PHILLIPS TRUSS					#3 PHILLIPS TRUSS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.109					0.109				
DIAMETER	0.438					0.438				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	HEXAGONAL	2 7/8	STAINLESS STEEL			HEXAGONAL	2 7/8	STAINLESS STEEL		
	HEXAGONAL	2 7/8	GALVALUME			HEXAGONAL	2 7/8	GALVALUME		
	ROUND	2	GALVALUME			HEXAGONAL	3	PLASTIC		
						ROUND	2	GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL					OPTIONAL				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	780					773				
2-INCH PINE PLANK	1,500					1,250				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM					FM				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED										

NA=not applicable

# Roof Fasteners: Wood Decks

CONSTRUCTION FASTENERS, INC.					CONSTRUCTION FASTENERS, INC.					CONSTRUCTION FASTENERS, INC.				
DEKFAST #12					DEKFAST #14					DEKFAST #15 HI-STRENGTH				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
HARDENED CARBON STEEL					HARDENED CARBON STEEL					HARDENED CARBON STEEL				
ORGANIC					ORGANIC					ORGANIC				
SPIRAL THREAD					SPIRAL THREAD					SPIRAL THREAD				
SELF-DRILLING					SELF-DRILLING					SELF-DRILLING				
THREADED					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.222	1 5/8	5/8	3/4	1	0.238	1 1/4	1/4	3/4	1	0.264	1 1/4	1/4	3/4	1
0.222	2 1/4	1 1/4	3/4	1	0.238	1 5/8	5/8	3/4	1	0.264	2	1	3/4	1
0.222	2 7/8	1 7/8	3/4	1	0.238	2 1/4	1 1/4	3/4	1	0.264	3	2	3/4	1
0.222	3 1/4	2 1/4	3/4	1	0.238	2 7/8	1 7/8	3/4	1	0.264	4	3	3/4	1
0.222	3 3/4	2 3/4	3/4	1	0.238	3 1/4	2 1/4	3/4	1	0.264	5	4	3/4	1
0.222	4 1/2	3 1/2	3/4	1	0.238	3 3/4	2 3/4	3/4	1	0.264	6	5	3/4	1
0.222	5	4	3/4	1	0.238	4 1/2	3 1/2	3/4	1	0.264	7	6	3/4	1
0.222	6	5	3/4	1	0.238	5	4	3/4	1	0.264	8	7	3/4	1
0.222	7	6	3/4	1	0.238	6	5	3/4	1	0.264	10	9	3/4	1
0.222	8	7	3/4	1	0.238	7	6	3/4	1	0.264	12	11	3/4	1
					0.238	8	7	3/4	1	0.264	14	13	3/4	1
					0.238	10	9	3/4	1	0.264	16	15	3/4	1
					0.238	12	11	3/4	1	0.264	18	17	3/4	1
										0.264	20	19	3/4	1
										0.264	22	21	3/4	1
										0.264	24	23	3/4	1
										0.264	26	25	3/4	1
#3 PHILLIPS TRUSS & 1/4" HEX WASHER HEAD					#3 PHILLIPS FLAT TRUSS					#3 PHILLIPS TRUSS				
0.109, 0.130 0.438, 0.335					0.109 0.438					0.109 0.438				
YES YES					YES YES					YES YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
HEXAGONAL	2 7/8	RECESS GALVALUME			HEXAGONAL	2 7/8	GALVALUME			HEXAGONAL	2 7/8	GALVALUME		
HEXAGONAL	2 7/8	GALVALUME			HEXAGONAL	3	PLASTIC			ROUND	2	GALVALUME		
HEXAGONAL	3	PLASTIC			ROUND	2	GALVALUME			ROUND	2 1/2	GALVALUME		
ROUND	2	GALVALUME			ROUND	2	NYLON							
ROUND	2	NYLON												
REQUIRED					REQUIRED					REQUIRED				
OPTIONAL					OPTIONAL					OPTIONAL				
617					671					780				
1,265					1,470					1,500				
YES					YES					YES				
FM, METRO-DADE COUNTY					FM, METRO-DADE COUNTY					FM, METRO-DADE COUNTY				
YES					YES					YES				
X					X					X				



# Roof Fasteners: Wood Decks

1. COMPANY NAME	CONSTRUCTION FASTENERS, INC.					DURO LAST INC.				
2. PRODUCT NAME	#14 DEKFAST STAINLESS STEEL					DURO LAST SCREWS #14				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	STAINLESS STEEL (TRIMRITE)					STEEL				
6. COATING TYPE	NONE					FLUOROCARBON				
7. SHANK TYPE	SPIRAL THREAD					SPIRAL THREAD				
8. POINT TYPE	SELF-DRILLING					SELF-DRILLING				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.235	1 1/2	1/2	3/4	1	0.190	1 3/4	3/4	1	1
	0.235	2	1	3/4	1	0.190	2	1	1	1
	0.235	3	2	3/4	1	0.190	2 1/2	1 1/2	1	1
	0.235	4	3	3/4	1	0.190	3	2	1	1
	0.235	5	4	3/4	1	0.190	3 1/2	2 1/2	1	1
	0.235	6	5	3/4	1	0.190	4	3	1	1
	0.235	7	6	3/4	1	0.190	4 1/2	3 1/2	1	1
	0.235	8	7	3/4	1	0.190	5	4	1	1
	0.235	10	9	3/4	1	0.190	5 1/2	4 1/2	1	1
	0.235	12	11	3/4	1	0.190	6	5	1	1
						0.190	7	6	1	1
						0.190	8	7	1	1
						0.190	9	8	1	1
						0.190	10	9	1	1
						0.190	11	10	1	1
						0.190	12	11	1	1
11. HEAD SHAPE	#3 PHILLIPS TRUSS					TRUSS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.105					0.103				
DIAMETER	0.440					0.438				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material							
	ROUND	2	GALVALUME							
	ROUND	3	GALVALUME							
	ROUND	3	PLASTIC							
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL					OPTIONAL				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	495					930				
2-INCH PINE PLANK	517					983				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF (yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO-DADE COUNTY					FM, ICBO, BOCA, SBCCI				
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X									

NA=not applicable

# Roof Fasteners: Wood Decks

ES PRODUCTS INC					FIRESTONE BUILDING PRODUCTS					FIRESTONE BUILDING PRODUCTS				
HARDENED DO-ALL LOC-NAIL					FIRESTONE ALL PURPOSE					FIRESTONE HEAVY DUTY				
U.S.					U.S.					U.S.				
X					X					X				
					X					X				
HARDENED COLD ROLLED STEEL					SAE 1022, HEAT TREATED					SAE 1022, HEAT TREATED				
ZINC PLATED					ORGANIC					FLUOROCARBON				
SPLIT, SERRATED					SPIRAL THREADED					BUTTRESS THREAD				
2 SHARP POINTS					SELF-DRILLING					DRILL POINT				
SPREAD OF SERRATED SHANKS					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.240	1 3/8	1/4	1/2	1	0.235	1 1/4	1/4	1	1	0.264	1 1/4	1/4	1	1
					0.235	1 5/8	5/8	1	1	0.264	2	1	1	1
					0.235	2 1/4	1 1/4	1	1	0.264	3	2	1	1
					0.235	2 7/8	1 7/8	1	1	0.264	4	3	1	1
					0.235	3 1/4	2 1/4	1	1	0.264	5	4	1	1
					0.235	3 3/4	1 3/4	1	1	0.264	6	5	1	1
					0.235	4 1/2	3 1/2	1	1	0.264	7	6	1	1
					0.235	5	4	1	1	0.264	8	7	1	1
					0.235	6	5	1	1	0.264	10	9	1	1
					0.235	7	6	1	1	0.264	12	11	1	1
					0.235	8	7	1	1	0.264	14	13	1	1
SQUARE WITH ROUNDED CORNERS					ROUND MUSHROOM #3 PHILLIPS					ROUND MUSHROOM #3 PHILLIPS				
0.050					0.110					0.110				
0.375					0.437					0.437				
YES					YES					YES				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
ROUND	1 3/16	PRE-TINNED STEEL			HEX (INSULATION) ROUND (IN-SEAM)	2 7/8 2	GALVALUME GALVALUME			HEX (INSULATION) ROUND (IN-SEAM)	2 7/8 2	GALVALUME GALVALUME		
					REQUIRED					REQUIRED				
					OPTIONAL					OPTIONAL				
HAMMER														
134										542				
141														
					YES					YES				
					FM, ICBO, UL, SBCCI					FM, ICBO, UL, SBCCI				
YES					YES					YES				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	GAF MATERIALS CORP.					GAF MATERIALS CORP.				
2. PRODUCT NAME	GAFTITE #12-11/EVERGUARD EGIN					GAFTITE #12-11/EVERGUARD EGIN				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	HARDENED CARBON STEEL					STAINLESS STEEL, SPECIAL 400-SERIES BLEND				
6. COATING TYPE	CR-10 FLUOROCARBON					CR-10 FLUOROCARBON				
7. SHANK TYPE	THREADED					THREADED				
8. POINT TYPE	PINCH, SELF-DRILLING; GIMLET, OR TAPEX					PINCH, SELF-DRILLING				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.160	1 5/8	5/8	1/2	1	0.160	1 5/8	1 3/8	1/2	1
	0.160	2 1/4	1 1/4	1/2	1	0.160	2 1/4	1 3/4	1/2	1
	0.160	2 7/8	1 7/8	1/2	1	0.160	2 7/8	2 3/8	1/2	1
	0.160	3 1/4	2 1/4	1/2	1	0.160	3 1/4	2 3/4	1/2	1
	0.160	3 3/4	2 3/4	1/2	1	0.160	3 3/4	3 1/4	1/2	1
	0.160	4 1/2	3 1/2	1/2	1	0.160	4 1/2	4	1/2	1
	0.160	5	4	1/2	1	0.160	5	4 1/2	1/2	1
	0.160	6	5	1/2	1	0.160	6	5 1/2	1/2	1
	0.160	7	6	1/2	1	0.160	7	6 1/2	1/2	1
	0.160	8	7	1/2	1	0.160	8	7 1/2	1/2	1
11. HEAD SHAPE	ROUND TRUSS, #3 PHILLIPS					ROUND TRUSS, #3 PHILLIPS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.110					0.110				
DIAMETER	0.435					0.435				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 4 Dimensions (inches)
	ROUND	2	STEEL	ROUND	2	STAINLESS STEEL	ROUND	2	STEEL	STAINLESS STEEL
	ROUND	2	PLASTIC	ROUND	3	STAINLESS STEEL	ROUND	3	STEEL	STAINLESS STEEL
	ROUND	2	STEEL	ROUND	2	STEEL	ROUND	2	STEEL	STEEL
	ROUND	3	STEEL	ROUND	3	STEEL	ROUND	3	STEEL	STEEL
	ROUND	3	PLASTIC	ROUND	3	PLASTIC	ROUND	3	STEEL	STEEL
	ROUND	3	STAINLESS STEEL	ROUND	3	STAINLESS STEEL	ROUND	3	PLASTIC	PLASTIC
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL					OPTIONAL				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	531					531				
2-INCH PINE PLANK	735					735				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, ICBO, UL, METRO.-DADE COUNTY					FM, ICBO, UL, METRO.-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

GAF MATERIALS CORP.					GAF MATERIALS CORP.					HILTI INC.				
GAFTITE #14-10/EVERGUARD EGH D					GAFTITE #14-10/EVERGUARD EGH D					HILTI FASTENERS #12				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
HARDENED CARBON STEEL					STAINLESS STEEL, SPECIAL 400-SERIES BLEND					CARBON STEEL C-1022				
CR-10 FLUOROCARBON					CR-10 FLUOROCARBON					TRU-KOTE PC-3 (FLUOROPOLYMER PAINT)				
THREADED					THREADED					THREADED				
PINCH, SELF-DRILLING OR TAPEX					PINCH, SELF-DRILLING					DOUBLE FLUTED SELF-DRILLING				
THREADED					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.190	1 1/4	1/4	1/2	1	0.201	1 1/4	1/4	1/2	1	0.160	1 5/8	5/8	1	1
0.190	1 3/4	3/4	1/2	1	0.201	1 3/4	3/4	1/2	1	0.160	2 1/4	1 1/4	1	1
0.190	2	1	1/2	1	0.201	2	1	1/2	1	0.160	2 7/8	1 7/8	1	1
0.190	3	2	1/2	1	0.201	3	2	1/2	1	0.160	3 1/4	2 1/4	1	1
0.190	4	3	1/2	1	0.201	4	3	1/2	1	0.160	3 3/4	2 3/4	1	1
0.190	5	4	1/2	1	0.201	5	4	1/2	1	0.160	4 1/2	3 1/2	1	1
0.190	6	5	1/2	1	0.201	6	5	1/2	1	0.160	5	4	1	1
0.190	7	6	1/2	1	0.201	7	6	1/2	1	0.160	6	5	1	1
0.190	8	7	1/2	1	0.201	8	7	1/2	1	0.160	7	6	1	1
0.190	10	9	1/2	1	0.201	9	9	1/2	1	0.160	8	7	1	1
0.190	12	11	1/2	1	0.201	10	11	1/2	1					
0.190	14	13	1/2	1	0.201	12	13	1/2	1					
0.190	16	15	1/2	1	0.201	14	15	1/2	1					
0.201	17	16	1/2	1	0.201	16	16	1/2	1					
0.201	18	17	1/2	1	0.201	18	17	1/2	1					
0.201	20	19	1/2	1	0.201	20	19	1/2	1					
0.201	21	20	1/2	1	0.201	21	20	1/2	1					
0.201	22	21	1/2	1	0.201	22	21	1/2	1					
0.201	24	23	1/2	1	0.201	24	23	1/2	1					
ROUND TRUSS, #3 PHILLIPS					ROUND TRUSS, #3 PHILLIPS					#10 TRUSS, PHILLIPS #3				
0.110					0.108					0.105				
0.435					0.435					0.440				
YES					YES					YES				
YES					YES					YES				
Column 1	Column 2	Column 3	Column 1	Column 2	Column 3	Column 1	Column 2	Column 3	Column 1	Column 2	Column 3			
Shape	Dimensions (inches)	Material	Shape	Dimensions (inches)	Material	Shape	Dimensions (inches)	Material	Shape	Dimensions (inches)	Material			
ROUND	2	STAINLESS STEEL	ROUND	2	STAINLESS STEEL	ROUND	2	STAINLESS STEEL	ROUND	2	GALVALUME			
ROUND	3	STAINLESS STEEL	ROUND	3	STAINLESS STEEL	ROUND	3	STAINLESS STEEL	ROUND	3	GALVALUME			
ROUND	2	STEEL	ROUND	2	STEEL	ROUND	2	STEEL	ROUND	3	PLASTIC			
ROUND	2	PLASTIC	ROUND	2	PLASTIC									
ROUND	3	STEEL	ROUND	3	STEEL									
ROUND	3	PLASTIC	ROUND	3	PLASTIC									
REQUIRED			REQUIRED			REQUIRED			REQUIRED					
OPTIONAL			OPTIONAL			OPTIONAL			OPTIONAL					
590			590			566			566					
820			820			1,248			1,248					
YES			YES			YES			YES					
FM, ICBO, UL, METRO.-DADE COUNTY			FM, ICBO, UL, METRO.-DADE COUNTY			FM, METRO.-DADE COUNTY			FM, METRO.-DADE COUNTY					
YES			YES			YES			YES					
X			X											

# Roof Fasteners: Wood Decks

1. COMPANY NAME	HILTI INC.					HILTI INC.				
2. PRODUCT NAME	HILTI FASTENERS #12 S.S.					HILTI FASTENERS #14				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	STAINLESS STEEL (TRIMRITE ALLOY #S-42010)					CARBON STEEL C-1022				
6. COATING TYPE	NA					TRU-KOTE PC-3 (FLUOROPOLYMER PAINT)				
7. SHANK TYPE	THREADED					THREADED				
8. POINT TYPE	DOUBLE FLUTED SELF-DRILLING					DOUBLE FLUTED SELF-DRILLING				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.160	1 5/8	5/8	1	1	0.180	1 1/2	1/2	1	1
	0.160	2 1/4	1 1/4	1	1	0.180	2	1	1	1
	0.160	2 7/8	1 7/8	1	1	0.180	3	2	1	1
	0.160	3 3/4	2 3/4	1	1	0.180	4	3	1	1
	0.160	4 1/2	3 1/2	1	1	0.180	5	4	1	1
	0.160	5	4	1	1	0.180	6	5	1	1
	0.160	6	5	1	1	0.180	7	6	1	1
	0.160	7	6	1	1	0.180	8	7	1	1
	0.160	8	7	1	1	0.180	10	9	1	1
	0.160	10	9	1	1	0.180	12	11	1	1
	0.160	12	11	1	1					
11. HEAD SHAPE	#10 TRUSS, PHILLIPS #3					TRUSS #3 PHILLIPS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.105					0.105				
DIAMETER	0.440					0.440				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	
	ROUND	2	GALVALUME	ROUND	2	GALVALUME	ROUND	2	GALVALUME	
	ROUND	3	GALVALUME	ROUND	3	GALVALUME	ROUND	3	GALVALUME	
	ROUND	3	PLASTIC	ROUND	3	PLASTIC	ROUND	3	PLASTIC	
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL					OPTIONAL				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	566					495				
2-INCH PINE PLANK	1,248					517				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED										

NA=not applicable

# Roof Fasteners: Wood Decks

HILTI INC.					ITW BUILDEX					ITW BUILDEX				
HILTI FASTENERS #10					HEXTRA					ROOFGRIP				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL C-1022					HARDENED CARBON STEEL					HARDENED CARBON STEEL OR STAINLESS (#410)				
TRU-KOTE PC-3 (FLUOROPOLYMER PAINT)					CLIMASEAL OR SPEX					SPEX				
THREADED					MODIFIED BUTTRESS THREAD					MODIFIED BUTTRESS THREAD				
GIMLET					X-POINT					X-POINT				
THREADED					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.150	1 5/8	5/8	1	1	0.215	1 5/8	5/8	1	1	0.215	1 5/8	5/8	1	1
0.150	2 1/4	1 1/4	1	1	0.215	2 1/4	1 1/4	1	1	0.215	2 1/4	1 1/4	1	1
0.150	2 7/8	1 7/8	1	1	0.215	2 7/8	1 7/8	1	1	0.215	2 7/8	1 7/8	1	1
0.150	3 3/4	2 3/4	1	1	0.215	3 1/4	2 1/4	1	1	0.215	3 1/4	2 1/4	1	1
0.150	4 1/2	3 1/2	1	1	0.215	3 3/4	2 3/4	1	1	0.215	3 3/4	2 3/4	1	1
0.150	5	4	1	1	0.215	4 3/8	3 3/8	1	1	0.215	4 3/8	3 3/8	1	1
0.150	6	5	1	1	0.215	5	4	1	1	0.215	5	4	1	1
					0.215	6	5	1	1	0.215	6	5	1	1
					0.215	7	6	1	1	0.215	7	6	1	1
					0.215	8	7	1	1	0.215	8	7	1	1
TRUSS #3 PHILLIPS					1/4-IN. HEX HEAD					#3 PHILLIPS PAN HEAD				
0.110					0.180					0.118				
0.390					0.392					0.448				
YES					YES					YES				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
ROUND	2	GALVALUME			SQUARE	3 X 3	GALVALUME			SQUARE	3 X 3	GALVALUME		
ROUND	3	GALVALUME			GEARLOCK	3	POLYOLEFIN			GEARLOCK	3	POLYOLEFIN		
ROUND	3	PLASTIC			ROUND	2	GALVALUME			ROUND	2	GALVALUME		
REQUIRED					REQUIRED					REQUIRED				
OPTIONAL					ACCUDRIVE XL PLUS (OPTIONAL)					ACCUDRIVE XL PLUS (OPTIONAL)				
636					544					544				
938					1,292					1,292				
YES					YES					YES				
FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY				
YES					YES					YES				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	ITW BUILDEX					ITW BUILDEX				
2. PRODUCT NAME	ACCUTRAC FASTENER					ROOFGRIP PLUS				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES										
C. SINGLE-PLY MEMBRANES										
5. MATERIAL TYPE	HARDENED CARBON STEEL					CARBON STEEL				
6. COATING TYPE	CLIMASEAL					SPEX				
7. SHANK TYPE	MODIFIED BUTTRESS THREAD					MODIFIED BUTTRESS THREAD				
8. POINT TYPE	X-POINT					X-POINT				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.215	1 5/8	5/8	1	1	0.215	2 1/4	1 3/4	1/2	1/2
	0.215	2 1/4	1 1/4	1	1	0.215	2 7/8	2 3/8	1/2	1/2
	0.215	2 7/8	1 7/8	1	1	0.215	3 1/4	2 3/4	1/2	1/2
	0.215	3 1/4	2 1/4	1	1	0.215	3 3/4	3 1/4	1/2	1/2
	0.215	3 3/4	2 3/4	1	1	0.215	4 3/8	3 7/8	1/2	1/2
	0.215	4 3/8	3 3/8	1	1	0.215	5	4 1/2	1/2	1/2
	0.215	5	4	1	1	0.215	6	5 1/2	1/2	1/2
	0.215	6	5	1	1	0.215	7	6 1/2	1/2	1/2
						0.215	8	7 1/2	1/2	1/2
11. HEAD SHAPE	1/4 IN. HEX HEAD					#3 PHILLIPS PAN HEAD				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.180					0.180				
DIAMETER	0.392					0.392				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	SQUARE	3 X 3	GALVALUME			ROUND	3	GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)						REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	ACCUTRAC I, II, OR III (REQUIRED)					ACCUFAST STAND-UP TOOL (OPTIONAL)				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	544					544				
2-INCH PINE PLANK	1,292					1,292				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO-DADE COUNTY					FM				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

ITW BUILDDEX					ITW BUILDDEX					ITW BUILDDEX				
#14 ROOFGRIP					#15 ROOFGRIP					HEXTRA PLUS				
U.S.					U.S.					U.S.				
X					X					X				
X					X									
X					X									
HARDENED CARBON STEEL					HARDENED CARBON STEEL					CARBON STEEL				
CLIMASEAL					CLIMASEAL					CLIMASEAL				
MODIFIED STANDARD THREAD					MODIFIED BUTTRESS THREAD					MODIFIED BUTTRESS THREAD				
X-POINT					DRILL POINT					X-POINT				
THREADED					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.245	1 1/2	1	1/2	1/2	0.260	1 1/4	3/4	1/2	1/2	0.215	2 1/4	1 3/4	1/2	1/2
0.245	2	1 1/2	1/2	1/2	0.260	2	1 1/2	1/2	1/2	0.215	2 7/8	2 3/8	1/2	1/2
0.245	3	2 1/2	1/2	1/2	0.260	3	2 1/2	1/2	1/2	0.215	3 1/4	2 3/4	1/2	1/2
0.245	4	3 1/2	1/2	1/2	0.260	4	3 1/2	1/2	1/2	0.215	3 3/4	3 1/4	1/2	1/2
0.245	5	4 1/2	1/2	1/2	0.260	5	4 1/2	1/2	1/2	0.215	4 3/8	3 7/8	1/2	1/2
0.245	6	5 1/2	1/2	1/2	0.260	6	5 1/2	1/2	1/2	0.215	5	4 1/2	1/2	1/2
0.245	7	6 1/2	1/2	1/2	0.260	7	6 1/2	1/2	1/2	0.215	6	5 1/2	1/2	1/2
0.245	8	7 1/2	1/2	1/2	0.260	8	7 1/2	1/2	1/2	0.215	7	6 1/2	1/2	1/2
					0.260	10	9 1/2	1/2	1/2	0.215	8	7 1/2	1/2	1/2
					0.260	12	11 1/2	1/2	1/2					
					0.260	14	13 1/2	1/2	1/2					
#3 PHILLIPS PAN HEAD					#3 PHILLIPS PAN HEAD					1/4" HEX HEAD				
0.118					0.118					0.180				
0.448					0.448					0.392				
YES					YES					YES				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
ROUND	2	GALVALUME			ROUND	2	GALVALUME			ROUND	3	GALVALUME		
SQUARE	3	GALVALUME			SQUARE	3	GALVALUME							
ROUND	3	PLASTIC												
REQUIRED					REQUIRED					REQUIRED				
ACCU DRIVE XL PLUS (OPTIONAL)					ACCU DRIVE XL PLUS (OPTIONAL)					ACCU FAST STAND-UP TOOL (OPTIONAL)				
728					606					544				
1,104					1,410					1,292				
YES					YES					YES				
FM, METRO-DADE COUNTY					FM					FM				
YES					YES					YES				
										X				



# Roof Fasteners: Wood Decks

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.					JOHNS MANVILLE INTERNATIONAL INC.				
2. PRODUCT NAME	ULTRAFAST/HEX HEAD					ULTRA GRIP PHILLIPS HEAD #12				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH: A. INSULATION ATTACHMENT B. BUILT-UP MEMBRANES C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	HARDENED CARBON STEEL					HARDENED CARBON STEEL				
6. COATING TYPE	CLIMASEAL					SPEX				
7. SHANK TYPE	MODIFIED BUTTRESS THREAD					MODIFIED BUTTRESS THREAD				
8. POINT TYPE	SELF-DRILLING X-POINT					SELF-DRILLING X-POINT				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.215	1 5/8	5/8	1	1	0.215	1 5/8	5/8	1	1
	0.215	2 1/4	1 1/4	1	1	0.215	2 1/4	1 1/4	1	1
	0.215	2 7/8	1 7/8	1	1	0.215	2 7/8	1 7/8	1	1
	0.215	3 1/4	2 1/4	1	1	0.215	3 1/4	2 1/4	1	1
	0.215	3 3/4	2 3/4	1	1	0.215	3 3/4	2 3/4	1	1
	0.215	4 3/8	3 3/8	1	1	0.215	4 3/8	3 3/8	1	1
	0.215	5	4	1	1	0.215	5	4	1	1
	0.215	6	5	1	1	0.215	6	5	1	1
	0.215	7	6	1	1	0.215	7	6	1	1
	0.215	8	7	1	1	0.215	8	7	1	1
11. HEAD SHAPE	1/4-IN. HEX HEAD					#3 PHILLIPS				
12. HEAD DIMENSIONS (inches) THICKNESS DIAMETER	0.180 0.392					0.118 0.448				
13. PLATES A. REQUIRED (yes/no) B. AVAILABLE FROM MANUFACTURER (yes/no)	YES YES					YES YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	
	SQUARE	3 X 3	CARBON STEEL WITH GALVALUME POLYOLEFIN	SQUARE	3 X 3	CARBON STEEL WITH GALVALUME POLYOLEFIN	SQUARE	3 X 3	CARBON STEEL WITH GALVALUME POLYOLEFIN	
	ROUND J. MANVILLE LOCKING PLATE	3		ROUND J. MANVILLE LOCKING PLATE	3		ROUND J. MANVILLE LOCKING PLATE	3		
15. INSTALLATION EQUIPMENT SCREW GUN (optional/required) INSTALLATION TOOL WITH SCREW GUN (optional/required) SPECIAL TOOL NEEDED (optional/required) OTHER	REQUIRED OPTIONAL (ACCUDRIVE)					REQUIRED OPTIONAL (ACCUDRIVE)				
16. AVERAGE PULLOUT RESISTANCE (lbs.) (FM TINIUS OLSEN PULLOUT RESISTANCE TESTS) 3/4-INCH PLYWOOD 2-INCH PINE PLANK	544 1,292					544 1,292				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF (yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, UL, METRO-DADE COUNTY					FM, UL, METRO-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES					NO				
20. SEE APPENDIX IF CHECKED										

NA=not applicable

# Roof Fasteners: Wood Decks

NATIONAL NAIL CORPORATION					NATIONAL NAIL CORPORATION					NATIONAL NAIL CORPORATION				
R/S ROUND-TOP					ROUND-TOP MASONRY					PLASTI-TOP				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL					HIGH CARBON STEEL					CARBON STEEL				
NA					NA					NA				
ANULAR THREADED					FLUTED					ANNULAR THREAD				
DIAMOND					DIAMOND					DIAMOND				
THREADED FRICTION					THREADED FRICTION					THREADED FRICTION				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.990	3/4	1/8	1	1	0.164	5/8	1/8	1/2	1	0.990	3/4	1/8	1	1
0.990	7/8	1/8	1	1	0.164	3/4	1/8	1/2	1	0.990	7/8	1/8	1	1
0.990	1	1/8	1	1	0.164	7/8	1/8	1/2	1	0.990	1	1/8	1	1
0.990	1 1/4	1/2	1	1	0.164	1	1/2	1/2	1	0.990	1 1/4	1/2	1	1
0.990	1 1/2	3/4	1	1	0.164	1 1/4	3/4	1/2	1	0.990	1 1/2	3/4	1	1
0.990	1 3/4	1	1	1	0.164	1 1/2	1	1/2	1	0.990	1 3/4	1	1	1
0.990	2	1 1/4	1	1	0.164	1 3/4	1 1/4	1/2	1	0.990	2	1 1/4	1	1
0.110	2 1/2	1 3/4	1	1	0.164	2	1 1/2	1/2	1	0.990	2 1/2	1 3/4	1	1
0.128	3	2 1/4	1	1	0.164	2 1/2	2	1/2	1					
					0.164	3	2 1/2	1/2	1					
					0.164	3 1/2	3	1/2	1					
					0.164	4	3 1/2	1/2	1					
ROUND					ROUND					ROUND				
0.045					0.045					0.060				
1.00					1.00					1.00				
NO					NO					NO				
Column 1		Column 2	Column 3		Column 1		Column 2	Column 3		Column 1		Column 2	Column 3	
Shape		Dimensions (inches)	Material		Shape		Dimensions (inches)	Material		Shape		Dimensions (inches)	Material	
NA		NA	NA		NA		NA	NA		NA		NA	NA	
HAMMER (REQUIRED)					HAMMER (REQUIRED)					HAMMER (REQUIRED)				
NO					NO					NO				
BOCA, ICBO					BOCA, ICBO					BOCA, ICBO				
YES					YES					YES				
X					X					X				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	NATIONAL NAIL CORPORATION					OLYMPIC MANUFACTURING GROUP				
2. PRODUCT NAME	PLASTI-CAP					OLYMPIC FASTENER #12-12.5				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CARBON STEEL					HARDENED CARBON STEEL				
6. COATING TYPE	NA					CR-10 FLUOROCARBON				
7. SHANK TYPE	SPIRAL THREAD					THREADED				
8. POINT TYPE	DIAMOND					PINCH, SELF-DRILLING; GIMLET; OR TAPEX				
9. METHOD OF ATTACHMENT	THREADED FRICTION					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.110	3/4	1/8	1	1	0.160	1 5/8	5/8	1/2	1
	0.110	7/8	1/8	1	1	0.160	2 1/4	1 1/4	1/2	1
	0.110	1	1/8	1	1	0.160	2 7/8	1 7/8	1/2	1
	0.110	1 1/4	1/2	1	1	0.160	3 1/4	2 1/4	1/2	1
	0.110	1 1/2	3/4	1	1	0.160	3 3/4	2 3/4	1/2	1
	0.110	1 3/4	1	1	1	0.160	4 1/2	3 1/2	1/2	1
	0.110	2	1 1/4	1	1	0.168	5	4	1/2	1
	0.110	2 1/2	1 3/4	1	1	0.168	6	5	1/2	1
	0.110	3	2 1/4	1	1	0.168	7	6	1/2	1
						0.168	8	7	1/2	1
11. HEAD SHAPE	OCTAGON					ROUND TRUSS, #3 PHILLIPS, OR HEX HEAD				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.060					0.110				
DIAMETER	1.00					0.435				
13. PLATES										
A. REQUIRED (yes/no)	NO					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)						YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material							
	NA	NA	NA							
	ROUND	2	STEEL							
	ROUND	2	PLASTIC							
	ROUND	2	STAINLESS STEEL							
	ROUND	3	STEEL							
	ROUND	3	PLASTIC							
	ROUND	3	STAINLESS STEEL							
	ROUND	3 1/2	STEEL							
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)						REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)						OPTIONAL				
SPECIAL TOOL NEEDED (optional/required)										
OTHER	HAMMER (REQUIRED)									
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD						531				
2-INCH PINE PLANK						735				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF (yes/no)	NO					YES				
18. ACCEPTED BY THE FOLLOWING CODES	BOCA, ICBO					FM, UL, ICBO, METRO-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

OLYMPIC MANUFACTURING GROUP					OLYMPIC MANUFACTURING GROUP					OLYMPIC MANUFACTURING GROUP				
OLYMPIC FASTENER #12-11 (S.STEEL)					OLYMPIC FASTENER #14-10 (C STEEL)					OLYMPIC FASTENER #14-10 (S.STEEL)				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
STAINLESS STEEL, SPECIAL 400-SERIES BLEND					HARDENED CARBON STEEL					STAINLESS STEEL, SPECIAL 400-SERIES BLEND				
CR-10 FLUOROCARBON					CR-10 FLUOROCARBON					CR-10 FLUOROCARBON				
THREADED					THREADED					THREADED				
PINCH, SELF-DRILLING					PINCH, SELF-DRILLING OR TAPEX					PINCH, SELF-DRILLING				
THREADED					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.168	1 5/8	5/8	1/2	1	0.190	1 1/4	3/4	1/2	1	0.190	1 1/4	3/4	1/2	1
0.168	2 1/4	1 1/4	1/2	1	0.190	1 3/4	1 1/4	1/2	1	0.190	1 3/4	1 1/4	1/2	1
0.168	2 7/8	2 3/8	1/2	1	0.190	2	1 1/2	1/2	1	0.190	2	1 1/2	1/2	1
0.168	3 1/4	2 1/4	1/2	1	0.190	3	2 1/2	1/2	1	0.190	3	2 1/2	1/2	1
0.168	3 3/4	2 3/4	1/2	1	0.190	4	3 1/2	1/2	1	0.190	4	3 1/2	1/2	1
0.168	4 1/2	3 1/2	1/2	1	0.190	5	4 1/2	1/2	1	0.190	5	4 1/2	1/2	1
0.168	5	4	1/2	1	0.190	6	5 1/2	1/2	1	0.190	6	5 1/2	1/2	1
0.168	6	5	1/2	1	0.190	7	6 1/2	1/2	1	0.190	7	6 1/2	1/2	1
0.168	7	6	1/2	1	0.190	8	7 1/2	1/2	1	0.190	8	7 1/2	1/2	1
0.168	8	7	1/2	1	0.190	9	8 1/2	1/2	1	0.190	9	8 1/2	1/2	1
					0.190	10	9 1/2	1/2	1	0.190	10	9 1/2	1/2	1
					0.190	11	10 1/2	1/2	1	0.190	11	10 1/2	1/2	1
					0.190	12	11 1/2	1/2	1	0.190	12	11 1/2	1/2	1
					0.190	14	13 1/2	1/2	1	0.190	14	13 1/2	1/2	1
					0.190	16	15 1/2	1/2	1	0.190	16	15 1/2	1/2	1
					0.201	17	16 1/2	1/2	1	0.201	17	16 1/2	1/2	1
					0.201	18	17 1/2	1/2	1	0.201	18	17 1/2	1/2	1
					0.201	20	19 1/2	1/2	1	0.201	20	19 1/2	1/2	1
					0.201	21	20 1/2	1/2	1	0.201	21	20 1/2	1/2	1
					0.201	22	21 1/2	1/2	1	0.201	22	21 1/2	1/2	1
					0.201	24	23 1/2	1/2	1	0.201	24	23 1/2	1/2	1
ROUND TRUSS, #3 PHILLIPS					ROUND TRUSS, #3 PHILLIPS					ROUND TRUSS, #3 PHILLIPS				
0.110					0.110					0.110				
0.435					0.435					0.435				
YES					YES					YES				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
ROUND	2	STAINLESS STEEL			ROUND	2	STAINLESS STEEL			ROUND	2	STAINLESS STEEL		
ROUND	3	STAINLESS STEEL			ROUND	3	STAINLESS STEEL			ROUND	3	STAINLESS STEEL		
ROUND	2	STEEL			ROUND	2	STEEL			ROUND	2	STEEL		
ROUND	2	PLASTIC			ROUND	2	PLASTIC			ROUND	2	PLASTIC		
ROUND	3	STEEL			ROUND	3	STEEL			ROUND	3	STEEL		
ROUND	3	PLASTIC			ROUND	3	PLASTIC			ROUND	3	PLASTIC		
ROUND	3 1/2	STEEL			ROUND	3 1/2	STEEL			ROUND	3 1/2	STEEL		
REQUIRED					REQUIRED					REQUIRED				
OPTIONAL					OPTIONAL					OPTIONAL				
531					590					590				
735					820					820				
YES					YES					YES				
FM, UL, ICBO, METRO-DADE COUNTY					FM, UL, ICBO, METRO-DADE COUNTY					FM, UL, ICBO, METRO-DADE COUNTY				
YES					YES					YES				
X					X					X				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	POWERS FASTENERS, INC.					POWERS FASTENERS, INC.				
2. PRODUCT NAME	POWERS RAWL # 14 DECK SCREW					POWERS RAWL WOODIE				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CASE HARDENED CARBON STEEL					ZAMAC ALLOY				
6. COATING TYPE	PERMA-SEAL FLUOROPOLYMER					GALVALUME				
7. SHANK TYPE	SPIRAL THREAD					TAPERED/THREADED (SPECIAL DESIGN)				
8. POINT TYPE	DRILL TYPE					SELF-DRILLING				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.238	1 5/8	1 3/8	1/4		0.490	1 3/4	1/8	3/4	
	0.238	2 1/4	2 5/8	1/4		0.490	2 1/2	3/4	3/4	
	0.238	2 7/8	3 1/2	1/4		0.490	3 1/4	1 1/2	3/4	
	0.238	3 3/4	4	1/4		0.490	4	2 1/4	3/4	
	0.238	4 1/2	4 1/4	1/4		0.490	4 3/4	3	3/4	
	0.238	5	4 3/4	1/4						
	0.238	6	5 3/4	1/4						
	0.238	7	6 3/4	1/4						
	0.238	8	7 3/4	1/4						
	0.238	10	9 3/4	1/4						
	0.238	12	11 3/4	1/4						
11. HEAD SHAPE	PHILLIPS FLAT TRUSS HEAD #3 RECESS					FLAT, SQUARE DRIVE RECESS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.118					0.073				
DIAMETER	0.448					0.600				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	ROUND BARBED	2	GALVALUME			ROUND BARBED	2	GALVALUME		
	ROUND	3	GALVALUME			ROUND BARBED	3	GALVALUME		
	ROUND	3	STAINLESS STEEL							
	ROUND	3	PLASTIC							
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	STAND-UP TOOL (OPTIONAL)					SQUARE DRIVER (INCLUDED)				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	730					591				
2-INCH PINE PLANK										
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF (yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM					FM				
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED						X				

NA=not applicable

# Roof Fasteners: Wood Decks

POWERS FASTENERS INC.					POWERS FASTENERS, INC.					POWERS FASTENERS, INC.							
POWERS RAWL # 12 DECK SCREW					POWERS RAWL # 15 DECK SCREW					POWERS RAWL SPEED-LOCK TOGGLE							
U.S.					U.S.					U.S.							
X					X					X							
X					X					X							
X					X					X							
CASE HARDENED CARBON STEEL					CASE HARDENED CARBON STEEL					CARBON STEEL & STAINLESS STEEL							
PERMA-SEAL FLUOROPOLYMER					PERMA-SEAL FLUOROPOLYMER					PERMA-SEAL FLUOROPOLYMER (ON CARBON STEEL BOLT ONLY)							
SPIRAL THREAD					SPIRAL THREAD					ANNULAR THREAD							
RICOH "S" POINT/DRILL TYPE					RICOH "S" POINT					NA							
THREADED					THREADED					THREADED							
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5			
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration Plywood (inches)	Required Deck Penetration, Wood (inches)			
0.226	1 5/8	1 3/8	1/4		0.264	1 1/4	1	1/4		0.250	5	3 1/2	1 1/2				
0.226	2 1/4	2	1/4		0.264	2	1 3/4	1/4		0.250	6	4 1/2	1 1/2				
0.226	2 7/8	2 5/8	1/4		0.264	3	2 3/4	1/4		0.250	7	5 1/2	1 1/2				
0.226	3 1/4	3	1/4		0.264	4	3 3/4	1/4		0.250	8	6 1/2	1 1/2				
0.226	3 3/4	3 1/2	1/4		0.264	5	4 3/4	1/4		0.250	9	7 1/2	1 1/2				
0.226	4 1/2	4 1/4	1/4		0.264	6	5 3/4	1/4		0.250	10	8 1/2	1 1/2				
0.226	5	4 3/4	1/4		0.264	7	6 3/4	1/4		0.250	12	10 1/2	1 1/2				
0.226	6	5 3/4	1/4		0.264	8	7 3/4	1/4		0.250	14	12 1/2	1 1/2				
0.226	7	6 3/4	1/4		0.264	10	9 3/4	1/4									
0.226	8	7 3/4	1/4		0.264	12	11 3/4	1/4									
					0.264	14	13 3/4	1/4									
					0.264	16	15 3/4	1/4									
PHILLIPS TRUSS HEAD #3 RECESS WASHER / 1/4" HEX HEAD					PHILLIPS TRUSS HEAD #3 RECESS					PHILLIPS FLAT HEAD # RECESS							
0.130, 0.140					0.130					0.042							
0.448, 0.385					0.448					0.426							
YES					YES					YES							
YES					YES					YES							
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3					
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material					
ROUND BARBED ROUND ROUND ROUND	2 3 3 3	GALVALUME GALVALUME STAINLESS STEEL PLASTIC			ROUND BARBED ROUND ROUND ROUND	2 3 3 3	GALVALUME GALVALUME STAINLESS STEEL PLASTIC			ROUND	3	GALVALUME					
REQUIRED					REQUIRED					OPTIONAL							
STAND-UP TOOL (OPTIONAL)					STAND-UP TOOL (OPTIONAL)												
										ROTARY DRILL WITH WOOD CUTTING BIT (REQUIRED)							
710					720					710							
YES					YES					YES							
FM					FM					FM							
YES					YES					YES							
X										X							

# Roof Fasteners: Wood Decks

1. COMPANY NAME	SENCO PRODUCTS, INC.					SFS STADLER INC.				
2. PRODUCT NAME	SENCO BASE TAPE SYSTEM					INSUL-FIXX #12-11				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT						X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES						X				
5. MATERIAL TYPE	CLASS 1 GALVANIZED STEEL					HARDENED STEEL				
6. COATING TYPE	SENCOTE PLASTIC POLYMER					TUFF-TITE II				
7. SHANK TYPE	STAPLE-16 GA.					SPIRAL THREAD				
8. POINT TYPE	DIVERGENT					DRILL POINT				
9. METHOD OF ATTACHMENT	MECHANICALLY ATTACHED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.62 X 0.55	7/8				0.172	1 5/8	1 1/8	1/2	1
						0.172	2 1/4	1 3/4	1/2	1
						0.172	2 7/8	2 3/8	1/2	1
						0.172	3 1/4	2 3/4	1/2	1
						0.172	3 3/4	3 1/4	1/2	1
						0.172	4 1/2	4	1/2	1
						0.172	5	4 1/2	1/2	1
						0.172	6	5 1/2	1/2	1
						0.172	7	6 1/2	1/2	1
						0.172	8	7 1/2	1/2	1
11. HEAD SHAPE	STAPLE					ROUND WITH #3 PHILLIPS TRUSS				
12. HEAD DIMENSIONS (inches)										
THICKNESS						0.103				
DIAMETER						0.425				
13. PLATES										
A. REQUIRED (yes/no)						YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	NO					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	
				ROUND ROUND	3 3	POLYETHYLENE GALVALUME				
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)						REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	REQUIRED									
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD						630				
2-INCH PINE PLANK						756				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	NO					YES				
18. ACCEPTED BY THE FOLLOWING CODES	ICBO					FM, METRO.-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	NO					YES				
20. SEE APPENDIX IF CHECKED						X				

NA=not applicable

# Roof Fasteners: Wood Decks

SFS STADLER INC.					SFS STADLER INC.					SFS STADLER INC.				
INSUL-FIXX #14-10					SYSTEM ES I #14-10					SYSTEM ES L #14-10				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
HARDENED STEEL					HARDENED STEEL					HARDENED STEEL				
TUFF-TITE II					TUFF TITE II					TUFF TITE II				
SPIRAL THREAD					SPIRAL THREAD					SPIRAL THREAD				
DRILL POINT					DRILL POINT					DRILL POINT				
THREADED					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.190	1 1/4	3/4	1/2	1	0.190	2	1	1/2	1	0.190	2	1	1/2	1
0.190	2	1 1/2	1/2	1	0.190	3	2	1/2	1	0.190	3	2	1/2	1
0.190	3	2 1/2	1/2	1	0.190	4	3	1/2	1	0.190	4	3	1/2	1
0.190	4	3 1/2	1/2	1	0.190	5	4	1/2	1	0.190	5	4	1/2	1
0.190	5	4 1/2	1/2	1	0.190	6	5	1/2	1	0.190	6	5	1/2	1
0.190	6	5 1/2	1/2	1	0.190	7	6	1/2	1	0.190	7	6	1/2	1
0.190	7	6 1/2	1/2	1	0.190	8	7	1/2	1	0.190	8	7	1/2	1
0.190	8	7 1/2	1/2	1	0.190	10	9	1/2	1	0.190	10	9	1/2	1
0.190	10	9 1/2	1/2	1	0.190	12	11	1/2	1	0.190	12	11	1/2	1
0.190	12	11 1/2	1/2	1										
0.190	14	13 1/2	1/2	1										
0.190	16	15 1/2	1/2	1										
0.190	18	17 1/2	1/2	1										
0.190	20	19 1/2	1/2	1										
0.190	22	21 1/2	1/2	1										
0.190	24	23 1/2	1/2	1										
0.190	26	25 1/2	1/2	1										
ROUND WITH #3 PHILLIPS TRUSS					ROUND WITH #3 PHILLIPS TRUSS					ROUND WITH #3 PHILLIPS TRUSS				
0.103					0.103					0.103				
0.425					0.425					0.425				
YES					YES					YES				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
ROUND ROUND ROUND ROUND	3 3 2 2	POLYETHYLENE GALVALUME NYLON WITH GLASS GALVALUME			ROUND	3	POLYETHYLENE			ROUND	2	NYLON WITH GLASS		
REQUIRED					REQUIRED					REQUIRED				
					OPTIONAL					OPTIONAL				
					OPTIONAL					OPTIONAL				
691					691					691				
819					819					819				
YES					YES					YES				
FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY				
YES					YES					YES				
X					X					X				



# Roof Fasteners: Wood Decks

1. COMPANY NAME	SFS STADLER INC.					SFS STADLER INC.				
2. PRODUCT NAME	SYSTEM ES I #12-11					ISOFAST IG-M				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	HARDENED STEEL					CARBON STEEL				
6. COATING TYPE	TUFF-TITE II					TUFF-TITE II				
7. SHANK TYPE	SPIRAL THREAD					THREADED				
8. POINT TYPE	DRILL POINT					GIMLET				
9. METHOD OF ATTACHMENT	THREADED					THREADED				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.172	2 1/4	1 3/4	1/2	1	0.236	2 1/4	1	1 1/4	1 1/4
	0.172	2 7/8	2 3/8	1/2	1	0.236	2 3/4	1 1/2	1 1/4	1 1/4
	0.172	3 1/4	2 3/4	1/2	1	0.236	3 1/8	1 7/8	1 1/4	1 1/4
	0.172	3 3/4	3 1/4	1/2	1	0.236	3 7/8	2 5/8	1 1/4	1 1/4
	0.172	4 1/2	4	1/2	1	0.236	4 3/4	3 1/2	1 1/4	1 1/4
	0.172	5	4 1/2	1/2	1	0.236	5 1/2	4 1/4	1 1/4	1 1/4
	0.172	6	5 1/2	1/2	1	0.236	6 1/4	5	1 1/4	1 1/4
	0.172	7	6 1/2	1/2	1					
	0.172	8	7 1/2	1/2	1					
11. HEAD SHAPE	ROUND WITH #3 PHILLIPS TRUSS					5/16 HEX HEAD				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.103					0.156				
DIAMETER	0.425					0.406				
13. PLATES										
A. REQUIRED (yes/no)	YES					YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	ROUND	3	POLYETHYLENE			OV AL SQU ARE DOM ED CON VEX	3 1/4 X 1 5/8 2 3/4 X 2 3/4 3 1/4 X 1 5/8	GALVALUME GALVALUME GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL					REQUIRED				
SPECIAL TOOL NEEDED (optional/required)	OPTIONAL					REQUIRED				
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	630					545				
2-INCH PINE PLANK	756					1,100				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

SFS STADLER INC.					SFS STADLER INC.					SIMPLEX				
ISOFAST IW-T-M					EXTRA LOAD FASTENER HD					ORIGINAL ROUND METAL CAP AG/RL				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL					HARDENED STEEL					CARBON STEEL				
TUFF-TITE II					TUFF-TITE II					RUST-LOK				
THREADED					THREADED					ANNULAR GROOVED				
GIMLET					DRILL POINT					DIAMOND				
THREADED					THREADED					THREADED FRICTION				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)
0.196	1 5/8	1 3/4	1	1	0.205	1 1/4	3/4	1/2	1/2	0.106	1/2	1/16	The	1/2
0.196	2 3/4	3/8	1	1	0.205	2	1	1/2	1/2	0.106	5/8	1/16	nail	5/8
					0.205	3	2	1/2	1/2	0.106	3/4	1/16	must	3/4
					0.205	4	3	1/2	1/2	0.106	7/8	1/16	pass	7/8
					0.205	5	4	1/2	1/2	0.106	1	1/16	thru	1
					0.205	6	5	1/2	1/2	0.106	1 1/4	1/4	the	1
					0.205	8	7	1/2	1/2	0.120	1 1/2	1/2	plywood	1
					0.205	10	9	1/2	1/2	0.120	1 3/4	3/4	by	1
					0.205	12	11	1/2	1/2	0.120	2	1	a	1
					0.205	14	13	1/2	1/2	0.120	2 1/2	1 1/2	1/4"	1
					0.205	16	15	1/2	1/2	0.120	3	2		1
COUNTERSUNK POSI-DRIVE #2					ROUND WITH #3 PHILLIPS TRUSS					ROUND				
0.156					0.103					0.037				
0.406					0.425					1.000				
YES					YES					NO				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
OV AL SQUARE	3 1/4 X 1 5/8 2 3/4 X 2 3/4	GALVALUME GALVALUME			ROUND ROUND	3 2	GALVALUME GALVALUME			PARABOLIC PARABOLIC	2 3	GALVALUME GALVALUME		
REQUIRED					REQUIRED					NO				
REQUIRED					OPTIONAL					NO				
REQUIRED										NO				
										MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
445					885					224				
880					1,200					190				
YES					YES					NO				
FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY					APA, FFN-105B				
YES					YES					YES				
X					X					X				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	SIMPLEX					SIMPLEX				
2. PRODUCT NAME	ORIGINAL ROUND METAL CAP AG/EYD					ORIGINAL ROUND METAL CAP AG/B				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CARBON STEEL					CARBON STEEL				
6. COATING TYPE	ELECTRO GALVINZED YELLOW DICHROMATE					BRIGHT FINISH				
7. SHANK TYPE	ANNULAR GROOVED					ANNULAR GROOVED				
8. POINT TYPE	DIAMOND					DIAMOND				
9. METHOD OF ATTACHMENT	THREADED FRICTION					THREADED FRICTION				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.106	1/2	1/16	The	1/2	0.106	1/2	1/16	The	1/2
	0.106	5/8	1/16	nail	5/8	0.106	5/8	1/16	nail	5/8
	0.106	3/4	1/16	must	3/4	0.106	3/4	1/16	must	3/4
	0.106	7/8	1/16	pass	7/8	0.106	7/8	1/16	pass	7/8
	0.106	1	1/16	thru	1	0.106	1	1/16	thru	1
	0.106	1 1/4	1/4	the	1	0.106	1 1/4	1/4	the	1
	0.120	1 1/2	1/2	plywood	1	0.120	1 1/2	1/2	plywood	1
	0.120	1 3/4	3/4	by	1	0.120	1 3/4	3/4	by	1
	0.120	2	1	a	1	0.120	2	1	a	1
	0.120	2 1/2	1 1/2	1/4"	1	0.120	2 1/2	1 1/2	1/4"	1
	0.120	3	2		1	0.120	3	2		1
11. HEAD SHAPE	ROUND					ROUND				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.037					0.037				
DIAMETER	1.000					1.000				
13. PLATES										
A. REQUIRED (yes/no)	NO					NO				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
	PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	NO					NO				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	NO					NO				
SPECIAL TOOL NEEDED (optional/required)	NO					NO				
OTHER	MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	224					224				
2-INCH PINE PLANK	190					190				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	NO					NO				
18. ACCEPTED BY THE FOLLOWING CODES	APA, FFN-105B					APA, FFN-105B				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

SIMPLEX					SIMPLEX					SIMPLEX				
ORIGINAL ROUND METAL CAP B/RL					ORIGINAL ROUND METAL CAP B/EGYD					ORIGINAL ROUND METAL CAP B/B				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL					CARBON STEEL					CARBON STEEL				
RUST-LOK					YELLOW DICHROMATE					BRIGHT FINISH				
BARBED					BARBED					BARBED				
DIAMOND					DIAMOND					DIAMOND				
FRICTION					FRICTION					FRICTION				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)
0.106	1/2	1/16	The	1/2	0.106	1/2	1/16	The	1/2	0.106	1/2	1/16	The	1/2
0.106	5/8	1/16	nail	5/8	0.106	5/8	1/16	nail	5/8	0.106	5/8	1/16	nail	5/8
0.106	3/4	1/16	must	3/4	0.106	3/4	1/16	must	3/4	0.106	3/4	1/16	must	3/4
0.106	7/8	1/16	pass	7/8	0.106	7/8	1/16	pass	7/8	0.106	7/8	1/16	pass	7/8
0.106	1	1/16	thru	1	0.106	1	1/16	thru	1	0.106	1	1/16	thru	1
0.106	1 1/4	1/4	the	1	0.106	1 1/4	1/4	the	1	0.106	1 1/4	1/4	the	1
0.120	1 1/2	1/2	plywood	1	0.120	1 1/2	1/2	plywood	1	0.120	1 1/2	1/2	plywood	1
0.120	1 3/4	3/4	by	1	0.120	1 3/4	3/4	by	1	0.120	1 3/4	3/4	by	1
0.120	2	1	a	1	0.120	2	1	a	1	0.120	2	1	a	1
0.120	2 1/2	1 1/2	1/4"	1	0.120	2 1/2	1 1/2	1/4"	1	0.120	2 1/2	1 1/2	1/4"	1
0.120	3	2		1	0.120	3	2		1	0.120	3	2		1
ROUND					ROUND					ROUND				
0.037					0.037					0.037				
1.000					1.000					1.000				
NO					NO					NO				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
NO					NO					NO				
NO					NO					NO				
NO					NO					NO				
MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
99					99					99				
67					67					67				
NO					NO					NO				
APA, FFN-105B					APA, FFN-105B					APA, FFN-105B				
YES					YES					YES				
X					X					X				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	SIMPLEX					SIMPLEX				
2. PRODUCT NAME	INSULATION ROUND METAL CAP AG/RL					INSULATION ROUND METAL CAP AG/EGYD				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CARBON STEEL					CARBON STEEL				
6. COATING TYPE	RUST-LOK					ELECTRO GALVANIZED YELLOW DICHROMATE				
7. SHANK TYPE	ANNULAR GROOVED					ANNULAR GROOVED				
8. POINT TYPE	DIAMOND					DIAMOND				
9. METHOD OF ATTACHMENT	THREADED FRICTION					THREADED FRICTION				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.120	3	2	The	1	0.120	3	2	The	1
	0.120	3 1/2	2 1/2	nail	1	0.120	3 1/2	2 1/2	nail	1
	0.120	4	3	must	1	0.120	4	3	must	1
	0.120	5	4	pass	1	0.120	5	4	pass	1
	0.120	6	5	thru	1	0.120	6	5	thru	1
	0.120	7	6	the	1	0.120	7	6	the	1
	0.120	8	7	plywood by a 1/4"	1	0.120	8	7	plywood by a 1/4"	1
11. HEAD SHAPE	ROUND					ROUND				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.037					0.037				
DIAMETER	1.000					1.000				
13. PLATES										
A. REQUIRED (yes/no)	NO					NO				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
	PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	NO					NO				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	NO					NO				
SPECIAL TOOL NEEDED (optional/required)	NO					NO				
OTHER	MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	224					224				
2-INCH PINE PLANK	273					273				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	NO					NO				
18. ACCEPTED BY THE FOLLOWING CODES	APA, FFN-105B					APA, FFN-105B				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

SIMPLEX					SIMPLEX					SIMPLEX				
INSULATION ROUND METAL CAP AG/B					INSULATION ROUND METAL CAP B/RL					INSULATION ROUND METAL CAP B/EGYD				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL					CARBON STEEL					CARBON STEEL				
BRIGHT FINISH					RUST-LOK					ELECTRO GALVANIZED YELLOW DICHROMATE				
ANNULAR GROOVED					BARBED					BARBED				
DIAMOND					DIAMOND					DIAMOND				
THREADED FRICTION					FRICTION					FRICTION				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)	Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)
0.120	3	2	The	1	0.120	3	2	The	1	0.120	3	2	The	1
0.120	3 1/2	2 1/2	nail	1	0.120	3 1/2	2 1/2	nail	1	0.120	3 1/2	2 1/2	nail	1
0.120	4	3	must	1	0.120	4	3	must	1	0.120	4	3	must	1
0.120	5	4	pass	1	0.120	5	4	pass	1	0.120	5	4	pass	1
0.120	6	5	thru	1	0.120	6	5	thru	1	0.120	6	5	thru	1
0.120	7	6	the	1	0.120	7	6	the	1	0.120	7	6	the	1
0.120	8	7	plywood by a 1/4"	1	0.120	8	7	plywood by a 1/4"	1	0.120	8	7	plywood by a 1/4"	1
ROUND					ROUND					ROUND				
0.037					0.037					0.037				
1.000					1.000					1.000				
NO					NO					NO				
YES					YES					YES				
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
NO					NO					NO				
NO					NO					NO				
NO					NO					NO				
MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
224					99					99				
273					92					92				
NO					NO					NO				
APA, FFN-105B					APA, FFN-105B					APA, FFN-105B				
YES					YES					YES				
X					X					X				

# Roof Fasteners: Wood Decks

1. COMPANY NAME	SIMPLEX					SIMPLEX				
2. PRODUCT NAME	INSULATION ROUND METAL CAP B/B					SQUARE HEAD METAL CAP B/EGYD				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CARBON STEEL					CARBON STEEL				
6. COATING TYPE	BRIGHT FINISH					ELECTRO GALVANIZED YELLOW DICHROMATE				
7. SHANK TYPE	BARBED					BARBED				
8. POINT TYPE	DIAMOND					DIAMOND				
9. METHOD OF ATTACHMENT	FRICTION					FRICTION				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.120	3	2	The	1	0.106	3/4	1/16	The	3/4
	0.120	3 1/2	2 1/2	nail	1	0.106	7/8	1/16	nail	7/8
	0.120	4	3	must	1	0.106	1	1/16	must	1
	0.120	5	4	pass	1	0.106	1 1/4	1/4	pass	1
	0.120	6	5	thru	1	0.106	1 1/2	1/2	thru	1
	0.120	7	6	the	1	0.106	1 3/4	3/4	the	1
	0.120	8	7	plywood by a 1/4"	1				plywood by a 1/4"	
11. HEAD SHAPE	ROUND					ROUND				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.037					0.037				
DIAMETER	1.000					1.000				
13. PLATES										
A. REQUIRED (yes/no)	NO					NO				
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
	PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	NO					NO				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	NO					NO				
SPECIAL TOOL NEEDED (optional/required)	NO					NO				
OTHER	MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	99					99				
2-INCH PINE PLANK	92					113				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF (yes/no)	NO					NO				
18. ACCEPTED BY THE FOLLOWING CODES	APA, FFN-105B					APA, FFN-105B				
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

SIMPLEX					SIMPLEX					SIMPLEX				
SQUARE HEAD METAL CAP B/B					ECONOMY ROUND METAL CAP B/B					FLEX-CAP PLASTIC CAP AG/RL				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL					CARBON STEEL					CARBON STEEL / HIGH DENSITY POLYETHYLENE PLASTIC				
BRIGHT FINISH					BRIGHT FINISH					RUST-LOK				
BARBED					BARBED					ANNULAR GROOVED				
DIAMOND					DIAMOND					DIAMOND				
FRICTION					FRICTION					THREADED FRICTION				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.106	3/4	1/16	The	3/4	0.106	1/2	1/16	The	1/2	0.099	3/4	1/16	The	3/4
0.106	7/8	1/16	nail	7/8	0.106	5/8	1/16	nail	5/8	0.099	7/8	1/16	nail	7/8
0.106	1	1/16	must	1	0.106	3/4	1/16	must	3/4	0.099	1	1/16	must	1
0.106	1 1/4	1/4	pass	1	0.106	7/8	1/16	pass	7/8	0.099	1 1/4	1/4	pass	1
0.106	1 1/2	1/2	thru	1	0.106	1	1/16	thru	1	0.099	1 1/2	1/2	thru	1
0.106	1 3/4	3/4	the	1	0.106	1 1/4	1/4	the	1	0.099	1 3/4	3/4	the	1
			plywood		0.120	1 1/2	1/2	plywood	1	0.106	2	1	plywood	1
			by		0.120	1 3/4	3/4	by	1	0.106	2 1/2	1 1/2	by	1
			a		0.120	2	1	a	1	0.106	3	2	a	1
			1/4"		0.120	2 1/2	1 1/2	1/4"	1				1/4"	
					0.120	3	2		1					
ROUND					ROUND					ROUND				
0.037					0.037					0.125				
1.000					1.000					1.000				
NO					NO									
YES					YES									
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
NO					NO					NO				
NO					NO					NO				
NO					NO					NO				
MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
99					99					72				
113					92					72				
NO					NO					NO				
APA, FFN-105B					APA, FFN-105B					APA, FFN-105B				
YES					YES					YES				
X					X					X				



# Roof Fasteners: Wood Decks

1. COMPANY NAME	SIMPLEX					SIMPLEX				
2. PRODUCT NAME	FLEX-CAP PLASTIC CAP AG/EGYD					FLEX-CAP PLASTIC CAP AG/B				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CARBON STEEL / HIGH DENSITY POLYETHYLENE PLASTIC					CARBON STEEL / HIGH DENSITY POLYETHYLENE PLASTIC				
6. COATING TYPE	ELECTRO GALVANIZED YELLOW DICHROMATE					BRIGHT FINISH				
7. SHANK TYPE	ANNULAR GROOVED					ANNULAR GROOVED				
8. POINT TYPE	DIAMOND					DIAMOND				
9. METHOD OF ATTACHMENT	THREADED FRICTION					THREADED FRICTION				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.099	3/4	1/16	The	3/4	0.099	3/4	1/16	The	3/4
	0.099	7/8	1/16	nail	7/8	0.099	7/8	1/16	nail	7/8
	0.099	1	1/16	must	1	0.099	1	1/16	must	1
	0.099	1 1/4	1/4	pass	1	0.099	1 1/4	1/4	pass	1
	0.099	1 1/2	1/2	thru	1	0.099	1 1/2	1/2	thru	1
	0.099	1 3/4	3/4	the	1	0.099	1 3/4	3/4	the	1
	0.106	2	1	plywood	1	0.106	2	1	plywood	1
	0.106	2 1/2	1 1/2	by	1	0.106	2 1/2	1 1/2	by	1
	0.106	3	2	a	1	0.106	3	2	a	1
				1/4"					1/4"	
11. HEAD SHAPE	ROUND					ROUND				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.125					0.125				
DIAMETER	1.000					1.000				
13. PLATES										
A. REQUIRED (yes/no)										
B. AVAILABLE FROM MANUFACTURER (yes/no)										
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material			Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	PARABOLIC	2	GALVALUME			PARABOLIC	2	GALVALUME		
	PARABOLIC	3	GALVALUME			PARABOLIC	3	GALVALUME		
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	NO					NO				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	NO					NO				
SPECIAL TOOL NEEDED (optional/required)	NO					NO				
OTHER	MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER					MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMMER				
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	72					72				
2-INCH PINE PLANK	72					72				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	NO					NO				
18. ACCEPTED BY THE FOLLOWING CODES	APA, FFN-105B					APA, FFN-105B				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED	X					X				

NA=not applicable

# Roof Fasteners: Wood Decks

SIMPLEX					TRU-FAST CORPORATION					TRU-FAST CORPORATION				
COIL ROOFING NAILS					HD DRILL POINT STAINLESS STEEL					TP				
U.S.					U.S.					U.S.				
X					X					X				
X					X					X				
X					X					X				
CARBON STEEL					STAINLESS STEEL (TRIMRITE ALLOY #S-42010)					CARBON STEEL C-1022				
ELECTRO GALVANIZED					NA					TRU-KOTE PC-3 (FLUOROCARBON PAINT)				
SMOOTH					THREADED					THREADED				
DIAMOND					DOUBLE FLUTE SELF-DRILLING					GIMLET				
FRICTION					THREADED					THREADED				
Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5	Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)	Shank Dia-meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.135	7/8	1/16	The	7/8	0.180	1 1/2	1	1	1	0.150	1 5/8	5/8	1	1
0.135	1	1/8	nail	1	0.180	2	1 1/2	1	1	0.150	2 1/4	1 1/4	1	1
0.135	1 1/4	1/4	must	1	0.180	3	2 1/2	1	1	0.150	2 7/8	1 7/8	1	1
0.135	1 1/2	1/2	pass	1	0.180	4	3 1/2	1	1	0.150	3 3/4	2 3/4	1	1
0.135	1 3/4	3/4	thru	1	0.180	5	4 1/2	1	1	0.150	4 1/2	3 1/4	1	1
			the		0.180	6	5 1/2	1	1	0.150	5	4	1	1
			plywood		0.180	7	6 1/2	1	1	0.150	6	5	1	1
			by		0.180	8	7 1/2	1	1					
			a		0.180	10	9 1/2	1	1					
			1/4"		0.180	12	11 1/2	1	1					
ROUND					#10 TRUSS PHILLIPS #3					#10 TRUSS PHILLIPS #3				
0.037					0.105					0.110				
0.250					0.440					0.390				
					YES									
					YES									
Column 1	Column 2	Column 3			Column 1	Column 2	Column 3			Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material			Shape	Dimensions (inches)	Material		
ROUND	1-3	GALVANIZED			ROUND ROUND ROUND	2 3 3	GALVALUME GALVALUME PLASTIC			ROUND ROUND ROUND	2 3 3	GALVALUME GALVALUME PLASTIC		
NO					REQUIRED					REQUIRED				
NO					OPTIONAL					OPTIONAL				
ALL BRANDS OF PNEUMATIC NAIL GUNS														
60					495					636				
60					517					938				
NO					YES					YES				
NONE					FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY				
YES					YES					YES				
X														

# Roof Fasteners: Wood Decks

1. COMPANY NAME	TRU-FAST CORPORATION					TRU-FAST CORPORATION				
2. PRODUCT NAME	DP					HD (HEAVY DUTY) #14				
3. COUNTRY OF MANUFACTURE	U.S.					U.S.				
4. USED WITH:										
A. INSULATION ATTACHMENT	X					X				
B. BUILT-UP MEMBRANES	X					X				
C. SINGLE-PLY MEMBRANES	X					X				
5. MATERIAL TYPE	CARBON STEEL C-1022					CARBON STEEL C-1022				
6. COATING TYPE	TRU-KOTE PC-3 (FLUOROCARBON PAINT)					TRU-KOTE PC-3 (FLUOROCARBON PAINT)				
7. SHANK TYPE	THREADED					THREADED				
8. POINT TYPE	DOUBLE FLUTE SELF-DRILLING					DOUBLE FLUTE SELF-DRILLING				
9. METHOD OF ATTACHMENT	THREADED					THREADS				
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)	Column 1 Shank Dia- meters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration, Plywood (inches)	Column 5 Required Deck Penetration, Wood (inches)
	0.160	1 5/8	5/8	1	1	0.180	1 1/2	1/2	1	1
	0.160	2 1/4	1 1/4	1	1	0.180	2	1	1	1
	0.160	2 7/8	1 7/8	1	1	0.180	3	2	1	1
	0.160	3 1/4	2 1/4	1	1	0.180	4	3	1	1
	0.160	3 3/4	2 3/4	1	1	0.180	5	4	1	1
	0.160	4 1/2	3 1/4	1	1	0.180	6	5	1	1
	0.160	5	4	1	1	0.180	7	6	1	1
	0.160	6	5	1	1	0.180	8	7	1	1
	0.160	7	6	1	1	0.180	10	9	1	1
	0.160	8	7	1	1	0.180	12	11	1	1
11. HEAD SHAPE	#10 TRUSS PHILLIPS #3					TRUSS #3 PHILLIPS				
12. HEAD DIMENSIONS (inches)										
THICKNESS	0.105					0.105				
DIAMETER	0.440					0.440				
13. PLATES										
A. REQUIRED (yes/no)						YES				
B. AVAILABLE FROM MANUFACTURER (yes/no)						YES				
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape
	ROUND	2	GALVALUME	ROUND	2	GALVALUME	ROUND	2	GALVALUME	ROUND
	ROUND	3	GALVALUME	ROUND	3	GALVALUME	ROUND	3	GALVALUME	ROUND
	ROUND	3	PLASTIC	ROUND	3	PLASTIC	ROUND	3	PLASTIC	ROUND
15. INSTALLATION EQUIPMENT										
SCREW GUN (optional/required)	REQUIRED					REQUIRED				
INSTALLATION TOOL WITH SCREW GUN (optional/required)	OPTIONAL					OPTIONAL				
SPECIAL TOOL NEEDED (optional/required)										
OTHER										
16. AVERAGE PULLOUT RESISTANCE (lbs.)										
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS)										
3/4-INCH PLYWOOD	566					495				
2-INCH PINE PLANK	1,248					517				
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF A CLASS I WOOD ROOF										
(yes/no)	YES					YES				
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY					FM, METRO.-DADE COUNTY				
19. WARRANTY AVAILABLE FROM MANUFACTURER										
(yes/no)	YES					YES				
20. SEE APPENDIX IF CHECKED										

NA=not applicable

# Roof Fasteners: Wood Decks

U .S. INTEC				
DRILL-TEC CTP				
U.S.				
X				
X				
X				
CARBON STEEL				
FLUOROPOLYMER PAINT				
THREADED				
THREADED, SELF-TAPPING				
MECHANICAL				
Column 1	Column 2	Column 3	Column 4	Column 5
Shank Dia- meters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration, Plywood (inches)	Required Deck Penetration, Wood (inches)
0.150	1 5/8	5/8	1	1
0.150	2 1/4	1 1/4	1	1
0.150	2 7/8	1 7/8	1	1
0.150	3 3/4	2 3/4	1	1
0.150	4 1/2	3 1/2	1	1
0.150	5	4	1	1
0.150	6	5	1	1
0.150	7	6	1	1
0.150	8	7	1	1
TRUSS #3 PHILLIPS				
0.110				
0.390				
YES				
YES				
Column 1	Column 2	Column 3		
Shape	Dimensions (inches)	Material		
ROUND	2.7	GALVALUME		
ROUND	3	PLASTIC		
REQUIRED				
OPTIONAL				
OPTIONAL				
636				
938				
YES				
FM, METRO.-DADE COUNTY				
YES				

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	CARLISLE SYNTEC INCORPORATED				CARLISLE SYNTEC INCORPORATED			
2. PRODUCT NAME	HP FASTENER				HP CONCRETE SPIKE			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES					X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	CARBON STEEL				CARBON STEEL			
6. COATING TYPE	EPOXY ELECTRODEPOSITION				EPOXY ELECTRODEPOSITION			
7. SHANK TYPE	SINGLE LEAD, BUTTRESS THREAD							
8. POINT TYPE	NA				NA			
9. METHOD OF ATTACHMENT	THREADED				SHANK COMPRESSION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.180	1 3/4	1/2	1 1/4	0.240	1 1/2	1/4	1 1/4
	0.180	2 1/4	1	1 1/4	0.240	2	3/4	1 1/4
	0.180	2 3/4	1 1/2	1 1/4	0.240	2 1/2	1 1/4	1 1/4
	0.180	3 1/4	2	1 1/4	0.240	3	1 3/4	1 1/4
	0.180	3 3/4	2 1/2	1 1/4	0.240	3 1/2	2 1/4	1 1/4
	0.180	4 1/4	3	1 1/4	0.240	4	2 3/4	1 1/4
	0.180	5	3 3/4	1 1/4	0.240	4 1/2	3 1/4	1 1/4
	0.180	6	4 3/4	1 1/4	0.240	5	3 3/4	1 1/4
					0.240	5 1/2	4 1/4	1 1/4
					0.240	6	4 3/4	1 1/4
					0.240	6 1/2	5 1/4	1 1/4
					0.240	7	5 3/4	1 1/4
					0.240	7 1/2	6 1/4	1 1/4
					0.240	8	6 3/4	1 1/4
					0.240	8 1/2	7 1/4	1 1/4
					0.240	9	7 3/4	1 1/4
					0.240	9 1/2	8 1/4	1 1/4
					0.240	10	8 3/4	1 1/4
					0.240	10 1/2	9 1/4	1 1/4
					0.240	11	9 3/4	1 1/4
					0.240	12	10 3/4	1 1/4
					0.240	13	11 3/4	1 1/4
					0.240	14	12 3/4	1 1/4
					0.240	15	13 3/4	1 1/4
					0.240	16	14 3/4	1 1/4
11. HEAD SHAPE	WAFER				TRUSS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.150				0.110			
DIAMETER	0.430				0.440			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	SQUARE W/ ROUNDED CORNERS	2 7/8	GALVALUME PLASTIC		SQUARE W/ ROUNDED CORNERS	2 7/8	GALVALUME	
	ROUND	2	GALVALUME		ROUND	2	GALVALUME	
	ROUND	3	PLASTIC		ROUND	2 3/8	GALVALUME	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED							
INSTALLATION TOOL WITH SCREW GUN (optional/required)					SDS SPIKE HAMMER (OPTIONAL)			
SPECIAL TOOL NEEDED (optional/required)					HAMMER (REQUIRED)			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.) (FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)								
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM				FM			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	CARLISLE SYNTEC INCORPORATED				CARLISLE SYNTEC INCORPORATED			
2. PRODUCT NAME	HP FASTENER				HP CONCRETE SPIKE			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES					X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	CARBON STEEL				CARBON STEEL			
6. COATING TYPE	EPOXY ELECTRODEPOSITION				EPOXY ELECTRODEPOSITION			
7. SHANK TYPE	SINGLE LEAD, BUTTRESS THREAD							
8. POINT TYPE	NA				NA			
9. METHOD OF ATTACHMENT	THREADED				SHANK COMPRESSION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.180	1 3/4	1/2	1 1/4	0.240	1 1/2	1/4	1 1/4
	0.180	2 1/4	1	1 1/4	0.240	2	3/4	1 1/4
	0.180	2 3/4	1 1/2	1 1/4	0.240	2 1/2	1 1/4	1 1/4
	0.180	3 1/4	2	1 1/4	0.240	3	1 3/4	1 1/4
	0.180	3 3/4	2 1/2	1 1/4	0.240	3 1/2	2 1/4	1 1/4
	0.180	4 1/4	3	1 1/4	0.240	4	2 3/4	1 1/4
	0.180	5	3 3/4	1 1/4	0.240	4 1/2	3 1/4	1 1/4
	0.180	6	4 3/4	1 1/4	0.240	5	3 3/4	1 1/4
					0.240	5 1/2	4 1/4	1 1/4
					0.240	6	4 3/4	1 1/4
					0.240	6 1/2	5 1/4	1 1/4
					0.240	7	5 3/4	1 1/4
					0.240	7 1/2	6 1/4	1 1/4
					0.240	8	6 3/4	1 1/4
					0.240	8 1/2	7 1/4	1 1/4
					0.240	9	7 3/4	1 1/4
					0.240	9 1/2	8 1/4	1 1/4
					0.240	10	8 3/4	1 1/4
					0.240	10 1/2	9 1/4	1 1/4
					0.240	11	9 3/4	1 1/4
					0.240	12	10 3/4	1 1/4
					0.240	13	11 3/4	1 1/4
					0.240	14	12 3/4	1 1/4
					0.240	15	13 3/4	1 1/4
					0.240	16	14 3/4	1 1/4
11. HEAD SHAPE	WAFER				TRUSS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.150				0.110			
DIAMETER	0.430				0.440			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	SQUARE W/ ROUNDED CORNERS	2 7/8	GALVALUME PLASTIC		SQUARE W/ ROUNDED CORNERS	2 7/8	GALVALUME	
	ROUND	2	GALVALUME		ROUND	2	GALVALUME	
	ROUND	3	PLASTIC		ROUND	2 3/8	GALVALUME	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED							
INSTALLATION TOOL WITH SCREW GUN (optional/required)					SDS SPIKE HAMMER (OPTIONAL)			
SPECIAL TOOL NEEDED (optional/required)					HAMMER (REQUIRED)			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.) (FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)								
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM				FM			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Concrete Decks

CARLISLE SYNTEC INCORPORATED				CELOTEX CORP.				CELOTEX CORP.			
HD 14-10 FASTENER				ANCHORBOND #14				ANCHORBOND #15 HEAVY DUTY			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
CARBON STEEL				HARDENED CARBON STEEL				HARDENED CARBON STEEL			
EPOXY ELECTRODEPOSITION				ORGANIC FLUOROPOLYMERS				ORGANIC FLUOROPOLYMERS			
SINGLE LEAD, V THREAD				SPIRAL THREAD				SPIRAL THREAD			
SINGLE EDGE DRILL POINT				SELF-DRILLING				SELF-DRILLING			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.190	2	1	1	0.238	1 1/4	1/4	1	0.238	1 1/4	1/4	1
0.190	3	2	1	0.238	1 5/8	5/8	1	0.238	2	1	1
0.190	4	3	1	0.238	1 7/8	1 1/4	1	0.238	3	2	1
0.190	5	4	1	0.238	2 7/8	1 7/8	1	0.238	4	3	1
0.190	6	5	1	0.238	3 1/4	2 1/4	1	0.238	5	4	1
0.190	7	6	1	0.238	3 3/4	2 3/4	1	0.238	6	5	1
0.190	8	7	1	0.238	4 1/2	3 1/2	1	0.238	7	6	1
0.190	9	8	1	0.238	5	4	1	0.238	8	7	1
0.190	10	9	1	0.238	6	5	1	0.238	10	9	1
0.190	11	10	1	0.238	7	6	1	0.238	12	11	1
0.190	12	11	1	0.238	8	7	1	0.238	14	13	1
								0.238	16	15	1
TRUSS				#3 PHILLIPS FLAT TRUSS				#3 PHILLIPS FLAT TRUSS			
0.115				0.109				0.109			
0.435				0.438				0.438			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
SQUARE W/ ROUNDED CORNERS	2 7/8	GALVALUME		HEXAGONAL	2 7/8	STAINLESS STEEL		HEXAGONAL	2 7/8	STAINLESS STEEL	
ROUND	2	PLASTIC		HEXAGONAL	2 7/8	GALVALUME		HEXAGONAL	2 7/8	GALVALUME	
ROUND	2	GALVALUME		HEXAGONAL	3	PLASTIC		ROUND	2	GALVALUME	
ROUND	3	PLASTIC		ROUND	2	GALVALUME					
ROUND	2 3/8	GALVALUME									
REQUIRED				REQUIRED				REQUIRED			
				HAMMER DRILL (REQUIRED)				HAMMER DRILL (REQUIRED)			
				959				935			
YES				YES				YES			
FM				FM				FM			
YES				YES				YES			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	CONSTRUCTION FASTENERS, INC.				CONSTRUCTION FASTENERS, INC.			
2. PRODUCT NAME	DEKFAST #14				DEKFAST #15 HI-STRENGTH			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				HARDENED CARBON STEEL			
6. COATING TYPE	ORGANIC				ORGANIC			
7. SHANK TYPE	SPIRAL THREAD				SPIRAL THREAD			
8. POINT TYPE	SELF-DRILLING				SELF-DRILLING			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.238	1 1/4	1/4	1	0.264	1 1/4	1/4	1
	0.238	1 5/8	5/8	1	0.264	2	1	1
	0.238	2 1/4	1 1/4	1	0.264	3	2	1
	0.238	2 7/8	1 7/8	1	0.264	4	3	1
	0.238	3 1/4	2 1/4	1	0.264	5	4	1
	0.238	3 3/4	2 3/4	1	0.264	6	5	1
	0.238	4 1/2	3 1/2	1	0.264	7	6	1
	0.238	5	4	1	0.264	8	7	1
	0.238	6	5	1	0.264	10	9	1
	0.238	7	6	1	0.264	12	11	1
	0.238	8	7	1	0.264	14	13	1
	0.238	10	9	1	0.264	16	15	1
	0.238	12	11	1	0.264	18	17	1
					0.264	20	19	1
					0.264	22	21	1
					0.264	24	23	1
					0.264	26	25	1
11. HEAD SHAPE	#3 PHILLIPS FLAT TRUSS				#3 PHILLIPS TRUSS			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.109				0.109			
DIAMETER	0.438				0.438			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	HEXAGONAL	2 7/8	GALVALUME		HEXAGONAL	2 7/8	GALVALUME	
	HEXAGONAL	3	PLASTIC		ROUND	2	GALVALUME	
	ROUND	2	GALVALUME		ROUND	2 1/2	GALVALUME	
	ROUND	2	NYLON					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)	HAMMER DRILL (REQUIRED)				HAMMER DRILL (REQUIRED)			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	959				935			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable



# Roof Fasteners: Concrete Decks

DURO LAST INC.				FIRESTONE BUILDING PRODUCTS				FIRESTONE BUILDING PRODUCTS			
DURO LAST SCREWS #14				FIRESTONE HEAVY DUTY				FIRESTONE CONCRETE DRIVE			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
STEEL				SAE 1022, HEAT TREATED				1038-1040 HARDENED STEEL			
FLUOROCARBON				FLUOROCARBON				FLUOROCARBON			
SPIRAL THREAD				BUTTRESS THREAD				SHANK COMPRESSION			
SELF-DRILLING				DRILL POINT							
THREADED				THREADED							
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.190	1 3/4	3/4	1	0.264	1 1/4	1/4	1	0.250	1 1/2	1/4	1 1/4
0.190	2	1	1	0.264	2	1	1	0.250	2	3/4	1 1/4
0.190	2.5	1.5	1	0.264	3	2	1	0.250	2 1/2	1 1/4	1 1/4
0.190	3	2	1	0.264	4	3	1	0.250	3	1 3/4	1 1/4
0.190	3.5	2.5	1	0.264	5	4	1	0.250	3 1/2	2 1/4	1 1/4
0.190	4	3	1	0.264	6	5	1	0.250	4	2 3/4	1 1/4
0.190	4.5	3.5	1	0.264	7	6	1	0.250	4 1/2	3 1/4	1 1/4
0.190	5	4	1	0.264	8	7	1	0.250	5	3 3/4	1 1/4
0.190	5.5	4.5	1	0.264	10	9	1	0.250	5 1/2	4 1/4	1 1/4
0.190	6	5	1	0.264	12	11	1	0.250	6	4 3/4	1 1/4
0.190	7	6	1	0.264	14	13	1	0.250	6 1/2	5 1/4	1 1/4
0.190	8	7	1					0.250	7	5 3/4	1 1/4
0.190	9	8	1					0.250	7 1/2	6 1/4	1 1/4
0.190	10	9	1					0.250	8	6 3/4	1 1/4
0.190	11	10	1								
0.190	12	11	1								
TRUSS				ROUND MUSHROOM #3 PHILLIPS				NAIL-TYPE			
0.103				0.110				0.110			
0.438				0.437				0.422			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	POLYCARBONATE		HEX (INSULATION) ROUND (IN-SEAM)	2 7/8  2	GALVALUME  GALVALUME		HEX (INSULATION) ROUND (IN-SEAM)	2 7/8  2	GALVALUME  GALVALUME	
REQUIRED				REQUIRED				SDS SPIKE DRIVER (OPTIONAL)			
OPTIONAL								HAMMER DRILL (REQUIRED)			
1,285				810				1,000			
YES				YES				YES			
FM, ICBO, BOCA, SBCCI				FM, ICBO, UL, SBCCI				FM, ICBO, UL, SBCCI			
YES				YES				YES			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	GAF MATERIALS CORP.				GAF MATERIALS CORP.			
2. PRODUCT NAME	GAFTITE CD-10/EVERGUARD SPIKE				FLUTED CONCRETE NAIL			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				HARDENED CARBON STEEL			
6. COATING TYPE	CR-10 FLUOROCARBON				CR-10 FLUOROCARBON			
7. SHANK TYPE					SPIRAL FLUTED			
8. POINT TYPE	DIAMOND STARTER POINT				DIAMOND			
9. METHOD OF ATTACHMENT	SHANK EXPANSION				FRICTION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.215	2	1	1	0.215	1 1/8	1/8	1
	0.215	2 1/2	1 1/2	1	0.215	1 1/2	1/2	1
	0.215	3	2	1	0.215	2	1	1
	0.215	3 1/2	2 1/2	1	0.215	2 1/2	1 1/2	1
	0.215	4	3	1	0.215	3	2	1
	0.215	4 1/2	3 1/2	1	0.215	3 1/2	2 1/2	1
	0.215	5	4	1	0.215	4	3	1
	0.215	5 1/2	4 1/2	1	0.215	4 1/2	3 1/2	1
	0.215	6	5	1	0.215	5	4	1
	0.215	6 1/2	5 1/2	1	0.215	5 1/2	4 1/2	1
	0.215	7	6	1	0.215	6	5	1
	0.215	7 1/2	6 1/2	1	0.215	6 1/2	5 1/2	1
	0.215	8	7	1	0.215	7	6	1
	0.215	8 1/2	7 1/2	1	0.215	7 1/2	6 1/2	1
	0.215	9	8	1	0.215	8	7	1
	0.215	9 1/2	8 1/2	1				
	0.215	10	9	1				
	0.215	10 1/2	9 1/2	1				
	0.215	11	10	1				
	0.215	11 1/2	10 1/2	1				
	0.215	12	11	1				
11. HEAD SHAPE	ROUND				ROUND			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.105				0.125			
DIAMETER	0.435				0.410			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	STEEL		ROUND	2	STEEL	
	ROUND	2	PLASTIC		ROUND	2	PLASTIC	
	ROUND	2	STAINLESS STEEL		ROUND	2	STAINLESS STEEL	
	ROUND	3	STEEL		ROUND	3	STEEL	
	ROUND	3	PLASTIC		ROUND	3	PLASTIC	
	ROUND	3	STAINLESS STEEL		ROUND	3	STAINLESS STEEL	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER	HAMMER DRILL				HAMMER DRILL			
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	1,164				600			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED					X			

NA=not applicable

# Roof Fasteners: Concrete Decks

GAF MATERIALS CORP.				HILTI INC.				HILTI INC.			
GAFTITE #14-10 (C. STEEL)				HILTI FASTENERS #12				HILTI FASTENERS #12 S.S.			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HARDENED CARBON STEEL				CARBON STEEL C-1022				STAINLESS STEEL (TRIMRITE ALLOY #S42010)			
CR-10 FLUOROCARBON				TRU-KOTE PC-3 (FLOUOROCARBON PAINT)							
THREADED				THREADED				THREADED			
PINCH, SELF-DRILLING				DOUBLE FLUTESELF-DRILLING				SELF-DRILLING			
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.190	1 1/4	1/4	1	0.160	1 5/8	1 1/8	1/2	0.160	1 5/8	1 1/8	1
0.190	1 3/4	3/4	1	0.160	2 1/4	1 3/4	1/2	0.160	2 1/4	1 3/4	1
0.190	2	1	1	0.160	2 7/8	2 3/8	1/2	0.160	2 7/8	2 3/8	1
0.190	3	2	1	0.160	3 1/4	2 3/4	1/2	0.160	3 3/4	3 1/2	1
0.190	4	3	1	0.160	3 3/4	3 1/2	1/2	0.160	4 1/2	4	1
0.190	5	4	1	0.160	4 1/2	4	1/2	0.160	5	4 1/2	1
0.190	6	5	1	0.160	5	4 1/2	1/2	0.160	6	5 1/2	1
0.190	7	6	1	0.160	6	5 1/2	1/2	0.160	7	6 1/2	1
0.190	8	7	1	0.160	7	6 1/2	1/2	0.160	8	7 1/2	1
0.190	9	8	1	0.160	8	7 1/2	1/2	0.160	10	9 1/2	1
0.190	10	9	1	0.160	10	9 1/2	1/2	0.160	12	11 1/2	1
0.190	11	10	1								
0.190	12	11	1								
0.190	14	13	1								
0.190	16	15	1								
0.201	17	16	1								
0.201	18	17	1								
0.201	20	19	1								
0.201	21	20	1								
0.201	22	21	1								
0.201	24	23	1								
ROUND TRUSS, #3 PHILLIPS				TRUSS #3 PHILLIPS, 1/4 HEX WASHER				#10 TRUSS, PHILLIPS #3			
0.110				0.105				0.105			
0.435				0.440				0.440			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	STEEL		ROUND	2	G90 GALVANIZED		ROUND	2	G90 GALVANIZED	
ROUND	2	PLASTIC		ROUND	3	G90 GALVANIZED		ROUND	3	G90 GALVANIZED	
ROUND	2	STAINLESS STEEL		ROUND	3	CO-POLYMER PLASTIC		ROUND	3	CO-POLYMER PLASTIC	
ROUND	3	STEEL		ROUND	2	GALFAN		ROUND	2	GALFAN	
ROUND	3	PLASTIC		ROUND	3	GALFAN		ROUND	3	GALFAN	
ROUND	3	STAINLESS STEEL									
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				REQUIRED				REQUIRED			
HAMMER DRILL (REQUIRED)				CARBIDE DRILL BIT (REQUIRED)				CARBIDE DRILL BIT (REQUIRED)			
800				1,285				1,285			
YES				YES				YES			
FM, UL, ICBO, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			
X											

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	HILTI INC.				HILTI INC.			
2. PRODUCT NAME	HILTI FASTENERS #14				HILTI FASTENERS #10			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	CARBON STEEL C-1022				CARBON STEEL C-1022			
6. COATING TYPE	TRU-KOTE PC-3 (FLOUROCARBON PAINT)				TRU-KOTE PC-3 (FLOUROCARBON PAINT)			
7. SHANK TYPE	THREADED				THREADED			
8. POINT TYPE	DOUBLE FLUTESELF-DRILLING				GIMLET			
9. METHOD OF ATTACHMENT	THREADED				THREADED			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.180	1 1/2	1	1/2	0.150	1 5/8	1 1/8	1/2
	0.180	2	1 1/2	1/2	0.150	2 1/4	1 3/4	1/2
	0.180	3	2 1/2	1/2	0.150	2 7/8	2 3/8	1/2
	0.180	4	3 1/2	1/2	0.150	3 3/4	3 1/2	1/2
	0.180	5	4 1/2	1/2	0.150	4 1/2	4	1/2
	0.180	6	5 1/2	1/2	0.150	5	4 1/2	1/2
	0.180	7	6 1/2	1/2	0.150	6	5 1/2	1/2
	0.180	8	7 1/2	1/2				
	0.180	10	9 1/2	1/2				
	0.180	12	11 1/2	1/2				
11. HEAD SHAPE	TRUSS #3 PHILLIPS				#10 TRUSS, PHILLIPS #3			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.105				0.110			
DIAMETER	0.440				0.390			
13. PLATES								
A. REQUIRED (yes/no)								
B. AVAILABLE FROM MANUFACTURER (yes/no)								
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	G90 GALVANIZED		ROUND	2	G90 GALVANIZED	
	ROUND	3	G90 GALVANIZED		ROUND	3	G90 GALVANIZED	
	ROUND	3	CO-POLYMER PLASTIC		ROUND	3	CO-POLYMER PLASTIC	
	ROUND	2	GALFAN		ROUND	2	GALFAN	
	ROUND	3	GALFAN		ROUND	3	GALFAN	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)	CARBIDE DRILL BIT (REQUIRED)				CARBIDE DRILL BIT (REQUIRED)			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	799				799			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM, BOCA, ICBO, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)								
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Concrete Decks

HILTI INC.				ITW BUILDEX				ITW BUILDEX			
X-IR FASTENER				# 14 ROOFGRIP				KING-CON			
LIECHTENSTEIN				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
POLYETHYLENE/AISI 1061				HARDENED CARBON STEEL				HARDENED CARBON STEEL			
DACROMET 360				CLIMASEAL				CLIMASEAL			
SMOOTH				MODIFIED STANDARD THREAD				PARTIALLY SPIRAL FLUTED			
BALLISTIC				X-POINT				NAIL			
POWDER-ACTUATED				THREADED				FRICTION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.177	1 1/16	0 – 1/8	1	0.245	1 1/2	1/2	1	0.250	1 1/8	1/8	1 1/4
0.177	1 7/16	1 1/2	1	0.245	2	1	1	0.250	1 1/2	1/4	1 1/4
0.177	1 5/8	2 – 2 1/2	1	0.245	3	2	1	0.250	2	3/4	1 1/4
0.177	2 5/8	2 1/2 – 3 1/2	1	0.245	4	3	1	0.250	2 1/2	1 1/4	1 1/4
0.177	3	3 1/2 – 4 3/4	1	0.245	5	4	1	0.250	3	1 3/4	1 1/4
				0.245	6	5	1	0.250	3 1/2	2 1/4	1 1/4
				0.245	7	6	1	0.250	4	2 3/4	1 1/4
				0.245	8	7	1	0.250	4 1/2	3 1/4	1 1/4
								0.250	5	3 3/4	1 1/4
								0.250	5 1/2	4 1/4	1 1/4
								0.250	6	4 3/4	1 1/4
								0.250	7	5 3/4	1 1/4
								0.250	8	6 3/4	1 1/4
								0.250	9	7 3/4	1 1/4
								0.250	10	8 3/4	1 1/4
DOME				#3 PHILLIPS PAN HEAD				ROUND			
0.062				0.118				0.100			
0.312				0.448				0.440			
INTEGRAL WITH FASTENER				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	POLYAMIDE		SQUARE	3 X 3	GALVALUME		ROUND	2	GALVALUME	
ROUND	3	POLYAMIDE		GEARLOCK	3	POLYOLEFIN		SQUARE	3	GALVALUME	
OVAL	1 1/2 X 3	POLYAMIDE		ROUND	2	GALVALUME					
OVAL	1 1/2 X 3	CARBON STEEL									
POWDER ACTUATED TOOL				REQUIRED				HAMMER DRILL			
270				1,110				1,031			
YES				YES				YES			
FM				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
YES				YES				YES			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	ITW BUILDDEX				JOHNS MANVILLE INTERNATIONAL INC.			
2. PRODUCT NAME	#15 ROOFGRIP				CD-10			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X							
C. SINGLE-PLY MEMBRANES	X							
5. MATERIAL TYPE	HARDENED CARBON STEEL				HARDENED CARBON STEEL			
6. COATING TYPE	CLIMASEAL				CR-10			
7. SHANK TYPE	THREADED				SPLIT SHANK			
8. POINT TYPE	SELF-DRILLING				45-DEGREE DIAMOND STARTER			
9. METHOD OF ATTACHMENT	THREADED				SHANK EXPANSION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.260	1 1/4	1/4	1	0.215	2	1	1
	0.260	2	1	1	0.215	2 1/2	1 1/2	1
	0.260	3	2	1	0.215	3	2	1
	0.260	4	3	1	0.215	3 1/2	2 1/2	1
	0.260	5	4	1	0.215	4	3	1
	0.260	6	5	1	0.215	4 1/2	3 1/2	1
	0.260	7	6	1	0.215	5	4	1
	0.260	8	7	1	0.215	5 1/2	4 1/2	1
	0.260	10	9	1	0.215	6	5	1
	0.260	12	11	1	0.215	7	6	1
	0.260	14	13	1	0.215	8	7	1
					0.215	9	8	1
11. HEAD SHAPE	#3 PHILLIPS PAN HEAD				ROUND			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.118				0.125			
DIAMETER	0.448				0.435			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	GALVALUME		ROUND	3	PLASTIC	
	SQUARE	3	GALVALUME					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)					REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER	HAMMER DRILL				HAMMER DRILL			
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	1,157				1,164			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM				FM, UL, ICBO, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

## Roof Fasteners: Concrete Decks

NATIONAL NAIL CORPORATION				OLYMPIC MANUFACTURING GROUP				OLYMPIC MANUFACTURING GROUP			
ARDOX H.T. GALVANIZED CONCRETE				FLUTED CONCRETE NAIL				OLYMPIC FASTENER #14-10 (C-STEEL)			
CANADA				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HARDENED STEEL				HARDENED CARBON STEEL				HARDENED CARBON STEEL			
HOT-DIPPED GALVANIZED				CR-10 FLUOROCARBON				CR-10 FLUOROCARBON			
SPIRAL FLUTED				SPIRAL FLUTED				THREADED			
DIAMOND				DIAMOND				PINCH, SELF-DRILLING OR TAPEX			
FRICTION				FRICTION				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.212	1 1/8	1/2	1	0.215	1 1/8	1/8	1	0.190	1 1/4	1/4	1
0.212	1 1/2	3/4	1	0.215	1 1/2	1/2	1	0.190	1 3/4	3/4	1
0.212	2	1 1/4	1	0.215	2	1	1	0.190	2	1	1
0.212	2 1/2	1 3/4	1	0.215	2 1/2	1 1/2	1	0.190	3	2	1
0.212	3	2 1/4	1	0.215	3	2	1	0.190	4	3	1
0.212	3 1/2	2 3/4	1	0.215	3 1/2	2 1/2	1	0.190	5	4	1
0.212	4	3 1/4	1	0.215	4	3	1	0.190	6	5	1
0.212	4 1/2	3 3/4	1	0.215	4 1/2	3 1/2	1	0.190	7	6	1
0.212	5	4 1/4	1	0.215	5	4	1	0.190	8	7	1
0.212	5 1/2	4 3/4	1	0.215	5 1/2	4 1/2	1	0.190	9	8	1
0.212	6	5 1/4	1	0.215	6	5	1	0.190	10	9	1
0.212	6 1/2	5 3/4	1	0.215	6 1/2	5 1/2	1	0.190	11	10	1
0.212	7	6 1/4	1	0.215	7	6	1	0.190	12	11	1
0.225	8	6 3/4	1	0.215	7 1/2	6 1/2	1	0.190	14	13	1
0.225	9	7 1/4	1	0.215	8	7	1	0.190	16	15	1
0.225	10	7 3/4	1					0.201	17	16	1
0.225	12	8 1/4	1					0.201	18	17	1
								0.201	20	19	1
								0.201	21	20	1
								0.201	22	21	1
								0.201	24	23	1
COMMON TYPE				ROUND				ROUND TRUSS, #3 PHILLIPS			
0.09375				0.125				0.110			
0.4375				0.425				0.435			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	3	PLASTIC		ROUND	2	STEEL		ROUND	2	STEEL	
				ROUND	2	PLASTIC		ROUND	2	PLASTIC	
				ROUND	2	STAINLESS STEEL		ROUND	2	STAINLESS STEEL	
				ROUND	3	STEEL		ROUND	3	STEEL	
				ROUND	3	PLASTIC		ROUND	3	PLASTIC	
				ROUND	3	STAINLESS STEEL		ROUND	3	STAINLESS STEEL	
				ROUND	3 1/2	STEEL		ROUND	3 1/2	STEEL	
ROTARY DRILL AND HAMMER				HAMMER DRILL				REQUIRED			
600				600				OPTIONAL			
NO				YES				HAMMER DRILL (REQUIRED)			
NO				FM, UL, ICBO, METRO.-DADE COUNTY				FM, UL, ICBO, METRO.-DADE COUNTY			
X				YES				YES			
				X				X			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	OLYMPIC MANUFACTURING GROUP				POWERS FASTENERS			
2. PRODUCT NAME	OLYMPIC CD-10				POWERS RAWL 3/16" SPIKE			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED CARBON STEEL				HEAT TREATED CARBON STEEL			
6. COATING TYPE	CR-10 FLUOROCARBON				PERMA-SEAL FLUOROPOLYMER			
7. SHANK TYPE					NA			
8. POINT TYPE	DIAMOND STARTER POINT				NA			
9. METHOD OF ATTACHMENT	SHANK EXPANSION				PRE-EXPANDED SHANK COMPRESSION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.215	2	1	1	0.190	1	1/8	7/8
	0.215	2 1/2	1 1/2	1	0.190	1 1/4	3/8	7/8
	0.215	3	2	1	0.190	1 1/2	1/4	1 1/4
	0.215	3 1/2	2 1/2	1	0.190	2	3/4	1 1/4
	0.215	4	3	1	0.190	2 1/2	1 1/4	1 1/4
	0.215	4 1/2	3 1/2	1	0.190	3	1 3/4	1 1/4
	0.215	5	4	1	0.190	3 1/2	2 1/4	1 1/4
	0.215	5 1/2	4 1/2	1	0.190	4	2 3/4	1 1/4
	0.215	6	5	1	0.190	4 1/2	3 1/4	1 1/4
	0.215	6 1/2	5 1/2	1	0.190	5	3 3/4	1 1/4
	0.215	7	6	1	0.190	5 1/2	4 1/4	1 1/4
	0.215	7 1/2	6 1/2	1	0.190	6	4 3/4	1 1/4
	0.215	8	7	1	0.190	7	5 3/4	1 1/4
	0.215	8 1/2	7 1/2	1	0.190	8	6 3/4	1 1/4
	0.215	9	8	1	0.190	9	7 3/4	1 1/4
	0.215	9 1/2	8 1/2	1	0.190	10	8 3/4	1 1/4
	0.215	10	9	1				
	0.215	10 1/2	9 1/2	1				
	0.215	11	10	1				
	0.215	11 1/2	10 1/2	1				
	0.215	12	11	1				
11. HEAD SHAPE	ROUND				MUSHROOM			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.125				0.110			
DIAMETER	0.435				0.445			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	STEEL		ROUND			
	ROUND	2	PLASTIC		BARBED	2	GALVALUME	
	ROUND	2	STAINLESS STEEL		ROUND	3	GALVALUME	
	ROUND	3	STEEL		ROUND	3	STAINLESS STEEL	
	ROUND	3	PLASTIC		ROUND	3	PLASTIC	
	ROUND	3	STAINLESS STEEL					
	ROUND	3 1/2	STEEL					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER	HAMMER DRILL				HAMMER DRILL (REQUIRED)			
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	1,164				975			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM, UL, ICBO, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable



## Roof Fasteners: Concrete Decks

POWERS FASTENERS				POWERS FASTENERS				POWERS FASTENERS			
POWERS RAWL 1/4" SPIKE				POWERS RAWL #14 DECK SCREW				POWERS RAWL #15 DECK SCREW			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HEAT TREATED CARBON STEEL				CASE HARDENED CARBON STEEL				CASE HARDENED CARBON STEEL			
PERMA-SEAL FLUOROPOLYMER				PERMA-SEAL FLUOROPOLYMER				PERMA-SEAL FLUOROPOLYMER			
NA				SPIRAL THREAD				SPIRAL THREAD			
NA				DRILL TYPE				RICOH "S" POINT			
PRE-EXPANDED SHANK COMPRESSION				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.240	1	1/8	7/8	0.238	1 5/8	1/8	1 1/2	0.264	1 1/4		1 1/2
0.240	1 1/4	3/8	7/8	0.238	2 1/4	3/4	1 1/2	0.264	2	1/2	1 1/2
0.240	1 1/2	1/4	1 1/4	0.238	2 7/8	1 3/8	1 1/2	0.264	3	1 1/2	1 1/2
0.240	2	3/4	1 1/4	0.238	3 3/4	2 1/4	1 1/2	0.264	4	2 1/2	1 1/2
0.240	2 1/2	1 1/4	1 1/4	0.238	4 1/2	3	1 1/2	0.264	5	3 1/2	1 1/2
0.240	3	1 3/4	1 1/4	0.238	5	3 1/2	1 1/2	0.264	6	4 1/2	1 1/2
0.240	3 1/2	2 1/4	1 1/4	0.238	6	4 1/2	1 1/2	0.264	7	5 1/2	1 1/2
0.240	4	2 3/4	1 1/4	0.238	7	5 1/2	1 1/2	0.264	8	6 1/2	1 1/2
0.240	4 1/2	3 1/4	1 1/4	0.238	8	6 1/2	1 1/2	0.264	10	8 1/2	1 1/2
0.240	5	3 3/4	1 1/4	0.238	10	8 1/2	1 1/2	0.264	12	10 1/2	1 1/2
0.240	5 1/2	4 1/4	1 1/4	0.238	12	10 1/2	1 1/2	0.264	14	12 1/2	1 1/2
0.240	6	4 3/4	1 1/4					0.264	16	14 1/2	1 1/2
0.240	6 1/2	5 1/4	1 1/4								
0.240	7	5 3/4	1 1/4								
0.240	7 1/2	6 1/4	1 1/4								
0.240	8	6 3/4	1 1/4								
0.240	9	7 3/4	1 1/4								
0.240	10	8 3/4	1 1/4								
0.240	11	9 3/4	1 1/4								
0.240	12	10 3/4	1 1/4								
0.240	13	11 3/4	1 1/4								
0.240	14	12 3/4	1 1/4								
MUSHROOM				PHILLIPS FLAT TRUSS HEAD #3 RECESS				PHILLIPS TRUSS HEAD #3 RECESS			
0.110				0.118				0.130			
0.422				0.448				0.448			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND BARBED ROUND ROUND BARBED ROUND	2 3 3 3	GALVALUME GALVALUME STAINLESS STEEL PLASTIC		ROUND BARBED ROUND ROUND ROUND	2 3 3 3	GALVALUME GALVALUME STAINLESS STEEL PLASTIC		ROUND BARBED ROUND ROUND ROUND	2 3 3 3	GALVALUME GALVALUME STAINLESS STEEL PLASTIC	
				REQUIRED STAND-UP TOOL (OPTIONAL)				REQUIRED STAND-UP TOOL (OPTIONAL)			
HAMMER DRILL (REQUIRED)				HAMMER DRILL (REQUIRED)				HAMMER DRILL (REQUIRED)			
1,100				960				1,015			
YES				YES				YES			
FM, METRO.-DADE COUNTY				FM				FM			
YES				YES				YES			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	SFS STADLER INC.				SFS STADLER INC.			
2. PRODUCT NAME	INSUL-FIXX #14-10				STADLER SPIKE			
3. COUNTRY OF MANUFACTURE	U.S.							
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES					X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	HARDENED STEEL				HARDENED STEEL			
6. COATING TYPE	TUFF-TITE II				PERMASEAL			
7. SHANK TYPE	SPIRAL THREAD							
8. POINT TYPE	DRILL POINT				NA			
9. METHOD OF ATTACHMENT	THREADED				COMPRESSION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.190	1 1/4	1/4	1	0.187	1 1/2	1/4	1 1/4
	0.190	2	1	1	0.187	2	3/4	1 1/4
	0.190	3	2	1	0.187	2 1/2	1 1/4	1 1/4
	0.190	4	3	1	0.187	3	1 3/4	1 1/4
	0.190	5	4	1	0.187	3 1/2	2 1/4	1 1/4
	0.190	6	5	1	0.187	4	2 3/4	1 1/4
	0.190	7	6	1	0.187	4 1/2	3 1/4	1 1/4
	0.190	8	7	1	0.187	5	3 3/4	1 1/4
	0.190	10	9	1	0.187	5 1/2	4 1/4	1 1/4
	0.190	12	11	1	0.187	6	4 3/4	1 1/4
	0.190	14	13	1	0.187	6 1/2	5 1/4	1 1/4
	0.190	16	15	1	0.187	7	5 3/4	1 1/4
					0.187	7 1/2	6 1/4	1 1/4
					0.187	8	6 3/4	1 1/4
					0.187	9	7 3/4	1 1/4
					0.187	10	8 3/4	1 1/4
11. HEAD SHAPE	ROUND WITH #3 PHILLIPS TRUSS				ROUND			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.103				0.110			
DIAMETER	0.425				0.422			
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	3	GALVALUME		ROUND	3	GALVALUME	
	ROUND	2	GALVALUME		ROUND	2	GALVALUME	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED							
INSTALLATION TOOL WITH SCREW GUN (optional/required)					SDS SPIKE DRIVER (OPTIONAL)			
SPECIAL TOOL NEEDED (optional/required)					HAMMER (REQUIRED)			
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	648				1,100			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X							

NA=not applicable

# Roof Fasteners: Concrete Decks

SFS STADLER INC.				SFS STADLER INC.				SIMPLEX			
STADLER SPIKE				EXTRA LOAD FASTENER HD				ZANCHOR DRIVE NAIL EGS-PIN			
				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
HARDENED STEEL				HARDENED STEEL				ZINC (ZAMAK 7)			
PERMASEAL				TUFF-TITE II				ZINC			
				THREADED				ELECTRO GALVANIZED CARBON STEEL			
NA				DRILL POINT				BLUNT			
COMPRESSION				THREADED				SLEEVE EXPANSION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Sleeve Diameters Available (inches)	Sleeve Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.240	1 1/2	1/4	1 1/4	0.205	1 1/4	3/4	1	1/4	3/4	1/4	1/2
0.240	2	3/4	1 1/4	0.205	2	1	1	3/16	7/8	3/8	1/2
0.240	2 1/2	1 1/4	1 1/4	0.205	3	2	1	1/4	1	1/8	7/8
0.240	3	1 3/4	1 1/4	0.205	4	3	1	1/4	1 1/4	3/8	7/8
0.240	3 1/2	2 1/4	1 1/4	0.205	5	4	1	1/4	1 1/2	5/8	7/8
0.240	4	2 3/4	1 1/4	0.205	6	5	1	1/4	2	1 1/8	7/8
0.240	4 1/2	3 1/4	1 1/4	0.205	8	7	1				
0.240	5	3 3/4	1 1/4	0.205	10	9	1				
0.240	5 1/2	4 1/4	1 1/4	0.205	12	11	1				
0.240	6	4 3/4	1 1/4	0.205	14	13	1				
0.240	6 1/2	5 1/4	1 1/4	0.205	16	15	1				
0.240	7	5 3/4	1 1/4								
0.240	8	6 3/4	1 1/4								
0.240	9	7 3/4	1 1/4								
0.240	10	8 3/4	1 1/4								
0.240	12	10 3/4	1 1/4								
0.240	14	12 3/4	1 1/4								
ROUND				ROUND WITH #3 PHILLIPS				MUSHROOM			
0.110				0.103				0.125			
0.422				0.425				0.550			
YES				YES				NO			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	3	GALVALUME		ROUND	3	GALVALUME		PARABOLIC	2	GALVALUME	
ROUND	2	GALVALUME		ROUND	2	GALVALUME		PARABOLIC	3	GALVALUME	
SDS SPIKE DRIVER (OPTIONAL)				REQUIRED				NA			
HAMMER (REQUIRED)				HAMMER DRILL OR IMPACT				TERMINATION BARS CAN BE USED (OPTIONAL)			
								1/4" DRILL BIT AND DRILL (REQUIRED)			
1,100				1,345				648, N/A, 937, 1151, 1184, 1272			
YES				YES				YES			
FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY				DADE COUNTY			
YES				YES				YES			
				X				X			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	SIMPLEX				SIMPLEX			
2. PRODUCT NAME	ZANCHOR DRIVE NAIL SS-PIN				MASONRY ROUND METAL CAP			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT					X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
5. MATERIAL TYPE	ZINC (ZAMAK 7)				HARDENED CARBON STEEL			
6. COATING TYPE	ZINC				NA			
7. SHANK TYPE	STAINLESS STEEL				FLUTED			
8. POINT TYPE	BLUNT				DIAMON			
9. METHOD OF ATTACHMENT	SLEEVE EXPANSION				FLUTED FRICTION			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Sleeve Diameters Available (inches)	Sleeve Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Shank Range, Max. Total Thickness (inches)	Shank- Deck Penetration (inches)
	1/4	3/4	1/4	1/2	0.148	3/4	-	3/4
	3/16	7/8	3/8	1/2	0.148	7/8	-	7/8
	1/4	1	1/8	7/8	0.148	1	-	1
	1/4	1 1/4	3/8	7/8	0.148	1 1/4	1/4	1
	1/4	1 1/2	5/8	7/8	0.148	1 1/2	1/2	1
	1/4	2	1 1/8	7/8	0.148	1 3/4	3/4	1
					0.148	2	1	1
					0.148	2 1/2	1 1/2	1
					0.148	3	2	1
					0.148	3 1/2	2 1/2	1
					0.148	4	3	1
11. HEAD SHAPE	MUSHROOM				ROUND			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.125				0.037			
DIAMETER	0.550				1.000			
13. PLATES								
A. REQUIRED (yes/no)	NO				NO			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	PARABOLIC	2	GALVALUME		PARABOLIC	2	GALVALUME	
	PARABOLIC	3	GALVALUME		PARABOLIC	3	GALVALUME	
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	NA				NA			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	NA				NA			
SPECIAL TOOL NEEDED (optional/required)	TERMINATION BARS CAN BE USED (OPTIONAL)				N/A			
OTHER	1/4" DRILL BIT AND DRILL (REQUIRED)				MAGNETIC POLE HAMMER OR REGULAR ROOFING HAMME			
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	648, N/A, 937, 1151, 1184, 1272				NA			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				NO			
18. ACCEPTED BY THE FOLLOWING CODES	DADE COUNTY				NONE			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X				X			

NA=not applicable

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TRI-PLY				TRU-FAST CORPORATION				TRU-FAST CORPORATION			
TRI-FAST DP				EHD (EXTRA HEAVY DUTY) #15				CF TAP GRIP			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
CARBON STEEL				CARBON STEEL C-1022				CARBON STEEL C-1022			
TRU-KOTE				TRU-KOTE PC-3 (FLUOROPOLYMER PAINT)				TRU-KOTE PC-3 (FLUOROPOLYMER PAINT)			
THREADED				THREADED				THREADED			
				DOUBLE FLUTE SELF-DRILLING							
THREADED				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.180	1 1/4	1/4	1	0.204	1 1/4	3/4	1/2	0.180	1 1/4	1/4	1
0.180	1 3/4	3/4	1	0.204	2	1 1/2	1/2	0.180	1 3/4	3/4	1
0.180	2 1/4	1 1/4	1	0.204	3	2 1/2	1/2	0.180	2 1/4	1 1/4	1
0.180	2 3/4	1 3/4	1	0.204	4	3 1/2	1/2	0.180	2 3/4	1 3/4	1
0.180	3 1/4	2 1/4	1	0.204	5	4 1/2	1/2	0.180	3 1/4	2 1/4	1
0.180	3 3/4	2 3/4	1	0.204	6	5 1/2	1/2	0.180	3 3/4	2 3/4	1
0.180	4 1/4	3 1/4	1	0.204	7	6 1/2	1/2	0.180	4 1/4	3 1/4	1
0.180	5	4	1	0.204	8	7 1/2	1/2	0.180	5	4	1
0.180	6	5	1	0.204	9	8 1/2	1/2	0.180	6	5	1
0.180	7	6	1	0.204	10	9 1/2	1/2	0.180	7	6	1
0.180	8	7	1	0.204	11	10 1/2	1/2	0.180	8	7	1
				0.204	12	11 1/2	1/2	0.180	5 1/2	4 1/2	1
				0.204	14	13 1/2	1/2	0.180	6 1/2	5 1/2	1
				0.204	16	15 1/2	1/2	0.180	7 1/2	6 1/2	1
				0.204	18	17 1/2	1/2				
				0.204	20	19 1/2	1/2				
MODIFIED PHILLIPS #3				TRUSS #3 PHILLIPS				MODIFIED PHILLIPS #3			
0.118				0.105				0.118			
0.445				0.440				0.445			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	GALVALUME		ROUND	2	GALVALUME		ROUND	2	GALVALUME	
ROUND	3	GALVALUME		ROUND	3	GALVALUME		ROUND	3	GALVALUME	
ROUND	3	PLASTIC		ROUND	3	PLASTIC		ROUND	3	PLASTIC	
REQUIRED				REQUIRED				REQUIRED			
OPTIONAL				OPTIONAL				OPTIONAL			
925				925				925			
YES				YES				YES			
FM				FM				FM, METRO.-DADE COUNTY			
YES				YES				YES			

# Roof Fasteners: Concrete Decks

1. COMPANY NAME	TRU-FAST CORPORATION				U.S. INTEC			
2. PRODUCT NAME	HD (HEAVY DUTY) #14				DRILL-TEC TAP GRIP			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X							
5. MATERIAL TYPE	CARBON STEEL C-1022				CARBON STEEL			
6. COATING TYPE	TRU-KOTE PC-3 (FLUOROPOLYMER PAINT)				FLUOROPOLYMER PAINT			
7. SHANK TYPE	THREADED				THREADED			
8. POINT TYPE	DOUBLE FLUTE SELF-DRILLING							
9. METHOD OF ATTACHMENT	THREADED				MECHANICAL			
10. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.180	1 1/2	1/2	1	0.180	1 1/4	1/4	1
	0.180	2	1	1	0.180	1 3/4	3/4	1
	0.180	3	2	1	0.180	2 1/4	1 1/4	1
	0.180	4	3	1	0.180	2 3/4	1 3/4	1
	0.180	5	4	1	0.180	3 1/4	2 1/4	1
	0.180	6	5	1	0.180	3 3/4	2 3/4	1
	0.180	7	6	1	0.180	4 1/4	3 1/4	1
	0.180	8	7	1	0.180	5	4	1
	0.180	10	9	1	0.180	6	5	1
	0.180	12	11	1	0.180	7	6	1
	0.180	9	8	1	0.180	8	7	1
	0.180	11	10	1				
11. HEAD SHAPE	TRUSS #3 PHILLIPS				RECESSED SQUARE			
12. HEAD DIMENSIONS (inches)								
THICKNESS	0.105							
DIAMETER	0.440							
13. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
14. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	GALVALUME		ROUND	2.7	GALVALUME	
	ROUND	3	GALVALUME		ROUND	3	PLASTIC	
	ROUND	3	PLASTIC					
15. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)					REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)					OPTIONAL			
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
16. AVERAGE PULLOUT RESISTANCE (lbs.)								
(FM TINIUS OLSEN PULLOUT RESISTANCE TESTS, 3,000 PSI AGED 28 DAYS)	740				925			
17. MEETS THE FM APPROVAL REQUIREMENTS AS A COMPONENT OF CLASS I CONCRETE ROOF CONSTRUCTION (yes/no)	YES				YES			
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	CARLISLE SYNTEC INCORPORATED				CARLISLE SYNTEC INCORPORATED			
2. PRODUCT NAME	HP SPEED-LOCK TOGGLE BOLT				HP TOGGLE BOLT			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X				X			
C. CEMENTITIOUS WOOD FIBER	X				X			
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES								
C. SINGLE-PLY MEMBRANES	X				X			
6. MATERIAL TYPE	CARBON STEEL				CARBON STEEL			
7. COATING TYPE	ZINC-BASED PRIMER, FLUOROPOLYMER COATING				ZINC RICH COATING, LOCKING ADHESIVE			
8. SHANK TYPE	THREADED				THREADED			
9. POINT TYPE	NA				NA			
10. METHOD OF ATTACHMENT	TOGGLE BOLT PLUS WING THROUGH PREDRILLED HOLE				TOGGLE BOLT PLUS WING THROUGH PREDRILLED HOLE			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.215	4	2 1/2	1 1/2	0.215	4	2 1/2	1 1/2
	0.215	6	4 1/2	1 1/2	0.215	6	4 1/2	1 1/2
	0.215	7	5 1/2	1 1/2	0.215	7	5 1/2	1 1/2
	0.215	8	6 1/2	1 1/2	0.215	8	6 1/2	1 1/2
	0.215	9	7 1/2	1 1/2	0.215	10	8 1/2	1 1/2
	0.215	10	8 1/2	1 1/2	0.215	12	10 1/2	1 1/2
	0.215	12	10 1/2	1 1/2	0.215	14	12 1/2	1 1/2
	0.215	14	12 1/2	1 1/2	0.215	16	14 1/2	1 1/2
	0.215	16	14 1/2	1 1/2				
12. HEAD SHAPE	ROUND TRUSS WITH #3 PHILLIPS				ROUND TRUSS WITH #3 PHILLIPS			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.110				0.110			
DIAMETER	0.435				0.435			
14. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	SQUARE W/ ROUNDED CORNERS ROUND	2 7/8 2	GALVALUME GALVALUME		SQUARE W/ ROUNDED CORNERS ROUND	2 7/8 2	GALVALUME GALVALUME	
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE								
B. GYPSUM								
C. CEMENTITIOUS WOOD FIBER								
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE								
B. GYPSUM								
C. CEMENTITIOUS WOOD FIBER								
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

### Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

CARLISLE SYNTEC INCORPORATED				CARLISLE SYNTEC INCORPORATED				CARLISLE SYNTEC INCORPORATED			
HP LIGHTWEIGHT FASTENER				HP NTB WITH & WITHOUT WIRE FASTENER				HP LITE-DECK			
U.S.				U.S.				U.S.			
X				X							
X				X				X			
X				X				X			
X				X				X			
X				X				X			
NYLON				NYLON				HARDENED CARBON STEEL			
NA				NA				EPOXY ELECTRODEPOSITION			
SPIRAL THREAD				SPIRAL THREAD				THREADED			
GIMLET				GIMLET				PINCH			
THREADED, SUBSTRATE COMPACTION				THREADED WITH & WITHOUT WIRES				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.430	2	1/2	1 1/2	0.4375	2 1/2	1	1 1/2	0.310	3	1	2
0.430	2 1/2	1	1 1/2	0.4375	3	1 1/2	1 1/2	0.310	4	2	2
0.430	3	1 1/2	1 1/2	0.4375	3 1/2	2	1 1/2	0.310	5	3	2
0.430	3 1/2	2	1 1/2	0.4375	4	2 1/2	1 1/2	0.310	6	4	2
0.430	4	2 1/2	1 1/2	0.4375	4 1/2	3	1 1/2	0.310	7	5	2
0.430	4 1/2	3	1 1/2	0.4375	5	3 1/2	1 1/2	0.310	8	6	2
0.430	5	3 1/2	1 1/2	0.4375	5 1/2	4	1 1/2	0.310	9	7	2
0.430	5 1/2	4	1 1/2	0.4375	6	4 1/2	1 1/2	0.310	10	8	2
0.430	6	4 1/2	1 1/2	0.4375	6 1/2	5	1 1/2	0.310	12	10	2
0.430	6 1/2	5	1 1/2	0.4375	7	5 1/2	1 1/2				
0.430	7	5 1/2	1 1/2	0.4375	7 1/2	6	1 1/2				
0.430	7 1/2	6	1 1/2	0.4375	8	6 1/2	1 1/2				
0.430	8	6 1/2	1 1/2	0.4375	8 1/2	7	1 1/2				
0.430	8 1/2	7	1 1/2	0.4375	9	7 1/2	1 1/2				
0.430	9	7 1/2	1 1/2	0.4375	9 1/2	8	1 1/2				
0.430	9 1/2	8	1 1/2	0.4375	10	8 1/2	1 1/2				
0.430	10	8 1/2	1 1/2								
ROUND, 1/4-IN. RECESS				DOUBLE HEX				ROUND #3 PHILLIPS			
0.120				0.100							
1.00				1.00				0.558			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND BARBE	2	GALVALUME		ROUND BARBE	2	CARBON STEEL		ROUND	3	CARBON STEEL	
ROUND BARBE	3	GALVALUME		ROUND BARBE	3	CARBON STEEL					



# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	CELOTEX CORP.				CONSTRUCTION FASTENERS INC.			
2. PRODUCT NAME	ANCHORBOND AUGUR FASTENERS				DEKLITE			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X				X			
C. CEMENTITIOUS WOOD FIBER	X				X			
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
6. MATERIAL TYPE	NYLON				NYLON			
7. COATING TYPE	NA				NA			
8. SHANK TYPE	SPIRAL THREAD				SPIRAL THREAD			
9. POINT TYPE	GIMLET				GIMLET			
10. METHOD OF ATTACHMENT	THREADED, SUBSTRATE COMPACTION				THREADED, SUBSTRATE COMPACTION			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.430	2	1/2	1 1/2	0.687	2	1/2	1 1/2
	0.430	2 1/2	1	1 1/2	0.687	2 1/2	1	1 1/2
	0.430	3	1 1/2	1 1/2	0.687	3	1 1/2	1 1/2
	0.430	3 1/2	2	1 1/2	0.687	3 1/2	2	1 1/2
	0.430	4	2 1/2	1 1/2	0.687	4	2 1/2	1 1/2
	0.430	4 1/2	3	1 1/2	0.687	4 1/2	3	1 1/2
	0.430	5	3 1/2	1 1/2	0.687	5	3 1/2	1 1/2
	0.430	5 1/2	4	1 1/2	0.687	5 1/2	4	1 1/2
	0.430	6	4 1/2	1 1/2	0.687	6	4 1/2	1 1/2
	0.430	6 1/2	5	1 1/2	0.687	6 1/2	5	1 1/2
	0.430	7	5 1/2	1 1/2	0.687	7	5 1/2	1 1/2
	0.430	7 1/2	6	1 1/2	0.687	7 1/2	6	1 1/2
	0.430	8	6 1/2	1 1/2	0.687	8	6 1/2	1 1/2
	0.430	8 1/2	7	1 1/2	0.687	8 1/2	7	1 1/2
	0.430	9	7 1/2	1 1/2	0.687	9	7 1/2	1 1/2
	0.430	9 1/2	8	1 1/2	0.687	9 1/2	8	1 1/2
	0.430	10	8 1/2	1 1/2	0.687	10	8 1/2	1 1/2
12. HEAD SHAPE	ROUND, 1/4-IN. RECESS				ROUND, 1/4-IN. RECESS			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.120				0.120			
DIAMETER	1.00				1.00			
14. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND BARBED	2	GALVALUME		ROUND BARBED	2	GALVALUME	
	HEX BARBED	2 7/8	GALVALUME		ROUND BARBED	3	GALVALUME	
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER	IMPACT WRENCH, ELECTRIC DRILL (OPTIONAL)				IMPACT WRENCH, ELECTRIC DRILL (OPTIONAL)			
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	450				365			
B. GYPSUM	450				540			
C. CEMENTITIOUS WOOD FIBER	450				440			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE					FM, METRO.-DADE COUNTY			
B. GYPSUM					FM, METRO.-DADE COUNTY			
C. CEMENTITIOUS WOOD FIBER					FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X				X			

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

ES PRODUCTS INC.				ES PRODUCTS INC.				ES PRODUCTS INC.			
HARDENED DO-ALL LOC-NAIL				INSULDECK LOC-NAIL				TWIN LOC-NAIL			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
HARDENED COLD-ROLLED STEEL				COLD-ROLLED STEEL				COLD-ROLLED STEEL			
ZINC PLATED				GALVALUME (AZ-55)				GALVALUME (AZ-55)			
SPLIT, SERRATED				DOUBLE THICKNESS HALF-ROUND				TUBE			
TWO SHARP POINTS				FINE, SHARP				WEDGE			
SPREAD OF SERRATED SHANKS				AUTOMATIC KNEE-BEND GRIPPING				DIVERGING WIRE LEGS			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.240	1 3/8	1 1/4	1 1/8	0.230	1 7/8	1 1/4	1 1/8	NA	1.8	NA	1
SQUARE WITH ROUNDED CORNERS				ROUND, CUPPED				ROUND			
0.050				0.045				2.7			
0.375				0.500							
YES				YES							
YES				YES							
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	1 3/16	PRE-TINNED STEEL		ROUND	2.7	GALVALUME		ROUND	2.7	GALVALUME	
HAMMER				INSULDECK DRIVER HAMMER				TWIN LOC DRIVER			
60				60/100				300			
				79				200			
UL				FM, METRO.-DADE COUNTY							
YES				YES				YES			
				X							

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	ES PRODUCTS INC.				ES PRODUCTS INC.			
2. PRODUCT NAME	FM-75 BASE PLY FASTENER				NAIL-TITE TYPE A			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE	X				X			
A. LIGHTWEIGHT CONCRETE								
B. GYPSUM								
C. CEMENTITIOUS WOOD FIBER								
5. USED WITH:	X				X			
A. INSULATION ATTACHMENT								
B. BUILT-UP MEMBRANES								
C. SINGLE-PLY MEMBRANES								
6. MATERIAL TYPE	STEEL				CARBON STEEL			
7. COATING TYPE	HOT-DIPPED G-90 GALVANIZED & URETHANE				ZINC PLATED			
8. SHANK TYPE	TWO-PIECE RECTANGULAR				TAPERED CONE			
9. POINT TYPE	NA				ROUND			
10. METHOD OF ATTACHMENT	SHANK EXPANSION				CONICAL EXTENDING LEGS			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Diameters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 1 Shank Diameters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)
	NA	1 1/5	NA	NA	NA	1 1/2	1/16	1 7/16
12. HEAD SHAPE	ROUND				ROUND			
13. HEAD DIMENSIONS (inches)								
THICKNESS	2.70				0.015			
DIAMETER					1.7			
14. PLATES	NO				NO			
A. REQUIRED (yes/no)					NA			
B. AVAILABLE FROM MANUFACTURER (yes/no)								
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		
	NA	NA	NA	NA	NA	NA		
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER	MAGNETIC DRIVER (REQUIRED)				MAGNETIC DRIVER (REQUIRED)			
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	90 MIN				NA			
B. GYPSUM	NA				159			
C. CEMENTITIOUS WOOD FIBER	NA				NA			
18. ACCEPTED BY THE FOLLOWING CODES	FM, METRO.-DADE COUNTY				UL, FM, METRO.-DADE COUNTY			
A. LIGHTWEIGHT CONCRETE	NA							
B. GYPSUM	NA							
C. CEMENTITIOUS WOOD FIBER	NA							
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

ES PRODUCTS INC.				ES PRODUCTS INC.				ES PRODUCTS INC.			
NAIL-TITE TYPE R				ES-90 BASE PLY FASTENER				ES-60 BASE PLY FASTENER			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
CARBON STEEL				STEEL				STEEL			
ZINC PLATED				HOT DIPPED G-90 GALVANIZED				HOT DIPPED G-90 GALVANIZED			
TAPERED CONE				TWO-PIECE RECTANGULAR				TWO-PIECE RECTANGULAR			
ROUND				NA				NA			
CONICAL EXTENDING LEGS				SHANK EXPANSION				SHANK EXPANSION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
NA	1	1/16	15/16	NA	1 7/10	NA	NA	NA	1 7/10	NA	NA
ROUND				ROUND				ROUND			
0.015				2.75				1.20			
1.7				NO				NO			
NO				NO				NO			
NA				NO				NO			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
NA	NA	NA		NA	NA	NA		ROUND	2 3/4	GALVALUME	
MAGNETIC DRIVER (REQUIRED)				MAGNETIC DRIVER (REQUIRED)				MAGNETIC DRIVER (REQUIRED)			
NA				90 MIN.				90 MIN.			
159				NA				NA			
NA				NA				NA			
UL, FM, METRO-DADE COUNTY				NA				NA			
YES				YES				YES			

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	ES PRODUCTS INC.				ES PRODUCTS INC.			
2. PRODUCT NAME	ES-45 BASE PLY FASTENER				FM-90 BASE PLY FASTENER			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM								
C. CEMENTITIOUS WOOD FIBER								
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES								
6. MATERIAL TYPE	STEEL				STEEL			
7. COATING TYPE	HOT DIPPED G-90 GALVANIZED				HOT DIPPED G-90 GALVANIZED & URETHANE COATING			
8. SHANK TYPE	TWO-PIECE RECTANGULAR				TWO-PIECE RECTANGULAR			
9. POINT TYPE	NA				NA			
10. METHOD OF ATTACHMENT	SHANK EXPANSION				SHANK EXPANSION			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Diameters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)	Column 1 Shank Diameters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)
	NA	1 1/5	NA	NA	NA	1 7/10	NA	NA
12. HEAD SHAPE	ROUND				ROUND			
13. HEAD DIMENSIONS (inches)								
THICKNESS	1.20				2.75			
DIAMETER								
14. PLATES								
A. REQUIRED (yes/no)	NO				NO			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material		Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	
	ROUND	2 3/4	GALVANIZED STEEL					
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	90 MIN.				90 MIN.			
B. GYPSUM	NA				NA			
C. CEMENTITIOUS WOOD FIBER	NA				NA			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE					FM, UL, METRO-DADE COUNTY			
B. GYPSUM	NA				FM, UL, METRO-DADE COUNTY			
C. CEMENTITIOUS WOOD FIBER	NA				NA			
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

ES PRODUCTS INC.				ES PRODUCTS INC.				FIRESTONE BUILDING PRODUCTS			
FM-60 BASE PLY FASTENER				FM-45 BASE PLY FASTENER				FIRESTONE POLYMER FASTENERS			
U.S.				U.S.				U.S.			
X				X				X			
								X			
								X			
X				X				X			
				X				X			
STEEL				STEEL				GLASS-REINFORCED NYLON			
HOT DIPPED G-90 GALVANIZED & URETHANE COATING				HOT DIPPED G-90 GALVANIZED & URETHANE COATING				NA			
TWO-PIECE RECTANGULAR				TWO-PIECE RECTANGULAR				TAPERED ROOT, SPIRAL THREAD			
NA				NA				GIMLET			
SHANK EXPANSION				SHANK EXPANSION				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
NA	1 7/10	NA	NA	NA	1 1/5	NA	NA	0.675	2	1/2	1 1/2
								0.675	2 1/2	1	1 1/2
								0.675	2 3/4	1 1/4	1 1/2
								0.675	3	1 1/2	1 1/2
								0.675	3 1/2	2	1 1/2
								0.675	4	2 1/2	1 1/2
								0.675	4 1/2	3	1 1/2
								0.675	5	3 1/2	1 1/2
								0.675	5 1/2	4	1 1/2
								0.675	6	4 1/2	1 1/2
								0.675	6 1/2	5	1 1/2
								0.675	7	5 1/2	1 1/2
								0.675	7 1/2	6	1 1/2
								0.675	8	6 1/2	1 1/2
								0.675	8 1/2	7	1 1/2
								0.675	9	7 1/2	1 1/2
									9 1/2	8	1 1/2
									10	8 1/2	1 1/2
									11	9 1/2	1 1/2
									12	10 1/2	1 1/2
									13, 14	11 1/2, 12 1/2	1 1/2
ROUND				ROUND				ROUND, INTERNAL 1/4-IN. SQUARE DRIVE			
1.20				1.20				0.140			
								1.0			
NO				NO				YES			
YES				YES				YES			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2 3/4	GALVALUME		ROUND	2 3/4	GALVALUME		ROUND (INSULATION)	3	GALVALUME	
								ROUND (IN-SEAM)	2	GALVALUME	
MAGNETIC DRIVER (REQUIRED)				MAGNETIC DRIVER (REQUIRED)				IMPACT WRENCH, ELECTRIC DRILL (OPTIONAL)			
90 MIN.				90 MIN.				NA			
NA				NA				600			
NA				NA				450			
FM, UL, METRO-DADE COUNTY				FM, METRO-DADE COUNTY				NA			
FM, UL, METRO-DADE COUNTY				NA				FM			
NA				NA				FM			
YES				YES				YES			

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	GAF MATERIALS CORPORATION				GAF MATERIALS CORPORATION			
2. PRODUCT NAME	TOGGLE BOLT (STAINLESS STEEL)				TOGGLE BOLT (CARBON STEEL)			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X				X			
C. CEMENTITIOUS WOOD FIBER	X				X			
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X							
6. MATERIAL TYPE	STAINLESS STEEL				CARBON STEEL			
7. COATING TYPE	NA				CR-10 FLUOROCARBON			
8. SHANK TYPE	THREADED				THREADED			
9. POINT TYPE	NA				NA			
10. METHOD OF ATTACHMENT	TOGGLE BOLT PLUS WING THRU PREDRILLED HOLE				TOGGLE BOLT PLUS WING THRU PREDRILLED HOLE			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.215	4	2 1/2	1 1/2	0.215	4	2 1/2	1 1/2
	0.215	6	4 1/2	1 1/2	0.215	6	4 1/2	1 1/2
	0.215	7	5 1/2	1 1/2	0.215	7	5 1/2	1 1/2
	0.215	8	6 1/2	1 1/2	0.215	8	6 1/2	1 1/2
	0.215	10	8 1/2	1 1/2	0.215	10	8 1/2	1 1/2
	0.215	12	10 1/2	1 1/2	0.215	12	10 1/2	1 1/2
	0.215	14	12 1/2	1 1/2	0.215	14	12 1/2	1 1/2
	0.215	16	14 1/2	1 1/2	0.215	16	14 1/2	1 1/2
	0.215	18	16 1/2	1 1/2	0.215	18	16 1/2	1 1/2
	0.215	20	18 1/2	1 1/2	0.215	20	18 1/2	1 1/2
	0.215	22	20 1/2	1 1/2	0.215	22	20 1/2	1 1/2
	0.215	24	22 1/2	1 1/2	0.215	24	22 1/2	1 1/2
	12. HEAD SHAPE	ROUND TRUSS WITH #3 PHILLIPS				ROUND TRUSS WITH #3 PHILLIPS		
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.110				0.110			
DIAMETER	0.435				0.435			
14. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3	Column 1	Column 2	Column 3		
	Shape	Dimensions (inches)	Material	Shape	Dimensions (inches)	Material		
	ROUND	2	STAINLESS STEEL	ROUND	2	STAINLESS STEEL		
	ROUND	3	STAINLESS STEEL	ROUND	3	STAINLESS STEEL		
	ROUND	2	STEEL	ROUND	2	STEEL		
	ROUND	2	PLASTIC	ROUND	2	PLASTIC		
	ROUND	3	STEEL	ROUND	3	STEEL		
ROUND	3	PLASTIC	ROUND	3	PLASTIC			
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	600				600			
B. GYPSUM	600				600			
C. CEMENTITIOUS WOOD FIBER	600				600			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE	FM, METRO-DADE COUNTY				FM, METRO-DADE COUNTY			
B. GYPSUM	FM, METRO-DADE COUNTY				FM, METRO-DADE COUNTY			
C. CEMENTITIOUS WOOD FIBER								
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X				X			

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

GAF MATERIALS CORPORATION IRON-LOK TOGGLE BOLT				GAF MATERIALS CORPORATION GAFTITE LITE-DECK				GAF MATERIALS CORPORATION GAFTITE BASE SHEET FASTENER			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
CARBON STEEL				HARDENED CARBON STEEL				STEEL			
ENDURION, WITH IRON-LOK ADHESIVE				CR-10 FLUOROCARBON				G-90 HOT DIPPED GALVANIZED OR CR-10 FLUOROCARBON			
THREADED				THREADED				SPLIT BODY			
NA				PINCH				NA			
TOGGLE BOLT PLUS WING THRU PREDRILLED HOLE				THREADED				SHANK EXPANSION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.215	4	2 1/2	1 1/2	0.310	3	1	2	NA	1.81	NA	NA
0.215	6	4 1/2	1 1/2	0.310	4	2	2		1.20		
0.215	7	5 1/2	1 1/2	0.310	5	3	2				
0.215	8	6 1/2	1 1/2	0.310	6	4	2				
0.215	10	8 1/2	1 1/2	0.310	8	6	2				
0.215	12	10 1/2	1 1/2	0.310	9	7	2				
0.215	14	12 1/2	1 1/2	0.310	10	8	2				
0.215	16	14 1/2	1 1/2	0.310	12	10	2				
0.215	18	16 1/2	1 1/2								
0.215	20	18 1/2	1 1/2								
0.215	22	20 1/2	1 1/2								
0.215	24	22 1/2	1 1/2								
ROUND TRUSS WITH #3 PHILLIPS				ROUND #3 PHILLIPS				RECTANGULAR WITH ROUNDED CORNERS			
0.110				0.558				1 X 1.3			
0.435											
YES				YES				NO			
YES				YES				YES			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	STEEL		ROUND	3	STEEL		ROUND	2 3/4	G-90 GALVANIZED AND GALVALUME	
ROUND	2	PLASTIC									
ROUND	2	STAINLESS STEEL									
ROUND	3	STEEL									
ROUND	3	PLASTIC									
ROUND	3	STAINLESS STEEL									
REQUIRED				REQUIRED				MALLET (REQUIRED)			
600				NA				40 MIN.			
600				450				40 MIN.			
600				450				NA			
								FM, UL, METRO-DADE COUNTY			
								NA			
								NA			
YES				YES				NO			
X				X							



# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	GAF MATERIALS/N.T.B. FASTENERS				HILTI INC.			
2. PRODUCT NAME	TOGGLE-LESS MAGNUM/EVERGUARD POLYMER				HILTI TOGGLE BOLT			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X				X			
C. CEMENTITIOUS WOOD FIBER	X				X			
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
6. MATERIAL TYPE	NYLON				CARBON STEEL (C1008)			
7. COATING TYPE	NA				ZINC PLATED			
8. SHANK TYPE	SPIRAL THREAD				THREADED			
9. POINT TYPE	NA				NA			
10. METHOD OF ATTACHMENT	THREADED, SPIN WELD WITH AND WITHOUT WIRES				PREDRILL HOLE			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.4375	2 1/2	1	1 1/2	0.215	4	2 3/4	1 1/4
	0.4375	3	1 1/2	1 1/2	0.215	5	3 3/4	1 1/4
	0.4375	3 1/2	2	1 1/2	0.215	6	4 3/4	1 1/4
	0.4375	4	2 1/2	1 1/2	0.215	7	5 3/4	1 1/4
	0.4375	4 1/2	3	1 1/2	0.215	8	6 3/4	1 1/4
	0.4375	5	3 1/2	1 1/2	0.215	9	7 3/4	1 1/4
	0.4375	5 1/2	4	1 1/2	0.215	10	8 3/4	1 1/4
	0.4375	6	4 1/2	1 1/2	0.215	11	9 3/4	1 1/4
	0.4375	6 1/2	5	1 1/2	0.215	12	10 3/4	1 1/4
	0.4375	7	5 1/2	1 1/2	0.215	13	11 3/4	1 1/4
	0.4375	7 1/2	6	1 1/2	0.215	14	12 3/4	1 1/4
	0.4375	8	6 1/2	1 1/2	0.215	15	13 3/4	1 1/4
	0.4375	8 1/2	7	1 1/2	0.215	16	14 3/4	1 1/4
	0.4375	9	7 1/2	1 1/2	0.215	17	15 3/4	1 1/4
	0.4375	9 1/2	8	1 1/2	0.215	18	16 3/4	1 1/4
	0.4375	10	8 1/2	1 1/2	0.215	19	17 3/4	1 1/4
					0.215	20	18 3/4	1 1/4
					0.215	22	20 3/4	1 1/4
					0.215	23	21 3/4	1 1/4
					0.215	24	22 3/4	1 1/4
12. HEAD SHAPE	DOUBLE HEX				TRUSS			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.100				0.111			
DIAMETER	1.0				0.437			
14. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	NYLON		ROUND	2	G-90 GALVANIZED	
	WITH SPIKES	2	CARBON STEEL		ROUND	3	G-90 GALVANIZED	
	ROUND	2	CARBON STEEL		ROUND	3	CO-POLY PLASTIC	
	WITH SPIKES	2	CARBON STEEL		ROUND	2	GALFAN	
	ROUND	3	CARBON STEEL		ROUND	3	GALFAN	
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	OPTIONAL				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)	AIR WRENCH OR HANDSET TOLL (OPTIONAL)							
OTHER	ELECTRIC IMPACT WRENCH/ELIMINATOR (OPTIONAL)							
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	375				480/590			
B. GYPSUM	450				476/600			
C. CEMENTITIOUS WOOD FIBER	450				476/600			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE	FM							
B. GYPSUM	FM							
C. CEMENTITIOUS WOOD FIBER	FM							
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X							

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

ITW BUILDDEX				ITW BUILDDEX				ITW BUILDDEX			
POLYMER GYPTEC				LITE WEIGHT CONCRETE FASTENER				1.2 LITE WEIGHT CONCRETE FASTENER			
U.S.				U.S.				U.S.			
X				X				X			
X								X			
X								X			
X				X				X			
X				X				X			
GLASS-FILLED NYLON				G-90 STEEL				G-90 STEEL			
NA				GRAY POLYMER				BLACK POLYMER			
THREADED AUGER				TWO-PIECE RECTANGULAR				TWO-PIECE RECTANGULAR			
TAPERED				NA				NA			
THREADED				SHANK EXPANSION				SHANK EXPANSION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.430	2 3/4	1 1/4	1 1/2	NA	1.7	NA	NA	NA	1.2	NA	NA
0.430	3	1 1/2	1 1/2								
0.430	3 1/2	2	1 1/2								
0.430	4	2 1/2	1 1/2								
0.430	4 1/2	3	1 1/2								
0.430	5	3 1/2	1 1/2								
0.430	5 1/2	4	1 1/2								
0.430	6	4 1/2	1 1/2								
0.430	6 1/2	5	1 1/2								
0.430	7	5 1/2	1 1/2								
0.430	7 1/2	6	1 1/2								
0.430	8	6 1/2	1 1/2								
ROUND, 1/4-INCH SQUARE RECESS				ROUND				ROUND			
0.130											
1.00				1.1				1.1			
YES				NO				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
SQUARE ROUND	3 X 3 2	GALVALUME GALVALUME		ROUND	2.7	GALVALUME		ROUND	2.7	GALVALUME	
REQUIRED											
7/16-IN. DRILL BIT (REQUIRED FOR GYPSUM)				BX LITE DRIVE				BX LITE DRIVE			
NA				140							
518											
422											
NA				FM, METRO.-DADE COUNTY				FM, METRO.-DADE COUNTY			
FM, METRO-DADE COUNTY											
FM, METRO-DADE COUNTY											
YES				YES				YES			
				X				X			

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	JOHNS MANVILLE INTERNATIONAL INC.				JOHNS MANVILLE INTERNATIONAL INC.			
2. PRODUCT NAME	NTB				LWC CR BASE SHEET FASTENERS			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE					X			
B. GYPSUM	X							
C. CEMENTITIOUS WOOD FIBER	X							
5. USED WITH:								
A. INSULATION ATTACHMENT	X							
B. BUILT-UP MEMBRANES					X			
C. SINGLE-PLY MEMBRANES					X			
6. MATERIAL TYPE	NYLON				STEEL			
7. COATING TYPE	NA				CR-10			
8. SHANK TYPE	SPIRAL THREAD				TWO-PIECE RECTANGULAR			
9. POINT TYPE	NA				NA			
10. METHOD OF ATTACHMENT	THREADED, SPIN WELD W/ & W/O WIRES				SHANK EXPANSION			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.4375	2 1/2	1 1/4	1 1/2	NA	1.75	NA	1.75
	0.4375	3	1 1/2	1 1/2				
	0.4375	3 1/2	2	1 1/2				
	0.4375	4	2 1/2	1 1/2				
	0.4375	4 1/2	3	1 1/2				
	0.4375	5	3 1/2	1 1/2				
	0.4375	5 1/2	4	1 1/2				
	0.4375	6	4 1/2	1 1/2				
	0.4375	6 1/2	5	1 1/2				
	0.4375	7	5 1/2	1 1/2				
	0.4375	7 1/2	6	1 1/2				
	0.4375	8	6 1/2	1 1/2				
12. HEAD SHAPE	DOUBLE HEX				SQUARE, ROUND			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.10				NA			
DIAMETER	1.00				1 1/8, 2 3/4			
14. PLATES								
A. REQUIRED (yes/no)	YES				YES, NO			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	NYLON		ROUND	2 3/4	GALVALUME	
	WITH SPIKES	3	CARBON STEEL					
	ROUND							
	WITH SPIKES							
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	OPTIONAL				NA			
INSTALLATION TOOL WITH SCREW GUN (optional/required)					NA			
SPECIAL TOOL NEEDED (optional/required)	AIR WRENCH OR HANDSET TOOL (OPTIONAL)				NA			
OTHER	ELECTRIC IMPACT WRENCH/ELIMINATOR (OPTIONAL)				MALLET			
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	375				40 MIN.			
B. GYPSUM	450							
C. CEMENTITIOUS WOOD FIBER	450							
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE					FM, METRO-DADE COUNTY			
B. GYPSUM	FM, METRO-DADE COUNTY							
C. CEMENTITIOUS WOOD FIBER	FM, METRO-DADE COUNTY							
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

OLYMPIC MANUFACTURING GROUP/N.T.B. FASTENERS				OLYMPIC MANUFACTURING GROUP				OLYMPIC MANUFACTURING GROUP			
N.T.B. MAGNUM WITH & WITHOUT WIRES				TOGGLE BOLT (STAINLESS STEEL)				TOGGLE BOLT (CARBON STEEL)			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X							
NYLON				STAINLESS STEEL				CARBON STEEL			
NA				NA				CR-10 FLUOROCARBON			
SPIRAL THREAD				THREADED				THREADED			
NA				NA				NA			
THREADED, SPIN WELD WITH AND WITHOUT WIRES				TOGGLE BOLT PLUS WING THRU PREDRILLED HOLE				TOGGLE BOLT PLUS WING THRU PREDRILLED HOLE			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.4375	2 1/2	1	1 1/2	0.215	4	2 1/2	1 1/2	0.215	4	2 1/2	1 1/2
0.4375	3	1 1/2	1 1/2	0.215	6	4 1/2	1 1/2	0.215	6	4 1/2	1 1/2
0.4375	3 1/2	2	1 1/2	0.215	7	5 1/2	1 1/2	0.215	7	5 1/2	1 1/2
0.4375	4	2 1/2	1 1/2	0.215	8	6 1/2	1 1/2	0.215	8	6 1/2	1 1/2
0.4375	4 1/2	3	1 1/2	0.215	10	8 1/2	1 1/2	0.215	10	8 1/2	1 1/2
0.4375	5	3 1/2	1 1/2	0.215	12	10 1/2	1 1/2	0.215	12	10 1/2	1 1/2
0.4375	5 1/2	4	1 1/2	0.215	14	12 1/2	1 1/2	0.215	14	12 1/2	1 1/2
0.4375	6	4 1/2	1 1/2	0.215	16	14 1/2	1 1/2	0.215	16	14 1/2	1 1/2
0.4375	6 1/2	5	1 1/2	0.215	18	16 1/2	1 1/2	0.215	18	16 1/2	1 1/2
0.4375	7	5 1/2	1 1/2	0.215	20	18 1/2	1 1/2	0.215	20	18 1/2	1 1/2
0.4375	7 1/2	6	1 1/2	0.215	22	20 1/2	1 1/2	0.215	22	20 1/2	1 1/2
0.4375	8	6 1/2	1 1/2	0.215	24	22 1/2	1 1/2	0.215	24	22 1/2	1 1/2
0.4375	8 1/2	7	1 1/2								
0.4375	9	7 1/2	1 1/2								
0.4375	9 1/2	8	1 1/2								
0.4375	10	8 1/2	1 1/2								
DOUBLE HEX				ROUND TRUSS WITH #3 PHILLIPS				ROUND TRUSS WITH #3 PHILLIPS			
0.100				0.110				0.110			
1.0				0.435				0.435			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND WITH SPIKES	2	NYLON		ROUND	2	STAINLESS STEEL		ROUND	2	STEEL	
ROUND				ROUND	3	STAINLESS STEEL		ROUND	2	PLASTIC	
ROUND				ROUND	2	STEEL		ROUND	2	STAINLESS STEEL	
WITH SPIKES	3	CARBON STEEL		ROUND	2	PLASTIC		ROUND	3	STEEL	
				ROUND	3	STEEL		ROUND	3	PLASTIC	
				ROUND	3	PLASTIC		ROUND	3	STAINLESS STEEL	
				ROUND	3 1/2	STEEL		ROUND	3 1/2	STEEL	
OPTIONAL				REQUIRED				REQUIRED			
ELIMINATOR TOOL (OPTIONAL)											
ELECTRIC IMPACT WRENCH/ELIMINATOR (OPTIONAL)											
375				600				600			
450				600				600			
400				600				600			
FM, METRO-DADE COUNTY				FM, METRO-DADE COUNTY				FM, METRO-DADE COUNTY			
FM, METRO-DADE COUNTY				FM, METRO-DADE COUNTY				FM, METRO-DADE COUNTY			
FM, METRO-DADE COUNTY											
YES				YES				YES			
X				X				X			

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	OLYMPIC MANUFACTURING GROUP				OLYMPIC MANUFACTURING GROUP			
2. PRODUCT NAME	IRON-LOK TOGGLE BOLT				LITE-DECK			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X				X			
C. CEMENTITIOUS WOOD FIBER	X				X			
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
6. MATERIAL TYPE	CARBON STEEL				HARDENED CARBON STEEL			
7. COATING TYPE	CR-10, WITH IRON-LOK ADHESIVE				CR-10 FLUOROCARBON			
8. SHANK TYPE	THREADED				THREADED			
9. POINT TYPE	NA				PINCH			
10. METHOD OF ATTACHMENT	TOGGLE BOLT PLUS WING THRU PREDRILLED HOLE				THREADED			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.215	4	2 1/2	1 1/2	0.310	3	1	2
	0.215	6	4 1/2	1 1/2	0.310	4	2	2
	0.215	7	5 1/2	1 1/2	0.310	5	3	2
	0.215	8	6 1/2	1 1/2	0.310	6	4	2
	0.215	10	8 1/2	1 1/2	0.310	8	6	2
	0.215	12	10 1/2	1 1/2	0.310	9	7	2
	0.215	14	12 1/2	1 1/2	0.310	10	8	2
	0.215	16	14 1/2	1 1/2	0.310	12	10	2
	0.215	18	16 1/2	1 1/2				
	0.215	20	18 1/2	1 1/2				
	0.215	22	20 1/2	1 1/2				
	0.215	24	22 1/2	1 1/2				
12. HEAD SHAPE	ROUND TRUSS WITH #3 PHILLIPS				ROUND #3 PHILLIPS			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.110							
DIAMETER	0.435				0.558			
14. PLATES								
A. REQUIRED (yes/no)	YES				YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3	Column 1	Column 2	Column 3		
	Shape	Dimensions (inches)	Material	Shape	Dimensions (inches)	Material		
	ROUND	2	STEEL	ROUND	3	STEEL		
	ROUND	2	PLASTIC					
	ROUND	2	STAINLESS STEEL					
	ROUND	3	STEEL					
	ROUND	3	PLASTIC					
	ROUND	3	STAINLESS STEEL					
	ROUND	3 1/2	STEEL					
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	REQUIRED				REQUIRED			
INSTALLATION TOOL WITH SCREW GUN (optional/required)								
SPECIAL TOOL NEEDED (optional/required)								
OTHER								
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	600				NA			
B. GYPSUM	600				450			
C. CEMENTITIOUS WOOD FIBER	600				450			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE	FM, METRO-DADE COUNTY				FM, UL, METRO-DADE COUNTY			
B. GYPSUM	FM, METRO-DADE COUNTY				FM, UL, METRO-DADE COUNTY			
C. CEMENTITIOUS WOOD FIBER					FM, UL, METRO-DADE COUNTY			
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X				X			

NA=not applicable

### Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

OLYMPIC MANUFACTURING GROUP				POWERS FASTENERS				POWERS FASTENERS			
OLYMPIC BASE SHEET FASTENER				POWERS RAWL SPEED-LOCK TOGGLE				POWERS RAWL POWERLITE			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
STEEL				CARBON STEEL & STAINLESS STEEL				DUPONT ZYTEL NYLON			
G-90 HOT DIPPED GALVANIZED AND CR-10 FLUOROCARBON				PERMA-SEAL FLUOROPOLYMER (ON CARBON STEEL BOLT ONLY)				NA			
SPLIT BODY				ANNULAR THREAD				HIGH THREAD WITH TAPERED ROOT			
NA				NA				SHARP			
SHANK EXPANSION				CLAMPING				THREADED, SUBSTRATE COMPACTION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
NA	1.75 1.20	NA	NA	0.250	5	3 1/2	1 1/2	0.675	2	1/2	1 1/2
				0.250	6	4 1/2	1 1/2	0.675	2 1/2	1	1 1/2
				0.250	7	5 1/2	1 1/2	0.675	3	1 1/2	1 1/2
				0.250	8	6 1/2	1 1/2	0.675	3 1/2	2	1 1/2
				0.250	9	7 1/2	1 1/2	0.675	4	2 1/2	1 1/2
				0.250	10	8 1/2	1 1/2	0.675	4 1/2	3	1 1/2
				0.250	12	10 1/2	1 1/2	0.675	5	3 1/2	1 1/2
				0.250	14	12 1/2	1 1/2	0.675	5 1/2	4	1 1/2
								0.675	6	4 1/2	1 1/2
								0.675	6 1/2	5	1 1/2
								0.675	7	5 1/2	1 1/2
								0.675	7 1/2	6	1 1/2
								0.675	8	6 1/2	1 1/2
								0.675	8 1/2	7	1 1/2
								0.675	9	7 1/2	1 1/2
								0.675	9 1/2	8	1 1/2
								0.675	10	8 1/2	1 1/2
								0.675	11	9 1/2	1 1/2
								0.675	12	10 1/2	1 1/2
								0.675	13	11 1/2	1 1/2
								0.675	14	12 1/2	1 1/2
RECTANGULAR WITH ROUNDED CORNERS				PHILLIPS FLAT HEAD #3 RECESS				1/4" SQUARE DRIVE RECESS			
1 X 1.3				0.042				0.134			
				0.426				1.000			
NO				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2 3/4	G-90 GALVANIZED AND GALVALUME		ROUND	3	GALVALUME		ROUND BARBED ROUND BARBED	2  3	GALVALUME  GALVALUME	
				OPTIONAL							
P090, P060 MALLET (REQUIRED)				APPROPRIATE DRILL & BIT FOR BASE MATERIAL (REQUIRED)				APPR. DRILL & BIT FOR BASE MAT'L / IMPACT WRENCH (REQUIRED)			
40 MIN.				995							
NA				620				540			
NA				570				595			
FM, UL, METRO.-DADE COUNTY				FM				FM			
FM, UL, METRO.-DADE COUNTY				FM				FM			
NA				FM				FM			
YES				YES				YES			
				X				X			

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	SFS STADLER INC.				SFS STADLER INC.			
2. PRODUCT NAME	INSUL-LITE				FM-90 BASE PLY			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X							
C. CEMENTITIOUS WOOD FIBER	X							
5. USED WITH:								
A. INSULATION ATTACHMENT	X							
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
6. MATERIAL TYPE	NYLON				STEEL			
7. COATING TYPE	NA				HOT DIPPED G90 GALVANIZED & URETHANE			
8. SHANK TYPE	SPIRAL THREAD				TWO-PIECE RECTANGULAR			
9. POINT TYPE	GIMLET				NA			
10. METHOD OF ATTACHMENT	SUBSTRATE COMPACTION				SHANK EXPANSION			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.430	2	1/2	1 1/2	NA	1 7/10	NA	NA
	0.430	2 1/2	1	1 1/2				
	0.430	3	1 1/2	1 1/2				
	0.430	3 1/2	2	1 1/2				
	0.430	4	2 1/2	1 1/2				
	0.430	4 1/2	3	1 1/2				
	0.430	5	3 1/2	1 1/2				
	0.430	5 1/2	4	1 1/2				
	0.430	6	4 1/2	1 1/2				
	0.430	7	5 1/2	1 1/2				
	0.430	8	6 1/2	1 1/2				
	0.430	9	7 1/2	1 1/2				
	0.430	10	8 1/2	1 1/2				
12. HEAD SHAPE	ROUND				ROUND			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.120				2.75			
DIAMETER	1.00							
14. PLATES								
A. REQUIRED (yes/no)	YES				NO			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES				YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	ROUND	2	GALVALUME					
	BARBED	3	GALVALUME					
	ROUND							
	BARBED							
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)								
INSTALLATION TOOL WITH SCREW GUN (optional/required)					MAGNETIC DRIVER (REQUIRED)			
SPECIAL TOOL NEEDED (optional/required)								
OTHER	IMPACT WRENCH							
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	280				90 MIN			
B. GYPSUM	600				NA			
C. CEMENTITIOUS WOOD FIBER	450				NA			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE	FM				FM, METRO-DADE COUNTY			
B. GYPSUM	FM							
C. CEMENTITIOUS WOOD FIBER	FM							
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED								

NA=not applicable

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

SFS STADLER INC.				SFS STADLER INC.				SIMPLEX			
TPR-THE PEEL RIVET				BASE-LOK				BASE-LOC			
ISRAEL				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
ALUMINUM ALLOY				NYLON				CAPRON NYLON GLASS FIBER RESIN			
NA				NA				NA			
HOLLOW RIVET BODY				HIGH PROFILE THREAD				HIGH PROFILE SPIRAL THREAD			
PIERCING MANDRELL				DRILL				SPADE SHOVEL DRILL POINT			
CLAMPING				THREADED				THREADED			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.250	1 1/4	1/4	1	0.562	1 5/8	NA	1 1/2	0.562	1.7	0.0625	1.5
0.250	2	1	1								
0.250	3	2	1								
0.250	4	3	1								
0.250	5	4	1								
0.250	6	5	1								
0.250	7	6	1								
0.250	8	6	1								
0.250	9	8	1								
0.250	10	9	1								
LOW PROFILE MUSHROOM				ROUND				ROUND			
0.075				0.059				0.125			
0.480				3.000				1.000			
YES				NO				NA			
YES								NA			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
ROUND	2	GALVALUME						NA	NA	NA	
ROUND	3	GALVALUME									
OPTIONAL REQUIRED				REQUIRED OPTIONAL				REQUIRED WITH CLUTCH OPTIONAL OPTIONAL NA			
509				186				186			
507				165				191.5			
374											
FM				FM				FM, DADE COUNTY			
FM				FM, METRO.-DADE COUNTY				DADE COUNT			
FM								FM, DADE COUNT			
YES				YES				YES			
								X			



# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	SIMPLEX				SIMPLEX			
2. PRODUCT NAME	TUBE-LOK RL				TUBE-LOK EGYD			
3. COUNTRY OF MANUFACTURE	U.S.				U.S.			
4. DECK TYPE								
A. LIGHTWEIGHT CONCRETE	X				X			
B. GYPSUM	X				X			
C. CEMENTITIOUS WOOD FIBER	X				X			
5. USED WITH:								
A. INSULATION ATTACHMENT	X				X			
B. BUILT-UP MEMBRANES	X				X			
C. SINGLE-PLY MEMBRANES	X				X			
6. MATERIAL TYPE	CARBON STEEL				CARBON STEEL			
7. COATING TYPE	RUST-LOK				ELECTRO GALVANIZED YELLOW DICHROMATE			
8. SHANK TYPE	BARBED				BARBED			
9. POINT TYPE	CHISEL				CHISEL			
10. METHOD OF ATTACHMENT	FISH HOOK & FRICTION				FISH HOOK & FRICTION			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
	0.168	1	0	1	0.168	1	0	1
	0.168	1 3/4	1/4	1 1/2	0.168	1 3/4	1/4	1 1/2
	0.168	2 1/2	1	1 1/2	0.168	2 1/2	1	1 1/2
	0.168	3	1 1/2	1 1/2	0.168	3	1 1/2	1 1/2
	0.168	3 1/2	2	1 1/2	0.168	3 1/2	2	1 1/2
	0.168	4 1/2	3	1 1/2	0.168	4 1/2	3	1 1/2
	0.168	5 1/2	4	1 1/2	0.168	5 1/2	4	1 1/2
	0.168	6 1/2	5	1 1/2	0.168	6 1/2	5	1 1/2
12. HEAD SHAPE	ROUND				ROUND			
13. HEAD DIMENSIONS (inches)								
THICKNESS	0.037				0.037			
DIAMETER	1.000				1.000			
14. PLATES								
A. REQUIRED (yes/no)	NO							
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES							
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
	Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
	PARABOLIC	2	GALALUME		PARABOLIC	2	GALALUME	
	PARABOLIC	3	GALVALUME		PARABOLIC	3	GALVALUME	
16. INSTALLATION EQUIPMENT								
SCREW GUN (optional/required)	NA				NA			
INSTALLATION TOOL WITH SCREW GUN (optional/required)	NA				NA			
SPECIAL TOOL NEEDED (optional/required)	NA				NA			
OTHER	NA				NA			
17. AVERAGE PULLOUT RESISTANCE (lbs.)								
A. LIGHTWEIGHT CONCRETE	120.2				120.2			
B. GYPSUM	364.8				364.8			
C. CEMENTITIOUS WOOD FIBER	115.0				115.0			
18. ACCEPTED BY THE FOLLOWING CODES								
A. LIGHTWEIGHT CONCRETE	DADE COUNTY				DADE COUNTY			
B. GYPSUM	DADE COUNTY				DADE COUNTY			
C. CEMENTITIOUS WOOD FIBER	DADE COUNTY				DADE COUNTY			
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES				YES			
20. SEE APPENDIX IF CHECKED	X				X			

NA=not applicable

**Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks**

SIMPLEX				TRI-PLY				TRU-FAST CORPORATION			
TUBE-LOK B				DEKLITE				TL (TECTUM LIGHTWEIGHT)			
U.S.				U.S.				U.S.			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
X				X				X			
CARBON STEEL				NYLON				DUPONT ZYTEL NYLON			
BRIGHT				NA				NA			
BARBED				SPIRAL THREADED				SPIRAL THREAD			
CHISEL				GIMLET				GIMLET			
FISH HOOK & FRICTION				THREADED				THREADED, SUBSTRATE COMPACTION			
Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4	Column 1	Column 2	Column 3	Column 4
Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)	Shank Diameters Available (inches)	Shank Lengths Available (inches)	Fastening Range, Max. Total Thickness (inches)	Required Deck Penetration (inches)
0.168	1	0	1	0.750	2 1/2	3/4	1 3/4	0.430	2	1/2	1 1/2
0.168	1 3/4	1/4	1 1/2	0.750	3	1 1/4	1 3/4	0.430	2 1/2	1	1 1/2
0.168	2 1/2	1	1 1/2	0.750	3 1/2	1 3/4	1 3/4	0.430	3	1 1/2	1 1/2
0.168	3	1 1/2	1 1/2	0.750	4	2 1/4	1 3/4	0.430	3 1/2	2	1 1/2
0.168	3 1/2	2	1 1/2	0.750	4 1/2	2 3/4	1 3/4	0.430	4	2 1/2	1 1/2
0.168	4 1/2	3	1 1/2	0.750	5	3 1/4	1 3/4	0.430	4 1/2	3	1 1/2
0.168	5 1/2	4	1 1/2	0.750	5 1/2	3 3/4	1 3/4	0.430	5	3 1/2	1 1/2
0.168	6 1/2	5	1 1/2	0.750	6	4 1/4	1 3/4	0.430	5 1/2	4	1 1/2
				0.750	6 1/2	4 3/4	1 3/4	0.430	6	4 1/2	1 1/2
				0.750	7	5 1/4	1 3/4	0.430	6 1/2	5	1 1/2
				0.750	7 1/2	5 3/4	1 3/4	0.430	7	5 1/2	1 1/2
				0.750	8	6 1/4	1 3/4	0.430	7 1/2	6	1 1/2
				0.750	8 1/2	6 3/4	1 3/4	0.430	8	6 1/2	1 1/2
				0.750	9	7 1/4	1 3/4	0.430	8 1/2	7	1 1/2
				0.750	9 1/2	7 3/4	1 3/4	0.430	9	7 1/2	1 1/2
				0.750	10	8 1/4	1 3/4	0.430	9 1/2	8	1 1/2
								0.430	10	8 1/2	1 1/2
ROUND				ROUND				ROUND, 1/4-IN. RECESS			
0.037				0.125				0.120			
1.000				1.0				1.00			
YES				YES				YES			
YES				YES				YES			
Column 1	Column 2	Column 3		Column 1	Column 2	Column 3		Column 1	Column 2	Column 3	
Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material		Shape	Dimensions (inches)	Material	
PARABOLIC	2	GALALUME		ROUND	2	GALVALUME		ROUND BARBE	2	GALVALUME	
PARABOLIC	3	GALVALUME		HEX	2 7/8	GALVALUME		ROUND BARBE	3	GALVALUME	
								ROUND BARBE	2	STAINLESS STEEL	
								ROUND BARBE	3	STAINLESS STEEL	
NA				REQUIRED				IMPACT WRENCH, ELECTRIC DRILL (OPTIONAL)			
NA											
NA											
NA											
120.2				200				280			
364.8				400				600			
115.0				350/250				450			
DADE COUNTY								FM			
DADE COUNTY								FM			
DADE COUNTY								FM			

# Roof Fasteners: Lightweight Concrete, Gypsum, or Cementitious Wood Fiber Decks

1. COMPANY NAME	U.S. INTEC			
2. PRODUCT NAME	DRILL-TEC LITE DECK			
3. COUNTRY OF MANUFACTURE	U.S.			
4. DECK TYPE				
A. LIGHTWEIGHT CONCRETE	X			
B. GYPSUM	X			
C. CEMENTITIOUS WOOD FIBER	X			
5. USED WITH:				
A. INSULATION ATTACHMENT	X			
B. BUILT-UP MEMBRANES				
C. SINGLE-PLY MEMBRANES				
6. MATERIAL TYPE	DUPONT ZYTEL NYLON			
7. COATING TYPE	NA			
8. SHANK TYPE	SPIRAL THREAD			
9. POINT TYPE	GIMLET			
10. METHOD OF ATTACHMENT	THREADED, SUBSTRATE COMPACTION			
11. DIAMETER, LENGTH, FASTENING RANGE, PENETRATION	Column 1 Shank Diameters Available (inches)	Column 2 Shank Lengths Available (inches)	Column 3 Fastening Range, Max. Total Thickness (inches)	Column 4 Required Deck Penetration (inches)
	0.430	2		1 1/2
	0.430	2 1/2		1 1/2
	0.430	3		1 1/2
	0.430	3 1/2		1 1/2
	0.430	4		1 1/2
	0.430	4 1/2		1 1/2
	0.430	5		1 1/2
	0.430	5 1/2		1 1/2
	0.430	6		1 1/2
	0.430	6 1/2		1 1/2
	0.430	7		1 1/2
	0.430	7 1/2		1 1/2
	0.430	8		1 1/2
	0.430	8 1/2		1 1/2
	0.430	9		1 1/2
	0.430	9 1/2		1 1/2
	0.430	10		1 1/2
12. HEAD SHAPE	ROUND, 1/4-IN. RECESS			
13. HEAD DIMENSIONS (inches)				
THICKNESS	0.120			
DIAMETER	1.00			
14. PLATES				
A. REQUIRED (yes/no)	YES			
B. AVAILABLE FROM MANUFACTURER (yes/no)	YES			
15. PLATE SHAPE, DIMENSIONS, AND MATERIAL	Column 1 Shape	Column 2 Dimensions (inches)	Column 3 Material	
	ROUND BARBE	3	GALVALUME	
16. INSTALLATION EQUIPMENT				
SCREW GUN (optional/required)				
INSTALLATION TOOL WITH SCREW GUN (optional/required)				
SPECIAL TOOL NEEDED (optional/required)				
OTHER	IMPACT WRENCH, ELECTRIC DRILL (OPTIONAL)			
17. AVERAGE PULLOUT RESISTANCE (lbs.)				
A. LIGHTWEIGHT CONCRETE	280			
B. GYPSUM	600			
C. CEMENTITIOUS WOOD FIBER	450			
18. ACCEPTED BY THE FOLLOWING CODES				
A. LIGHTWEIGHT CONCRETE				
B. GYPSUM	FM, METRO.-DADE COUNTY			
C. CEMENTITIOUS WOOD FIBER	FM, METRO.-DADE COUNTY			
19. WARRANTY AVAILABLE FROM THE MANUFACTURER (yes/no)	YES			
20. SEE APPENDIX IF CHECKED				

NA=not applicable