# Commercial, Industrial and Institutional Roofing Materials

# GUIDE

**Volume 7**
**August 1985**

Replace with
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be published in
February 1986



ROOFING FACTS:

Section 1:
Membranes

Section 2:
Board Insulation

*Published by:*

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*Architects Specifiers*
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*Manufacturers of:*
*Membrane Products*
*Roofing Insulation*
*Roofing Products*
*Salesmen, Jobbers, Wholesalers*

## THIS ISSUE!

**Membranes**

**5 New Manufacturers**
**63 New Products**

**Roof Board Insulation**

**14 New Manufacturers**
**56 New Products**

**Over 4600 additions, revisions and updates to previously reported data.**

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# LIST OF SINGLE-PLY ROOF MEMBRANES WHICH MEET OR EXCEED STANDARD VALUES

The following is a list of single-ply roof membrane materials which:

A. are listed in the **Guide.**

B. are included in one of the described referenced concensus documents which define test methods and specify minimum test values for various physical properties.

C. meet or exceed all of the minimum test values as defined in the applicable document based on reported test results supplied by manufacturers/suppliers and as printed in the Part 2 section of the **Guide.**

No listing is provided for materials which:

A. are not listed in the **Guide,** and/or

B. do not conform to referenced documents

C. do not meet or exceed all of the minimum test values as specified in the appropriate referenced document as reported by manufacturers/suppliers.

No evaluation has been made by NRCA regarding the minimum test values defined in the referenced document versus the actual test results reported by manufacturers/suppliers. Any reported test result less than the exact specified minimum or absence of test data will result in exclusion from the following list.

The user of the **Guide** must determine if the listing or non-listing of a material in the following list, because of lack of data or because reported test data is below the minimum values specified in the referenced standard, is significant in evaluating materials.

No fee is required for listing membrane products in the **Guide.** Any manufacturer/supplier may participate by contacting NRCA and completing the necessary forms.

The fact that a listed material does or does not meet all of the values specified in the reference documents does not necessarily imply that it will or will not produce an acceptable roofing membrane.

The listing of materials which meet or exceed referenced standards will be up-dated in future issues of the **Guide.** Manufacturers/suppliers are encouraged to present data in conformance with these recognized standards, to support efforts to develop new standards and to encourage the practical use of this information throughout the industry. As new standards are developed they will be incorporated into the **Guide** program.

| PRODUCT NAME | COMPANY NAME | APPLICABLE REFERENCED DOCUMENT |
|---|---|---|
| **EPDM Non-Reinforced Black** | | |
| 1. Hydro-Seal .045 Black | American Hydrotech, Inc. | RMA IPR-1/1985: Minimum Requirement for Non-reinforced Black EPDM Rubber Sheets for Use in Roofing Applications |
| 2. Hydro-Seal .060 Black | American Hydrotech, Inc. | |
| 3. Rubbershield 45 Black | Barra Corp. of America, Inc. | |
| 4. Rubbershield 45 Black Fire Rated | Barra Corp. of America, Inc. | |
| 5. Rubbershield 60 Black Fire Rated | Barra Corp. of America, Inc. | |
| 6. Sure-Seal EPDM .045 | Carlisle Syntec Systems | |
| 7. Sure-Seal EPDM .060 | Carlisle Syntec Systems | |
| 8. Sure-Seal FR EPDM .045 | Carlisle Syntec Systems | |
| 9. Sure-Seal FR EPDM .060 | Carlisle Syntec Systems | |
| 10. Genflex ACR .045 Black | Diversitech General Bldg. Systems Div. | |
| 11. Genflex ACR .060 Black | Diversitech General Bldg. Systems Div. | |
| 12. Dunseal .045 | ERA Corporation | |
| 13. Dunseal .060 | ERA Corporation | |
| 14. Evanite Perm Glass Depend Memb. .045 Black | Evanite Permaglas Inc. | |
| 15. Evanite Perm Glass Depend Memb. .060 Black | Evanite Permaglas Inc. | |
| 16. Rubbergard .045 | Firestone Building Products Co. | |
| 17. Rubbergard .060 | Firestone Building Products Co. | |
| 18. Gates System I EPDM-45 mils | Gates Engineering Co., Inc. | |
| 19. Gates System I EPDM-60 mils | Gates Engineering Co., Inc. | |
| 20. Versigard EPDM .045 | Goodyear Tire & Rubber Co. | |
| 21. Versigard EPDM .060 | Goodyear Tire & Rubber Co. | |
| 22. Polyken M-60 | Kendall Company | |
| 23. Polyken MFR-45 | Kendall Company | |
| 24. Polyken MFR-60 | Kendall Company | |
| 25. SPM 45 | Manville Corporation | |
| 26. SPM 60 | Manville Corporation | |
| 27. Syenergy Rubber Roof .055 Black | Syenergy Methods, Inc. | |
| 28. Syenergy Rubber Roof .045 Black | Syenergy Methods, Inc. | |
| 29. Syenergy Rubber Roof .060 Black | Syenergy Methods, Inc. | |
| 30. Syenergy Rubber Roof .045 Black Fire Ret. | Syenergy Methods, Inc. | |
| 31. Weathergard Standard .045 Black | Weathergard Roofing Systems, Inc. | |
| 32. Firegard F450 Black | Weathergard Roofing Systems, Inc. | |
| 33. Weathergard Standard .060 Black | Weathergard Roofing Systems, Inc. | |
| 34. Firegard U600 Black | Weathergard Roofing Systems, Inc. | |

*continued*

| PRODUCT NAME | COMPANY NAME | APPLICABLE REFERENCED DOCUMENT |
|---|---|---|
| **EPDM (Fabric-Reinforced, Black)** | | |
| None | | RMA IPR-2/1985: Minimum Requirements for Fabric-Reinforced Black EPDM Rubber Sheets for Use in Roofing Applications |
| **Polychloroprene (Fabric-Reinforced, Black)** | | |
| None | | RMA IPR-3/1985: Minimum Requirements for Fabric-Reinforced Black Polychloroprene Rubber Sheets for Use in Roofing Applications |
| **PVC** | | |
| 1. Flexhide LR 50 | Pantasote | ASTM, Draft #5/July 1, 1984, Proposed New Standard Specification for Poly (Vinyl/Chloride) Sheet Roofing |
| 2. Sucoflex F-127 | PMS/Sucoflex | |
| 3. Nervaply BM | Rubber Plastics Compound Co., Inc. | |
| 4. Nervaply UB | Rubber Plastics Compound Co., Inc. | |
| 5. Sarnafil G410 | Sarnafil Inc. | |
| 6. Sarnafil S327 | Sarnafil Inc. | |
| 7. Sarnafil G442 | Sarnafil Inc. | |
| 8. Flagon C | Wat-Pro Inc. | |
| 9. Flagon MF | Wat-Pro Inc. | |
| **Modified Bitumen** | | |
| 1. Flintlastic SBS | Genstar Roofing Products | CGSB 37-GP-56M-1980: Standard for: Membrane, Modified Bituminous, Prefabricated and Reinforced for Roofing |

# INDEX: Roofing Membranes

| | Built-Up Roofing | Modified Bitumens | PVC | EPDM | NEOPRENE | CSPE HYPALON | PIB | CPE | Other |
|---|---|---|---|---|---|---|---|---|---|
| 1. AGR COMPANY<br>11016 GRANITE STRET<br>CHARLOTTE, NC 28217<br>704/588-1962 | | | | | | | 70 | | |
| 2. ALKOR DIVISON<br>HEDWIN CORP.<br>2950 S. SHAVER<br>PASADENA, TX 77502<br>713/472-1431 | | | 50 | | | | | 70 | |
| 3. ALLROOF INTERNATIONAL INC<br>2637 SOUTH DECKER LAKE BLVD<br>SALT LAKE CITY, UT 84119<br>801/973-2400 | | 20 | | | | | | | |
| 4. AMERICAN HYDROTECH, INC<br>303 E. OHIO SUITE 2120<br>CHICAGO, IL 60611<br>312/337-4998 | | | | 54 | | | | | |
| 5. AMERICAN LUBRICANTS CO., THE<br>1227 DEEDS AVENUE<br>DAYTON, OH 45401<br>513/222-2851 | | 20 | | | | | | | |
| 6. AMERICAN ROOFING CORP.<br>3100 S. CALIFORNIA<br>CHICAGO, IL 60608<br>312/376-1110 | | 20 | | | | | | | |
| 7. BARRA CORP. OF AMERICA, INC<br>190 FAIRFIELD AVENUE<br>W. CALDWELL, NJ 07006<br>800/526-2291<br>201/226-2136 | | 20 | 50 | 54 | | 68 | | | |
| 8. BARRETT COMPANY, THE<br>1001 JEFFERSON PLAZA<br>WILLIMINGTON, DE 19801<br>800/647-0100 | 6 | 21 | | | | | | | |
| 9. BOND COTE SYSTEMS<br>P.O. BOX 71<br>WEST POINT, GA 31833<br>800/368-2160 | | | | | | | | | 70 |
| 10. BURKE RUBBER COMPANY<br>2250 SOUTH 10TH STREET<br>SAN JOSE, CA 95112<br>408/297-3500 | | | | | | 68 | | | |
| 11. CARLISLE SYNTEC SYSTEMS<br>P.O. BOX 7000<br>CARLISE, PA 17013<br>717/245-7000 | | | | 54 | 68 | | | | 70 |
| 12. CELOTEX CORPORATION, THE<br>1500 N. DALE MABRY<br>TAMPA, FL 33607<br>813/871-4811 | 6 | 21 | | 55 | | | | | |
| 13. CENTRAL STATES ASSOC. CORP.<br>P.O. BOX 65504<br>WEST DES MOINES, IA 50265<br>513/224-4771 | | | | | | 69 | | | |
| 14. CERTAINTEED<br>BOX 860<br>VALLEY FORGE, PA 19482<br>215/341-7000 | 7 | | | | | | | | |
| 15. CIRO ROOFING PRODUCTS,<br>USA INC<br>P.O. BOX 257<br>CUSTER, WA 98240-0257<br>206/624-1962 | | 21 | | | | | | | |
| 16. CONKLIN CO.<br>4660 W. 77TH ST.<br>MINNEAPOLIS, MN 55435<br>612/831-4044 | | | | | | 69 | | | |
| 17. CONSOLIDATED PROTECTIVE<br>COATINGS CORP.<br>1801 E. 9TH STREET<br>800/321-7886 | | 22 | | | | | | | |
| 18. COOLEY ROOFING SYSTEMS INC<br>50 ESTEN AVENUE<br>PAWTUCKET, RI 02860<br>401/724-0490 | | | | | | | | 70 | |
| 19. DANOSA CARIBBEAN, INC<br>BOX 13757<br>SANTURCE STATION<br>SAN JUAN, PR 00908<br>809/785-4545 | | 22 | | | | | | | |
| 20. DIBITEN USA<br>4301 E. FIRESTONE BLVD<br>SOUTH GATE, CA 90280<br>213/564-7220 | | 22 | | | | | | | |
| 21. DIVERSITECH BUILDING<br>SYSTEMS, DIVISION<br>P.O. BOX 875<br>TOLEDO, OH 43696-0815<br>419/729-3731 | | | 50 | 55 | | | | | |
| 22. DUNLOP CONSTRUCTION<br>PRODUCTS, INC.<br>2055 FLAVELLE BLVD.<br>MISSISSAUGA, ONTARIO<br>CANADA L5K 1Z8<br>416/823-8200 | | | | 55 | | 69 | | | |

| | Built-Up Roofing | Modified Bitumens | PVC | EPDM | NEOPRENE | CSPE HYPALON | PIB | CPE | Other |
|---|---|---|---|---|---|---|---|---|---|
| 23. DUROLAST ROOFING, INC<br>525 MORLEY DRIVE<br>SAGINAW, MI 48601<br>800/248-0280<br>800/752-8815 (MICHIGAN) | | | | | | | | | 71 |
| 24. DYNAMIT NOBEL OF AMERICA, INC<br>10 LINK DRIVE<br>ROCKLEIGH, NJ 07647<br>201/767-1600 | | | 50 | | | | | | |
| 25. ERA CORP.<br>15001 MINNETOWKA INDUSTRIAL RD<br>MINNEAPOLIS, MN 55435-2110<br>612/936-0000 | | | | 56 | | | | | |
| 26. EVANITE PERMAGLAS INC.<br>P.O. BOX E<br>CORVALLIS, OR 97339<br>503/753-1211 | | | | 56 | | | | | |
| 27. FIRESTONE BUILDING PRODUCTS CO<br>3500 W. DEPAUW BLVD.<br>PYRAMID #3, 4TH FLOOR<br>INDIANAPOLIS, IN 46268<br>800/438-4442 | | | | 56 | | | | | |
| 28. FLEX-SHIELD CORP.<br>636 W. COMMERCE<br>GILBERT, AZ 85234<br>602/892-9320 | 9 | 23 | | | | | | | |
| 29. FUTURA COATINGS INC<br>9200 LATTY AVENUE<br>HAZELWOOD, MO 63042<br>314/521-4100 | | | | | | | | | 71 |
| 30. GARLAND CO. INC., THE<br>3800 E. 91ST STREET<br>CLEVELAND, OH 44105<br>216/641-7500 | | 23 | | | | | | | |
| 31. GATES ENGINEERING CO., INC<br>100 SOUTH WEST STREET<br>WILMINGTON, DE 19801<br>302/656-9551 | | | | 57 | 68 | 69 | | | |
| 32. GEDACO LTD<br>VIA BUSSE 23<br>ROVERCHIARA (VERONA)<br>ITALY 37050<br>39-442-74500<br>TELEX: 481032 GEDACO I | | 23 | | | | | | | |
| 33. GENSTAR ROOFING PRODUCTS CO<br>5525 MAC ARTHUR BLVD<br>IRVING, TX 75038<br>214/659-9800 | 10 | 24 | | | | | | | |
| 34. GOODYEAR TIRE &<br>RUBBER COMPANY, THE<br>1144 E. MARKET ST<br>AKRON, OH 44316-0001<br>216/796-4421 | | | | 57 | 68 | | | | |
| 35. GRACE & CO., W.R.<br>62 WHITTEMORE AVENUE<br>CAMBRIDGE, MA 02140<br>800/242-4476 | | 24 | | | | | | | |
| 36. GUIANA CORP. OF AMERICA<br>& POLYPREN ROOFING OF AMERICA<br>P.O. BOX 1205<br>HACKENSACK, NJ 07602<br>201/343-0181 | | 24 | | | | | | | |
| 37. GAF CORPORATION<br>1361 ALPS ROAD<br>WAYNE, NJ 07470<br>201/628-3000 | 9 | | | | | | | | |
| 38. HEY´DI U.P.M.<br>2801 CRUSADER CIRCLE<br>VIRGINA BEACH, VA 23456<br>804/468-2200 | | 25 | | | | | | | |
| 39. HITCHINS AMERICA INC<br>P.O. BOX 3449<br>LONGWOOD, FL 32779<br>305/869-5110 | | | | | | | | | 71 |
| 40. HYLOAD, INC<br>1006 MCKNIGHT PARK DRIVE<br>PITTSBURGH, PA 15237<br>412/367-0633 | | 25 | | | | | | | |
| 41. IMPERITALIA S P A<br>STRADA LANZO 131<br>TORINO, ITALY 10148<br>011/25 40 54 (AUT)<br>TELEX: 220130 IMPERI | | 25 | | | | | | | |
| 42. INDEX SPA<br>TECHOLOGIE IMPERMEABILI<br>VIA G. ROSSINI, 22<br>37060 CASTEL D´AZZANO<br>VERONA, ITALY<br>045/512233-R.A.<br>TELEX: 341146 INDEX-1 | | 25 | | | | | | | |
| 43. INTERNATIONAL EPDM RUBBER<br>ROOFING SYSTEMS, INC<br>5110 ANGOLA ROAD<br>TOLEDO, OH 43615 | | | | 57 | | | | | |
| 44. IPW INTERPLASTIC<br>1794 ELLENWOOD DRIVE<br>ROSWELL, GA 30075<br>404/993-5360 | | | 50 | | | | | | |

# INDEX: Roofing Membranes

| | Built-Up Roofing | Modified Bitumens | PVC | EPDM | NEOPRENE | CSPE HYPALON | PIB | CPE | Other |
|---|---|---|---|---|---|---|---|---|---|
| 45. J & P PETROLEUM PRODUCTS, INC<br>P.O. BOX 4206<br>DALLAS, TX 75208<br>214/331-5401 | | 26 | | | | | | | |
| 46. KARNAK CHEMICAL CORPORATION<br>330 CENTRAL AVENUE<br>CLARK, NJ 07066<br>201/388-0300 | 11 | | | | | | | | |
| 47. KELLY ENERGY SYSTEMS INC.<br>P.O. BOX 2583<br>WATERBURY, CT 06723<br>203/575-9220 | | 26 | | 57 | | 69 | | | |
| 48. KENDALL COMPANY<br>POLYKEN ROOFING SYSTEMS<br>ONE FEDERAL STREET<br>BOSTON, MA 02101<br>617/423-2000 | | | | 58 | | | | | |
| 49. KOPPERS<br>1301 KOPPERS BUILDING<br>PTTSBURGH, PA 15219<br>412/227-2000 | 12 | | | | | | | | |
| 50. LUNDAY THAGARD CO., INC<br>9302 S. GARFIELD<br>SOUTHGATE, CA 90280<br>213/773-4244 | 12 | | | | | | | | |
| 51. MALARKEY ROOFING CO.<br>3131 N. COLUMBIA BLVD<br>PORTLAND, OR 97217<br>503/283-1191 | 14 | 26 | | | | | | | |
| 52. MANVILLE BLDG. MAT´LS CORP.<br>P.O. BOX 5108<br>KEN-CARYL RANCH<br>DENVER, CO 80217<br>303/978-2000 | 15 | | | 59 | | | | | |
| 53. MINERAL FIBER MFG. CORP.<br>P.O. BOX 356<br>313 SOUTH SIXTH STREET<br>COSHOCTON, OH 43812<br>614/622-2645 | 15 | 26 | | | | | | | |
| 54. NEBIPROFA/CENTRAL SOYA CO, INC<br>P.O. BOX 1400<br>FORT WAYNE, IN 46802-1400<br>219/425-5417<br>800/348-1943 | | 26 | | | | | | | |
| 55. NORD BITUMI U.S. INC.<br>966 S. SPRINGFIELD AVENUE<br>SPRINGFIELD, NJ 07081<br>201/467-8669 | | 27 | | | | | | | |
| 56. OWENS-CORNING FIBERGLAS CORP.<br>FIBERGLAS TOWER<br>TOLEDO, OH 43659<br>419/248-8000 | 16 | 27 | | | | | | | |
| 57. PANTASOTE, INC<br>26 JEFFERSON STREET<br>PASSAIC, NJ 07055<br>800/922-0812 | | | 51 | | | 69 | | 70 | 71 |
| 58. PROTECTIVE COATINGS, INC<br>1602 BIRCHWOOD AVENUE<br>FORT WAYNE, IN 46803<br>219/424-2900 | | | | 59 | | | | | |
| 59. PMS/SUCOFLEX<br>13324 HAWTHORNE BLVD.<br>#202 P.O. BOX 1783<br>HAWTHORNE, CA 90250<br>213/978-2003 | | | 51 | | | | | | |
| 60. REEVES BROTHERS INC<br>P.O. BOX 1531<br>SPARTANBURG, SC 29304<br>803/576-9210 | | | | 59 | | | | | |
| 61. REPUBLIC POWDERED METALS<br>2628 PEARL ROAD<br>MEDINA, OH 44256<br>216/225-3192 | | | | | | | 70 | | |
| 62. ROYAL OIL COMPANY<br>P.O. BOX 646<br>FT. WORTH, TX 76101<br>817/332-7001 | | 27 | | | | | | | |
| 63. RUBBER & PLASTICS<br>COMPOUND, INC<br>3615 23RD STREET<br>LONG ISLAND CITY, NY 11106<br>212/392-6780 | | | 51 | | | | | | |
| 64. SAM BLDG. PRODUCTS CO.<br>P.O. BOX 94<br>LIBERTY CORNER, NJ 07938<br>201/647-2627 | | 27 | | | | | | | |
| 65. SARNAFIL INC<br>CANTON COMMERCE CENTER<br>P.O. BOX 380<br>CANTON, MA 02021<br>617/828-5400 | | | 51 | | | | | | |
| 66. SEAL-DRY/USA, INC.<br>BOX 486 S. OPDYKE RD<br>PONTIAC, MI 48057<br>313/333-2590<br>800/SEAL DRY | | | | | | | | | 71 |
| 67. SEAMAN CORPORATION<br>102B N. WASHINGTON STREET<br>MILLERSBURG, OH 44654<br>216/674-0121 | | | | | | | | | 71 |
| 68. SIPLAST, INC.<br>HWY. 67 SOUTH<br>ARKADELPHIA, AR 71923<br>501/246-8094 | | 28 | | | | | | | |
| 69. SOPREMA ROOFING &<br>WATERPROOFING INC.<br>487 ARMOUR CIRCLE N.E.<br>ATLANTA, GA 30324<br>404/885-1492 | | 28 | | | | | | | |
| 70. SOUTHWESTERN PETROLEUM CO<br>(SWEPCO)<br>534 NORTH MAIN STREET<br>FT. WORTH, TX 76101<br>817/332-2336 | | 29 | | | | | | | |
| 71. STEVENS & CO. INC., J.P.<br>26 PAYSON AVENUE<br>EAST HAMPTON, MA 01027<br>413/527-0700 | | | | | | 69 | | | |
| 72. SYENERGY METHODS, INC<br>1367 ELMWOOD AVENUE<br>CRANSTON, RI 02910<br>401/467-2600 | | | | 59 | | | | | |
| 73. TAMKO<br>220 WEST 4TH STREET<br>JOPLIN, MO 64802<br>417/624-6644 | 18 | 29 | | | | | | | |
| 74. TELTEX INC.<br>COMMERCE DRIVE<br>N. BRANFORD, CT 06471<br>800/243-6258 | | 29 | | | | | | | |
| 75. TEXAS REFINERY CORP.<br>ONE REFINERY PLACE<br>FT. WORTH, TX 76101<br>817/332-1161 | | 29 | | | | | | | |
| 76. TREMCO, INC.<br>10701 SHAKER BLVD.<br>CLEVELAND, OH 44104<br>216/292-5000 | 19 | 29 | | | | 69 | | | |
| 77. TRI-PLY INC<br>1401 E LINCOLN<br>MADISON HEIGHTS, MI 48071<br>313/543-7910 (MICHIGAN)<br>800/445-9856 (US) | | 30 | | | | | | | |
| 78. TROPICAL INDUSTRIAL<br>COATINGS, INC.<br>P.O. BOX 444<br>BRUNSWICK, OH 44212<br>216/273-2564<br>800/321-8353 (OUTSIDE OHIO) | | 30 | | | | 70 | | | |
| 79. U.S. INTEC INC./BRAI<br>P.O. BOX 2845<br>1212 BRAI DRIVE<br>PORT ARTHUR, TX 77643<br>409/724-7024 | | 30 | | | | | | | |
| 80. VILLAS ROOFING SYSTEMS, INC<br>FRONT & LLOYD STREET<br>CHESTER, PA 19013<br>215/874-5222 | | 30 | | | | | | | |
| 81. WAT-PRO, INC.<br>P.O. BOX 336<br>MANASQUAN, NJ 08736<br>201/528-6727 | | | 51 | | | | | | |
| 82. WEATHERGARD ROOFING<br>SYSTEMS, INC<br>P.O. BOX 11187<br>MEMPHIS, TN 38111<br>901/458-2222<br>800/USA-EPDM | | | | 60 | 68 | | | | |

# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## THE BARRETT COMPANY

1. REGIONAL SERVICE LOCATIONS-2
2. LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3. APPLICATOR TRAINING-FIELD AND SEMINARS
4. DISTRIB'N METHOD-DISTRIBUTORS/CONTRACTORS
5. PREFORMED ACCESS. AVAIL (YES/NO)-YES
6. LIMATIONS/RESTRICTIONS-SEE BARRETT MANUAL
7. SALES/TECH INFO-SALES OFFICE

FELTS DATA: TRADE NAME (APPLICABLE ASTM STANDARD)
RAM-FLASH 300PG (NONE)
RAM NO. 30 FIBERGLASS BASE SHEET(NONE)

## CELOTEX

1. REGIONAL SERVICE LOCATIONS-6
2. LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3. APPLICATOR TRAINING-FIELD
4. DISTRIB'N METHOD-DISTRIBUTORS,DIRECT TO ROOFERS
5. PREFORMED ACCESS. AVAIL (YES/NO)-NO
6. LIMATIONS/RESTRICTIONS-SEE CELOTEX BUR MANUAL
7. SALES/TECH INFO-A.G. SPINGLER/S.A. FUNK

FELTS DATA: TRADE NAME (APPLICABLE ASTM STANDARD)
CELO-GLASS IV(D2178-82-A TYPE IV)
VAPORBAR GB(NA) CELO-GLASS SPECIFICATION PLY(NA)
CHANNEL VENT GB(D3672-81 TYPE II)
VAPORBAR BASE SHEET(D2626-81)
VENTED VAPORBAR BASE SHEET(D2626-81)
NO. 15 ASPHALT FELT(D226-82 TYPE I)

| 9. SPECIFICATION NUMBER | KLB 3F | KLB 3P | KLB 3M | KLB 4PG | KLB 4F | KLB 4P | KLB 4M | KLB 4HS | 80-GA-1-W | 80-GA-1-C | 80-GA-2-W | 80-GA-2-C | 140-C | 340-W | 340-C | 84-GP-1-W | 84-GP-1-C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| 11. 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 | | X |
| C. NON-NAILABLE | X | X | X | X | X | X | X | X | | X | | X | X | | X | | X |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ½"-3" | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | | |
| C. 3"-6" | X | X | X | X | X | X | X | X | | | X | X | | | | | |
| 13. PLIES: A. TOTAL PLIES | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 3 |
| B. BASE PLY | | | 1 | | | | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | |
| C. INTERPLY(S) | 3 | 3 | 2 | 4 | 4 | 4 | 3 | 2 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 3 |
| D. CAP SHEET | | | | | | | | 1 | | | | | | | | | |
| 14. TYPE OF FELTS: A. GLASS FIBER | X | | X | | X | | X | X | X | X | X | X | | | | X | X |
| B. ORGANIC | | | | | | | | | | | | | X | X | X | | |
| C. ASBESTOS | | | | | | | | | | | | | | | | | |
| D. POLYESTER | | X | X | | | X | X | | | | | | | | | | |
| E. OTHER | | | | X | | | | X | | | | | | | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | X* | X* | X* | X* | X* | X* | X* | X* | X | X | X | X | | X | X | X | X |
| B. HOT COAL TAR | | | | | | | | | | | | | X | | | X | X |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | | * = MODIFIED | | | | | | | | | | | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 | | | | | | | | | |
| A.1 GRAVEL (lbs/ft²) | | | | | | | | | 4 | 4 | | | 4 | 4 | 4 | 4 | 4 |
| A.2. SLAG (lbs/ft²) | | | | | | | | | 3 | 3 | | | 3 | 3 | 3 | 3 | 3 |
| A.3. CRUSHED ROCK (lbs/ft²) | | | | | | | | | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | | | | | | | |
| B.1 ASPHALT | | | | | | | | | | | X | X | | | | | |
| B.2 COAL TAR | | | | | | | | | | | | | | | | | |
| B.3 COLD EMULSION/CUT BACK | | | | | | | | | | | X | X | | | | | |
| B.4 CAP SHEET | | | | | | | | .90 | | | | | | | | | |
| B.5 ALUMINUM TOP COAT | | | | | | | | | | | | | | | | | |
| B.6 VINYL/VINYL ACRYLIC | | | | | | | | | | | | | | | | | |
| B.7 OTHER | | | | | | | | | | | | | | | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | | | | | | | | | | | | | | | |
| A. AGGREGATE | 2.1 | 2.0 | 2.0 | 2.5 | 3.0 | 3.0 | 3.0 | 3.6 | 5.9 | 5.7 | | | 6.5 | 6.2 | 6.1 | 5.8 | 5.6 |
| B. SMOOTH | | | | | | | | | | | 1.5 | 1.6 | | | | | |
| C. CAP SHEET | | | | | | | | 3.0 | | | | | | | | | |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | | | | | | | | | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1983 | 1984 | 1984 | 1985 | 1983 | 1984 | 1984 | 1983 | 1980 | 1980 | 1980 | 1980 | 1962 | 1962 | 1962 | 1983 | 1983 |
| 20. TEST RESULTS (PER NBS BSS #55) | | | | | | | | | | | | | | | | | |
| A. TENSILE STRENGTH (>200 lb/in @ 0°F)-MD | | | | | | | | | | | | | | | | | |
| MD = MACHINE DIRECTION; -XD | | | | | | | | | | | | | | | | | |
| XD = CROSS MACHINE DIRECTION | | | | | | | | | | | | | | | | | |
| B. THERMAL EXPANSION (NOT > $40 \times 10^{-6}$/°F @ 0°F to -30°F)-MD | | | BARRETT DOES NOT ENDORSE BSS #55 AS A | | | | | | | | | | | | | | |
| -XD | | | PERFORMANCE CRITERIA FOR BUILT-UP | | | | | | | | | | | | | | |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | | | MODIFIED BITUMEN SYSTEMS. ALL LISTED | | | | | | | | | | | | | | |
| -XD | | | SYSTEMS HAVE A MINIMUM TENSILE | | | | | | | | | | | | | | |
| 21. LIMITATIONS OR RESTRICTED USE | | | STRENGTH OF 0°F IN EXCESS OF 200 LBS./IN. | | | | | | | | | | | | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | | | | | | | | |
| A. DURATION (YEARS) | 5 & 10 | 5 & 10 | 5 & 10 | 5 & 10 | 5 & 10 | 5 & 10 | 5 & 10 | 5 & 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | | | | | X | | | | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | X | X | X | X | X | X | X | X | X |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | | | | | | | | | |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALLATION | | | | | | | | | | | | | | | | | |
| D.3 $ PER SQUARE | X | X | X | X | X | X | X | X | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | | | | | | | | | |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | | | | | | | | | |
| 23. SEE APPENDIX PAGE | | | | | | | | | | | | | | | | | |

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# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## CERTAINTEED CORPORATION

1.REGIONAL SERVICE LOCATIONS-2
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5.PERFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE COM'L RFG SYS MAN
7.SALES/TECH INFO-REG SALES OFFICE/REG SALES OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
CERTAGLASS PLY SHEET(D2178-84 TYPE IV)
CERTAGLASS BASE SHEET(NONE)
CERTAGLASS VENTING BASE SHEET(D3672,TYPEII)
CERTAGLASS CAP SHEET(D3909)
NO. 15 PERFORATED ASPHALT FELT(D226-82 TYPE I)
ROOFERS BASE SHEET(D2626-81)

| 4CG-GSW | 3CG-GSW | CB-3CG-GSW | CB-2CG-GSW | VB-3CG-GSW | VB-2CG-GSW | 4CG-SSW | CB-3CG-SSW | VB-3CG-SSW | 3CG-MSW | CB-2CG-MSW | VB-2CG-MSW | 4CG-GSI | 3CG-GSI | CB-3CG-GSI | CB-2CG-GSI | 4CG-SSI | 3CG-SSI | CB-3CG-SSI | CB-2CG-SSI | 3CG-MSI | CB-2CG-MSI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HOT | HOT | HOT | HOT | HOT | HOT | 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 | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 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 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 4 |
| | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | | | 1 | 1 | | 1 |
| 4 | 3 | 3 | 2 | 3 | 2 | 4 | 3 | 3 | 3 | 2 | 2 | 4 | 3 | 3 | 2 | 4 | 3 | 3 | 2 | 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 | X | X | 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 | | | | | | |
| 3 | 3 | 3 | 3 | 3 | 3 | | | | | | | 3 | 3 | 3 | 3 | | | | | | |
| 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | | | | | | 4.5 | 4.5 | 4.5 | 4.5 | | | | | | |
| | | | | | | X | X | X | | | | | | | | X | X | X | X | | |
| | | | | | | X | X | X | X | X | X | | | | | X | X | X | X | X | X |
| | | | | | | | | | | | | | | | | | | | | | |
| 5.8 | 5.5 | 5.9 | 5.6 | 6.4 | 6.1 | 1.4 | 1.4 | 1.9 | 1.9 | 2.0 | 2.5 | | | | | 1.6 | 1.2 | 1.6 | 1.2 | 2.1 | 2.1 |
| NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 1975 | 1975 | 1978 | 1977 | 1978 | 1978 | 1975 | 1978 | 1983 | 1978 | 1978 | 1983 | 1975 | 1975 | 1978 | 1978 | 1975 | 1976 | 1978 | 1979 | 1978 | 1979 |
| 335 | 222 | 352 | 231 | 332 | 268 | 335 | 352 | 332 | 332 | 375 | 323 | 335 | 222 | 352 | 231 | 335 | 222 | 352 | 231 | 332 | 375 |
| 311 | 218 | 335 | 265 | 380 | 287 | 311 | 335 | 380 | 380 | 378 | 347 | 311 | 218 | 335 | 265 | 311 | 218 | 335 | 265 | 380 | 378 |
| 25 | 22 | 38 | 38 | 34 | 35 | 25 | 38 | 34 | 34 | 39 | 39 | 25 | 22 | 38 | 38 | 25 | 22 | 38 | 38 | 34 | 39 |
| 25 | 24 | 37 | 26 | 39 | 32 | 25 | 37 | 39 | 39 | 37 | 39 | 25 | 24 | 37 | 26 | 25 | 24 | 37 | 26 | 39 | 37 |
| 896 | 987 | 648 | 567 | 695 | 491 | 896 | 648 | 595 | 595 | 748 | 648 | 896 | 896 | 900 | 567 | 896 | 987 | 648 | 566 | 595 | 750 |
| 700 | 861 | 507 | 750 | 594 | 735 | 700 | 507 | 594 | 594 | 648 | 705 | 700 | 700 | 507 | 750 | 700 | 861 | 507 | 750 | 594 | 648 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 20 | 10 | 20 | 10 | 20 | 10 | 20 | 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 |
| 75 | 75 | 75 | 60 | 75 | 60 | 75 | 75 | 75 | 50 | 50 | 50 | 125 | 60 | 125 | 60 | 125 | 60 | 125 | 60 | 50 | 50 |
| X | X | X | X | X | X | X | X | X | X | X | X | | | | | | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

## CERTAINTEED CORPORATION

1.REGIONAL SERVICE LOCATIONS-2
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5.PERFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE COM'L RFG SYS MAN
7.SALES/TECH INFO-REG SALES OFFICE/REG SALES OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
CERTAGLASS PLY SHEET(D2178-84 TYPE IV)
CERTAGLASS BASE SHEET(NONE)
CERTAGLASS VENTING BASE SHEET(D3672,TYPEII)
CERTAGLASS CAP SHEET(D3909)
NO. 15 PERFORATED ASPHALT FELT(D226-82 TYPE I)
ROOFERS BASE SHEET(D2626-81)

| 9. SPECIFICATION NUMBER | VB-2CG-MSI | 2CG-MSI | 4CG-GSC | 3CG-GSC | CB-3CG-GSC | CB-2CG-GSC | 4CG-SSC | 3CG-SSC | CB-3CG-SSC | CB-2CG-SSC | 3CG-MSC | CB-2CG-MSC | 2CG-MSC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| 11. DECK TYPE: A. NAILABLE | | | | | | | | | | | | | |
| B. INSULATED | X | X | | | | | | | | | | | |
| C. NON-NAILABLE | | | X | X | X | X | X | X | X | X | X | X | X |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ½"-3" | X | X | X | X | X | X | X | X | X | X | X | X | X |
| C. 3"-6" | X | X | | | | | X | X | X | X | X | X | X |
| 13. PLIES: A. TOTAL PLIES | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 4 | 3 |
| B. BASE PLY | 1 | | | | 1 | 1 | | | 1 | 1 | | 1 | |
| C. INTERPLY(S) | 2 | 2 | 4 | 3 | 3 | 2 | 4 | 3 | 3 | 2 | 3 | 2 | 2 |
| D. CAP SHEET | 1 | 1 | | | | | | | | | 1 | 1 | 1 |
| 14. TYPE OF FELTS: A. GLASS FIBER | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ORGANIC | | | | | | | | | | | | | |
| C. ASBESTOS | | | | | | | | | | | | | |
| D. POLYESTER | | | | | | | | | | | | | |
| E. OTHER | | | | | | | | | | | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. HOT COAL TAR | | | | | | | | | | | | | |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | | | | | | | | | | | | | |
| A.1 GRAVEL (lbs/ft²) | | | 4 | 4 | 4 | 4 | | | | | | | |
| A.2. SLAG (lbs/ft²) | | | 3 | 3 | 3 | 3 | | | | | | | |
| A.3. CRUSHED ROCK (lbs/ft²) | | | | | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | | | |
| B.1 ASPHALT | | | | | | | X | X | X | X | | | |
| B.2 COAL TAR | | | | | | | | | | | | | |
| B.3 COLD EMULSION/CUT BACK | | | | | | | X | X | X | X | | | |
| B.4 CAP SHEET | X | X | | | | | | | | | X | X | X |
| B.5 ALUMINUM TOP COAT | | | | | | | | | | | | | |
| B.6 VINYL/VINYL ACRYLIC | | | | | | | | | | | | | |
| B.7 OTHER | | | | | | | | | | | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | | | | | | | | | | | |
| A. AGGREGATE | | | 6.1 | 5.7 | 6.2 | 5.8 | | | | | | | |
| B. SMOOTH | | | | | | | 1.6 | 1.2 | 1.7 | 1.3 | | | |
| C. CAP SHEET | 2.6 | 1.8 | | | | | | | | | 2.1 | 2.2 | 1.8 |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1979 | 1978 | 1975 | 1975 | 1983 | 1983 | 1975 | 1976 | 1983 | 1983 | 1978 | 1983 | 1978 |
| 20. TEST RESULTS (PER NBS BSS #55) | | | | | | | | | | | | | |
| A. TENSILE STRENGTH (>200 lb/in @ 0°F)-MD | 332 | 268 | 335 | 222 | 352 | 231 | 335 | 222 | 352 | 231 | 332 | 375 | 268 |
| MD = MACHINE DIRECTION; -XD | 347 | 287 | 311 | 218 | 311 | 265 | 311 | 218 | 335 | 256 | 380 | 387 | 287 |
| XD = CROSS MACHINE DIRECTION | | | | | | | | | | | | | |
| B. THERMAL EXPANSION (NOT > $40\times10^{-6}$/°F @ 0°F to -30°F)-MD | 39 | 35 | 25 | 22 | 38 | 38 | 25 | 22 | 38 | 38 | 34 | 39 | 35 |
| -XD | 39 | 32 | 25 | 24 | 37 | 26 | 25 | 24 | 37 | 26 | 39 | 37 | 32 |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | 610 | 491 | 896 | 987 | 648 | 566 | 896 | 987 | 648 | 566 | 595 | 748 | 491 |
| -XD | 468 | 735 | 700 | 861 | 507 | 750 | 700 | 861 | 507 | 750 | 594 | 648 | 735 |
| 21. LIMITATIONS OR RESTRICTED USE | | | | | | | | | | | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | X | | X | | X | X | X | | X | X | | X |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALLATION | | | | | | | | | | | | | |
| D.3 $ PER SQUARE | 50 | 50 | 75 | 60 | 75 | 60 | 75 | 60 | 75 | 60 | 50 | 50 | 50 |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X | X | X | X |

23. SEE APPENDIX PAGE

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# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## FLEX-SHIELD CORPORATION

1.REGIONAL SERVICE LOCATIONS-
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS
5.PREFORMED ACCESS. AVAIL (YES/NO)-
6.LIMITATIONS/RESTRICTIONS-SEE F.S. REPRESENTATIVE
7.SALES/TECH INFO-OFFICE/CHARLES CARROLL
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
RUFON(NONE)

| F.A.R. MARK I |
|---|
| COLD |
| X |
| X |
| X |
| X |
| X |
| X |
| 2 |
| X |
| X |
| X |
| X |
| X |
| X |
| .5 |
| .5 |
| 1978 |
| 5 |
| X |
| X |
| X |
| X |
| X |

## GAF CORPORATION

1.REGIONAL SERVICE LOCATIONS-14
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS, DIRECT
5.PREFORMED ACCESS. AVAIL (YES/NO)-YES
6.LIMITATIONS/RESTRICTIONS-SEE GAF GAFGLAS CATALOG
7.SALES/TECH INFO-DISTRICT OFFICE/DISTRICT OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
GAFGLAS PLY 4(D2178 TYPE IV),GAFGLAS PLY 3
(D2178 TYPE III),GAFGLAS MINERAL SURFACED CAP
SHEET(D3909),GAFGLAS#75 BASE SHEET(NO ASTM STD,
MEETS FS SS-R-6208 TYPE III,GAFGLAS BASE&PLY SHEET
(NO ASTM STANDARD,MEETS FS SS-4-6208 TYPE III),
GAFGLAS STRATAVENT (VENT PLY) PERFORATED(D3672),
GAFGLAS STRATAVENT(VENT PLY)FOR NAILABLE DECKS

| 105 G | 105 S | 104 G | 104 S-B | 103 G | 103 G-B | 103 S | 103 S-B | 103 M | 103 M-B | 102 M | 106 G | 104 GN | 104 SN | 103 GN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | | | |
| X | X | X | X | X | X | X | X | X | X | X | X | | | |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | 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 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 4 | 4 | 3 |
| | | 1 | 1 | | 1 | | 1 | | 1 | | | 1 | 1 | 1 |
| 4 | 4 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 3 | 3 | 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 | X | X | X | X | X | X | X | X |
| X | | | | | | | | | | | X | | | |
| 4 | | 4 | | 4 | 4 | | | | | | 4 | 4 | | 4 |
| 3 | | 3 | | 3 | 3 | | | | | | 3 | 3 | | 3 |
| 4.5 | | 4.5 | | 4.5 | 4.5 | | | | | | 4.5 | 4.5 | | 4.5 |
| | X | | X | | | X | X | | | | | | X | |
| X | | | | | | | | | | | | | | |
| | X | | X | | | X | X | | | | | | X | |
| | | | | | | | | X | X | X | | | | |
| | X | | X | | | X | X | | | | | | X | |
| X | | | | | | | | | | | | | | |
| 6 | 2 | 6 | 2 | 6 | 6 | 2 | 2 | 3 | 3 | 2 | 6 | 6 | 2 | 6 |
| NONE 1974 | NONE 1974 | NONE 1974 | NONE 1974 | NONE 1974 | N 1974 | N 1974 | N 1974 | N 1974 | N 1974 | N&S 1974 | NONE 1974 | NONE 1974 | NONE 1974 | NONE 1974 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 10 | 10 | 5 | | | | | | | | | | | | |
| X | X | 5 | | | | | | | | | | | | |
| | | X | | | | | | | | | | | | |
| 10 | 20 | 25 | | | | | | | | | | | | |
| X | X | X | | | | | | | | | | | | |
| X | X | X | | | | | | | | | | | | |

GAF: "BSS #55 IS NOT AN ACCEPTED INDUSTRY STANDARD."

All three types of warranty are available for all specifications.

# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## GAF CORPORATION

1.REGIONAL SERVICE LOCATIONS-14
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS, DIRECT
5.PREFORMED ACCESS. AVAIL (YES/NO)-YES
6.LIMITATIONS/RESTRICTIONS-SEE GAF GAFGLAS CATALOG
7.SALES/TECH INFO-DISTRICT OFFICE/DISTRICT OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
GAFGLAS PLY 4(D2178 TYPE IV),GAFGLAS PLY 3
(D2178 TYPE III),GAFGLAS MINERAL SURFACED CAP
SHEET(D3909),GAFGLAS#75 BASE SHEET(NO ASTM STD,
MEETS FS SS-R-6208 TYPE III,GAFGLAS BASE&PLY SHEET
(NO ASTM STANDARD,MEETS FS SS-4-6208 TYPE III),
GAFGLAS STRATAVENT (VENT PLY) PERFORATED(D3672),
GAFGLAS STRATAVENT(VENT PLY)FOR NAILABLE DECKS

## GENSTAR ROOFING PRODUCTS COMPANY

1.REGIONAL SERVICE LOCATIONS-6
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTOR/CO.SERVICE CENTERS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE COM'L RFG SYS MANUAL
7.SALES/TECH INFO-COMMERCIAL ROOFING DEPT/REGION OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
ALL WEATHER FLAXINE BASE SHEET(D2626-80)
EMPIRE BASE SHEET(D2626)
GLASBASE BASE SHEET(NONE)
L I SATURATED FELT(D226-76)
NO. 90 YOSEMITE MS BUFFER SHEET(D228-69)

| | 103 SN | 103 MN | 101 MN | 106 GN | AAA1-2 | AAA2-2 | AAA3-2 | AAA4-2 | AAA5-2 | AAA7-2 | AAA8-2 | AAA9-2 | AAAP-11-2 | AAAP-12-2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9. SPECIFICATION NUMBER | | | | | | | | | | | | | | |
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| 11. DECK TYPE: A. NAILABLE | X | X | X | X | | X | | X | | | X | | | X |
| B. INSULATED | | | | | X | X | X | X | X | X | X | X | X | X |
| C. NON-NAILABLE | | | | | X | | X | | X | X | | X | X | |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | X | X | | | | | | | | | X | X |
| B. ½"-3" | X | X | X | | X | X | X | X | X | X | X | X | | |
| C. 3"-6" | X | X | X | | | | | | | | | | | |
| 13. PLIES: A. TOTAL PLIES | 3 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 |
| B. BASE PLY | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | | | |
| C. INTERPLY(S) | 2 | 2 | 1 | 2 | 3 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 4 | 4 |
| D. CAP SHEET | | 1 | 1 | | | | | | | | | | | |
| 14. TYPE OF FELTS: A. GLASS FIBER | X | X | X | X | | | X | X | X | X | X | X | X | X |
| B. ORGANIC | | | | | X | X | | | | | | | | |
| C. ASBESTOS | | | | | | | | | | | | | | |
| D. POLYESTER | | | | | | | | | | | | | | |
| E. OTHER | | | | | | | | | | | | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | X | X | X | | X | X | X | X | X | X | X | X | | |
| B. HOT COAL TAR | | | | X | | | | | | | | | X | X |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | | | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| A.1. GRAVEL (lbs/ft²) | | | | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| A.2. SLAG (lbs/ft²) | | | | | | | | | | | | | | |
| A.3. CRUSHED ROCK (lbs/ft²) | | | | | | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | | | | |
| B.1 ASPHALT | X | | | | | | | | | | | | | |
| B.2 COAL TAR | | | | | | | | | | | | | | |
| B.3 COLD EMULSION/CUT BACK | X | | | | | | | | | | | | | |
| B.4 CAP SHEET | | X | X | | | | | | | | | | | |
| B.5 ALUMINUM TOP COAT | X | | | | | | | | | | | | | |
| B.6 VINYL/VINYL ACRYLIC | | | | | | | | | | | | | | |
| B.7 OTHER | | | | | | | | | | | | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | | | | | | | | | | | | |
| A. AGGREGATE | | | | 6 | 6 | 6 | 6 | 6 | 6 | 5.7 | 5.5 | 5.6 | 6 | 6 |
| B. SMOOTH | 2 | | | | | | | | | | | | | |
| C. CAP SHEET | | 3 | 2 | | | | | | | | | | | |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | N | N | N&S | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1974 | 1974 | 1974 | 1974 | | | | | | | | | | |
| 20. TEST RESULTS (PER NBS BSS #55) | | | | | | | | | | | | | | |
| A. TENSILE STRENGTH (>200 lb/in @ 0°F)-MD | | | | | | | | | | | | | | |
| MD = MACHINE DIRECTION; -XD | | | | | | | | | | | | | | |
| XD = CROSS MACHINE DIRECTION | | | | | | | | | | | | | | |
| B. THERMAL EXPANSION (NOT > $40 \times 10^{-6}$/°F @ 0°F to -30°F)-MD | GAF: "BSS #55 IS NOT AN ACCEPTED INDUSTRY STANDARD." | | | | "Genstar is currently "in test" under BSS #55 and other criteria" | | | | | | | | | |
| -XD | | | | | | | | | | | | | | |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | | | | | | | | | | | | | | |
| -XD | | | | | | | | | | | | | | |
| 21. LIMITATIONS OR RESTRICTED USE | | | | | | | | | | | | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | | | | | |
| A. DURATION (YEARS) | | | | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | | | | | | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | X | X | X | X | X | X | X | X | X | X |
| C.2 WORKMANSHIP & MAT'L | | | | | X | X | X | X | X | | | | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALLATION | | | | | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| D.3 $ PER SQUARE | | | | | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | | | | | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | | | | | X | X | X | X | X | X | X | X | X | X |
| 23. SEE APPENDIX PAGE | | | | | | | | | | | | | | |

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# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## GENSTAR ROOFING PRODUCTS COMPANY

1.REGIONAL SERVICE LOCATIONS-6
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTOR/CO.SERVICE CENTERS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE COM'L RFG SYS MANUAL
7.SALES/TECH INFO-COMMERCIAL ROOFING DEPT/REGION OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
ALL WEATHER FLAXINE BASE SHEET(D2626-80)
EMPIRE BASE SHEET(D2626)
GLASBASE BASE SHEET(NONE)
L I SATURATED FELT(D226-76)
NO. 90 YOSEMITE MS BUFFER SHEET(D228-69)

| A-1-M-2 | A-2-M-2 | A-3-M-2 | A-4-M-2 | A-5-M-2 | A-6-M-2 | MC-3 R-2 | MW-3 R-2 | HP-1-AC-2 | HP-1 AW-2 | HP-2-AC-2 | HP-2 AW-2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HOT | HOT | HOT/CLD | HOT/CLD | 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 |
| 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 3 | 2 | 2 |
| 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 |
| | | | | | | | | | | | |
| 2.4 | 2.3 | 2.3 | 2.1 | 1.8 | 1.7 | 1.9 | 1.7 | 1.8 | 1.6 | 1.5 | 1.3 |
| NONE | NONE | NONE | NONE | 1 | 1 | 1 & 2 | 1 & 2 | NONE | NONE | NONE | NONE |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 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 |
| 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X |

## KARNAK CHEMICAL CORPORATION

1.REGIONAL SERVICE LOCATIONS-2
2.LIC. APPLICATOR AGREEMENT (YES/NO)-NO
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMATIONS/RESTRICTIONS-SEE KARNAK SPEC DATA
7.SALES/TECH INFO-J. MILLS
FELTS DATA: TRADE NAME (APPLICABLE ASTM STANDARD)
POLY-MAT (DUPONT REEMAY)
POLY-P-MAT (PHILLIPS RUFON)
BITUMAT (COATED POLYESTER)
43 LB BASE (CHOICE OF MFRS)

| P-21 | P-21R | P-22 | P-23 | P-24 | RENU-TOP | AR | RC-W |
|---|---|---|---|---|---|---|---|
| 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 | X | X | X |
| 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 | 1 | 2 | 3 | 4 | 1 | 1 | 1 |
| 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| | | | 2 | 3 | | | |
| X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X |
| .6 | .6 | .6 | .6 | .6 | .6 | .6 | .6 |
| 4 | 4 | 4 | 4 | 4 | | 4 | 4 |
| 3 | 3 | 3 | 3 | 3 | | 3 | 3 |
| X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X |
| 1.11 | 1.13 | 1.32 | 1.53 | 1.75 | 1.11 | 1.11 | 1.13 |
| .61 | .63 | .72 | .93 | 1.15 | .61 | .61 | .63 |
| NONE | NONE | NONE | NONE | NONE | | NONE | NONE |
| 1965 | 1965 | 1965 | 1965 | 1965 | 1952 | 1972 | 1975 |
| | | | | | | | |
| | | | | | | | |
| | | KARNAK CHEMICAL DOES NOT ENDORSE BSS #55 AS A PERFORMANCE CRITERIA FOR COLD SYSTEMS. | | | | | |
| | | | | | | | |
| | | | | | | | |
| 5 | 5 | 7 | 8 | 10 | 5 | 5 | 5 |
| 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

## KOPPERS COMPANY, INC.

1.REGIONAL SERVICE LOCATIONS-6
2.LIC. APPLICATOR AGREEMENT (YES/NO)-NO
3.APPLICATOR TRAINING-FIELD SEMINARS
4.DISTRIB'N METHOD-DIRECT & DISTRIBUTOR
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-1/2"/FT MAX. SLOPE
7.SALES/TECH INFO-REGIONAL SALES OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
NO. 15 TARRED FELT(D227)

## LUNDAY THAGARD CO., INC.

1.REGIONAL SERVICE LOCATIONS-
2.LIC. APPLICATOR AGREEMENT (YES/NO)-NO
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE L T BUR MANUAL
7.SALES/TECH INFO-OFFICE/CASEY TZENG
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
TYPE 15 PERF(D226-81 TYPE I)
TYPE 30(D226-81 TYPE II)
MULTI SEAL(D2626-81 TYPE I)
MULTI GLASS BASE 35(NONE)
TYPE 75 CAP(D3909-80)
TYPE 90 CAP(D249-80)
PLY II-4(D2178-81 TYPE IV)

| | 220 | 210 | LT 1-W | LT 1-C | LT2-W | LT2-C | LT3-W | LT3-C | LT4-W | LT4-C | LT5-W | LT5-C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9. SPECIFICATION NUMBER | | | | | | | | | | | | |
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| 11. DECK TYPE: A. NAILABLE | | X | X | | X | | X | | X | | X | |
| B. INSULATED | X | | | | | | | | | | | |
| C. NON-NAILABLE | X | | | X | | X | | X | | X | | X |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | | | | | | | | | | |
| B. ½"-3" | | | X | X | X | X | X | X | X | X | X | X |
| C. 3"-6" | | | | | | | | | | | | |
| 13. PLIES: A. TOTAL PLIES | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 5 | 5 | 4 | 4 |
| B. BASE PLY | | 1 | | | | | 1 | 1 | | | 1 | 1 |
| C. INTERPLY(S) | 4 | 3 | 3 | 3 | 4 | 4 | 2 | 2 | 5 | 5 | 3 | 3 |
| D. CAP SHEET | | | | | | | | | | | | |
| 14. TYPE OF FELTS: A. GLASS FIBER | | | | | | | | | | | | |
| B. ORGANIC | X | X | X | X | X | X | X | X | X | X | X | X |
| C. ASBESTOS | | | | | | | | | | | | |
| D. POLYESTER | | | | | | | | | | | | |
| E. OTHER | | | | | | | | | | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | | | | | | | | | | | | |
| B. HOT COAL TAR | X | X | X | X | X | X | X | X | X | X | X | X |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | | | | | | | | | | | | |
| A.1. GRAVEL (lbs/ft²) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| A.2. SLAG (lbs/ft²) | | | | | | | | | | | | |
| A.3. CRUSHED ROCK (lbs/ft²) | | | | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | | |
| B.1 ASPHALT | | | | | | | | | | | | |
| B.2 COAL TAR | | | | | | | | | | | | |
| B.3 COLD EMULSION/CUT BACK | | | | | | | | | | | | |
| B.4 CAP SHEET | | | | | | | | | | | | |
| B.5 ALUMINUM TOP COAT | | | | | | | | | | | | |
| B.6 VINYL/VINYL ACRYLIC | | | | | | | | | | | | |
| B.7 OTHER | | | | | | | | | | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | | | | | | | | | | |
| A. AGGREGATE | 6 | 6 | 5.5 | 5.7 | 6.0 | 6.2 | 5.8 | 6.0 | 6.4 | 6.6 | 6.2 | 6.4 |
| B. SMOOTH | | | | | | | | | | | | |
| C. CAP SHEET | | | | | | | | | | | | |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1928 | 1928 | | | | | | | | | | |
| 20. TEST RESULTS (PER NBS BSS #55) | | | | | | | | | | | | |
| A. TENSILE STRENGTH (>200 lb/in @ 0°F)-MD | 468 | | | | | | | | | | | |
| MD = MACHINE DIRECTION; -XD | 265 | | | | | | | | | | | |
| XD = CROSS MACHINE DIRECTION; | | | | | | | | | | | | |
| B. THERMAL EXPANSION (NOT > $40\times10^{-6}$/°F @ 0°F to -30°F)-MD | 19.3 | | | | | | | | | | | |
| -XD | 29.5 | | | | | | | | | | | |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | 360 | | | | | | | | | | | |
| -XD | 120 | | | | | | | | | | | |
| 21. LIMITATIONS OR RESTRICTED USE | | | | | | | | | | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | | | |
| A. DURATION (YEARS) | | | 10 | 10 | 20 | 20 | 15 | 15 | 20 | 20 | 20 | 20 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | X | X | X | X | X | X | X | X | X | X |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | | | | | | | | | | |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALLATION | | | | | | | | | | | | |
| D.3 $ PER SQUARE | | | X | X | X | X | X | X | X | X | X | X |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | | | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | | | X | X | X | X | X | X | X | X | X | X |
| 23. SEE APPENDIX PAGE | | | | | | | | | | | | |

*This data was derived from an NBS test of a 4 ply coal tar BUR system and presented in their report Preliminary Performance Criteria for Bituminous Membrane Roofing BSS #55.*

*These roofing systems, when applied in strict accordance with Koppers specifications and subject to their evaluation can be guaranteed for periods up to 20 yrs — see "IMPORTANT NOTES" in this Guide.*

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# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## LUNDAY THAGARD CO., INC.

1.REGIONAL SERVICE LOCATIONS-
2.LIC. APPLICATOR AGREEMENT (YES/NO)-NO
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE L T BUR MANUAL
7.SALES/TECH INFO-OFFICE/CASEY TZENG
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
TYPE 15 PERF(D226-81 TYPE I)
TYPE 30(D226-81 TYPE II)
MULTI SEAL(D2626-81 TYPE I)
MULTI GLASS BASE 35(NONE)
TYPE 75 CAP(D3909-80)
TYPE 90 CAP(D249-80)
PLY II-4(D2178-81 TYPE IV)

| LT6-W | LT6-C | LT7-W | LT7-C | LT8-W | LT8-C | LT9-W | LT9-C | LT10-W | LT11-W | LT12-W | LT12-C | LT13-W | LT13-C | LT14-C | LT15-W | LT15-C | LT16-W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HOT | HOT | 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 | | X | |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 |
| 3 | 3 | 1 | 1 | 1 | 1 | 3 | 3 | | | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |
| | | 2 | 2 | 3 | 3 | | | 2 | 3 | | | 1 | 1 | 2 | 2 | | 2 |
| | | | | | | | | 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 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 6.3 | 6.5 | 5.6 | 5.9 | 6.0 | 6.3 | 6.2 | 6.4 | | | | | | | | | | |
| | | | | | | | | 1.7 | 2.1 | 2.1 | 2.3 | 1.7 | 1.9 | 2.1 | 2.3 | 2.0 | 2.2 | 1.6 |
| NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 10 | 15 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 15 |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | | | | | | | | | | | | | |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

## MALARKEY ROOFING CO.

1.REGIONAL SERVICE LOCATIONS-
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-DISTRIBUTORS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE MALARKEY BUR MANUAL
7.SALES/TECH INFO-J CLENAGHEN/K WOODSIDE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
APPLICATORS PLY(D2178-81A TYPE III)
PREMIUM I PLY(D2178-81-A TYPE IV)
PREMIUM CAP(D3 909-81)
PREMIUM I BASE(NONE)
HI PERFORMANCE CAP(NONE)

| 9. SPECIFICATION NUMBER | IG4 | NG4 | IG3 | NG3 | UG4 | IM4 | NM4 | IM3 | NM3 | UM4 | IS4 | NS4 | NS3 | US4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| 11. DECK TYPE: A. NAILABLE | | X | | X | | | X | | X | | | X | X | |
| B. INSULATED | X | | X | | X | X | | X | | X | X | | | X |
| C. NON-NAILABLE | X | | X | | | X | | X | | | | | | |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ½"-3" | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| C. 3"-6" | | | | | | X | X | X | X | X | X | X | X | X |
| 13. PLIES: A. TOTAL PLIES | 4 | 4 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 4 | 3 | 4 |
| B. BASE PLY | | 1 | | 1 | 1 | | 1 | | 1 | 1 | | 1 | 1 | 1 |
| C. INTERPLY(S) | 4 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 1 | 2 | 4 | 3 | 2 | 3 |
| D. CAP SHEET | | | | | | 1 | 1 | 1 | 1 | 1 | | | | |
| 14. TYPE OF FELTS: A. GLASS FIBER | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ORGANIC | | | | | | | | | | | | | | |
| C. ASBESTOS | | | | | | | | | | | | | | |
| D. POLYESTER | | | | | | | | | | | | | | |
| E. OTHER | | | | | | | | | | | | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. HOT COAL TAR | | | | | | | | | | | | | | |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | | | | | | | | | | | | | | |
| A.1 GRAVEL (lbs/ft²) | 4 | 4 | 4 | 4 | 4 | | | | | | | | | |
| A.2. SLAG (lbs/ft²) | | | | | | | | | | | | | | |
| A.3. CRUSHED ROCK (lbs/ft²) | | | | | | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | | | | |
| B.1 ASPHALT | | | | | | | | | | | X | X | X | X |
| B.2 COAL TAR | | | | | | | | | | | | | X | |
| B.3 COLD EMULSION/CUT BACK | | | | | | | | | | | X | X | X | X |
| B.4 CAP SHEET | | | | | | X | X | X | X | X | | | | |
| B.5 ALUMINUM TOP COAT | | | | | | | | | | | | | | |
| B.6 VINYL/VINYL ACRYLIC | | | | | | | | | | | | | | |
| B.7 OTHER | | | | | | | | | | | | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | | | | | | | | | | | | |
| A. AGGREGATE | 6 | 6 | 5.5 | 5.5 | 6 | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | 1.7 | 1.6 | 1.3 | 1.6 |
| C. CAP SHEET | | | | | | 2.1 | 2.2 | 1.8 | 1.9 | 2 | | | | |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | NONE | NONE | 2,3 | 2,3 | NONE | NONE | NONE | 3 | 3 | NONE | NONE | NONE | 2,3 | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1981 | 1981 | 1981 | 1981 | 1983 | 1981 | 1981 | 1981 | 1981 | 1983 | 1982 | 1982 | 1983 | 1983 |
| 20. TEST RESULTS (PER NBS BSS #55) | | | | | | | | | | | | | | |
| A. TENSILE STRENGTH (> 200 lb/in @ 0°F)-MD | | | | | | | | | | | | | | |
| MD = MACHINE DIRECTION; -XD | | | | | | | | | | | | | | |
| XD = CROSS MACHINE DIRECTION | | | | | | | | | | | | | | |
| B. THERMAL EXPANSION (NOT > $40 \times 10^{-6}$/°F @ 0°F to -30°F)-MD | | | | | | | | | | | | | | |
| -XD | | | | | | | | | | | | | | |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | | | | | | | | | | | | | | |
| -XD | | | | | | | | | | | | | | |
| 21. LIMITATIONS OR RESTRICTED USE | | | | | | | | | | | | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 5 | 5 | 10 | 10 | 10 | 5 | 5 | 10 | 10 | 10 | 5 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | X | | X | X | | | | X | X | | X | | X | X |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | | | | | | | | | | X | | | |
| D.2 ORIG. COST OF INSTALLATION | | | | | | | | | | | | | | |
| D.3 $ PER SQUARE | | 50 | 35 | 35 | 50 | 50 | 50 | 35 | 35 | 50 | | 50 | 35 | 50 |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 23. SEE APPENDIX PAGE | | | | | | | | | | | | | | |

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# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## MANVILLE BUILDING MATERIALS CORP.

1.REGIONAL SERVICE LOCATIONS-7
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-REPS/DISTRS.
5.PREFORMED ACCESS. AVAIL (YES/NO)-YES
6.LIMITATIONS/RESTRICTIONS-
7.SALES/TECH INFO-DAVE WELLS/V. GRECO
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
GLASPLY PREMIER (D2178-81A),GLAS PLY IV(D2178-81A)
GLASFELT IV(D2178-81A)
GLASBASE(NONE)
GLASBASE II(NONE)
GLASKAP(D3909-81)
VENTSULATION(D3672-81)

| 3GNC | 4GIS | 4GNS | 3GIS | 3GNS | 4GIG | 3GIG | 4GNG | 3GNG | 4GLG | 3GLG | 4GIC | 4GNC | 3GIC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X | X<br>X | X<br>X |
| 3<br>1<br>1<br>1 | 4<br>1<br>4 | 4<br>1<br>3 | 3<br>3 | 3<br>1<br>2 | 4<br>4 | 3<br>3 | 4<br>1<br>3 | 3<br>1<br>2 | 4<br>1<br>3 | 3<br>1<br>2 | 4<br>3<br>1 | 4<br>1<br>2<br>1 | 3<br>2<br>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 |
| | | | | | 4<br>3 | 4<br>3 | 4<br>3 | 4<br>3 | 4<br>3 | 4<br>3 | | | |
| | X<br>X | X<br>X | X<br>X | X<br>X | | | | | | | | | |
| X | | | | | | | | | | | X | X | X |
| | X | X | X | X | | | | | | | | | |
| 1.7 | 1.6 | 1.5 | 1.3 | 1.3 | 5.5 | 5.5 | 5.5 | 5 | 5.5 | 5 | 2.2 | 2.1 | 1.9 |
| 3<br>1980 | 1976 | 1978 | 1980 | 2,3<br>1980 | 1978 | 1978 | 1978 | 2,3<br>1980 | 2,3<br>1980 | 2,3<br>1980 | 1978 | 1978 | 3<br>1978 |
| | 404<br>351 | 357<br>343 | 310<br>331 | 288<br>247 | 404<br>351 | 310<br>331 | 357<br>343 | 288<br>247 | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 10<br>NO | 20<br>NO | 20<br>NO | 10 | 10 | 20 | 10 | 20 | 10 | 10 | 5 | 20 | 20 | 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 |
| 75 | | | | | | | | | 75 | 35 | | | |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |

"Manville does not endorse BSS #55 as a proven performance criteria for Built-Up Roofing Systems. Manville Research Engineers are currently working to establish a performance criteria for Built-Up Roofing which can realistically be used to predict actual performance expectations."

## MINERAL FIBER MFG. CORP.

1.REGIONAL SERVICE LOCATIONS-
2.LIC. APPLICATOR AGREEMENT (YES/NO)-
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-MANUFACTURERS/REPS.
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-
7.SALES/TECH INFO-STEVE FOSTER/ROBERT SIMPSON
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
DURAPLY IV(D2178-81 TYPE IV)
DURABASE (NONE)
POLYPLY(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<br>X | X<br>X | | | X<br>X | X<br>X |
| X | X<br>X | X | X<br>X | X | X | X | X |
| 4<br>1<br>3 | 4<br>1<br>3 | 3<br>3 | 4<br>4 | 3<br>1<br>2 | 3<br>2 | 2<br>2 | 2<br>2 |
| X | X | X | X | | | | |
| | | | | X | X | X | X |
| X | X | X | X | X | X | X | X |
| 4 | | 4 | | 4 | | | 4 |
| | X<br>X | | X<br>X | | X | X | |
| | | | | | | | |
| 6 | 2 | 6 | 2 | 5 | 2 | 2 | 6 |
| 1976 | 1976 | 1976 | 1976 | 1982 | 1982 | 1982 | 1982 |
| 343<br>257 | 343<br>257 | 292<br>241 | 382<br>333 | | | | |
| 23.5<br>27.9 | 23.5<br>27.9 | 18.8<br>16.8 | 21.7<br>21.3 | | | | |
| 687<br>523 | 687<br>523 | 840<br>810 | 866<br>833 | | | | |

## OWENS-CORNING FIBERGLAS

1.REGIONAL SERVICE LOCATIONS-NATIONWIDE
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD, SEMINARS
4.DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5.PREFORMED ACCESS. AVAIL (YES/NO)-YES
6.LIMITATIONS/RESTRICTIONS-SEE OCF BUR MANUAL
7.SALES/TECH INFO-LOCAL OFFICE/LOCAL OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
PERMA PLY-R(D2178-81A-TYPE IV, TABLE 1)
PERMA PLY NO. 28(NONE)
PERMA CAP(3909-81)
PERMA PLY IV(D2178-81A-TYPE IV, TABLE 1)

| 9. SPECIFICATION NUMBER | 23-TG | 23-TC | 33-TS | 33-FG | 33-FC | 43-FS | 33-IS | 43-NG | 3P-IG | 4P-IG | 3P-NG | 3P-XG | 33-IG | 43-IG | 33-IC | 43-IC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| 11. DECK TYPE: A. NAILABLE | | | | | | | | X | | | X | | | | | |
| B. INSULATED | X | X | X | X | X | X | X | | X | X | | | X | X | X | X |
| C. NON-NAILABLE | | | | | | | | | | | | X | | | | |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ½"-3" | X | X | X | X | X | X | X | X | | | | | X | X | X | X |
| C. 3"-6" | | X | X | | X | X | X | | | | | | | | X | X |
| 13. PLIES: A. TOTAL PLIES | 2 | 3 | 3 | 3 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 3 | 3 | 4 | 4 | 5 |
| B. BASE PLY | | | | 1 | 1 | 1 | | 1 | | | | 1 | | | | |
| C. INTERPLY(S) | 2 | 2 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 3 | 2 | 3 | 4 | 3 | 4 |
| D. CAP SHEET | | 1 | | | | | | | | | | | | | 1 | 1 |
| 14. TYPE OF FELTS: A. GLASS FIBER | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| B. ORGANIC | | | | | | | | | | | | | | | | |
| C. ASBESTOS | | | | | | | | | | | | | | | | |
| D. POLYESTER | | | | | | | | | | | | | | | | |
| E. OTHER | | | | | | | | | | | | | | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | X | X | X | X | X | X | X | X | | | | | X | X | X | X |
| B. HOT COAL TAR | | | | | | | | | X | X | X | X | | | | |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | | | | | | | | | | | | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | | | | | | | | | | | | | | | | |
| A.1 GRAVEL (lbs/ft²) | 4 | | | 4 | | | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | |
| A.2. SLAG (lbs/ft²) | | | | | | | | | | | | | | | | |
| A.3. CRUSHED ROCK (lbs/ft²) | | | | | | | | | | | | | | | | |
| B. SMOOTH | | | | | | | | | | | | | | | | |
| B.1 ASPHALT | | | X | | | X | X | | | | | | | | | |
| B.2 COAL TAR | | | | | | | | | | | | | | | | |
| B.3 COLD EMULSION/CUT BACK | | | X | | | X | X | | | | | | | | | |
| B.4 CAP SHEET | | X | | | X | | | | | | | | | | X | X |
| B.5 ALUMINUM TOP COAT | | | | | | | | | | | | | | | | |
| B.6 VINYL/VINYL ACRYLIC | | | | | | | | | | | | | | | | |
| B.7 OTHER | | | | | | | | | | | | | | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | | | | | | | | | | | | | | |
| A. AGGREGATE | 5.5 | | | 5.5 | | | | 6 | 6 | 6.5 | 5.5 | 6 | 5.5 | 6 | | |
| B. SMOOTH | | | 1.5 | | | 1.5 | 1.5 | | | | | | | | | |
| C. CAP SHEET | | 2 | | | 2 | | | | | | | | | | 2 | 2.4 |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | 1 | 1 | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 | 1973 | 1973 | 1965 | 1973 | 1965 | 1965 | 1965 | 1965 |
| 20. TEST RESULTS (PER NBS BSS #55) | | | | | | | | | | | | | | | | |
| A. TENSILE STRENGTH (>200 lb/in @ 0°F)-MD | 166 | 166 | 226 | 226 | 226 | 264 | 238 | 283 | 216 | 316 | | 216 | 238 | 337 | 238 | 337 |
| MD = MACHINE DIRECTION; -XD | 198 | 198 | 224 | 224 | 224 | 356 | 321 | 320 | 263 | 442 | | 263 | 321 | 431 | 321 | 431 |
| XD = CROSS MACHINE DIRECTION | | | | | | | | | | | | | | | | |
| B. THERMAL EXPANSION (NOT > $40\times10^{-6}$/°F @ 0°F to -30°F)-MD | 23.3 | 23.3 | 17.4 | 17.4 | 17.4 | 19.9 | 19.7 | 19.1 | 17.4 | 20.4 | | 17.4 | 19.7 | 19.0 | 19.7 | 19.0 |
| -XD | 24.0 | 24.0 | 13.6 | 13.6 | 13.6 | 17.5 | 12.9 | 25.2 | 13.2 | 14.4 | | 13.2 | 12.9 | 15.2 | 12.9 | 15.2 |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | 663 | 663 | 663 | 928 | 928 | 685 | 661 | 670 | 754 | 652 | | 754 | 661 | 725 | 661 | 725 |
| -XD | 645 | 645 | 645 | 1332 | 1332 | 1038 | 1294 | 616 | 959 | 705 | | 959 | 1294 | 1174 | 1294 | 1174 |
| 21. LIMITATIONS OR RESTRICTED USE | | | | | | | | | | | | | | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 20 | 10 | 10 | 10 | 20 | 10 | 20 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | | | | | | | | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| D.2 ORIG. COST OF INSTALLATION | | | | | | | | | | | | | | | | |
| D.3 $ PER SQUARE | | | | | | | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 23. SEE APPENDIX PAGE | | | | | | | | | | | | | | | | |

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## OWENS-CORNING FIBERGLAS

1.REGIONAL SERVICE LOCATIONS-NATIONWIDE
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD, SEMINARS
4.DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5.PREFORMED ACCESS. AVAIL (YES/NO)-YES
6.LIMITATIONS/RESTRICTIONS-SEE OCF BUR MANUAL
7.SALES/TECH INFO-LOCAL OFFICE/LOCAL OFFICE
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
PERMA PLY-R(D2178-81A-TYPE IV, TABLE 1)
PERMA PLY NO. 28(NONE)
PERMA CAP(3909-81)
PERMA PLY IV(D2178-81A-TYPE IV, TABLE 1)

| 43-IS | 33-XG | 33-XC | 43-XS | 33-NG | 33-NC | 43-NS | 31-IG | 31-IC | 31-IS | 21-TG | 21-TC | 31-TS | 31-XG | 31-XC | 41-XS | 31-NG | 31-NC | 41-NS | 41-IS | 31-FG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HOT | HOT | HOT | HOT | HOT | 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 | X | X | X | X | X | X |
| X<br>X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X |
| 4<br>4 | 3<br>3 | 4<br>3<br>1 | 4<br>4 | 3<br>3 | 4<br>3<br>1 | 4<br>4 | 3<br>3 | 4<br>3<br>1 | 3<br>3 | 2<br>2 | 3<br>2<br>1 | 3<br>3 | 3<br>3 | 4<br>3<br>1 | 4<br>4 | 3<br>1<br>2 | 4<br>1<br>2<br>1 | 4<br>1<br>3 | 3<br>3 | 3<br>1<br>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 |
| | 4 | | | 4 | | | 4 | | | 4 | | | 4 | | | 4 | | | | 4 |
| X<br>X | | X | X<br>X | | X | X<br>X | | X | X<br>X | | X | X<br>X | | X | X<br>X | | X | X<br>X | X<br>X | |
| | | | | | | | | | | | | | | | | | | | | |
| 1.5 | 5.5 | 2 | 1.5 | 5.5 | 2 | 1 | 5.5 | 2 | 1.5 | 5.5 | 2 | 1.5 | 5.5 | 2 | 1.5 | 5.5 | 2 | 1.5 | 1.5 | 5.5 |
| NONE<br>1965 | NONE<br>1965 | NONE<br>1965 | NONE<br>1965 | NONE<br>1965 | NONE<br>1965 | NONE<br>1965 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | 1<br>1983 | 1<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 | NONE<br>1983 |
| 337<br>431 | 238<br>321 | 238<br>321 | 337<br>431 | 238<br>321 | 238<br>321 | 337<br>431 | | | | | | | | | | | | | | |
| 19.0<br>15.2 | 19.7<br>12.9 | 19.7<br>12.9 | 19.0<br>15.2 | 19.7<br>12.9 | 19.7<br>12.9 | 19.0<br>15.2 | | | | | | | | | | | | | | |
| 725<br>1174 | 661<br>12¼ | 661<br>1294 | 725<br>1174 | 661<br>1294 | 661<br>1294 | 725<br>1174 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| 20 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 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 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |

# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## OWENS-CORNING FIBERGLAS

1. REGIONAL SERVICE LOCATIONS-NATIONWIDE
2. LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3. APPLICATOR TRAINING-FIELD, SEMINARS
4. DISTRIB'N METHOD-DISTRIBUTORS/DIRECT TO ROOFERS
5. PREFORMED ACCESS. AVAIL (YES/NO)-YES
6. LIMITATIONS/RESTRICTIONS-SEE OCF BUR MANUAL
7. SALES/TECH INFO-LOCAL OFFICE/LOCAL OFFICE
8. FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)

PERMA PLY-R(D2178-81A-TYPE IV, TABLE 1)
PERMA PLY NO. 28(NONE)
PERMA CAP(3909-81)
PERMA PLY IV(D2178-81A-TYPE IV, TABLE 1)

| 9. SPECIFICATION NUMBER | 31-FC | 41-FS | 41-NG |
|---|---|---|---|
| 10. HOT APPLIED/COLD APPLIED (HOT/COLD) | HOT | HOT | HOT |
| 11. DECK TYPE: A. NAILABLE | | | X |
| B. INSULATED | X | X | |
| C. NON-NAILABLE | | | |
| 12. SLOPE REQUIREMENT(S): A. 0"-½" | X | X | X |
| B. ½"-3" | X | X | X |
| C. 3"-6" | X | X | |
| 13. PLIES: A. TOTAL PLIES | 4 | 4 | 4 |
| B. BASE PLY | 1 | 1 | 1 |
| C. INTERPLY(S) | 2 | 3 | 3 |
| D. CAP SHEET | 1 | | |
| 14. TYPE OF FELTS: A. GLASS FIBER | X | X | X |
| B. ORGANIC | | | |
| C. ASBESTOS | | | |
| D. POLYESTER | | | |
| E. OTHER | | | |
| 15. INTERPLY BITUMEN A. HOT ASPHALT | X | X | X |
| B. HOT COAL TAR | | | |
| C. HOT ELASTOMERIC INTERPLY ADHESIVE | | | |
| D. COLD ELASTOMERIC INTERPLY ADHESIVE | | | |
| 16. SURFACE A. AGGREGATE (lbs/ft²) | | | 4 |
| A.1 GRAVEL (lbs/ft²) | | | |
| A.2. SLAG (lbs/ft²) | | | |
| A.3. CRUSHED ROCK (lbs/ft²) | | | |
| B. SMOOTH | | | |
| B.1 ASPHALT | | X | |
| B.2 COAL TAR | | | |
| B.3 COLD EMULSION/CUT BACK | | X | |
| B.4 CAP SHEET | X | | |
| B.5 ALUMINUM TOP COAT | | | |
| B.6 VINYL/VINYL ACRYLIC | | | |
| B.7 OTHER | | | |
| 17. APPROXIMATE wt/ft²(INCLUDING PLIES) | | | |
| A. AGGREGATE | | | 6 |
| B. SMOOTH | | 1.5 | |
| C. CAP SHEET | 2 | | |
| 18. RESTRICTED REGIONS (REFER TO MFRS. LITERATURE) | NONE | NONE | NONE |
| 19. YEAR OF FIRST COMMERCIAL INSTALLATION | 1983 | 1983 | 1983 |
| 20. TEST RESULTS (PER NBS BSS #55) | | | |
| A. TENSILE STRENGTH (> 200 lb/in @ 0°F)-MD | | | |
| MD = MACHINE DIRECTION; -XD | | | |
| XD = CROSS MACHINE DIRECTION | | | |
| B. THERMAL EXPANSION (NOT > $40 \times 10^{-6}$/°F @ 0°F to -30°F)-MD | | | |
| -XD | | | |
| C. THERMAL BASE SHOCK (NOT < 100°F)-MD | | | |
| -XD | | | |
| 21. LIMITATIONS OR RESTRICTED USE | | | |
| 22. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | |
| D.2 ORIG. COST OF INSTALLATION | | | |
| D.3 $ PER SQUARE | 50 | 50 | 50 |
| E. EXCLUSION FROM COVERAGE | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X |
| 23. SEE APPENDIX PAGE | | | |

## TAMKO ASPHALT PRODUCTS, INC.

1. REGIONAL SERVICE LOCATIONS-10
2. LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3. APPLICATOR TRAINING-FIELD, SEMINARS
4. DISTRIB'N METHOD-DISTRIBUTORS
5. PREFORMED ACCESS. AVAIL (YES/NO)-NO
6. LIMITATIONS/RESTRICTIONS-SEE TAMKO
7. SALES/TECH INFO-PHIL DANIELS/W. KENT BLANCHARD
8. FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)

TRI-SIX(D226-82 TYPE III)
TYPE 15 PERF(D226-82 TYPE I)
TYPE 30 PERF(D226-82 TYPE II)
TYPE 43 BASE(D2626-81), TAM-GLASS(D2178-82A)
TAM CAP(3909-81)
VAPOR CHAN(D3672-81 TYPE II)
GLASS-BASE(NONE), VENT-PLY(NONE)

| 301 | 401 | 403 | 412 | 501 | 502 | 503 | 504 | 505 |
|---|---|---|---|---|---|---|---|---|
| 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 | | |
| 3 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 4 |
| | 1 | | 1 | | | | | |
| 3 | 3 | 4 | 3 | 3 | 3 | 4 | 3 | 4 |
| | | | | | 1 | | | |
| X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X |
| 4 | 4 | 4 | 4 | 4 | | 4 | | |
| | | | | | | | X | X |
| | | | | | X | | X | X |
| | | | | | | | | |
| 6 | 6.5 | 6 | 6 | 6 | 2 | 6 | 1.5 | 2 |
| | | | | | | | 2 | |
| 5&10 | 5&10 | 5&10 | 5&10 | 5&10 | 5&10 | 5&10 | 5&10 | 5&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 |

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# BUILT-UP ROOFING: General Information with Test Description and Suggested Values As Specified in NBS BSS #55/1974

## TAMKO ASPHALT PRODUCTS, INC.

1.REGIONAL SERVICE LOCATIONS-10
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD, SEMINARS
4.DISTRIB'N METHOD-DISTRIBUTORS
5.PREFORMED ACCESS. AVAIL (YES/NO)-NO
6.LIMITATIONS/RESTRICTIONS-SEE TAMKO
7.SALES/TECH INFO-PHIL DANIELS/W. KENT BLANCHARD
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
TRI-SIX(D226-82 TYPE III)
TYPE 15 PERF(D226-82 TYPE I)
TYPE 30 PERF(D226-82 TYPE II)
TYPE 43 BASE(D2626-81), TAM-GLASS(D2178-82A)
TAM CAP(3909-81)
VAPOR CHAN(D3672-81 TYPE II)
GLASS-BASE(NONE), VENT-PLY(NONE)

| 506 | 512 | 514 | 515 | 516 | 521 | 522 |
|---|---|---|---|---|---|---|
| HOT | HOT | HOT | HOT | HOT | HOT | HOT |
| X | X | X | X | X | X | X |
| X<br>X | X | X<br>X | X<br>X | X | X<br>X | X |
| 4<br>1<br>3 | 4<br>1<br>2<br>1 | 4<br>1<br>3 | 4<br>1<br>3 | 4<br>1<br>3 | 3<br>3 | 4<br>3<br>1 |
| X | X | X | X | X | X | X |
| X | X | X | X | X | X | X |
| 4 | | 4 | 4 | | 4 | |
| | X | | | X<br>X | | X |
| | | | | | | |
| GRAN. | | | | | | |
| 6 | 2 | 6 | 7 | 1.5 | 6 | 2 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 5&10 | 5&10 | 5&10 | 5&10 | 5&10 | 5&10 | 5&10 |
| X | X | X | X | X | X | X |
| X | X | X | X | X | X | X |
| X<br>X | X<br>X | X<br>X | X<br>X | X | X | X |

## TREMCO, INC.

1.REGIONAL SERVICE LOCATIONS-18
2.LIC. APPLICATOR AGREEMENT (YES/NO)-YES
3.APPLICATOR TRAINING-FIELD
4.DISTRIB'N METHOD-LOCAL SALES REPS
5.PREFORMED ACCESS. AVAIL (YES/NO)-YES
6.LIMITATIONS/RESTRICTIONS-SEE TREMCO REP
7.SALES/TECH INFO-PAUL MITCHELL/KEN BRZOZOWSKI
8.FELTS DATA:TRADE NAME (APPLICABLE ASTM STANDARD)
BURMASTIC GLASS PLY SHEET(FS SSR 620B TYPE II)
THERM 100 GLASS PLY SHEET(D2178 TYPE IV)
POLY THERM PLY SHEET(PROPRIETARY (NA))

| BUR MASTIC | BUR MASTIC | THERM 100 | THERM 100 | THERM 200 | THERM 200 |
|---|---|---|---|---|---|
| COLD | COLD | HOT | HOT | HOT | HOT |
| X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| 3 | 3 | 3 | 3 | 3 | 3 |
| X | X | X | X | X | X |
| X | X | X | X | X | X |
| GRAN.6 | | GRAN.6 | | GRAN.6 | |
| 2.3 | 5.7 | 1.8 | 5.2 | 1.6 | 5.0 |
| 1978 | 1978 | 1982 | 1982 | 1983 | 1983 |
| 415<br>300 | 415<br>300 | 320<br>350 | 320<br>350 | 310<br>240 | 310<br>240 |
| 18.3<br>36.1 | 18.3<br>36.1 | 20<br>35 | 20<br>35 | 25<br>25 | 25<br>25 |
| 700<br>700 | 700<br>700 | 4500<br>2500 | 4500<br>2500 | 4500<br>2500 | 4500<br>2500 |
| 10<br>NO | 10<br>NO | 10<br>NO | 10<br>NO | 10<br>NO | 10<br>NO |
| X | X | X | X | X | X |
| X | X | X | X | X | X |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |

# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | ALLROOF INTERNATIONAL INC. | | | | | THE AMERICAN LUBRICANTS COMPANY | AMERICAN ROOFING CORPORATION | | | BARRA CORP. OF AMERICA, INC. |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | BELROOF SD-4M | BELROOF SBS-4M | BELROOF SBS-4 | BELROOF SD-4 | ALLROOF POLYPREN | TIFFANY | ARC PREMIUM | ARC ALUMINUM | ARC GRANULAR | MODI SHIELD PR |
| 3. PRODUCT DESCRIPTION: | | | | | | | | | | |
| A. TYPE OF BITUMEN MODIFIER | APP | APP | APP | APP | APP | APP | APP | APP | APP | APP |
| B. THICKNESS (MILS) | 172 | 175 | 157 | 157 | 83 | 157 | 160 | 160 | 175 | 160 |
| C. TOP SURFACE | GRANULAR | SLATE CHIP | MODIFIED BITUMEN | MODIFIED BITUMEN | PLAIN | MODIFIED BITUMEN | PLAIN | ALUMINUM | MINERAL | PLAIN |
| D. REINFORCEMENT MATERIAL | NONWOVEN POLYESTER | NONWOVEN POLYESTER | NONWOVEN POLYESTER | NONWOVEN POLYESTER | NONWOVEN FIBER | POLYESTER | POLYESTER | FIBERGLASS | POLYESTER | POLYESTER |
| E. COLOR | VARIOUS | GRY,GRN,RD | BLACK | BLACK | BLACK | BLACK | BLACK | ALUMINUM | OPTIONAL | BLACK |
| F. INSTALLED WT (lbs/ft² W/O BALLAST) | .99 | .99 | .88 | .88 | .50 | .88 | .88 | .88 | .96 | .88 |
| 4. COATING REQUIRED | NONE | NONE | SBS-4M.GRAVL ALUM,ACRYLIC | RECOMMENDED BUT NOT REQD | NONE | ALUMINUM RECOMMENDED | NONE | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | TORCH | TORCH | TORCH | TORCH | HOT AIR | TORCH | TORCH | TORCH | TORCH | TORCH |
| 7. TYPE OF ROOF SYSTEM: | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | | | 5 | | 10 LBS | | | | | |
| B. PARTIALLY ADHERED (METHOD) | TORCH | H.A.OR TORCH | H.A.OR TORCH | | HOT ASPHALT | X | | | | |
| C. FULLY ADHERED (METHOD) | TORCH | H.A.OR TORCH | H.A.OR TORCH | TORCH | HOT ASPHALT | X | TORCH | TORCH | TORCH | TORCH |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | | | | | | | X | | | X |
| 8. MINIMUM SLOPE | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | POS DRAIN | POS DRAIN | DEAD LEVEL |
| 9. USE OVER: | | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X* | X* | X* | X* | X* |
| B. POLYURETHANE | X | X | X | X | X | X* | X* | X* | X* | X* |
| C. WOOD FIBER | X | X | X | X | X | X* | X* | X* | X* | X* |
| D. GLASS FIBER | X | X | X | X | X | X* | X* | X* | X* | X* |
| E. EXPANDED POLYSTYRENE | X | X | X | X | X | | X* | X* | X* | X* |
| F. FELT FACED COMPOSITES | X | X | X | X | X | X | X* | X* | X* | X* |
| G. OTHER | FELT BASE SHEET WHEN REQUIRED | | | BASE SHEET OVER NON-PREFACED INSULATION | ANY SKINNED INSULATION, WOOD,METAL, CONCRETE, PROT'N BOARD | *OVERLAYMENT REQUIRED IF NOT FELT OR ASPHALT FACED | *OVERLAYMENT REQUIRED | *OVERLAYMENT REQUIRED | *OVERLAYMENT REQUIRED | *OVERLAYMENT REQUIRED |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | | | | | |
| 11. WORKABLE TEMPERATURE RANGE | 30 F-120 F | 30 F-150 F | 30 F-150 F | 30 F-120 F | 30 F-150 F | 0 F-120 F | 0 F-115 F | 15 F-115 F | 0 F-115 F | 0 F-115 F |
| 12. FLASHING MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| 13. FLASHING METHOD | TORCH | H.A.OR TORCH | H.A.OR TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | NONE | UNNECESSARY | UNNECESSARY | NO | YES | NO | NO | NO | NO | NO |
| 15. COUNTRY: A. ORIGIN | ITALY | BELGIUM | BELGIUM | ITALY | ITALY | ITALY | ITALY | ITALY | ITALY | |
| B. MANUFACTURE | ITALY | BELGIUM | BELGIUM | USA | ITALY | USA | USA | USA | USA | USA |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1961 | 1961 | 1961 | 1961 | 1960 | 1961 | 1968 | 1968 | 1968 | 1968 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1978-SALT LAKE | | | 1978-BOUNTIFUL | | 1978-DETROIT | 1981-CHICAGO | 1981-CHICAGO | 1981-CHICAGO | 1981-CHICAGO |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | 1,000,000 | 1,000,000 | 1,000,000 | 10,000,000 | >1,000,000 | NONE | | | | |
| B. USA | >250,000 | | | >250,000 | | 106,000 | 520,000 | 40,000 | 45,000 | 72,886 |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 10 | 6,12 APDX +4 ALUM COAT | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | NO | NO | X | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | X | X | X | X | X | X | X | X | X | X |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | X | X | X | X | | | | | |
| D.2 ORIG. COST OF INSTALT'N | | | | | | | X | X | X | X |
| D.3 $ PER SQUARE | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | | | | | | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE MFG | | | | |
| 20. METHOD OF DISTRIBUTION | SALES/ DISTRIBUTOR | SALES/ DISTRIBUTOR | SALES/ DISTRIBUTOR | SALES/ DISTRIBUTOR | SALES/ DISTRIBUTOR | SALES FORCE | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DIRECT TO CONTRACTORS |
| 21. NUMBER OF REGIONAL LOCATIONS | 8 | 8 | 8 | 8 | 8 | USA & CANADA | 93 | 93 | 93 | 8 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | YES | YES | YES | YES | NO | YES | YES | YES | YES |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD |
| 24. SALES INFORMATION CONTACT | FRANZ KOLB | FRANZ KOLB | FRANZ KOLB | FRANZ KOLB | FRANZ KOLB | T GIRARD | B JANSEN | B JANSEN | B JANSEN | CUST SERVICE |
| 25. TECHNICAL INFORMATION CONTACT | MARK HINTZE | MARK HINTZE | MARK HINTZE | MARK HINTZE | MARK HINTZE | T GIRARD | P VIDOZZI | P VIDOZZI | P VIDOZZI | TECH SERVICE |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 32 | 32 | 32 | 32 | 32 | 32 | 33 | 33 | 33 | 33 |
| 27. SEE APPENDIX PAGE | | | 79 | | | | | | | |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| BARRA CORPORATION OF AMERICA, INC. | | THE BARRETT COMPANY | | | | | CELOTEX CORPORATION | | CIRO ROOFING PRODUCTS USA, INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODI SHIELD AL | MODI SHIELD GR | RAM-TOUGH TM-500 | SHELL CARIPHALTE FR200 | SHELL CARIPHALTE FR-307HS | SHELL CARIPHALTE FR306 | SHELL CARIPHALTE FR-308P | CELOPAL 2 | CELOPAL 1 | CSP-4000 SBS | CSP-4000 APP | CSV-4000 ALU | CSP-4500 APP |
| APP 160 | APP 175 | SBS 63 | SBS 118 | SBS 157 | SBS 157 | SBS 157 | APP 140 | APP 155 | SBS 165 | APP 165 | APP 165 | APP 165 |
| ALUMINUM | MINERAL | POLY-PROPYLENE | SANDED MATL | GRANULE | CERAMIC GRANULE | GRANULE | MINERAL MOD. BITUMEN | GRANULAR MOD. BITUMEN | PLAIN | PLAIN | ALUMINUM | GRANULATED |
| FIBERGLASS | POLYESTER | FIBERGLASS | FIBERGLASS | FIBERGLASS MAT/FIBRGLAS SCRIM | FIBERGLASS | POLYESTER | WOVEN GLASS FABRIC | WOVEN GLASS FABRIC | POLYESTER | POLYESTER | FIBERGLASS | POLYESTER |
| ALUMINUM .88 | OPTIONAL .96 | BLACK .45 | BLACK .50 | ANY .98 | ANY .90 | ANY .90 | BLACK 0.87 | BLACK 1.03 | PLAIN | PLAIN .89 | SILVER .89 | WH/GR/BRN .99 |
| NONE | NONE | YES | | NONE | NONE | NONE | YES | NONE | YES | YES | NO | NO |
| X<br>X | X<br>X | X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| TORCH | TORCH | SLF ADHERING | HOT ASPHALT | HOT ASPHALT | HOT ASPHALT | HOT ASPHALT | TORCH OR HOT-APPLIED | TORCH OR HOT-APPLIED | TORCH/MOPPED HOT AIR WELD | TORCH HOT AIR WELD | TORCH HOT AIR WELD | TORCH HOT AIR WELD |
| TORCH | TORCH | SLF ADHERING<br>SLF ADHERING | HOT ASPHALT<br>HOT ASPHALT | HOT ASPHALT<br>HOT ASPHALT | HOT ASPHALT<br>HOT ASPHALT | HOT ASPHALT<br>HOT ASPHALT | TORCH OR HOT APPLIED | TORCH OR HOT APPLIED | X<br>X<br>X<br>X | X<br>X<br>X<br>X | X<br>X<br>X<br>X | X<br>X<br>X<br>X |
| POS DRAIN | POS DRAIN | TO DRAIN | TO DRAIN | TO DRAIN | TO DRAIN | TO DRAIN | DEAD LEVEL | DEAD LEVEL | | | | |
| X*<br>X*<br>X* | X*<br>X*<br>X* | | X<br>CONSULT BARR<br>X | X<br>CONSULT BARR<br>X | X<br>CONSULT BARR<br>X | X<br>CONSULT BARR<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| X*<br>X*<br>X*<br>*OVERLAYMENT REQUIRED | X*<br>X*<br>X*<br>*OVERLAYMENT REQUIRED | CONCRETE ONLY | X<br>X<br>ISOCYANURATE FOAMED GLASS INSULATING CONCRETE | X<br>X<br>ISOCYANURATE FOAMED GLASS INSULATING CONCRETE | X<br>X<br>ISOCYANURATE FOAMED GLASS INSULATING CONCRETE | X<br>X<br>ISOCYANURATE FOAMED GLASS INSULATING CONCRETE | X<br>X<br>ISOCYANURATE | X<br>X<br>ISOCYANURATE | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| 0 F-115 F | 0 F-115 F | NONE<br>40 F-120 F | NONE<br>40 F-120 F | NONE<br>40 F-120 F | NONE<br>40 F-120 F | NONE<br>40 F-120 F | NONE<br>30 F-120 F | NONE<br>30 F-120 F | NONE<br>0 F-115 F | NONE<br>15 F-120 F | NONE<br>15 F-120 F | NONE<br>15 F-120 F |
| SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | CELOPAL 1 | CELOPAL 1 | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| TORCH | TORCH | SLF ADHERING | HOT ASPHALT | HOT ASPHALT | HOT ASPHALT | HOT ASPHALT | TORCH OR HOT-APPLIED | TORCH OR HOT-APPLIED | TORCHED OR MOPPED | TORCHED OR MOPPED | TORCHED OR MOPPED | TORCHED OR MOPPED |
| NO | NO | YES | NOT REQUIRED | NOT REQUIRED | NOT REQUIRED | NOT REQUIRED | NO | NO | YES | YES | YES | YES |
| USA | USA | CANADA<br>CANADA | FRANCE<br>CANADA | CANADA<br>CANADA | FRANCE<br>CANADA | CANADA<br>CANADA | DENMARK<br>USA | DENMARK<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA |
| 1968<br>1981-CHICAGO | 1968<br>1981-CHICAGO | 1983<br>1984 | 1968<br>1978 | 1983<br>1984 | 1968<br>1978 | 1983<br>1984 | 1965<br>1983-MANASSAS | 1965<br>1983-MANASSAS | 1968<br>1979 | 1968<br>1979 | 1968<br>1979 | 1968<br>1979 |
| 6,800 | 6,516 | 20,000<br>14,000 | 7,000,000<br>15,000 | 5,000<br>1,200 | 7,000,000<br>15,000 | 6,800<br>2,000 | | | 20,000,000+<br>100,000+ | 20,000,000+<br>500,000+ | 20,000,000+<br>500,000+ | 20,000,000+<br>500,000+ |
| 10 | 10 | 5 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| X<br>X | X<br>X | X | X | X | X | X | X | X | NO<br>X<br>X | NO<br>X<br>X | NO<br>X<br>X | NO<br>X<br>X |
| X | X | X | X | X | X | X | $100/SQ.MBRN<br>$130/INSL+MB | $100/SQ.MBRN<br>$130/INSL+MB | | X | X | X |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | | | | |
| | | ONLY IN PMR SYSTEMS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | | | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS |
| DIRECT TO CONTRACTORS<br>8<br>YES | DIRECT TO CONTRACTORS<br>8<br>YES | DISTRIBUTORS<br>DIRECT<br>21<br>YES | DISTRIBUTORS<br>DIRECT<br>21<br>YES | DISTRIBUTORS<br>DIRECT<br>21<br>YES | DISTRIBUTORS<br>DIRECT<br>21<br>YES | DISTRIBUTORS<br>DIRECT<br>21<br>YES | WHOLESALE & DIRECT<br>YES | WHOLESALE & DIRECT<br>YES | GEORGIA PACIFIC CORP<br>YES | GEORGIA PACIFIC CORP<br>YES | GEORGIA PACIFIC CORP<br>YES | GEORGIA PACIFIC CORP<br>YES |
| FIELD | FIELD | FACTORY, FIELD SEMINARS | FACTORY, FIELD SEMINARS | FACTORY, FIELD SEMINARS | FACTORY, FIELD SEMINARS | FACTORY, FIELD SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | YES | YES | YES | YES |
| CUST SERV<br>TECH SERV | CUST SERV<br>TECH SERV | CUST SERV<br>TECH SERV | CUST SERV<br>TECH SERV | CUST SERV<br>TECH SERV | CUST SERV<br>TECH SERV | CUST SERV<br>TECH SERV | J HASSELBACH<br>A SPINGLER<br>S FUNK | J HASSELBACH<br>A SPINGLER<br>S FUNK | GEORGIA PAC<br>GP OR CIRO | GEORGIA PAC<br>GP OR CIRO | GEORGIA PAC<br>GP OR CIRO | GEORGIA PAC<br>GP OR CIRO |
| 33 | 33 | 33 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 35 | 35 | 35 |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | CIRO ROOFING PRODUCTS USA, INC. | CONSOLIDATED PROTECTIVE COATING CORPORATION | | | | DANOSA CARIBBEAN, INC. | | | | DIBITEN USA |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | CSP-4000 SBS GRANULATED | CONSO-GARD | CONSO-GARD II | CONSO-GARD III | CONSO-GARD IV | ESTERDAN RM | GLASDAN AL-80 | GLASDAN R-36 | ESTERDAN R-36 | DIBITEN POLY-5 |
| 3. PRODUCT DESCRIPTION: | | | | | | | | | | |
| A. TYPE OF BITUMEN MODIFIER | SBS | SBS | SBS | SBS | SBS | SBS | SBS | SBS | SBS | |
| B. THICKNESS (MILS) | 165 | 118 | 157 | 157 | 157 | 140 | 140 | 140 | 140 | 175 |
| C. TOP SURFACE | GRANULATED | PLAIN | PLAIN | PLAIN | GRANULATED | MINERAL GRANULES | ALUMINUM | BITUMEN | BITUMEN | SMOOTH |
| D. REINFORCEMENT MATERIAL | POLYESTER | POLYESTER | POLYESTER | POLYESTER | POLYESTER | POLYESTER | GLASS FIBER | GLASS FIBER | POLYESTER | POLYESTER NON-WOVEN |
| E. COLOR | WH/GR/BRN | BLACK | BLACK | BLACK | LT GREY | WHITE/OTHER | ALUMINUM | BLACK | BLACK | BLACK |
| F. INSTALLED WT (lbs/ft² W/O BALLAST) | | .60 | .90 | .90 | .90 | .77 | .77 | .77 | .77 | 1.10 |
| 4. COATING REQUIRED | NO | YES | YES | YES | NO | NONE | NONE | EMULSION, 2ND MEMBR, BALLST | EMULSION, 2ND MEMBR, BALLST | YES |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | TORCH/MOPPED HOT AIR WELD | TORCH | TORCH | TORCH | TORCH | TORCH OR HOT ASPHALT | TORCH OR HOT ASPHALT | TORCH OR HOT ASPHALT | TORCH OR HOT ASPHALT | TORCHED |
| 7. TYPE OF ROOF SYSTEM: | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | X | X | X | X | X | | | | | |
| B. PARTIALLY ADHERED (METHOD) | X | X | X | X | X | | | | | TORCH |
| C. FULLY ADHERED (METHOD) | X | X | X | X | X | TORCH/HOT AS | TORCH/HOT AS | TORCH/HOT AS | TORCH/HOT AS | TORCH |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | X | X | X | X | X | | | | | |
| 8. MINIMUM SLOPE | | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| 9. USE OVER: | | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X | X | X | X | X |
| B. POLYURETHANE | X | X | X | X | X | X | X | X | X | X |
| C. WOOD FIBER | X | BASE SHT REQ | BASE SHT REQ | BASE SHT REQ | BASE SHT REQ | X | X | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | | | | | X | X | X | X | X |
| F. FELT FACED COMPOSITES | X | X | X | X | X | X | X | X | X | X |
| G. OTHER | | WOOD, METAL CONCRETE | WOOD, METAL CONCRETE | WOOD, METAL CONCRETE | WOOD, METAL CONCRETE | | | | | WOOD, METAL, CONCRETE, PROTECTION BOARD |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | UNNECESSARY |
| 11. WORKABLE TEMPERATURE RANGE | 0 F-115 F | 40 F-115 F | 40 F-115 F | 40 F-115 F | 40 F-115 F | 14 F-120 F | 14 F-120 F | 14 F-120 F | 14 F-120 F | 40 F-120 F |
| 12. FLASHING MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATL OR GLASDAN AL-80 | SAME MATL OR ESTERDAN RM | GLAS AL-80 OR ESTERDAN RM | GLASD AL-80 OR ESTERDAN RM | SAME MATERIAL |
| 13. FLASHING METHOD | TORCHED OR MOPPED | TORCH | TORCH | TORCH | TORCH | TORCH OR HOT ASPHALT | TORCH OR HOT ASPHALT | TORCH AND HOT ASPHALT | TORCH OR HOT ASPHALT | TORCHED |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | YES | NO | NO | NO | NO | NO | NO | NO | NO | NONE |
| 15. COUNTRY: A. ORIGIN | ITALY | USA | USA | USA | USA | PUERTO RICO | PUERTO RICO | PUERTO RICO | PUERTO RICO | ITALY |
| B. MANUFACTURE | USA | USA | USA | USA | USA | PUERTO RICO | PUERTO RICO | PUERTO RICO | PUERTO RICO | ITALY |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1968 | | | | | | | | | 1968 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1979 | 1980- CLEVELAND | 1980- CLEVELAND | 1984- CLEVELAND | 1984- CLEVELAND | 1979- SAN JUAN, PR | 1979- SAN JUAN, PR | 1979- SAN JUAN, PR | 1979- SAN JUAN, PR | 1978- NEW JERSEY |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | 20,000,000+ | | | | | | | | | 550,000 |
| B. USA | 100,000+ | 500,000 | 200,000 | | | 20,000 | 15,000 | 5,000 | 10,000 | 95,000 |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 10 | 5 & 10 | 5 & 10 | 5 & 10 | 5 & 10 | 12 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | NO | | | | | X | X | X | X | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | X | X | X | X | X | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | | | | | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | | | | | | | | | |
| D.2 ORIG. COST OF INSTALT'N | | | | | | X | X | X | X | X |
| D.3 $ PER SQUARE | | | | | | X | X | X | X | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | | X | X | X | X | X | X | X | X | |
| 19. LIMITATIONS OR RESTRICTED USE | SEE SPECS | | | | | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS |
| 20. METHOD OF DISTRIBUTION | GEORGIA PACIFIC CORP | DIRECT | DIRECT | DIRECT | DIRECT | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | |
| 21. NUMBER OF REGIONAL LOCATIONS | | | | | | 2 | 2 | 2 | 2 | 9 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | NO | NO | NO | NO | YES | YES | YES | YES | NO |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | YES | YES | YES | YES | YES | SEMINARS, ON JOB TRAINING | SEMINARS, ON JOB TRAINING | SEMINARS, ON JOB TRAINING | SEMINARS, ON JOB TRAINING | FIELD, SEMINARS |
| 24. SALES INFORMATION CONTACT | GEORGIA PAC | F MALLOY | F MALLOY | F MALLOY | F MALLOY | M DEL RIO | M DEL RIO | M DEL RIO | M DEL RIO | R BIANCHI |
| 25. TECHNICAL INFORMATION CONTACT | GP OR CIRO | G KURTZHALS | G KURTZHALS | G KURTZHALS | G KURTZHALS | R MUR | R MUR | R MUR | R MUR | R BIANCHI |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 35 | 35 | 35 | 35 | 35 | 36 | 36 | 36 | 36 | 36 |
| 27. SEE APPENDIX PAGE | | | | | | | | | | |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*



| | DIBITEN USA | | FLEX-SHIELD CORPORATION | | THE GARLAND COMPANY, INC. | | | | | GEDACO, LTD. (ITALY) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DIBITEN POLY-4 | DIBITEN POLY-4,5 GRANULAR | F.A.R. MARK II | FLEX SHIELD MARK IV | GARLAPLY | GARLAPLY II | STRESSPLY II | STRESSPLY | PITCHPLY | GEDAGOM POLYESTER | GEDAGOM GRANIVEL | GEDAGOM VELO/VETRO EXTRA | GEDAGOM GRANIPOL |
| | APP 157 | APP 172 | 75 | 150 | APP 160 | APP 190 | SBS 130 | SBS 80 | NITRILE 70 | APP 160 | APP 160 | APP 160 | APP 160 |
| | SMOOTH | GRANULAR | POLY-PROPYLENE | MOD BITUMEN | MOD BITUMEN | MINERAL GRANULES | MINERAL GRANULES | | | MOD BITUMEN | SLATE CHIP | MOD BITUMEN | SLATE CHIP |
| | POLYESTER NON-WOVEN | POLYESTER NON-WOVEN | POLY-PROPYLENE | POLYESTER | POLYESTER | POLYESTER | POLYESTER | 2 PLIES WOVEN GLASS | UNREINFORCED | POLYESTER | SPECIAL FIBERGLASS | SPECIAL FIBERGLASS | POLYESTER NON-WOVEN FABRIC |
| | BLACK .88 | WHITE-GREY 1.05 | BLACK .40 | BLACK .88 | BLACK .90 | OFF WHITE 1.25 | OFF WHITE 1.00 | BLACK 1.65 W/GRAVL | BLACK 1.5 W/GRAVL | BLACK .88 | GREY-GREEN .88 | BLACK .88 | GREY-GREEN .88 |
| | YES | NONE | COATING OR GRAVEL | RECOMMENDED | NONE | NO | NO | GRAVEL OR ALUM | GRAVEL | ALUMINUM OR GRAVEL | NONE | ALUMINUM OR GRAVEL | NONE |
| | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| | TORCHED | TORCHED | SELF ADHERNG | TORCH | TORCH | TORCH | BITUMEN/ ADHESIVE | BITUMEN/ ADHESIVE | BITUMEN/ ADHESIVE | TORCH | TORCH | TORCH | TORCH |
| | TORCH<br>TORCH | TORCH<br>TORCH | SELF ADHERNG | TORCH | TORCH | X<br>X | X<br>X | X<br>X | X<br>X | TORCH | TORCH | TORCH | TORCH |
| | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | 1/4" | 1/4" | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| | X<br>X<br>X | X<br>X<br>X | X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| | X<br>X<br>X | X<br>X<br>X | X | X<br>X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| | WOOD,METAL, CONCRETE, PROTECTION BOARD | WOOD,METAL, CONCRETE, PROTECTION BOARD | BUR,CONCR, WOOD,EPDM | | | | | | | | | | |
| | UNNECESSARY 40 F-120 F | UNNECESSARY 40 F-120 F | NONE 40 F-120 F | 0 F-120 F | NONE 35 F-120 F | NONE 35 F-120 F | NONE 35 F-120 F | NONE 35 F-120 F | NONE 35 F-120 F | NONE 0 F-120 F | NONE 10 F-120 F | NONE 10 F-120 F | NONE 10 F-120 F |
| | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| | TORCHED | TORCHED | SELF ADHERNG | TORCH | TORCH | TORCH | BITUMEN/ ADHESIVE | BITUMEN/ ADHESIVE | BITUMEN/ ADHESIVE | TORCH | TORCH | TORCH | TORCH |
| | NONE | NONE | | NO | NO | NO | NO | NO | YES | NO | NO | NO | NO |
| | ITALY ITALY | ITALY ITALY | | ITALY USA | GERMANY USA | GERMANY USA | GERMANY USA | USA USA | ENGLAND USA | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY |
| | 1968 1978- NEW JERSEY | 1968 1978- NEW JERSEY | | 1961 1978-DETROIT | 1965 1980- PITTSBURG | 1979 1982 | 1979 1982 | 1978- CLEVELAND | 1965 1965- CLEVELAND | 1970 NONE | 1970 NONE | 1970 NONE | 1970 NONE |
| | 8,500,000 600,000 | 700,000 85,000 | | 15,000,000 100,000 | 5,000,000+ 160,000 | 10,000 3,000 | 5,000 | 250,000 | 5,000,000+ 150,000 | >2,000,000 NONE | >300,000 NONE | >1,500,000 NONE | >500,000 NONE |
| | 10 | 10<br>X | 5<br>5 + 5 | 5, 10<br>+5 | 10 | 10 | 10/15 | 10/15 | 10/15 | 10 | 10 | 10 | 10 |
| | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | X | X | X | X | X | NONE | NONE | NONE | X | X | X | X | X |
| | X | X | X | X<br>X | X<br>X | | | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| | SEE SPECS | SEE SPECS | | | | | | | | | | | |
| | DISTRIBUTORS | DISTRIBUTORS | DIRECT/ DISTRS | DIRECT/ DISTRS | COMPANY SALES FORCE | COMPANY SALES FORCE | COMPANY SALES FORCE | COMPANY SALES FORCE | COMPANY SALES FORCE | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS |
| | 9<br>NO | 9<br>NO | YES | YES | 90<br>YES | 90<br>YES | 90<br>YES | 90<br>YES | 90<br>YES | PENDING<br>NO | PENDING | PENDING | PENDING |
| | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS (PENDING) | FIELD, SEMINARS (PENDING) | FIELD, SEMINAR (PENDING) | FIELD, SEMINARS (PENDING) |
| | R BIANCHI<br>R BIANCHI | R BIANCHI<br>R BIANCHI | C CARROLL<br>C CARROLL | C CARROLL<br>C CARROLL | R DEBACCO<br>M WARFORD | R DEBACCO<br>M WARFORD | R DEBACCO<br>M WARFORD | R DEBACCO<br>M WARFORD | R DEBACCO<br>M WARFORD | A DANZI GEDACO S.P.A<br>A DANZI GEDACO S.P.A | A DANZI GEDACO S.P.A<br>A DANZI GEDACO S.P.A | A DANZI GEDACO S.P.A<br>A DANZI GEDACO S.P.A | A DANZI GEDACO S.P.A<br>A DANZI GEDACO S.P.A |
| | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 38 | 38 | 38 | 38 |

# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | GEDACO, LTD. (ITALY) | | GENSTAR ROOFING PRODUCTS CO. | W.R. GRACE & CO. | | | | GUAINA CORPORATION OF AMERICA & POLYPREN ROOFING OF AMERICA | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | GEDAGOM POLYESTER CONT FILAMNT | GEDAGOM VELO/VETRO | FLINTLASTIC SBS | GRM-350 | GRM-500 | GRM-120 | GRM-230 | GUAINA POLYGLASS POLYESTER | GUAINA POLYGLASS ALUMINUM | GUAINA POLYPREN ECB |
| 3. PRODUCT DESCRIPTION: | | | | | | | | | | |
| A. TYPE OF BITUMEN MODIFIER | APP | APP | SBS | SBS | SBS | SBS | SBS | APP | APP | ECB |
| B. THICKNESS (MILS) | 160 | 160 | 104 | 50 | 40 | 50 | 50 | 160 | 160 | 83 |
| C. TOP SURFACE | MOD BITUMEN | MOD BITUMEN | GRANULES | POLYETHYLENE | PV FLUORIDE | POLYETHYLENE | POLYETHYLENE | PLAIN | ALUMINUM | PLAIN |
| D. REINFORCEMENT MATERIAL | POLYESTER NON-WOVEN FABRIC | FIBERGLASS | PVA & GLASS MAT | | POLYETHYLENE ALUM FOIL | ALUM FOIL | | POLYESTER | FIBERGLASS | NON-WOVEN FIBERGLASS |
| E. COLOR | BLACK | BLACK | WHITE | GRAY/BLACK | WHITE | GRAY/BLACK | GRAY/BLACK | BLACK | ALUMINUM | BLACK |
| F. INSTALLED WT (lbs/ft² W/O BALLAST) | .88 | .88 | 148-2 PLY SY | .34 | .30 | .34 | .34 | .88 | .88 | .50 |
| 4. COATING REQUIRED | ALUMINUM OR GRAVEL | ALUMINUM OR GRAVEL | | INSUL BOARD | NONE | WHITE | GRAVEL | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | TORCH | TORCH | HOT MOP | SELF-ADHESIVE | SELF-ADHESIVE | SELF-ADHESIVE | SELF-ADHESIVE | TORCH | TORCH | HOT AIR |
| 7. TYPE OF ROOF SYSTEM: | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | | | | | | | | | | |
| B. PARTIALLY ADHERED (METHOD) | | | | | | | | | | |
| C. FULLY ADHERED (METHOD) | TORCH | TORCH | HOT MOP | SLF-ADHESIVE | NAILED LAPS SLF-ADHESIVE | NAILED LAPS SLF-ADHESIVE | NAILED LAPS SLF-ADHESIVE | TORCH | TORCH | 10 LBS HOT ASPHALT |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | | | | SLF-ADHESIVE | | | | | | HOT ASPHALT |
| 8. MINIMUM SLOPE | DEAD LEVEL | DEAD LEVEL | | TO DRAIN | TO DRAIN | TO DRAIN | TO DRAIN | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| 9. USE OVER: | | | | | | | | | | |
| A. PERLITE | X | X | X* | | X | X | X | X | X | X |
| B. POLYURETHANE | X | X | X* | | | | | X | X | X |
| C. WOOD FIBER | X | X | X* | | X | X | X | X | X | X |
| D. GLASS FIBER | X | X | X* | | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | X | | | X | X | X | X | X | X |
| F. FELT FACED COMPOSITES | X | X | X* | | | | | X | X | X |
| G. OTHER | | | CYANURATE*, CELULAR GLA *USE W/CTD BASE SHT IN 2 PLY CONST | CONCRETE, GYPSUM, PLYWOOD | ISOCYANURATE FOAMED GLASS | ISOCYANURATE FOAMED GLASS | ISOCYANURATE FOAMED GLASS | ANY SKINNED INSUL,WOOD, METAL,CONCR, PROTECTION BOARD | ANY SKINNED INSUL,WOOD, METAL,CONCR, PROTECTION BOARD | ANY SKINNED INSUL,WOOD, METAL,CONCR, PROTECTION BOARD |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 11. WORKABLE TEMPERATURE RANGE | 0 F-120 F | 10 F-120 F | 10 F-120 F | 40 F-120 F | 40 F-120 F | 40 F-120 F | %40 F-120 F | 10 F-120 F | 10 F-120 F | -30 F-150 F |
| 12. FLASHING MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | GRM-120 OR GRM-500 | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATL OR ECB ADHESIVE |
| 13. FLASHING METHOD | TORCH | TORCH | PLASTIC CEMENT TO MASRY | SELF-ADHESIVE | SELF-ADHESIVE | SELF-ADHESIVE | SELF-ADHESIVE | TORCH | TORCH | TORCH OR HOT ADHESIVE |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | NO | NO | | NO | NO | NO | NO | NO | NO | YES |
| 15. COUNTRY: A. ORIGIN | ITALY | ITALY | HOLLAND | USA | USA | USA | USA | ITALY | ITALY | ITALY |
| B. MANUFACTURE | ITALY | ITALY | USA | USA | USA | USA | USA | ITALY | ITALY | ITALY |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1970 | 1970 | 1972 | 1971-TORONTO | | | | 1960 | 1960 | 1965 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1981-NEW JERSEY | NONE | 1980-JERSEY CITY | 1972-BOSTON | 1980-GLENVIEW | 1979-PHOENIX | 1975-TOLEDO | 1978-NEW JERSEY | 1978-NEW JERSEY | 1978-NEW JERSEY |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | 4,687,500 | >1,000,000 | >100,000 | <250,000 | <250,000 | >250,000 | >250,000 | >1,000,000 | >1,000,000 | >1,000,000 |
| B. USA | 4,000 | NONE | 20,000 | | | | | 75,000 | 50,000 | 55,000 |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 10 | 10 | 15 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | X | X | X | X | X | X | X | X | X |
| D.2 ORIG. COST OF INSTALT'N | | | | | | | | | | |
| D.3 $ PER SQUARE | | | 100 | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | | | | ONLY PRMA SY | | | | | | |
| 20. METHOD OF DISTRIBUTION | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DIRECT SALE | DIRECT SALE | DIRECT SALE | DIRECT SALE | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS |
| 21. NUMBER OF REGIONAL LOCATIONS | PENDING | PENDING | 6 | 5 | 5 | 5 | 5 | 23 | 23 | 23 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | | | YES | YES | YES | YES | YES | NO | NO | NO |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | FIELD, SEMINARS (PENDING) | FIELD, SEMINARS (PENDING) | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| 24. SALES INFORMATION CONTACT | A DANZI GEDACO S.P.A | A DANZI GEDACO S.P.A | COMMERCIAL ROOFING DEPT | REGIONAL OFF | REGIONAL OFF | REGIONAL OFF | REGIONAL OFF | B MITZMAN | B MITZMAN | B MITZMAN |
| 25. TECHNICAL INFORMATION CONTACT | A DANZI GEDACO S.P.A | A DANZI GEDACO S.P.A | REGIONAL OFFICE | REGIONAL OFF | REGIONAL OFF | REGIONAL OFF | REGIONAL OFF | B MITZMAN | B MITZMAN | B MITZMAN |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 38 | 38 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 |
| 27. SEE APPENDIX PAGE | | | | | | | | | | |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*



| GUAINA CORPORATION OF AMERICA & POLYPREN ROOFING OF AMERICA | | HEY 'DI UMP CORP. | HYLOAD, INC. | IMPERITALIA SPA | | | | INDEX SPA TECHOLOGIE IMPERMEABILI | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GUAINA POLYGLASS | GUAINA POLYGLASS GRANULAR | HEY 'DI ECB | HYLOAD 150E | PARALON NT4 | TRIPLENE | ARWENOL AL | ARWENOL ARD/S | MINERAL HELASTA P4,5 | DEFEND 4 | HELASTA/P 4 | MINERAL DEFEND 4,5 | TESTUDO 4 |
| APP 158 | APP 170 | ECB 83 | 60 | 160 | VARIOUS | 150 | 170 | 175 | 160 | 160 | 172 | 160 |
| PLAIN | MINERAL | EMBOSSED | BLACK | PLAIN | PLAIN | ALUMINUM | GRANULAR | GRANULAR | SMOOTH | SMOOTH | GRANULAR | SMOOTH |
| FIBERGLASS | POLYESTER OR FIBERGLASS | NOV-WOVEN FIBERGLASS | DISPERSED POLYESTER | POLYESTER | FIBERGLASS | FIBERGLASS | POLYESTER | IDEM | FIBERGLASS | IDEM | FIBERGLASS | SPUNBOND POLYESTER |
| BLACK .88 | RD/WH/GR/BRN .95 | BLACK .50 | BLACK .40 | BLACK .83 | BLACK VARIOUS | VARIOUS .73 | VARIOUS .99 | VARIOUS .99 | BLACK .88 | BLACK .88 | VARIOUS .99 | BLACK .88 |
| NONE | NONE | NONE | NONE | OPT.ALUM OR ACRYLIC | OPT.ALUM OR ACRYLIC | NONE | NONE | NONE | OPTIONAL ALUM PAINT | OPTIONAL ALUM PAINT | NONE | OPTIONAL ALUM PAINT |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| TORCH | TORCH | HOT AIR WELDING | HOT ASPHALT WELDING | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH |
| TORCH | TORCH | 10 LBS HOT ASPHALT HOT ASPHALT | HOT ASPHALT | 10 TORCH TORCH | 10 TORCH TORCH | TORCH TORCH | TORCH TORCH | TORCH TORCH | TORCH TORCH | 10 TORCH TORCH | TORCH TORCH | 10 TORCH TORCH |
| DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | 1/4" | 1/4" | 1/4" | 1/4" | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| X<br>X<br>X<br>ANY SKINNED INSUL,WOOD, METAL,CONCR, PROTECTION BOARD | X<br>X<br>X<br>ANY SKINNED INSUL,WOOD, METAL,CONCR, PROTECTION BOARD | X<br>X<br>X | X<br>X<br>GLASS FIBER BASE SHEET | X<br>X<br>X | X<br>X | X<br>X | X<br>X | X<br>X<br>X<br>FELT BASE SHEET WHEN REQUIRED | X<br>X<br>X<br>FELT BASE SHEET WHEN REQUIRED | X<br>X<br>X<br>FELT BASE SHEET WHEN REQUIRED | X<br>X<br>X<br>FELT BASE SHEET WHEN REQUIRED | X<br>X<br>X<br>FELT BASE SHEET WHEN REQUIRED |
| NONE 10 F-120 F | NONE 10 F-120 F | X -30 F-150 F | NONE 40 F-110 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F | NONE 40 F-120 F |
| SAME MATERIAL | SAME MATERIAL | ECB COLD ADHESIVE | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | ECB | SAME MATERIAL |
| TORCH | TORCH | HOT ASPHALT | HOT ASPHALT/ COLD MASTIC | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH |
| NO | NO | YES | NO | NO | NO | NO | NO | NONE | NONE | NONE | NONE | NONE |
| ITALY ITALY | ITALY ITALY | W GERMANY USA | ENGLAND USA | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY | ITALY ITALY |
| 1960 1978- NEW JERSEY | 1960 1978- NEW JERSEY | 1964 1982- ST LOUIS | 1965 1976- CLEVELAND | 1968 1980- DETROIT | 1966 1980- DETROIT | 1972 1981- CLEVELAND | 1972 1981- DALLAS | 1978 | 1978 1980- NEW YORK | 1978 | 1978 | 1978 1980- NEW YORK |
| >1,000,000 50,000 | >1,000,000 50,000 | 15,500,000 16,000 | >5,000,000 200,000 | 3,000,000 50,000 | 3,500,000 25,000 | 1,000,000 7,500 | 1,500,000 10,000 | 100,000 | 2,000,000 15,000 | 200,000 | 1,000,000 600 | 1,200,000 30,000 |
| 10 | 10 | 10 | 10 | 10 | 5 + 5 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| X | X | X | X<br>X | X | X | X | X | X | X | X | X | X |
| X | X | X<br>X | X | X | X | X | X | X | X | X | X | X |
| X<br>X | X<br>X | X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| | | SEE SPECS | NONE | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | | | | | |
| DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTOR DIRECT | DISTRIBUTOR DIRECT | DISTRIBUTOR DIRECT | DISTRIBUTOR DIRECT | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS |
| 23<br>NO | 23<br>NO | 12<br>YES | 12<br>NO | 2<br>YES | 2<br>YES | 2<br>YES | 2<br>YES | 3<br>NO | 3<br>NO | 3<br>NO | 3<br>NO | 3<br>NO |
| FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS, FACTORY | FIELD | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| B MITZMAN<br>B MITZMAN | B MITZMAN<br>B MITZMAN | H MUENCH<br>H MUENCH | A W HARKNESS<br>R BONAFONT | G CALABRESE<br>G CALABRESE | G CALABRESE<br>G CALABRESE | G CALABRESE<br>G CALABRESE | G CALABRESE<br>G CALABRESE | | | | | |
| 40 | 40 | 40 | 40 | 40 | 40 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | INDEX SPA TECHOLOGIE IMPERMEABILI | J&P PETROLEUM PRODUCTS | KELLY ENERGY SYSTEMS, INC. | MALARKEY ROOFING COMPANY | | MINERAL FIBER MANUFACTURING CORPORATION | NEBIPROFA/CENTRAL SOYA COMPANY, INC. | | |
|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | MINERAL TESTUDO 4,5 | AQUASEL 2001 AD | SINGLE-STEP BUR | MHP POLYESTER CAP | MHP GLASS CAP | BITUFLEX | POLROOF MAXIMUM MINERAL | COLFLEX | POLROOF MAXIMUM |
| 3. PRODUCT DESCRIPTION: | | | | | | | | | |
| A. TYPE OF BITUMEN MODIFIER | | SBS | | SBS | SBS | APP | APP | SBS | APP |
| B. THICKNESS (MILS) | 172 | 60 +/- 5 | 150 | 100 | 100 | 150 | 138 | 118 | 138 |
| C. TOP SURFACE | GRANULAR | POLYETHYLENE | MOD BITUMEN | GRANULE | GRANULE | MODIFIED BITUMEN | SLATE GRANULE | SAND | TALCUM |
| D. REINFORCEMENT MATERIAL | IDEM | POLYESTER POLYESTER | POLYESTER | POLYESTER | FIBERGLASS | POLYESTER | POLYESTER | POLYESTER | POLYESTER |
| E. COLOR | VARIOUS | GREY/BLACK | BLACK | VARIOUS | WHITE | BLACK | GREY | BLACK | BLACK |
| F. INSTALLED WT (lbs/ft² W/O BALLAST) | .99 | .80 | .88 | 1.0 | .80 | | 0.92 | 0.82 | 0.82 |
| 4. COATING REQUIRED | NONE | YES | ALUMINUM RECOMMENDED | NONE | NONE | RECOMMENDED | NONE | YES | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | TORCH | SELF-ADHERED | TORCH | HOT ASPHALT | HOT ASPHALT | TORCH | TORCH | TORCH | TORCH |
| 7. TYPE OF ROOF SYSTEM: | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | | | | | | TORCH | | | |
| B. PARTIALLY ADHERED (METHOD) | TORCH | | | | | | | | |
| C. FULLY ADHERED (METHOD) | TORCH | PRIMER | TORCH | HOT ASPHALT | HOT ASPHALT | | TORCH | TORCH | TORCH |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | | | | | | | | | |
| 8. MINIMUM SLOPE | DEAD LEVEL | DEAD LEVEL | 1/4" PER FT | 1/4" | 1/4" | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| 9. USE OVER: | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X | | | |
| B. POLYURETHANE | X | | X | | | X | X* | X* | X* |
| C. WOOD FIBER | X | X | X | X | X | X | X* | X* | X* |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | | X | | | X | X** | X** | X** |
| F. FELT FACED COMPOSITES | X | | X | X | X | X | X* | X* | X* |
| G. OTHER | FELT BASE SHEET WHEN REQUIRED | CONCRETE, STEEL | BASE SHEET REQ OVER NON REINFORCED INSULATION | | | X | *PERFO TORCH REQUIRED **BIT GLASS FIBRE FACING INCL | *PERFO TORCH REQUIRED **BIT GLASS FIBRE FACING INCL | *PERFO TORCH REQUIRED **BIT GLASS FIBRE FACING INCL |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | | 1 | NONE | NONE | NONE | | | |
| 11. WORKABLE TEMPERATURE RANGE | 40 F-120 F | 40 F MIN | 0 F-120 F | 20 F-100 F | 40 F-100 F | 0 F-120 F | 15 F-115 F | 15 F-115 F | 15 F-115 F |
| 12. FLASHING MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MEMBRANE | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| 13. FLASHING METHOD | TORCH | PRIMER | TORCH | HOT ASPHALT | HOT ASPHALT | TORCH | TORCH | TORCH | TORCH |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | NONE | YES | NO | UNNECESSARY | UNNECESSARY | NO | | | |
| 15. COUNTRY: A. ORIGIN | ITALY | USA | USA | W GERMANY | | USA | HOLLAND | HOLLAND | HOLLAND |
| B. MANUFACTURE | ITALY | USA | USA | USA | USA | USA | HOLLAND | HOLLAND | HOLLAND |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1978 | 1983 | 1970 | | | | 1980 | 1977 | 1980 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1980-NEW YORK | 1983-DENVER | 1984-WATERBURY | 1982-SEATTLE | 1982-SPOKANE | | 1984 | 1984 | 1984 |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | 800,000 | | | | | | 200,000 | 500,000 | 200,000 |
| B. USA | 1,000 | | | | | | 5,000 | 5,000 | 5,000 |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | | 5 OR 10 | 5 OR 10 | 12 & 15 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | YES | YES | NO | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | X | X | | | | | X | X | X |
| C.2 WORKMANSHIP & MAT'L | | | | X | X | X | | | |
| D. MONETARY LIMITATION D.1 NONE | | | | X | X | X | | | |
| D.2 ORIG. COST OF INSTALT'N | X | X | | | | | | | |
| D.3 $ PER SQUARE | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | | X | X | X | | | |
| E.2 CONSEQUENTIAL DAMAGES | X | X | | X | X | X | | | |
| 19. LIMITATIONS OR RESTRICTED USE | | | | | | | SEE SPECS | SEE SPECS | SEE SPECS |
| 20. METHOD OF DISTRIBUTION | DISTRIBUTORS | DIRECT/DIST | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS |
| 21. NUMBER OF REGIONAL LOCATIONS | 3 | | 62 | | | PENDING | | | |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | NO | YES | NO | X | X | YES | | | |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | FIELD, SEMINARS | FIELD, FACTORY, SEMINARS | FIELD, SEMINARS | FIELD & FACTORY | FIELD & FACTORY | FIELD, SEMINARS | | | |
| 24. SALES INFORMATION CONTACT | | R WOOD | T ARRAS A POREMBA | J CLENAGHEN | J CLENAGHEN | S FOSTER | S DAILEY | S DAILEY | S DAILEY |
| 25. TECHNICAL INFORMATION CONTACT | | R WOOD | T ARRAS A POREMBA | K WOODSIDE | K WOODSIDE | R SIMPSON | S DAILEY | S DAILEY | S DAILEY |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 41 | 42 | 42 | 42 | 42 | 42 | 42 | 43 | 43 |
| 27. SEE APPENDIX PAGE | | | | | | | | | |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| NEBIPROFA/CENTRAL SOYA COMPANY, INC. | | | NORD BITUMI U.S., INC. | | | | | OWENS-CORNING FIBERGLAS CORPORATION | | ROYAL OIL COMPANY | SAM BUILDING PRODUCTS COMPANY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| COLFLEX MINERAL | COLROOF | PERFO-TORCH SBS VENTING BASE SHEET | NORDPOLY 4M | NORDFLEX M | NORDFLEX S | NORDPOLY 5B | NORDPOLY 4B | OWENS-CORNING DERBIGUM HPS | OWENS-CORNING DERGIBUM SP | ROYAL SINGLE-PLY | SAM |
| SBS 138 | OXIDIZED 60 | SBS 60 | APP 160 | SBS 160 | SBS 160 | APP 200 | APP 160 | APP 160 | APP 160 | APP 150 | SBS 75 |
| SLATE GRANULE | TALCUM | POLYETHYLENE | MINERAL | MINERAL | SMOOTH | SMOOTH | SMOOTH | MOD BITUMEN | MOD BITUMEN | MOD BITUMEN | POLY-PROPYLENE |
| POLYESTER | POLYESTER | GLASS FIBRE | POLYESTER | POLYESTER | POLYESTER | POLYESTER | POLYESTER | POLYESTER GLASFIBER MAT/WEB | POLYESTER GLASFIBER MAT | POLYESTR NON WOVEN FABRIC | POLY-PROPYLENE |
| GREY 0.92 | BLACK 0.41 | BLACK 0.32 | SLATE GREY .95 | SLATE GREY .95 | BLACK .90 | BLACK 1.1 | BLACK 0.88 | BLACK 1.0 | BLACK 1.0 | BLACK .88 | GREY-BLACK .40 |
| NONE | YES | | NONE | NONE | ALUMINUM (AS RECOMMENDED) | ALUMINUM (AS RECOMMENDED) | ALUMINUM (AS RECOMMENDED) | NONE | NONE | ALUMINUM | YES |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>N/A | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| TORCH | MOP | | TORCH | HOT MOP/ TORCH | HOT MOP/ TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | SELF-ADHERNG |
| TORCH | X<br>X<br>X<br>X | LOOSE<br>X | N/A<br>TORCH<br>TORCH<br>N/A | HOT MOP/TORC<br>HOT MOP/TORC<br>N/A | 10<br>HOT MOP/TORC<br>HOT MOP/TORC<br>HOT MOP/TORC | 10<br>TORCH<br>TORCH<br>TORCH | 10<br>TORCH<br>TORCH<br>TORCH | TORCH | TORCH | X<br>TORCH | X<br>SELF-ADHERNG<br>X |
| DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| X*<br>X* | X<br>X*<br>X | X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X*<br>X*<br>X* | X*<br>X*<br>X* | X<br>X<br>X | X<br>X* |
| X<br>X**<br>X*<br>*PERFO TORCH REQUIRED<br>**BIT GLASS FIBRE FACING INCL | X<br>X**<br>X**<br>*PERFO TORCH REQUIRED<br>**BIT GLASS FIBRE FACING INCL | X<br>X**<br>*PERFO TORCH REQUIRED<br>**BIT GLASS FIBRE FACING INCL | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X*<br>X*<br>X*<br>*OVERLAYMENT REQD | X*<br>X*<br>X*<br>*OVERLAYMENT REQUIRED | X<br>X | X<br>X<br>DIRECT TO CONCRETE,WD, BUR,OTHER MB METAL,EXIST BUR*PRM REQ |
| 15 F-115 F | 15 F-115 F | 15 F-115 F | NONE<br>40 F-110 F | NONE<br>40 F-110 F | NONE<br>40 F-110 F | NONE<br>40 F-110 F | NONE<br>0 F-110 F | NONE<br>25 F-140 F | NONE<br>25 F-140 F | 0 F-120 F | NONE<br>40 F-120 F |
| SAME MATERIAL | | | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| TORCH | X | | TORCH | HOT MOP/ TORCH | HOT MOP/ TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | SELF-ADHERNG |
| | | | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | NO | NO | NO | NONE |
| HOLLAND<br>HOLLAND | HOLLAND<br>HOLLAND | HOLLAND<br>HOLLAND | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>USA | USA<br>USA |
| 1977<br>1984 | 1972 | 1984 | 1967<br>1983-CHICAGO | 1977<br>1984-DALLAS | 1977<br>1984-DALLAS | 1967<br>1983-NEWARK | 1967<br>1976-DETROIT | 1981-<br>KANSAS CITY | 1978-<br>VALLEY FORGE | 1961<br>1978-DETROIT | 1979-<br>GREENVILLE |
| 500,000<br>5,000 | 2,000,000 | 40,000 | 10,000,000<br>3,000 | 1,000 | 6,000,000<br>1,000 | 4,000<br>1,000 | 15,000,000<br>100,000 | NOT REPORTED | >15,000,000<br>NOT REPORTED | NONE<br>21,000 | 28,000 |
| 10<br>X | | | 5/10<br>+5/-<br>X/-<br>-/X | 5/10<br>+5/-<br>X/-<br>-/X | 5/10<br>+5/-<br>X/-<br>-/X | 5/10<br>+5/-<br>X/-<br>-/X | 5/10<br>+5/-<br>X/-<br>-/X | 10<br>X | 10<br>X | 6<br>+6 ALUM CTG<br>X | 5<br>+5+5<br>X |
| | | | -/X | -/X | -/X | -/X | -/X | X | X | | X |
| | | | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X |
| SEE SPECS | SEE SPECS | SEE SPECS | | | | | | | | | |
| DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS<br>3<br>YES | DISTRIBUTORS<br>3<br>YES | DISTRIBUTORS<br>3<br>YES | DISTRIBUTORS<br>3<br>YES | DISTRIBUTORS<br>3<br>YES | DISTR/DIRECT<br>THRU-OUT USA<br>YES | DISTR/DIRECT<br>THRU-OUT USA<br>YES | SALES FORCE<br>THRU-OUT USA<br>NO | DIRECT/<br>SOME DISTRS<br>50<br>YES |
| | | | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| S DAILEY<br>S DAILEY | S DAILEY<br>S DAILEY | S DAILEY<br>S DAILEY | J SCHUBERT<br>G LUBISCO | J SCHUBERT<br>G LUBISCO | J SCHUBERT<br>G LUBISCO | J SCHUBERT<br>G LUBISCO | J SCHUBERT<br>G LUBISCO | LOCAL BRANCH OFF<br>LOCAL BRANCH OFF | LOCAL BRANCH OFF<br>LOCAL BRANCH OFF | P PATE<br>ROYAL OIL CO | D WICKS<br>D WICKS |
| 43 | 43 | 43 | 43 | 43 | 43 | 44 | 44 | 44 | 44 | 44 | 44 |

# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| | SIPLAST, INCORPORATED | | | | | | | | SOPREMA ROOFING & WATERPROOFING, INC. | |
|---|---|---|---|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | | | | | | | | | | |
| **2. PRODUCT NAME** | PARADIENE-20 | VERAL (ALUM FACED) | PARADIENE 20 PR | PARADIENE 40 | VERAL (STAIN/ STEEL) | VERAL (COPPER) | PARAFOR-50 | PARADIENE-30 | SOPRALAST 180 S3 S/PP | SOPRALAST 180 S4 GRANULES |
| **3. PRODUCT DESCRIPTION:** | | | | | | | | | | |
| A. TYPE OF BITUMEN MODIFIER | SBS | SBS | SBS | SBS | SBS | SBS | SBS | SBS | SBS | SBS |
| B. THICKNESS (MILS) | 90 | 130 | 90 | 137 | 130 | 130 | 150 | 95 | 120 | 160 |
| C. TOP SURFACE | PLAIN | ALUMINUM | PLAIN | | STAIN/STEEL | COPPER | MINERAL | MINERAL | PLAIN | MINERAL |
| D. REINFORCEMENT MATERIAL | GLASS MAT | GLASS SCRIM | FIBERGLASS POLYESTER | FGLS MAT FGLS SCRIM | GLASS SCRIM | GLASS SCRIM | POLYESTER | GLASS MAT | NON WOVEN POLYESTER | NON WOVEN POLYESTER |
| E. COLOR | BLACK | ALUMINUM | BLACK | VARIOUS | STAIN/STEEL | COPPER | VARIOUS | VARIOUS | BLACK | VARIOUS |
| F. INSTALLED WT (lbs/ft² W/O BALLAST) | .48 | .86 | .48 | 1.06 | .86 | .86 | 1.47 | .77 | .88 | 1.06 |
| **4. COATING REQUIRED** | PARADIENE 30 | NONE | PARADIENE 30 | NONE | NONE | NONE | NONE | NONE | ALUMINIUM AS RECOM´DED | NONE |
| **5. USE:** A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| **6. FIELD LAP JOINT METHOD** | HOT ASPHALT | HOT/TORCH | HOT ASPHALT | | HOT/TORCH | HOT/TORCH | HOT/TORCH | | TORCH | TORCH |
| **7. TYPE OF ROOF SYSTEM:** | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | | | | | | | | | X | X |
| B. PARTIALLY ADHERED (METHOD) | HOT ASPHALT | | HOT ASPHALT | | | | | | X | X |
| C. FULLY ADHERED (METHOD) | HOT ASPHALT | HOT/TORCH | HOT ASPHALT | HOT ASPHALT | HOT/TORCH | HOT/TORCH | HOT/TORCH | HOT ASPHALT | TORCH | TORCH |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | HOT ASPHALT | | HOT ASPHALT | HOT ASPHALT | | | | HOT ASPHALT | TORCH | |
| **8. MINIMUM SLOPE** | DEAD LEVEL | 1/2 INCH | DEAD LEVEL | | 1/2 INCH | 1/2 INCH | 1/2 INCH | DEAD LEVEL | 1/2" | 1/2" |
| **9. USE OVER:** | | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X | X | | X | X |
| B. POLYURETHANE | | | | | | | | | X | X |
| C. WOOD FIBER | X | X | X | X | X | X | X | | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | | X | X |
| E. EXPANDED POLYSTYRENE | | | | | | | | | X | X |
| F. FELT FACED COMPOSITES | | | | | | | | | X | X |
| G. OTHER | CELLULAR GLASS ALWAYS USE W/FG BASE SH AS A SYSTEM | CELLULAR GLASS ALWAYS USE W/FG BASE SH AS A SYSTEM | ALWAYS USE WITH PARADIENE 30 AS A SYSTEM | ALWAYS USE WITH IREX-XP AS A SYSTEM | CELLULAR GLASS ALWAYS USE W/FG BASE SH AS A SYSTEM | CELLULAR GLASS ALWAYS USE W/FG BASE SH AS A SYSTEM | CELLULAR GLASS | ALWAYS USE WITH PARADIENE 20 AS A SYSTEM | CONCRETE, GYPSUM PLYWOOD | CONCRETE, GYPSUM PLYWOOD |
| **10. RESTRICTED REGIONS** (REFER TO MFRS LITERATURE) | | | | | | | | | SEE SOPREMA | SEE SOPREMA |
| **11. WORKABLE TEMPERATURE RANGE** | | | | | | | | | 30 F - 120 F | 30 F - 120 F |
| **12. FLASHING MATERIAL** | VERAL | SAME MATERIAL | VERAL | VERAL | SAME MATERIAL | SAME MATERIAL | SAME/VERAL | VERAL | SAME MATERIAL | SAME MATERIAL |
| **13. FLASHING METHOD** | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH |
| **14. PRE-FORMED ACCESSORIES AVAILABLE** YES/NO | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY | NO | NO |
| **15. COUNTRY:** A. ORIGIN | FRANCE | FRANCE | FRANCE | FRANCE | FRANCE | FRANCE | FRANCE | FRANCE | FRANCE | FRANCE |
| B. MANUFACTURE | USA | FRANCE | USA | USA | FRANCE | FRANCE | FRANCE | USA | FRANCE | FRANCE |
| **16. YEAR FIRST COMMERCIAL USE:** A. FOREIGN (YEAR) | 1968 | | | | | | | 1968 | 1980 | 1980 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1979- JACKSONVILLE | | | | | | | 1979- JACKSONVILLE | 1984 | 1984 |
| **17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²)** A. FOREIGN | | | | | | | | | 5,000 | 10,000 |
| B. USA | | | | | | | | | | |
| **18. WARRANTY** (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | X | | X | X | X | X | X | X | X |
| D.2 ORIG. COST OF INSTALT'N | | | | | | | | | | |
| D.3 $ PER SQUARE | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| **19. LIMITATIONS OR RESTRICTED USE** | SEE SIPLAST | SEE SIPLAST | SEE SIPLAST | SEE SIPLAST | SEE SIPLAST | SEE SIPLAST | SEE SIPLAST | SEE SIPLAST | SEE SOPREMEA | SEE SOPREMEA |
| **20. METHOD OF DISTRIBUTION** | DIRECT | DIRECT | DIRECT | DIRECT | DIRECT | DIRECT | DIRECT | DIRECT | DIRECT/ DISTRS/REPS | DIRECT/ DISTRS/REPS |
| **21. NUMBER OF REGIONAL LOCATIONS** | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **22. LICENSED APPLICATOR AGREEMENT (YES/NO)** | YES | YES | YES | YES | YES | YES | YES | YES | X | X |
| **23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)** | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY |
| **24. SALES INFORMATION CONTACT** | J MOLLENHOFF | J MOLLENHOFF | J MOLLENHOFF | J MOLLENHOFF | J MOLLENHOFF | J MOLLENHOFF | J MOLLENHOFF | J MOLLENHOFF | B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492 |
| **25. TECHNICAL INFORMATION CONTACT** | BAUMGARDNER | BAUMGARDNER | BAUMGARDNER | BAUMGARDNER | BAUMGARDNER | BAUMGARDNER | BAUMGARDNER | BAUMGARDNER | B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492 |
| **26. FOR TECHNICAL INFORMATION SEE PAGE(S)** | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 46 |
| **27. SEE APPENDIX PAGE** | | | | | | | | | | |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| SOPREMA ROOFING & WATERPROOFING INC. | | | | | | SOUTHWESTERN PETROLEUM COMPANY | TAMKO ASPHALT PRODUCTS INC. | TELTEX, INC. | TEXAS REFINERY CORP. | TREMCO, INC. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SOPRALENE GRANULES | ELASTOPHENE | ELASTOPHENE GRANULES | MAMMOUTH ALU | MAMMOUTH COPPER | MAMMOUTH STAINLESS STEEL | SWEPCO UNI+SHIELD | AWAPLAN | RHOFLEX | MIGHTYPLATE | THERM MB 3G40 | THERM MB 4G40 |
| SBS 160 | SBS 90 | SBS 90 | SBS 130 | SBS 130 | SBS 130 | APP 150 | SBS 160 | SBS/APP 160 | APP 157 | SBS | SBS |
| MINERAL | PLAIN | MINERAL | ALUMINIUM | COPPER | STAINLESS STEEL | MODIFIED ASPHALT | GRANULE | CAN BE COATD | MODIFIED BITUMEN | GRANULE | GRANULE |
| NON WOVEN POLYESTER | GLASS MAT | GLASS MAT | GLASS TISSUE | GLASS TISSUE | GLASS TISSUE | POLYESTER | POLYESTER | POLYESTER | POLYESTER NON-WOVEN FABRIC | WOVEN GLASS POLYESTER | WOVEN GLASS POLYESTER |
| VARIOUS 1.05 | BLACK .50 | VARIOUS .77 | NATURAL/RED .85 | NATURAL .90 | NATURAL .98 | BLACK .88 | WHITE/BLACK 1.05 | BLACK .88 | BLACK .88 | | |
| NONE | SOPRALENE GR /ELASTOPHENE | NONE | NONE | NONE | NONE | | COATING FOR UL APPROVAL | NONE | ALUMINUM | NONE | NONE |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| HOT/TORCH | HOT ASPHALT | HOT/TORCH | HOT/TORCH | TORCH | TORCH | | HT ASPH/TRCH | TORCH | TORCH | HOT MELT MOD BITUMEN | HOT MELT MOD BITUMEN |
| X<br>X<br>HOT/TORCH | X<br>X<br>HOT ASPHALT<br>HOT ASPHALT | HOT ASPHALT | HOT/TORCH | TORCH | TORCH | X<br>X | HT ASPH/TRCH | TORCH<br>DOW IRMA | X<br>X | X | X |
| 1/2" | DEAD LEVEL | DEAD LEVEL | 1/2" | 1/2" | 1/2" | 1/4" | 1/4" PER FT | DEAD LEVEL | DEAD LEVEL | 1/4" | 1/4" |
| X<br>X<br>X | X<br>X<br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br>X<br>X | X<br>SEE TAMKO<br>X | X<br>X<br>X | X<br>X | X*<br>X | X*<br>X |
| X<br>X<br>X<br>CELLULAR GLS CONCRETE PLYWOOD | X<br>X<br>X<br>CELLULAR GLS ALWAYS USE ELASTOPHENE GR OR SOPRA-LENE GR | X<br>X<br>X<br>CELLULAR GLS ALWAYS USE ELASTOPHENE | X<br><br>X<br>CONCRETE | X<br><br>X<br>CELLULAR GLS | X<br><br>X<br>CELLULAR GLS CONCRETE | X<br><br>X<br>X | X<br>SEE TAMKO<br>X<br>CELLULAR GLASS | X<br>X<br>X<br>X | X<br><br>X | X<br>X*<br>X*<br>*OVERLAYMENT REQUIRED | X<br>X*<br>X*<br>*OVERLAYMENT REQUIRED |
| NONE<br>15 F - 120 F | NONE<br>30 F - 120 F | SEE SOPREMA<br>30 F - 120 F | NONE<br>30 F - 120 F | NONE<br>30 F - 120 F | NONE<br>30 F - 120 F | 5 F-125 F | NONE<br>SEE TAMKO | ALASKA<br>0 F-130 F | 0 F-120 F | NONE<br>SEE TREMCO | NONE<br>SEE TREMCO |
| SAME MATERIAL | MAMMOUTH ALU OR SOPRALENE | MAMMOUTH ALU OR SOPRALENE | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATL OR VERSA-FLASH | SAME MATERIAL | SAME MATERIAL | SEE TREMCO | SEE TREMCO |
| TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | TORCH | HOT ASPHALT/ TORCH | TORCH | TORCH | SEE TREMCO | SEE TREMCO |
| NO | NO | NO | NO | NO | NO | UNNECESSARY | UNNECESSARY | NO | NO | X | X |
| FRANCE<br>FRANCE | FRANCE<br>FRANCE | FRANCE<br>FRANCE | FRANCE<br>FRANCE | FRANCE<br>FRANCE | FRANCE<br>FRANCE | USA | W GERMANY<br>USA | ITALY<br>USA & ITALY | USA | AUSTRIA<br>USA | AUSTRIA<br>USA |
| 1975<br>1984 | 1975<br>1984 | 1978<br>1984 | 1935<br>1984 | | | 1963<br>1981-<br>FORT WORTH | 1970<br>1978-<br>GRAND RAPIDS | 1970<br>1977-<br>WESTCHESTER | 1961<br>1981-<br>FORT WORTH | 1972<br>1984 | 1972<br>1984 |
| MILLIONS | MILLIONS | MILLIONS | MILLIONS | | | 100'S OF M'S | NOT AVAIL<br>NOT REPT'D | MILLIONS<br>100'S OF M'S | 1,000<br>THOUSANDS | | |
| 10<br>NO<br><br>X | 10<br>NO<br><br>X | 10<br>NO<br><br>X | 10<br>NO<br><br>X | 10<br>NO<br><br>X | 10<br>NO<br><br>X | 12<br>YES<br>X<br>X | 10<br>NO<br><br>X | 10+5;15<br>X<br><br>X | 12<br>NO<br>X | 10<br><br>X | 10<br><br>X |
| X | X | X | X | X | X | YES<br>X<br>X | <br><br>250 | X | | X | X |
| X<br>X | X<br>X | X<br>X | X | X | X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| SEE SOPREMEA | SEE SOPREMEA | SEE SOPREMEA | SEE SOPREMEA | SEE SOPREMEA | SEE SOPREMEA | SEE SWEPCO | SEE TAMKO | | CONTACT TRC | SEE TREMCO | SEE TREMCO |
| DIRECT/ DISTRS/REPS<br>5<br>X | DIRECT/ DISTRS/REPS<br>5<br>X | DIRECT/ DISTRS/REPS<br>5<br>X | DIRECT/ DISTRS/REPS<br>5<br>X | DIRECT/ DISTRS/REPS<br>5<br>X | DIRECT/ DISTRS/REPS<br>5<br>X | DIRECT<br><br>EVERY STATE | DISTRS<br><br>10<br>X | DISTRS<br><br>35<br>YES | DIRECT<br><br>USA/CANADA<br>YES | LOCAL SALES REPS<br>18<br>YES | LOCAL SALES REPS<br>18<br>YES |
| FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY |
| B SPIVEY 404/885-1492<br>B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492<br>B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492<br>B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492<br>B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492<br>B SPIVEY 404/885-1492 | B SPIVEY 404/885-1492<br>B SPIVEY 404/885-1492 | J ASHWORTH<br>R NIMRI | P DANIELS<br>K BLANCHARD | G ROWBOTHAM<br>M BOCKH | L GROCE<br>J M MCGEE | P MITCHELL<br>K BRZOZOWSKI | P MITCHELL<br>K BRZOZOWSKI |
| 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |

# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | TREMCO, INC. | | TRI-PLY INC. | TROPICAL INDUSTRIAL COATINGS, INC. | | U.S. INTEC, INCORPORATED | VILLAS ROOFING SYSTEMS INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | THERM MB 3G255 | THERM MB 3G25 | TP-4 | TROPISEAL APP-MS | TROPISEAL APP-4 | BRAI SP4 | EP5M | EW4AL | EP4M | EW3.5M |
| 3. PRODUCT DESCRIPTION: | | | | | | | | | | |
| A. TYPE OF BITUMEN MODIFIER | SBS | SBS | APP | APP | APP | APP | SBS | SBS | SBS | SBS |
| B. THICKNESS (MILS) | | | 157 | 157 | 157 | 150 | 200 | 160 | 160 | 140 |
| C. TOP SURFACE | SMOOTH | GRANULE | MODIFIED BITUMEN | SLATE GRANULES | MODIFIED BITUMEN | MODIFIED BITUMEN | MINERAL | EMBOSSED ALUMINUM | MINERAL | MINERAL |
| D. REINFORCEMENT MATERIAL | WOVEN GLASS POLYESTER | WOVEN GLASS POLYESTER | POLYESTER | NON-WOVEN POLYESTER | NON-WOVEN POLYESTER | POLYESTER | POLYESTER | WOVEN FIBERGLAS | POLYESTER | WOVEN FIBERGLAS |
| E. COLOR | | | BLACK | WHITE | GREY/BLACK | BLACK | GREY | ALUMINUM | GREY | GREY |
| F. INSTALLED WT (lbs/ft² W/O BALLAST) | | | .88 | .88 | .88 | .88 | 1.40 | 1.07 | 1.12 | .97 |
| 4. COATING REQUIRED | MULTIPLE OPTIONS | NONE | YES | NONE | RECOMMENDED, NOT REQ'D | ALUMINUM | NONE | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | HOT MELT MOD BITUMEN | HOT MELT MOD BITUMEN | TORCH | TORCH | TORCH | TORCH | HOT AIR TORCH | HT AIR, TORCH HOT ASPHALT | HT AIR, TORCH HOT ASPHALT | HOT AIR HOT ASPHALT |
| 7. TYPE OF ROOF SYSTEM: | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | | | X | | 10 | | 10 | | 10 | 10 |
| B. PARTIALLY ADHERED (METHOD) | | | | TORCH | TORCH | | | | | |
| C. FULLY ADHERED (METHOD) | X | X | X | TORCH | TORCH | TORCH | TORCH | H.A. TORCH | HOT ASPHALT | HOT ASPHALT |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | | | | | | | | | | |
| 8. MINIMUM SLOPE | 1/4" | 1/4" | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | POS. DRAIN | POS. DRAIN | POS. DRAIN | POS. DRAIN |
| 9. USE OVER: | | | | | | | | | | |
| A. PERLITE | | | X | X | X | X | X | X | X | X |
| B. POLYURETHANE | X* | X* | X | X | X | X | SEE VILLAS | SEE VILLAS | SEE VILLAS | SEE VILLAS |
| C. WOOD FIBER | X | X | X | X | X | X | X | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X* | X* | X | X | X | X | SEE VILLAS | SEE VILLAS | SEE VILLAS | SEE VILLAS |
| F. FELT FACED COMPOSITES | X* | X* | X | X | X | X | SEE VILLAS | SEE VILLAS | SEE VILLAS | SEE VILLAS |
| G. OTHER | *OVERLAYMENT REQUIRED | *OVERLAYMENT REQUIRED | BASE SHEET REQUIRED OVER ALL INSULATIONS | BASE SHEET OVER NON-FACED INSULATION | BASE SHEET OVER NON-FACED INSULATION | BASE SHEET OVER NON-FACED INSULATION | BASE SHEET REQUIRED | BASE SHEET REQUIRED | BASE SHEET REQUIRED | BASE SHEET REQUIRED |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | SEE VILLAS | SEE VILLAS | SEE VILLAS | SEE VILLAS |
| 11. WORKABLE TEMPERATURE RANGE | SEE TREMCO | SEE TREMCO | 0 F-120 F | 0 F-125 F | 0 F-125 F | 0 F-120 F | 20 F-115 F | 20 F-115 F | 20 F-115 F | 20 F-115 F |
| 12. FLASHING MATERIAL | SEE TREMCO | SEE TREMCO | SAME MATERIAL | SAME MATERIAL & APP-4 | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| 13. FLASHING METHOD | SEE TREMCO | SEE TREMCO | TORCH | TORCH | TORCH | TORCH | TORCH | HOT ASPHALT TORCH | HOT ASPHALT COLD ADHESIVES | HOT ASPHALT COLD ADHESIVES |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | X | X | NO | NO | NO | NO | UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY |
| 15. COUNTRY: A. ORIGIN | AUSTRIA | AUSTRIA | USA | ITALY | ITALY | ITALY | AUSTRIA | AUSTRIA | AUSTRIA | AUSTRIA |
| B. MANUFACTURE | USA | USA | USA | ITALY | USA | USA | USA | USA | USA | USA |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1972 | 1972 | | 1983 | 1965 | 1961 | 1975 | 1976 | 1974 | 1974 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1984 | 1984 | DETROIT | 1985-CLEVELAND | 1979-MICHIGAN | 1978-DETROIT | 1984 | 1985 | 1984 | 1983 |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | | | | 600,000 | | 10,000,000 | 600,000 | 32,000 | 2,200,000 | 3,000,000 |
| B. USA | | | 150,000+ | >600 | | <700,000 | | | | |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 10 | 12 | 10 | 5 OR 10 | 12 | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | NO | NO | NO | NO | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | X | X | X | | | | X | X | X | X |
| C.2 WORKMANSHIP & MAT'L | | | | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | X | X | X | X | | | | |
| D.2 ORIG. COST OF INSTALT'N | X | X | | | | | | | | |
| D.3 $ PER SQUARE | | | | | | | $250/SQ. | $250/SQ. | $250/SQ. | $250/SQ. |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | SEE TREMCO | SEE TREMCO | SEE TRI-PLY | SEE APPENDIX | SEE APPENDIX | | SEE VILLAS | SEE VILLAS | SEE VILLAS | SEE VILLAS |
| 20. METHOD OF DISTRIBUTION | LOCAL SALES REPS | LOCAL SALES REPS | DISTRIBUTORS | SALES FORCE/ DISTRS | SALES FORCE/ DISTRS | DISTRS | DISTRIBUTOR | DISTRIBUTOR | DISTRIBUTOR | DISTRIBUTOR |
| 21. NUMBER OF REGIONAL LOCATIONS | 18 | 18 | 50 | 3 | 3 | 12 | | | | |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | YES | YES | NO | NO | YES | | | | |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | SEMINARS, FACTORY | FIELD, SEMINARS FACTORY | FIELD, SEMINARS FACTORY | FIELD, SEMINARS FACTORY | FIELD, SEMINARS FACTORY |
| 24. SALES INFORMATION CONTACT | P MITCHELL | P MITCHELL | JAMES RIZZO | TROPICAL | TROPICAL | BAILY KING | G AMHAUS | G AMHAUS | G AMHAUS | G AMHAUS |
| 25. TECHNICAL INFORMATION CONTACT | K BRZOZOWSKI | K BRZOZOWSKI | JERRY KJERRUMGAARD | TROPICAL | TROPICAL | C NOBLE | M HATTEN | M HATTEN | M HATTEN | M HATTEN |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 48 | 48 | 48 | 48 | 48 | 48 | 49 | 49 | 49 | 49 |
| 27. SEE APPENDIX PAGE | | | | 81 | | | 81 | | | |

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# MODIFIED BITUMENS Part 1 *(See Part 2 for Test Results)*

| VILLAS ROOFING SYSTEMS INC. | | | |
|---|---|---|---|
| AP4M | AW4S | AP4S | AW4M |
| APP 160 | APP 160 | APP 160 | APP 160 |
| MINERAL | LIGHT SAND | LIGHT SAND | MINERAL |
| POLYESTER | WOVEN FIBERGLAS | POLYESTER | WOVEN POLYESTER |
| GREY 1.12 | BLACK 1.07 | BLACK 1.07 | GREY 1.12 |
| NONE | H.A.+GRAVEL, APP. COATING | H.A.+GRAVEL, APP. COATING | NONE |
| X X | X X | X X | X X |
| HOT AIR TORCH | HOT AIR TORCH | HOT AIR TORCH | HOT AIR TORCH |
| 10 TORCH | 10 TORCH | 10 TORCH | 10 TORCH |
| POS. DRAIN | POS. DRAIN | POS. DRAIN | POS. DRAIN |
| X SEE VILLAS X | X SEE VILLAS X | X SEE VILLAS X | X SEE VILLAS X |
| X SEE VILLAS SEE VILLAS BASE SHEET REQUIRED | X SEE VILLAS SEE VILLAS BASE SHEET REQUIRED | X SEE VILLAS SEE VILLAS BASE SHEET REQUIRED | X SEE VILLAS SEE VILLAS BASE SHEET REQUIRED |
| SEE VILLAS 20 F-115 F | SEE VILLAS 20 F-115 F | SEE VILLAS 20 F-115 F | SEE VILLAS 20 F-115 F |
| SAME MATERIAL | SAME MATERIAL | SAME MATERIAL | SAME MATERIAL |
| TORCH | TORCH | TORCH | TORCH |
| UNNECESSARY | UNNECESSARY | UNNECESSARY | UNNECESSARY |
| AUSTRIA USA | AUSTRIA USA | AUSTRIA USA | AUSTRIA USA |
| 1972 | 1968 1983 | 1970 1984 | 1968 1983 |
| 2,550,000 | 3,350,000 | 3,800,000 | 1,600,000 |
| 10 X X | 10 X X | 10 X X | 10 X X |
| $250/SQ. X X | $250/SQ. X X | $250/SQ. X X | $250/SQ. X X |
| SEE VILLAS DISTRIBUTOR | SEE VILLAS DISTRIBUTOR | SEE VILLAS DISTRIBUTOR | SEE VILLAS DISTRIBUTOR |
| FIELD, SEMINARS FACTORY | FIELD, SEMINARS FACTORY | FIELD, SEMINARS FACTORY | FIELD, SEMINARS FACTORY |
| G AMHAUS M HATTEN | G AMHAUS M HATTEN | G AMHAUS M HATTEN | G AMHAUS M HATTEN |
| 49 | 49 | 49 | 49 |
| 81 | | | |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| 1. COMPANY NAME | ALLROOF INTERNATIONAL INCORPORATED | | | | | THE AMERICAN LUBRICANTS COMPANY |
|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | BELROOF SD-4M | BELROOF SBS-4M | BELROOF SBS-4 | BELROOF SD-4 | ALLROOF POLYPREN | TIFFANY |
| 3. TYPE 4. CLASS 5. GRADE | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – | TYPE 2A CLASS C GRADE 2 | TYPE ___ CLASS – GRADE – | TYPE 2A CLASS C GRADE 2 |
| 6. BREAKING STRENGTH: GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD) | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 208 XD 180.4 | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 208 XD 180.4 |
| 7. ULTIMATE ELONGATION: GRADE 1 MIN. 4.0%(MD/XD)<br>GRADE 2 MIN. 8.0%(MD/XD) | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 72.38 XD 64.76 | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 72.38 XD 64.76 |
| 8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:<br>GRADE 1 IF BREAKING STRENGTH IS NOT MET; 19400<br>GRADE 1 IF BREAKING STRENGTH IS MET; 2940<br>GRADE 2 MIN. 14700 | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | NA<br>NA<br>___ | ___<br>___<br>___ | NA<br>NA<br>66,968 |
| 9. WATER RESISTANCE NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.0<br>MD 1.0 XD 1.0 | ___<br>MD ___ XD ___ | 0.0<br>MD 1.0 XD 1.0 |
| 10. LOW TEMP FLEXIBILITY: TYPE 1 @-22°F(PASS/FAIL)<br>TYPE 2 @-14°F(PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>PASS | ___<br>___ | NA<br>PASS |
| 11. WATER VAPOR TRANSMISSION MAX. 1.0g/m² × 24 hr. | ___ | ___ | ___ | 0.06 | ___ | 0.06 |
| 12. THERMAL STABILITY: TYPE 1, CLASS B ONLY<br>LESS THAN 1.0mm/m | ___ | ___ | ___ | NA | ___ | NA |
| 13. DYNAMIC IMPACT (PUNCTURING), WATER TIGHTNESS:<br>GRADE 1 AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>GRADE 2 AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>PASS | ___<br>___ | NA<br>PASS |
| 14. STATIC PUNCTURING: TYPE 1 WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | ___ | ___ | ___ | PASS | ___ | PASS |
| 15. LAP JOINT STRENGTH (5 DAY CONDITIONING):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 166.32 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 166.32 XD ___<br>PASS |
| 16. LAP JOINT STRENGTH (IMMERSION @ 50°C FOR 5 DAYS):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 176.8 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 176.8 XD ___<br>PASS |
| 17. LAP JOINT STRENGTH (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 175.48 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 175.48 XD ___<br>PASS |
| 18. GRANULE EMBEDMENT: CLASS A ONLY MAX. 0.5g LOSS | ___ | ___ | ___ | NA | ___ | NA |
| 19. ACCELERATED WEATHERING: TYPE 1 ONLY<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 92 XD 92<br>MD 66.15 XD 59.58 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 92 XD 92<br>MD 91 XD 92 |
| 20. CRACK BRIDGING CAPABILITY (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>TYPE 1.A and 1.B AT -22°F (PASS/FAIL)<br>TYPE 2.A and 2.B AT -14°F (PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>PASS | ___<br>___ | NA<br>PASS |
| 21. FOR GENERAL INFORMATION SEE PG(s) | 20 | 20 | 20 | 20 | 20 | 20 |
| 22. SEE APPENDIX PAGE | • | • | • 79 | • | • | |

23. LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

## AMERICAN ROOFING CORPORATION

| ARC PREMIUM | ARC ALUMINUM | ARC GRANULAR |
|---|---|---|
| TYPE CLASS GRADE<br>1A,2A C 1&2 | TYPE CLASS GRADE<br>1A,2A B 1 | TYPE CLASS GRADE<br>1A,2A A 1&2 |
| MD 164 XD 134<br>MD 164 XD 134 | MD 106 XD 71<br>MD 106 XD 71 | MD 158 XD 124<br>MD 158 XD 124 |
| MD 58 XD 81<br>MD 58 XD 81 | MD 40 XD 38<br>MD 40 XD 38 | MD 89 XD 106<br>MD 89 XD 106 |
| NA<br>42,300<br>42,300 | NA<br>18,840<br>18,840 | NA<br>62,600<br>62,600 |
| <1.0<br>MD <1.0 XD <1.0 | <1.0<br>MD <1.0 XD <1.0 | <1.0<br>MD <1.0 XD <1.0 |
| PASS<br>PASS | PASS<br>PASS | PASS<br>PASS |
| 0.132 | 0.132 | 0.132 |
| NA | ___ | NA |
| PASS<br>PASS | PASS<br>NA | PASS<br>PASS |
| PASS | PASS | PASS |
| MD 128 XD 104<br>MD 128 XD 104<br>PASS | MD 84 XD 76<br>MD 84 XD 76<br>PASS | MD 168 XD 130<br>MD 168 XD 130<br>PASS |
| MD 155 XD 137<br>MD 155 XD 137<br>PASS | MD 99 XD 73<br>MD 99 XD 73<br>PASS | MD 140 XD 123<br>MD 140 XD 123<br>PASS |
| MD 155 XD 129<br>MD 155 XD 129<br>PASS | MD 95 XD 63<br>MD 95 XD 63<br>PASS | MD 164 XD 127<br>MD 164 XD 127<br>PASS |
| NA | NA | 0.1G/CM2 |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| | | ___<br>___ |
| 20 | 20 | 20 |

## BARRA CORPORATION OF AMERICA, INC.

| MODI SHIELD PR | MODI SHIELD AL | MODI SHIELD GR |
|---|---|---|
| TYPE CLASS GRADE<br>1A,2A C 1&2 | TYPE CLASS GRADE<br>1A,2A B 1 | TYPE CLASS GRADE<br>1A,2A A 1&2 |
| MD 164 XD 134<br>MD 164 XD 134 | MD 106 XD 71<br>MD 106 XD 71 | MD 158 XD 124<br>MD 158 XD 124 |
| MD 58 XD 81<br>MD 58 XD 81 | MD 40 XD 38<br>MD 40 XD 38 | MD 89 XD 106<br>MD 89 XD 106 |
| NA<br>42,300<br>42,300 | NA<br>18,840<br>18,840 | NA<br>62,600<br>62,600 |
| <1.0<br>MD <1.0 XD <1.0 | <1.0<br>MD <1.0 XD <1.0 | <1.0<br>MD <1.0 XD <1.0 |
| PASS<br>PASS | PASS<br>PASS | PASS<br>PASS |
| 0.132 | 0.132 | 0.132 |
| NA | ___ | NA |
| PASS<br>PASS | PASS<br>NA | PASS<br>PASS |
| PASS | PASS | PASS |
| MD 128 XD 104<br>MD 128 XD 104<br>PASS | MD 84 XD 76<br>MD 84 XD 76<br>PASS | MD 168 XD 130<br>MD 168 XD 130<br>PASS |
| MD 155 XD 137<br>MD 155 XD 137<br>PASS | MD 99 XD 73<br>MD 99 XD 73<br>PASS | MD 140 XD 123<br>MD 140 XD 123<br>PASS |
| MD 155 XD 129<br>MD 155 XD 129<br>PASS | MD 95 XD 63<br>MD 95 XD 63<br>PASS | MD 164 XD 127<br>MD 164 XD 127<br>PASS |
| NA | NA | .01G/CM2 |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| ___<br>___ | ___<br>___ | ___<br>___ |
| 20 | 21 | 21 |

## THE BARRETT COMPANY

| RAM-TOUGH TM-500 | SHELL CARIPHALTE FR200 |
|---|---|
| TYPE CLASS GRADE<br>2 C 1 | TYPE CLASS GRADE<br>2A C 2 |
| MD 110 XD 80<br>MD ___ XD ___ | MD NA XD NA<br>MD 302 XD 240 |
| MD 114 XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 38 XD 45 |
| ___<br>___<br>___ | NA<br>NA<br>51,110 |
| .08<br>MD .0 XD .1 | .6<br>MD .02 XD .13 |
| PASS | NA<br>PASS |
| NA | .11 |
| NA | NA |
| PASS<br>___ | NA<br>___ |
| NA | NA |
| MD ___ XD ___<br>MD ___ XD ___<br>NA | MD NA XD NA<br>MD 399 XD ___<br>PASS |
| MD ___ XD ___<br>MD ___ XD ___<br>NA | MD NA XD NA<br>MD 213 XD ___<br>PASS |
| MD ___ XD ___<br>MD ___ XD ___<br>NA | MD NA XD NA<br>MD 214 XD ___<br>PASS |
| NA | NA |
| NA<br>MD ___ XD ___<br>MD ___ XD ___ | NA<br>MD ___ XD ___<br>MD ___ XD ___ |
| PASS | PASS |
| 21 | 21 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| | THE BARRETT COMPANY | | | CELOTEX CORPORATION | | CIRO ROOFING PRODUCTS U.S.A., INCORPORATED |
|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | | | | | | |
| **2. PRODUCT NAME** | SHELL CARIPHALTE FR-307HS | SHELL CARIPHALTE FR306 | SHELL CARIPHALTE FR-308P | CELOPAL 2 | CELOPAL 1 | CSP-4000 SBS |
| **3. TYPE 4. CLASS 5. GRADE** | TYPE 1A CLASS A GRADE 1 | TYPE 1A CLASS A GRADE 1 | TYPE 1A CLASS A GRADE 2 | TYPE 2A CLASS C GRADE 1 | TYPE 1A CLASS A GRADE 1 | TYPE ___ CLASS _ GRADE _ |
| **6. BREAKING STRENGTH: GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD) | MD 162 XD 163<br>MD ___ XD ___ | MD 110.5 XD 92.5<br>MD NA XD NA | MD ___ XD ___<br>MD 236 XD 180 | MD 384 XD 352<br>MD ___ XD ___ | MD 392 XD 364<br>MD ___ XD ___ | MD 164 XD 134<br>MD ___ XD ___ |
| **7. ULTIMATE ELONGATION: GRADE 1** MIN. 4.0%(MD/XD)<br>**GRADE 2** MIN. 8.0%(MD/XD) | MD 18 XD 18<br>MD ___ XD ___ | MD 7.6 XD 7.6<br>MD NA XD NA | MD ___ XD ___<br>MD 57 XD 62 | MD 4.0 XD 2.9<br>MD ___ XD ___ | MD 4.1 XD 2.9<br>MD ___ XD ___ | MD 50 XD 50<br>MD ___ XD ___ |
| **8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:**<br>**GRADE 1** IF BREAKING STRENGTH IS NOT MET; 19400<br>**GRADE 1** IF BREAKING STRENGTH IS MET; 2940<br>**GRADE 2** MIN. 14700 | ___<br>NA<br>___ | NA<br>3,739<br>NA | ___<br>59,900 | NA<br>NA | NA<br>NA | 42,300<br>___<br>___ |
| **9. WATER RESISTANCE** NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | .48<br>MD .02 XD .12 | .35<br>MD .0 XD .5 | .45<br>MD .01 XD .5 | 0.2<br>MD 0.0 XD 0.0 | 0.6<br>MD 0.0 XD 0.0 | <1<br>MD ___ XD ___ |
| **10. LOW TEMP FLEXIBILITY: TYPE 1** @-22°F(PASS/FAIL)<br>**TYPE 2** @-14°F(PASS/FAIL) | PASS<br>___ | PASS<br>NA | PASS<br>___ | PASS<br>___ | PASS<br>___ | PASS<br>PASS |
| **11. WATER VAPOR TRANSMISSION** MAX. 1.0g/m² × 24 hr. | .130 | .129 | .132 | NA | NA | .132 |
| **12. THERMAL STABILITY: TYPE 1, CLASS B ONLY** LESS THAN 1.0mm/m | NA | NA | NA | NA | NA | ___ |
| **13. DYNAMIC IMPACT (PUNCTURING),** WATER TIGHTNESS:<br>**GRADE 1** AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>**GRADE 2** AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | NA<br>___ | PASS<br>NA | NA<br>___ | PASS<br>PASS | PASS<br>PASS | PASS<br>PASS |
| **14. STATIC PUNCTURING: TYPE 1** WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | NA | NA | NA | PASS | PASS | PASS |
| **15. LAP JOINT STRENGTH** (5 DAY CONDITIONING):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>NA | MD 87.5 XD ___<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>NA | MD 346 XD 358<br>MD ___ XD ___<br>PASS | MD 346 XD 332<br>MD NA XD ___<br>PASS | MD 104 XD ___<br>MD 104 XD ___<br>PASS |
| **16. LAP JOINT STRENGTH** (IMMERSION @ 50°C FOR 5 DAYS):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>NA | MD 78 XD ___<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>NA | MD ___ XD 304<br>MD ___ XD ___<br>___ | MD ___ XD 241<br>MD ___ XD ___<br>___ | MD 137 XD ___<br>MD 137 XD ___<br>PASS |
| **17. LAP JOINT STRENGTH** (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>NA | MD 74 XD NA<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>NA | MD ___ XD 287<br>MD ___ XD ___<br>___ | MD ___ XD 229<br>MD ___ XD ___<br>___ | MD 129 XD ___<br>MD 129 XD ___<br>PASS |
| **18. GRANULE EMBEDMENT:** CLASS A ONLY MAX. 0.5g LOSS | NA | NA | NA | NA | NA | NA |
| **19. ACCELERATED WEATHERING: TYPE 1 ONLY**<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | NA<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 114 XD ___<br>MD 94.7 XD ___ | NA<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ |
| **20. CRACK BRIDGING CAPABILITY** (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>**TYPE 1.A and 1.B** AT -22°F (PASS/FAIL)<br>**TYPE 2.A and 2.B** AT -14°F (PASS/FAIL) | PASS | PASS<br>NA | PASS | ___<br>___ | ___<br>___ | ___<br>___ |
| **21. FOR GENERAL INFORMATION SEE PG(s)** | 21 | 21 | 21 | 21 | 21 | 21 |
| **22. SEE APPENDIX PAGE** | | | | | | |

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**23. LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER**

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

## CIRO ROOFING PRODUCTS U.S.A., INCORPORATED

| CSP-4000 APP | CSV-4000 ALU-APP | CSP-4500 APP | CSP-4000 SBS GRANULATED |
|---|---|---|---|
| TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — |
| MD 164 XD 134<br>MD — XD — | MD 106 XD 71<br>MD — XD — | MD 158 XD 124<br>MD — XD — | MD 158 XD 124<br>MD — XD — |
| MD 58 XD 81<br>MD — XD — | MD 40 XD 38<br>MD — XD — | MD 89 XD 106<br>MD — XD — | MD 50 XD 50<br>MD — XD — |
| 42,300<br>—<br>— | 18,840<br>—<br>— | 62,600<br>—<br>— | 62,600<br>—<br>— |
| <1G<br>MD — XD — | <1G<br>MD — XD — | <1G<br>MD — XD — | —<br>MD — XD — |
| PASS<br>— | PASS<br>— | PASS<br>— | PASS<br>PASS |
| .132 | .132 | .132 | .132 |
| — | — | — | — |
| PASS<br>— | PASS<br>— | PASS<br>— | PASS<br>PASS |
| — | PASS | PASS | PASS |
| MD 104 XD —<br>MD 104 XD —<br>PASS | MD 76 XD —<br>MD 76 XD —<br>PASS | MD 130 XD —<br>MD 130 XD —<br>PASS | MD 130 XD —<br>MD 130 XD —<br>PASS |
| MD 137 XD —<br>MD 137 XD —<br>PASS | MD 73 XD —<br>MD 73 XD —<br>PASS | MD 123 XD —<br>MD 123 XD —<br>PASS | MD 123 XD —<br>MD 123 XD —<br>PASS |
| MD 129 XD —<br>MD 129 XD —<br>PASS | MD 63 XD —<br>MD 63 XD —<br>PASS | MD 123 XD —<br>MD 123 XD —<br>PASS | MD 127 XD —<br>MD 127 XD —<br>PASS |
| NA | NA | 0.5/GR | 0.5 |
| —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — |
| —<br>— | —<br>— | —<br>— | —<br>— |
| 21 | 21 | 21 | 22 |

## CONSOLIDATED PROTECTIVE COATINGS CORPORATION

| CONSO-GARD | CONSO-GARD II | CONSO-GARD III | CONSO-GARD IV |
|---|---|---|---|
| TYPE CLASS GRADE<br>1AB,2ABC C 1 | TYPE CLASS GRADE<br>1AB,2ABC C 2 | TYPE CLASS GRADE<br>1AB,2ABC C 2 | TYPE CLASS GRADE<br>1AB,2ABC A 2 |
| MD 67.2 XD 44.8<br>MD NA XD NA | MD NA XD NA<br>MD — XD — | MD — XD —<br>MD NA XD NA | MD — XD —<br>MD — XD — |
| MD 35 XD —<br>MD NA XD NA | MD NA XD NA<br>MD — XD — | MD — XD —<br>MD NA XD NA | MD NA XD NA<br>MD — XD — |
| —<br>—<br>NA | NA<br>NA<br>— | —<br>—<br>NA | NA<br>NA<br>— |
| NIL<br>MD NIL XD NIL | —<br>MD — XD — | —<br>MD — XD — | —<br>MD — XD — |
| PASS<br>— | —<br>PASS | —<br>PASS | —<br>— |
| — | — | — | — |
| — | — | — | — |
| PASS<br>NA | NA<br>PASS | —<br>NA | NA<br>— |
| PASS | PASS | PASS | PASS |
| MD — XD —<br>MD NA XD NA<br>— | MD NA XD NA<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— |
| MD — XD —<br>MD NA XD NA<br>— | MD NA XD NA<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— |
| MD — XD —<br>MD NA XD NA<br>— | MD NA XD NA<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— |
| NA | NA | NA | — |
| —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — |
| —<br>— | —<br>— | —<br>— | —<br>— |
| 22 | 22 | 22 | 22 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

MODIFIED BITUMENS

| | DANOSA CARIBBEAN, INC. | | | | DIBITEN U.S.A. | |
|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | | | | | | |
| **2. PRODUCT NAME** | ESTERDAN RM | GLASDAN AL-80 | GLASDAN R-36 | ESTERDAN R-36 | DIBITEN POLY-5 | DIBITEN POLY-4 |
| **3. TYPE 4. CLASS 5. GRADE** | TYPE 1A CLASS A GRADE 2 | TYPE 1A CLASS B GRADE 1 | TYPE 2A CLASS C GRADE 1 | TYPE 2A CLASS C GRADE 2 | TYPE 1A,2A CLASS C GRADE 2 | TYPE 1A,2A CLASS C GRADE 2 |
| **6. BREAKING STRENGTH: GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD) | MD NA XD NA<br>MD ___ XD ___ | MD ___ XD ___<br>MD NA XD NA | MD ___ XD ___<br>MD NA XD NA | MD NA XD NA<br>MD ___ XD ___ | MD NA XD NA<br>MD ___ XD ___ | MD NA XD NA<br>MD 208 XD 180.4 |
| **7. ULTIMATE ELONGATION: GRADE 1** MIN. 4.0%(MD/XD)<br>**GRADE 2** MIN. 8.0%(MD/XD) | MD NA XD NA<br>MD ___ XD ___ | MD ___ XD ___<br>MD NA XD NA | MD ___ XD ___<br>MD NA XD NA | MD NA XD NA<br>MD ___ XD ___ | MD NA XD NA<br>MD 50 XD 50 | MD NA XD NA<br>MD 48 XD 48 |
| **8. LOAD STRAIN PRODUCT (BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)):**<br>**GRADE 1** IF BREAKING STRENGTH IS NOT MET; 19400<br>**GRADE 1** IF BREAKING STRENGTH IS MET; 2940<br>**GRADE 2** MIN. 14700 | NA<br>NA<br>___ | ___<br>___<br>NA | ___<br>___<br>NA | NA<br>NA<br>___ | NA<br>NA<br>___ | NA<br>NA<br>___ |
| **9. WATER RESISTANCE** NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.0<br>MD 0.8 XD 0.8 | 0.0<br>MD 1.0 XD 1.0 |
| **10. LOW TEMP FLEXIBILITY: TYPE 1** @ -22°F(PASS/FAIL)<br>**TYPE 2** @ -14°F(PASS/FAIL) | ___<br>PASS | PASS<br>NA | NA<br>PASS | NA<br>PASS | ___<br>PASS | ___<br>PASS |
| **11. WATER VAPOR TRANSMISSION** MAX. 10g/m² × 24 hr. | 0.065 | 0.024 | 0.024 | 0.065 | 0.062 | 0.062 |
| **12. THERMAL STABILITY: TYPE 1, CLASS B ONLY** LESS THAN 1.0mm/m | NA | NA | NA | NA | NA | NA |
| **13. DYNAMIC IMPACT (PUNCTURING),** WATER TIGHTNESS:<br>**GRADE 1** AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>**GRADE 2** AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | NA<br>PASS | ___<br>PASS | ___<br>PASS | NA<br>PASS | NA<br>PASS | NA<br>PASS |
| **14. STATIC PUNCTURING: TYPE 1** WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | NA | ___ | NA | NA | PASS | PASS |
| **15. LAP JOINT STRENGTH** (5 DAY CONDITIONING):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD NA XD NA<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD ___ XD ___<br>PASS | MD NA XD NA<br>MD 178.5 XD ___<br>PASS | MD NA XD NA<br>MD 171.8 XD ___<br>PASS |
| **16. LAP JOINT STRENGTH** (IMMERSION @ 50°C FOR 5 DAYS):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD NA XD NA<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD ___ XD ___<br>PASS | MD NA XD NA<br>MD 185.6 XD ___<br>PASS | MD NA XD NA<br>MD 177.3 XD ___<br>PASS |
| **17. LAP JOINT STRENGTH** (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD NA XD NA<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD ___ XD ___<br>PASS | MD NA XD NA<br>MD 188.4 XD ___<br>PASS | MD NA XD NA<br>MD 174.9 XD ___<br>PASS |
| **18. GRANULE EMBEDMENT:** CLASS A ONLY MAX. 0.5g LOSS | ___ | NA | NA | NA | NA | NA |
| **19. ACCELERATED WEATHERING: TYPE 1 ONLY**<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD NA XD NA<br>MD NA XD NA | PASS<br>MD NA XD NA<br>MD NA XD NA | PASS<br>MD 190.1 XD 166.0<br>MD 65.9 XD 59.35 | PASS<br>MD 190.1 XD 166.0<br>MD 65.9 XD 59.4 |
| **20. CRACK BRIDGING CAPABILITY** (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>**TYPE 1.A and 1.B** AT -22°F (PASS/FAIL)<br>**TYPE 2.A and 2.B** AT -14°F (PASS/FAIL) | ___<br>NA | ___<br>NA | ___<br>NA | ___<br>NA | ___<br>PASS | ___<br>PASS |
| **21. FOR GENERAL INFORMATION SEE PG(s)** | 22 | 22 | 22 | 22 | 22 | 23 |
| **22. SEE APPENDIX PAGE** | | | | | | |

**23. LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER**

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| | DIBITEN U.S.A. | FLEX-SHIELD CORP. | | THE GARLAND COMPANY, INC. | | | | |
|---|---|---|---|---|---|---|---|---|
| | DIBITEN POLY-4,5 GRANULAR | F.A.R. MARK II | FLEX-SHIELD MARK IV | GARLAPLY | GARLAPLY II | STRESSPLY II | STRESSPLY | PITCHPLY |
| TYPE CLASS GRADE | 1A A 2 | — — 1 | — — 2 | 1A,2A C 1 | — — — | — — — | — C 1&2 | — C 1&2 |
| Tensile Strength | MD NA XD NA<br>MD 208 XD 180.4 | MD 108.9 XD 122.6<br>MD NA XD NA | MD NA XD NA<br>MD 208 XD 180 | MD 281 XD 186<br>MD 281 XD 186 | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD 318 XD 324<br>MD 318 XD 324 | MD 247 XD 157<br>MD 247 XD 157 |
| Elongation | MD NA XD NA<br>MD 48 XD 48 | MD 64.9 XD 59.3<br>MD NA XD NA | MD NA XD NA<br>MD 72.4 XD 64.8 | MD 64 XD 62<br>MD 64 XD 62 | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD 340 XD 240<br>MD 340 XD 240 | MD 100 XD 120<br>MD 100 XD 120 |
| Tear Strength | NA<br>NA<br>___ | NA<br>32,385<br>NA | NA<br>NA<br>___ | NA<br>51,590<br>51,590 | ___<br>___<br>___ | ___<br>___<br>___ | NA<br>14,170<br>14,170 | NA<br>132,000<br>___ |
| Flexibility | 0.0<br>MD 1.0 XD 1.0 | .3<br>MD .5 XD .6 | 0.0<br>MD 1.0 XD 1.0 | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.051<br>MD -0.5 XD 0.0 |
| Heat Resistance | ___<br>NA | ___<br>NA | NA<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| Water Absorption | 0.062 | .69 | .06 | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | 0.5 |
| Low Temperature Flexibility | NA | NA | NA | ___<br>___ | ___<br>___ | ___<br>___ | NA | NA |
| Resistance to Indentation | NA<br>PASS | PASS<br>NA | NA<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| Resistance to Impact | PASS | PASS | PASS | ___ | ___ | ___ | ___ | ___ |
| Dimensional Stability | MD NA XD NA<br>MD 171.8 XD ___<br>PASS | MD 68.8 XD 77.6<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 166 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| Resistance to Weathering | MD NA XD NA<br>MD 177.3 XD ___<br>PASS | MD 85.1 XD 86.8<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 176 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| Resistance to Heat | MD NA XD NA<br>MD 174.9 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 175 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| Low Temperature Bend | 0.1 | NA | NA | ___ | ___ | ___ | NA | NA |
| Resistance to Peeling | PASS<br>MD 190.1 XD 166.0<br>MD 65.9 XD 59.4 | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 92 XD 92<br>MD 66 XD 59 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ |
| Resistance to Fungi | ___<br>PASS | ___<br>NA | NA<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| | GEDACO LTD. (ITALY) | | | | | |
|---|---|---|---|---|---|---|
| 1. COMPANY NAME | | | | | | |
| 2. PRODUCT NAME | GEDAGOM POLYESTER | GEDAGOM GRANIVEL | GEDAGOM VELO/ VETRO EXTRA | GEDAGOM GRANIPOL | GEDAGOM POLYESTER CONT FILAMENT | GEDAGOM VELO/VETRO |
| 3. TYPE 4. CLASS 5. GRADE | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— C — | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — |
| 6. BREAKING STRENGTH: GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD) | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| 7. ULTIMATE ELONGATION: GRADE 1 MIN. 4.0%(MD/XD)<br>GRADE 2 MIN. 8.0%(MD/XD) | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| 8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:<br>GRADE 1 IF BREAKING STRENGTH IS NOT MET;19400<br>GRADE 1 IF BREAKING STRENGTH IS MET; 2940<br>GRADE 2 MIN. 14700 | — | — | — | — | — | — |
| 9. WATER RESISTANCE NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | MD — XD — | MD — XD — | MD — XD — | MD — XD — | MD — XD — | MD — XD — |
| 10. LOW TEMP FLEXIBILITY: TYPE 1 @-22°F(PASS/FAIL)<br>TYPE 2 @-14°F(PASS/FAIL) | — | — | — | — | — | — |
| 11. WATER VAPOR TRANSMISSION MAX. 1.0g/m² × 24 hr. | — | — | — | — | — | — |
| 12. THERMAL STABILITY: TYPE 1, CLASS B ONLY<br>LESS THAN 1.0mm/m | — | — | — | — | — | — |
| 13. DYNAMIC IMPACT (PUNCTURING), WATER TIGHTNESS:<br>GRADE 1 AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>GRADE 2 AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | — | — | — | — | — | — |
| 14. STATIC PUNCTURING: TYPE 1 WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | — | — | — | — | — | — |
| 15. LAP JOINT STRENGTH (5 DAY CONDITIONING):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— |
| 16. LAP JOINT STRENGTH (IMMERSION @ 50°C FOR 5 DAYS):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— |
| 17. LAP JOINT STRENGTH (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— | MD — XD —<br>MD — XD —<br>— |
| 18. GRANULE EMBEDMENT: CLASS A ONLY MAX. 0.5g LOSS | — | — | — | — | — | — |
| 19. ACCELERATED WEATHERING: TYPE 1 ONLY<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — | —<br>MD — XD —<br>MD — XD — |
| 20. CRACK BRIDGING CAPABILITY (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>TYPE 1.A and 1.B AT -22°F (PASS/FAIL)<br>TYPE 2.A and 2.B AT -14°F (PASS/FAIL) | — | — | — | — | — | — |
| 21. FOR GENERAL INFORMATION SEE PG(s) | 23 | 23 | 23 | 23 | 24 | 24 |
| 22. SEE APPENDIX PAGE | | | | | | |

23. LEGEND:NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| GENSTAR ROOFING PRODUCTS COMPANY | W.R. GRACE & COMPANY | | | | GUAINA CORPORATION OF AMERICA & POLYPREN ROOFING OF AMERICA | | |
|---|---|---|---|---|---|---|---|
| FLINTLASTIC SBS | GRM-350 | GRM-500 | GRM-120 | GRM 230 | GUAINA POLYGLASS POLYESTER | GUAINA POLYGLASS ALUMINUM | GUAINA POLYPREN ECB |
| TYPE CLASS GRADE<br>1A A 1 | TYPE CLASS GRADE<br>2A C 1 | TYPE CLASS GRADE<br>1A,1B C 1 | TYPE CLASS GRADE<br>1A,1B C 1 | TYPE CLASS GRADE<br>2A,2B C 1 | TYPE CLASS GRADE<br>1A,2A C 1 | TYPE CLASS GRADE<br>1A,2A B 1 | TYPE CLASS GRADE<br>___ _ _ |
| MD 177 XD 150<br>MD NA XD NA | MD 51 XD 75<br>MD NA XD NA | MD 150 XD 168<br>MD NA XD NA | MD 102 XD 122<br>MD NA XD NA | MD 102 XD 105<br>MD NA XD NA | MD 110 XD 478<br>MD 110 XD 478 | MD 105 XD 70<br>MD 105 XD 70 | MD ___ XD ___<br>MD ___ XD ___ |
| MD 4.35 XD 4.0<br>MD NA XD NA | MD 215 XD 138<br>MD NA XD NA | MD 164 XD 109<br>MD NA XD NA | MD 210 XD 151<br>MD NA XD NA | MD 169 XD 139<br>MD NA XD NA | MD 36 XD 43<br>MD 36 XD 43 | MD 39 XD 37<br>MD 39 XD 37 | MD ___ XD ___<br>MD ___ XD ___ |
| NA<br>3,466<br>NA | 49,000<br>NA<br>NA | NA<br>109,700<br>NA | NA<br>95,550<br>NA | NA<br>76,900<br>NA | NA<br>18,765<br>18,765 | NA<br>18,840<br>18,840 | ___<br>___<br>___ |
| 0.5<br>MD 0.0 XD 0.0 | 0.08<br>MD 0.0 XD 0.3 | 0.07<br>MD 0.0 XD 0.0 | 0.04<br>MD 0.0 XD 0.0 | 0.04<br>MD 0.0 XD 0.3 | <1.0<br>MD <1.0 XD <1.0 | <1.0<br>MD <1.0 XD <1.0 | ___<br>MD ___ XD ___ |
| PASS<br>PASS | NA<br>PASS | PASS<br>NA | PASS<br>NA | NA<br>PASS | PASS<br>PASS | PASS<br>PASS | ___<br>___ |
| 0.51 | .096 | ___ | <0.01 | ___ | 0.132 | 0.132 | ___ |
| NA | NA | NA | NA | NA | NA | ___ | ___ |
| PASS<br>NA | PASS<br>NA | PASS<br>NA | PASS<br>NA | PASS<br>NA | PASS<br>PASS | PASS<br>NA | ___<br>___ |
| PASS | NA | PASS | PASS | NA | PASS | PASS | ___ |
| MD 140 XD 100<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD 104 XD 104<br>MD NA XD NA<br>PASS | MD 93 XD 93<br>MD NA XD NA<br>PASS | MD 93 XD 93<br>MD NA XD NA<br>PASS | MD 166 XD 440<br>MD 166 XD 440<br>PASS | MD 82 XD 74<br>MD 82 XD 74<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD 130 XD 90<br>MD NA XD NA<br>PASS | MD 90 XD 90<br>MD NA XD NA<br>PASS | MD 121 XD 121<br>MD NA XD NA<br>PASS | MD 105 XD 105<br>MD NA XD NA<br>PASS | MD 105 XD 105<br>MD NA XD NA<br>PASS | MD 142 XD 390<br>MD 142 XD 390<br>PASS | MD 97 XD 73<br>MD 97 XD 73<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD 130 XD 90<br>MD NA XD NA<br>PASS | MD 93 XD 93<br>MD NA XD NA<br>PASS | MD 122 XD 122<br>MD NA XD NA<br>PASS | MD 111 XD 111<br>MD NA XD NA<br>PASS | MD 111 XD 111<br>MD NA XD NA<br>PASS | MD 143 XD 400<br>MD 143 XD 400<br>PASS | MD 93 XD 61<br>MD 93 XD 61<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 0.1 | NA | NA | NA | NA | NA | NA | ___ |
| PASS<br>MD 96 XD 95<br>MD 94 XD 92 | NA<br>MD NA XD NA<br>MD NA XD NA | PASS<br>MD 113 XD ___<br>MD 107 XD ___ | PASS<br>MD 124 XD ___<br>MD 96 XD ___ | NA<br>MD NA XD NA<br>MD NA XD NA | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD 17 XD 17<br>MD 17 XD 17 | ___<br>MD ___ XD ___<br>MD ___ XD ___ |
| PASS<br>NA | NA<br>PASS | PASS<br>NA | PASS<br>NA | NA<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ |
| 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| 1. COMPANY NAME | GUAINA CORPORATION OF AMERICA & POLYPREN ROOFING OF AMERICA | | HEY 'DI UPM CORPORATION | HYLOAD, INC. | IMPERITALIA SPA | |
|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | GUAINA POLYGLASS | GUAINA POLYGLASS GRANULAR | HEY 'DI ECB | HYLOAD 150E | PARALON NT4 | TRIPLENE |
| 3. TYPE 4. CLASS 5. GRADE | TYPE CLASS GRADE<br>1A,2A C 1&2 | TYPE CLASS GRADE<br>1A,2A A 1&2 | TYPE CLASS GRADE<br>___ _ _ | TYPE CLASS GRADE<br>2A A 1&2 | TYPE CLASS GRADE<br>1A,1B C 1&2 | TYPE CLASS GRADE<br>2A,2B C 1 |
| 6. BREAKING STRENGTH: GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD) | MD 162 XD 132<br>MD 162 XD 132 | MD 156 XD 122<br>MD 156 XD 122 | MD ___ XD ___<br>MD ___ XD ___ | MD 250 XD 160<br>MD 250 XD 160 | MD ___ XD ___<br>MD 234 XD 212 | MD ___ XD ___<br>MD ___ XD ___ |
| 7. ULTIMATE ELONGATION: GRADE 1 MIN. 4.0%(MD/XD)<br>GRADE 2 MIN. 8.0%(MD/XD) | MD 56 XD 80<br>MD 56 XD 80 | MD 87 XD 104<br>MD 87 XD 104 | MD ___ XD ___<br>MD ___ XD ___ | MD 150 XD 150<br>MD 150 XD 150 | MD ___ XD ___<br>MD 51 XD 49 | MD ___ XD ___<br>MD ___ XD ___ |
| 8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:<br>GRADE 1 IF BREAKING STRENGTH IS NOT MET; 19400<br>GRADE 1 IF BREAKING STRENGTH IS MET; 2940<br>GRADE 2 MIN. 14700 | NA<br>42,200<br>42,200 | NA<br>62,500<br>62,500 | ___<br>___<br>___ | NA<br>166,000<br>166,000 | ___<br>46,354 | ___<br>___<br>___ |
| 9. WATER RESISTANCE NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | <1.0<br>MD <1.0 XD <1.0 | <1.0<br>MD <1.0 XD <1.0 | ___<br>MD ___ XD ___ | 0.051<br>MD 0.5 XD ___ | 0.7<br>MD >0.09 XD <0.11 | 0.7<br>MD >0.01 XD >0.01 |
| 10. LOW TEMP FLEXIBILITY: TYPE 1 @-22°F(PASS/FAIL)<br>TYPE 2 @-14°F(PASS/FAIL) | PASS<br>PASS | PASS<br>PASS | ___<br>___ | NA<br>PASS | PASS<br>___ | NA<br>___ |
| 11. WATER VAPOR TRANSMISSION MAX. 1.0g/m² × 24 hr. | 0.132 | 0.132 | ___ | 0.5 | 0.068 | NA |
| 12. THERMAL STABILITY: TYPE 1, CLASS B ONLY LESS THAN 1.0mm/m | NA | NA | ___ | NA | ___ | ___ |
| 13. DYNAMIC IMPACT (PUNCTURING), WATER TIGHTNESS:<br>GRADE 1 AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>GRADE 2 AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | PASS<br>PASS | PASS<br>PASS | ___<br>___ | PASS<br>___ | PASS<br>PASS | NA<br>NA |
| 14. STATIC PUNCTURING: TYPE 1 WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | PASS | PASS | ___ | PASS | PASS | NA |
| 15. LAP JOINT STRENGTH (5 DAY CONDITIONING):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD 126 XD 102<br>MD 126 XD 102<br>PASS | MD 166 XD 128<br>MD 166 XD 128<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD 176<br>MD ___ XD 176<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>PASS |
| 16. LAP JOINT STRENGTH (IMMERSION @ 50°C FOR 5 DAYS):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD 153 XD 135<br>MD 153 XD 135<br>PASS | MD 138 XD 121<br>MD 138 XD 121<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD 158<br>MD ___ XD 158<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 17. LAP JOINT STRENGTH (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD 153 XD 127<br>MD 153 XD 127<br>PASS | MD 162 XD 125<br>MD 162 XD 125<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD 157<br>MD ___ XD 157<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 18. GRANULE EMBEDMENT: CLASS A ONLY MAX. 0.5g LOSS | NA | .01G/CM2 | ___ | ___ | ___ | ___ |
| 19. ACCELERATED WEATHERING: TYPE 1 ONLY<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD NA XD NA<br>MD NA XD NA | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | NA<br>MD ___ XD ___<br>MD ___ XD ___ |
| 20. CRACK BRIDGING CAPABILITY (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>TYPE 1.A and 1.B AT -22°F (PASS/FAIL)<br>TYPE 2.A and 2.B AT -14°F (PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>___ | PASS<br>PASS | NA<br>NA |
| 21. FOR GENERAL INFORMATION SEE PG(s) | 25 | 25 | 25 | 25 | 25 | 25 |
| 22. SEE APPENDIX PAGE | | | | | | 80 |

23. LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| | IMPERITALIA SPA | | INDEX SPA TECHOLOGIE IMPERMEABILI | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ARWENOL AL | ARWENOL ARD/S | MINERAL HELASTA P 4,5 | DEFEND 4 | HELASTA/P 4 | MINERAL DEFEND 4,5 | TESTUDO 4 | MINERAL TESTUDO 4,5 |
| TYPE | 1A,1B | 1A,1B | | | | | | |
| CLASS | B | A | | | | | | |
| GRADE | 1 | 1 | | | | | | |
| MD / XD | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD 200 XD 190 | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| MD / XD | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD 45 XD 50 | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ |
| | 0.7<br>MD >0.01 XD <0.01 | 0.9<br>MD >0.15 XD <0.13 | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ |
| | NA<br>___ | PASS<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| | NA | NA | ___ | ___ | ___ | ___ | ___ | ___ |
| | ___ | ___ | ___ | ___ | ___ | ___ | ___ | ___ |
| | PASS<br>PASS | PASS<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| | PASS | PASS | ___ | ___ | ___ | ___ | ___ | ___ |
| MD / XD | MD ___ XD ___<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD / XD | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD / XD | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| | ___ | ___ | ___ | ___ | ___ | ___ | ___ | ___ |
| MD / XD | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| | NA<br>NA | PASS<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 26 |
| | 80 | | | | | | | |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| | J & P PETROLEUM PRODUCTS | KELLY ENERGY SYSTEMS INCORPORATED | MALARKEY ROOFING COMPANY | | MINERAL FIBER MANUFACTURING CORPORATION | NEBIPROFA/ CENTRAL SOYA COMPANY, INC. |
|---|---|---|---|---|---|---|
| 1. COMPANY NAME | | | | | | |
| 2. PRODUCT NAME | AQUASEL 2001 AD | SINGLE-STEP BUR | MHP POLYESTER CAP | MHP GLASS CAP | BITUFLEX | POLROOF MAXIMUM MINERAL |
| 3. TYPE 4. CLASS 5. GRADE | TYPE CLASS GRADE<br>2A C 1&2 | TYPE CLASS GRADE<br>2A C 2 | TYPE CLASS GRADE<br>1A A ___ | TYPE CLASS GRADE<br>___ – ___ | TYPE CLASS GRADE<br>___ – – | TYPE CLASS GRADE<br>___ – – |
| 6. BREAKING STRENGTH: **GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD) | MD 318 XD 324<br>MD 318 XD 324 | MD NA XD NA<br>MD 208 XD 180 | MD 123 XD 91<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| 7. ULTIMATE ELONGATION: **GRADE 1** MIN. 4.0%(MD/XD)<br>**GRADE 2** MIN. 8.0%(MD/XD) | MD 300 XD ___<br>MD 300 XD ___ | MD NA XD NA<br>MD 72.4 XD 64.8 | MD 26 XD 42<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| 8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:<br>**GRADE 1** IF BREAKING STRENGTH IS NOT MET; 19400<br>**GRADE 1** IF BREAKING STRENGTH IS MET; 2940<br>**GRADE 2** MIN. 14700 | ___<br>___<br>___ | NA<br>NA<br>___ | ___<br>14,200<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ |
| 9. WATER RESISTANCE NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | ___<br>MD ___ XD ___ | 0.0<br>MD 1.0 XD 1.0 | .67<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | |
| 10. LOW TEMP FLEXIBILITY: **TYPE 1** @-22°F(PASS/FAIL)<br>**TYPE 2** @-14°F(PASS/FAIL) | PASS<br>PASS | NA<br>PASS | PASS<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 11. WATER VAPOR TRANSMISSION MAX. 1.0g/m² × 24 hr. | .1 MAX | 0.06 | ___ | ___ | ___ | ___ |
| 12. THERMAL STABILITY: TYPE 1, CLASS B ONLY<br>LESS THAN 1.0mm/m | NA | NA | ___ | ___ | ___ | ___ |
| 13. DYNAMIC IMPACT (PUNCTURING), WATER TIGHTNESS:<br>**GRADE 1** AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>**GRADE 2** AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | ___<br>___ | NA<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 14. STATIC PUNCTURING: **TYPE 1** WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | PASS | PASS | ___ | ___ | ___ | ___ |
| 15. LAP JOINT STRENGTH (5 DAY CONDITIONING):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 166.3 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 16. LAP JOINT STRENGTH (IMMERSION @ 50°C FOR 5 DAYS):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 176.8 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 17. LAP JOINT STRENGTH (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 175.5 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 18. GRANULE EMBEDMENT: CLASS A ONLY MAX. 0.5g LOSS | NA | NA | ___ | ___ | ___ | ___ |
| 19. ACCELERATED WEATHERING: TYPE 1 ONLY<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | NA<br>MD NA XD NA<br>MD NA XD NA | PASS<br>MD 92 XD 92<br>MD 66.2 XD 59.6 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ |
| 20. CRACK BRIDGING CAPABILITY (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>**TYPE 1.A and 1.B** AT -22°F (PASS/FAIL)<br>**TYPE 2.A and 2.B** AT -14°F (PASS/FAIL) | PASS<br>PASS | NA<br>PASS | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 21. FOR GENERAL INFORMATION SEE PG(s) | 26 | 26 | 26 | 26 | 26 | 26 |
| 22. SEE APPENDIX PAGE | | | | | | |

23. **LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER**

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

## NEBIPROFA/CENTRAL SOYA COMPANY, INC.

| COLFLEX | POLROOF MAXIMUM | COLFLEX MINERAL | COLROOF | PERFO-TORCH |
|---|---|---|---|---|
| TYPE CLASS GRADE | TYPE CLASS GRADE | TYPE CLASS GRADE | TYPE CLASS GRADE | TYPE CLASS GRADE |
| — — — | — — — | — — — | — — — | — — — |
| MD XD<br>MD 1000 XD 1000 | MD 700 XD 600<br>MD — XD — | MD — XD —<br>MD — XD — | MD 750 XD 650<br>MD — XD — | MD — XD —<br>MD — XD — |
| MD — XD —<br>MD 50 XD 50 | MD — XD —<br>MD 40 XD 40 | MD — XD —<br>MD — XD — | MD — XD —<br>MD 35 XD 35 | MD — XD —<br>MD — XD — |
| —<br>50,000 | —<br>28,000 | —<br>—<br>— | —<br>26,250 | —<br>—<br>— |
| 0.0<br>MD <1.0 XD <1.0 | 0.0<br>MD <1.0 XD <1.0 | | 0.0<br>MD <1.0 XD <1.0 | |
| PASS<br>— | FAIL<br>PASS | —<br>— | FAIL<br>FAIL | —<br>— |
| 0.02 | 0.02 | — | 0.02 | — |
| — | — | — | — | — |
| —<br>— | —<br>— | —<br>— | —<br>— | —<br>— |
| — | — | — | — | — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| — | — | — | — | — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| PASS<br>— | PASS | —<br>— | —<br>— | —<br>— |
| 26 | 26 | 27 | 27 | 27 |

## NORD BITUMI U.S. INC.

| NORDPOLY 4M APP | NORDFLEX M SBS | NORDFLEX S SBS |
|---|---|---|
| TYPE CLASS GRADE | TYPE CLASS GRADE | TYPE CLASS GRADE |
| 1AB,2AB A 1&2 | 1AB,2AB A 1&2 | 1AB,2ABC C 1&2 |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| —<br>—<br>— | —<br>—<br>— | —<br>—<br>— |
| —<br>MD — XD — | —<br>MD — XD — | —<br>MD — XD — |
| —<br>— | —<br>— | —<br>— |
| — | — | — |
| —<br>— | —<br>— | —<br>— |
| — | — | — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| — | — | — |
| MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — | MD — XD —<br>MD — XD — |
| —<br>— | —<br>— | —<br>— |
| 27 | 27 | 27 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| | NORD BITUMI U.S. INC. | | OWENS-CORNING FIBERGLAS CORPORATION | | ROYAL OIL COMPANY | SAM BUILDING PRODUCTS COMPANY |
|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | | | | | | |
| **2. PRODUCT NAME** | NORDPOLY 5B APP | NORDPOLY 4B APP | OWENS-CORNING DERBIGUM HPS | OWENS-CORNING DERBIGUM SP | ROYAL SINGLE-PLY APP | SAM |
| **3. TYPE 4. CLASS 5. GRADE** | TYPE CLASS GRADE 1AB,2ABC C 2 | TYPE CLASS GRADE 1AB,2ABC C 1&2 | TYPE CLASS GRADE ___ _ ___ | TYPE CLASS GRADE ___ _ ___ | TYPE CLASS GRADE 2A C 2 | TYPE CLASS GRADE 1A,2A C 1 |
| **6. BREAKING STRENGTH: GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD) | MD ___ XD ___<br>MD ___ XD ___ | MD 266 XD 191<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 208 XD 180.4 | MD 108.9 XD 122.6<br>MD NA XD NA |
| **7. ULTIMATE ELONGATION: GRADE 1** MIN. 4.0%(MD/XD)<br>**GRADE 2** MIN. 8.0%(MD/XD) | MD ___ XD ___<br>MD ___ XD ___ | MD 50.8 XD 58.4<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 72.38 XD 64.76 | MD 64.9 XD 59.3<br>MD NA XD NA |
| **8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:**<br>**GRADE 1** IF BREAKING STRENGTH IS NOT MET; 19400<br>**GRADE 1** IF BREAKING STRENGTH IS MET; 2940<br>**GRADE 2** MIN. 14700 | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | NA<br>NA<br>66,968 | NA<br>32,385<br>NA |
| **9. WATER RESISTANCE** NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | ___<br>MD ___ XD ___ | 0.00<br>MD >1.0 XD >1.0 | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.0<br>MD 1.0 XD 1.0 | 0.3<br>MD 0.5 XD 0.6 |
| **10. LOW TEMP FLEXIBILITY: TYPE 1** @-22°F(PASS/FAIL)<br>**TYPE 2** @-14°F(PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>PASS | ___<br>NA |
| **11. WATER VAPOR TRANSMISSION** MAX. 1.0g/m² × 24 hr. | ___ | 0.00 | ___ | ___ | 0.06 | 0.69 |
| **12. THERMAL STABILITY: TYPE 1, CLASS B ONLY** LESS THAN 1.0mm/m | ___ | ___ | ___ | ___ | NA | NA |
| **13. DYNAMIC IMPACT (PUNCTURING),** WATER TIGHTNESS:<br>**GRADE 1** AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>**GRADE 2** AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>PASS | PASS<br>NA |
| **14. STATIC PUNCTURING: TYPE 1** WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | ___ | ___ | ___ | ___ | PASS | PASS |
| **15. LAP JOINT STRENGTH** (5 DAY CONDITIONING):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 166.32 XD ___<br>PASS | MD 68.8 XD 77.6<br>MD NA XD NA<br>___ |
| **16. LAP JOINT STRENGTH** (IMMERSION @ 50°C FOR 5 DAYS):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 176.8 XD ___<br>PASS | MD 85.1 XD 86.8<br>MD NA XD NA<br>___ |
| **17. LAP JOINT STRENGTH** (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 175.48 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ |
| **18. GRANULE EMBEDMENT:** CLASS A ONLY MAX. 0.5g LOSS | ___ | ___ | ___ | ___ | NA | NA |
| **19. ACCELERATED WEATHERING: TYPE 1 ONLY**<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 92 XD 92<br>MD 66.95 XD 59.58 | PASS<br>MD ___ XD ___<br>MD ___ XD ___ |
| **20. CRACK BRIDGING CAPABILITY** (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>**TYPE 1.A and 1.B** AT -22°F (PASS/FAIL)<br>**TYPE 2.A and 2.B** AT -14°F (PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | NA<br>PASS | ___<br>NA |
| **21. FOR GENERAL INFORMATION SEE PG(s)** | 27 | 27 | 27 | 27 | 27 | 27 |
| **22. SEE APPENDIX PAGE** | | | | | | |

**23. LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER**

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

**SIPLAST, INCORPORATED**

| VERAL (STAIN/ STEEL) | VERAL (COPPER) | PARAFOR-50 | PARADIENE-30 | PARADIENE-20 | VERAL (ALUMINUM FACED) | PARADIENE-20 PR | PARADIENE-40 |
|---|---|---|---|---|---|---|---|
| TYPE CLASS GRADE<br>1A B 1 | TYPE CLASS GRADE<br>1A B 1 | TYPE CLASS GRADE<br>1A A 2 | TYPE CLASS GRADE<br>1A A 1 | TYPE CLASS GRADE<br>2A,2B C 1 | TYPE CLASS GRADE<br>1A B 1 | TYPE CLASS GRADE<br>1 – 1 | TYPE CLASS GRADE<br>— – – |
| MD 677 XD 676<br>MD NA XD NA | MD 139 XD 137<br>MD NA XD NA | MD NA XD NA<br>MD 223 XD 185 | MD 91 XD 71<br>MD NA XD NA | MD 72 XD 67<br>MD NA XD NA | MD 139 XD 137<br>MD NA XD NA | MD 93 XD 75<br>MD NA XD NA | MD ___ XD ___<br>MD 239 XD 233 |
| MD 3.0 XD 3.0<br>MD NA XD NA | MD 4.0 XD 5.0<br>MD NA XD NA | MD NA XD NA<br>MD 68.2 XD 72.8 | MD 24 XD 24<br>MD NA XD NA | MD 29 XD 27<br>MD NA XD NA | MD 4.0 XD 5.0<br>MD NA XD NA | MD 68 XD 84<br>MD NA XD NA | MD ___ XD ___<br>MD 20 XD 20 |
| NA<br>9,039<br>NA | NA<br>3,557<br>NA | NA<br>NA<br>82,104 | NA<br>9,801<br>NA | NA<br>9,393<br>NA | NA<br>3,613<br>NA | NA<br>27,936<br>NA | ___<br>___<br>___ |
| 0.10<br>MD ___ XD ___ | 0.10<br>MD ___ XD ___ | 0.30<br>MD <1.0 XD <1.0 | 0.23<br>MD ___ XD ___ | 0.30<br>MD ___ XD ___ | 0.10<br>MD ___ XD ___ | .030<br>MD 0.51 XD 0.51 | .25<br>MD ___ XD ___ |
| NA | NA | NA<br>PASS | PASS<br>NA | NA<br>PASS | NA | NA<br>PASS | PASS<br>NA |
| ___ | ___ | ___ | ___ | ___ | ___ | ___ | ___ |
| ___ | ___ | NA | NA | NA | ___ | ___ | ___ |
| NA | NA | NA<br>PASS | NA | NA | NA | PASS | PASS |
| PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| MD 169 XD 173<br>MD NA XD NA<br>PASS | MD 169 XD 173<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD 194 XD ___<br>PASS | MD 70 XD 69<br>MD NA XD NA<br>PASS | MD 74 XD 72<br>MD NA XD NA<br>PASS | MD 169 XD 173<br>MD NA XD NA<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 189 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 177 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| NA | NA | <1.0 | <1.0 | NA | NA | NA | <1.0 |
| ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 90 XD 90<br>MD 97 XD 97 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | NA<br>MD NA XD NA<br>MD NA XD NA | ___<br>MD ___ XD ___<br>MD ___ XD ___ | NA<br>MD NA XD NA<br>MD NA XD NA | ___<br>MD ___ XD ___<br>MD ___ XD ___ |
| NA<br>NA | NA | NA<br>PASS | NA | NA<br>___ | NA | NA<br>___ | NA |
| 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| 1. COMPANY NAME | SOPREMA ROOFING & WATERPROOFING, INC. | | | | | |
|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | SOPRALAST 180 S3 S/PP | SOPRALAST 180 S4 GRANULES | SOPRALENE GRANULES | ELASTOPHENE | ELASTOPHENE GRANULES | MAMMOUTH ALUMINUM |
| 3. TYPE 4. CLASS 5. GRADE | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – | TYPE ___ CLASS – GRADE – |
| 6. BREAKING STRENGTH: GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD) | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| 7. ULTIMATE ELONGATION: GRADE 1 MIN. 4.0%(MD/XD)<br>GRADE 2 MIN. 8.0%(MD/XD) | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| 8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:<br>GRADE 1 IF BREAKING STRENGTH IS NOT MET;19400<br>GRADE 1 IF BREAKING STRENGTH IS MET; 2940<br>GRADE 2 MIN. 14700 | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ |
| 9. WATER RESISTANCE NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ |
| 10. LOW TEMP FLEXIBILITY: TYPE 1 @–22°F(PASS/FAIL)<br>TYPE 2 @–14°F(PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 11. WATER VAPOR TRANSMISSION MAX. 1.0g/m² × 24 hr. | ___ | ___ | ___ | ___ | ___ | ___ |
| 12. THERMAL STABILITY: TYPE 1, CLASS B ONLY LESS THAN 1.0mm/m | ___ | ___ | ___ | ___ | ___ | ___ |
| 13. DYNAMIC IMPACT (PUNCTURING), WATER TIGHTNESS:<br>GRADE 1 AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>GRADE 2 AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 14. STATIC PUNCTURING: TYPE 1 WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | ___ | ___ | ___ | ___ | ___ | ___ |
| 15. LAP JOINT STRENGTH (5 DAY CONDITIONING):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 16. LAP JOINT STRENGTH (IMMERSION @ 50°C FOR 5 DAYS):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 17. LAP JOINT STRENGTH (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>GRADE 1 MIN. 66 lbf(MD/XD)<br>GRADE 2 MIN. 176 lbf(MD/XD)<br>GRADE 1&2 PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| 18. GRANULE EMBEDMENT: CLASS A ONLY MAX. 0.5g LOSS | ___ | ___ | ___ | ___ | ___ | ___ |
| 19. ACCELERATED WEATHERING: TYPE 1 ONLY<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ |
| 20. CRACK BRIDGING CAPABILITY (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>TYPE 1.A and 1.B AT –22°F (PASS/FAIL)<br>TYPE 2.A and 2.B AT –14°F (PASS/FAIL) | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 21. FOR GENERAL INFORMATION SEE PG(s) | 28 | 28 | 29 | 29 | 29 | 29 |
| 22. SEE APPENDIX PAGE | | | | | | |

23. LEGEND:NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| SOPREMA ROOFING & WATERPROOFING, INC. | | SOUTHWESTERN PETROLEUM COMPANY | TAMKO ASPHALT PRODUCTS, INC. | TELTEX, INC. | TEXAS REFINERY CORP. | TREMCO, INC. | |
|---|---|---|---|---|---|---|---|
| MAMMOUTH COPPER | MAMMOUTH STAINLESS STEEL | SWEPCO UNI+ SHIELD | AWAPLAN | RHOFLEX SBS/APP | MIGHTYPLATE | THERM MB 3G40 | THERM MB 4G40 |
| TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>— — — | TYPE CLASS GRADE<br>2A,2B C 2 | TYPE CLASS GRADE<br>1A A 1 | TYPE CLASS GRADE<br>1A,2ABC C 1 | TYPE CLASS GRADE<br>1A,2A C 2 | TYPE CLASS GRADE<br>1A,2A A 1 | TYPE CLASS GRADE<br>1A,2A A 1 |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 210 XD 176 | MD 130 XD 129<br>MD NA XD NA | MD ___ XD ___<br>MD NA XD NA | MD NA XD NA<br>MD 208 XD 180.4 | MD ___ XD ___<br>MD ___ XD ___ | MD 443 XD 424<br>MD NA XD NA |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 70 XD 65 | MD 69 XD 65<br>MD NA XD NA | MD 57 XD 57<br>MD NA XD NA | MD NA XD NA<br>MD 72.38 XD 64.76 | MD ___ XD ___<br>MD ___ XD ___ | MD 33 XD 27<br>MD NA XD NA |
| ___<br>___<br>___ | ___<br>___<br>___ | NA<br>NA<br>___ | NA<br>40,000<br>NA | ___<br>___<br>NA | NA<br>NA<br>66,968 | ___<br>___<br>___ | NA<br>14,619<br>NA |
| ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.0<br>MD PASS XD PASS | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.0<br>MD 1.0 XD 1.0 | ___<br>MD ___ XD ___ | ___<br>MD <1.0 XD <1.0 |
| ___<br>___ | ___<br>___ | NA<br>PASS | PASS<br>NA | ___<br>___ | PASS | PASS<br>PASS | PASS<br>PASS |
| ___ | ___ | 0.1 | ___ | 0.78 | 0.06 | ___ | ___ |
| ___ | ___ | NA | NA | NA | NA | ___<br>NA | NA |
| ___<br>___ | ___<br>___ | NA<br>PASS | PASS<br>NA | ___<br>NA | NA<br>PASS | PASS<br>NA | PASS<br>NA |
| ___ | ___ | PASS | PASS | ___ | PASS | ___ | ___ |
| MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 166 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 166.32 XD ___<br>PASS | MD 340 XD 340<br>MD NA XD NA<br>PASS | MD 250 XD 250<br>MD NA XD NA<br>PASS |
| MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 177 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 176.8 XD ___<br>PASS | MD 175 XD 175<br>MD NA XD NA<br>PASS | MD 215 XD 215<br>MD NA XD NA<br>PASS |
| MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 176 XD ___<br>PASS | MD ___ XD ___<br>MD NA XD NA<br>___ | MD ___ XD ___<br>MD NA XD NA<br>___ | MD NA XD NA<br>MD 175.48 XD ___<br>PASS | MD 237 XD 237<br>MD NA XD NA<br>PASS | MD 226 XD 226<br>MD NA XD NA<br>PASS |
| ___ | ___ | NA | <1.0 | NA | NA | ___ | ___ |
| ___<br>MD ___ XD ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 90.1 XD 92.0<br>MD 92.0 XD 92.0 | PASS<br>MD 92 XD 92<br>MD 100 XD 100 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 92 XD 92<br>MD 91 XD 92 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ |
| ___<br>___ | ___<br>___ | NA<br>PASS | ___<br>NA | ___<br>___ | ___<br>PASS | PASS<br>PASS | PASS<br>PASS |
| 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

| 1. COMPANY NAME | TREMCO, INC. | | TRI-PLY, INC. | TROPICAL INDUSTRIAL COATINGS, INC. | | U.S. INTEC, INC. |
|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | THERM MB 3G255 | THERM MB 3G25 | TP-4 | TROPISEAL APP-MS | TROPISEAL APP-4 | BRAI SP4 |
| 3. TYPE 4. CLASS 5. GRADE | TYPE CLASS GRADE<br>1A,2A C 1 | TYPE CLASS GRADE<br>1A,2A A 1 | TYPE CLASS GRADE<br>2A C 2 | TYPE CLASS GRADE<br>___ _ _ | TYPE CLASS GRADE<br>2A C 2 | TYPE CLASS GRADE<br>2A C 2 |
| 6. BREAKING STRENGTH: **GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD) | MD 470 XD 437<br>MD NA XD NA | MD 470 XD 437<br>MD NA XD NA | MD NA XD NA<br>MD 208 XD 180.4 | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 200+ XD 180+ | MD NA XD NA<br>MD 208 XD 180.4 |
| 7. ULTIMATE ELONGATION: **GRADE 1** MIN. 4.0%(MD/XD)<br>**GRADE 2** MIN. 8.0%(MD/XD) | MD 24 XD 10<br>MD ___ XD ___ | MD 34 XD 10<br>MD ___ XD ___ | MD NA XD NA<br>MD 72.38 XD 64.76 | MD ___ XD ___<br>MD ___ XD ___ | MD NA XD NA<br>MD 72.4 XD 64.8 | MD NA XD NA<br>MD 72.38 XD 64.76 |
| 8. LOAD STRAIN PRODUCT [BREAK STRENGTH(lbf) × ULTIMATE ELONGATION (%)]:<br>**GRADE 1** IF BREAKING STRENGTH IS NOT MET; 19400<br>**GRADE 1** IF BREAKING STRENGTH IS MET; 2940<br>**GRADE 2** MIN. 14700 | NA<br>11,280<br>NA | NA<br>11,280<br>NA | NA<br>NA<br>___ | ___<br>___<br>___ | NA<br>NA<br>___ | NA<br>NA<br>69,890 |
| 9. WATER RESISTANCE NOT MORE THAN 1.0g DIMENSION CHG NOT MORE THAN ± 1.0%(MD/XD) | ___<br>MD ___ XD ___ | ___<br>MD ___ XD ___ | 0.0<br>MD 1.0 XD 1.0 | ___<br>MD ___ XD ___ | 0.0<br>MD <1.0 XD <1.0 | 0.0<br>MD 1.0 XD 1.0 |
| 10. LOW TEMP FLEXIBILITY: **TYPE 1** @ -22°F(PASS/FAIL)<br>**TYPE 2** @ -14°F(PASS/FAIL) | PASS<br>PASS | PASS<br>PASS | NA<br>PASS | ___<br>___ | NA<br>PASS | NA<br>PASS |
| 11. WATER VAPOR TRANSMISSION MAX. 1.0g/m² × 24 hr. | ___ | ___ | 0.06 | ___ | 0.06 | 0.06 |
| 12. THERMAL STABILITY: TYPE 1, CLASS B ONLY<br>LESS THAN 1.0mm/m | NA | NA | NA | ___ | NA | NA |
| 13. DYNAMIC IMPACT (PUNCTURING), WATER TIGHTNESS:<br>**GRADE 1** AFTER IMPACT OF 1.8 ft lbf(PASS/FAIL)<br>**GRADE 2** AFTER IMPACT OF 3.6 ft lbf(PASS/FAIL) | PASS<br>NA | PASS<br>NA | NA<br>PASS | ___<br>___ | NA<br>PASS | NA<br>PASS |
| 14. STATIC PUNCTURING: TYPE 1 WATER TIGHTNESS AFTER 1 hr. @ 55 lbf(PASS/FAIL) | ___ | ___ | PASS | ___ | PASS | PASS |
| 15. LAP JOINT STRENGTH (5 DAY CONDITIONING):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD 313 XD 313<br>MD NA XD NA<br>PASS | MD 313 XD 313<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD 166.32 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 166 XD ___<br>PASS | MD NA XD NA<br>MD 166.32 XD ___<br>PASS |
| 16. LAP JOINT STRENGTH (IMMERSION @ 50°C FOR 5 DAYS):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD 153 XD 153<br>MD NA XD NA<br>PASS | MD 153 XD 153<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD 176.8 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 176 XD ___<br>PASS | MD NA XD NA<br>MD 176.8 XD ___<br>PASS |
| 17. LAP JOINT STRENGTH (IMMERSION @ 50°C, 5 DAYS + FREEZE THAW):<br>**GRADE 1** MIN. 66 lbf(MD/XD)<br>**GRADE 2** MIN. 176 lbf(MD/XD)<br>**GRADE 1&2** PASS WATER TIGHTNESS TEST (PASS/FAIL) | MD 248 XD 248<br>MD NA XD NA<br>PASS | MD 248 XD 248<br>MD NA XD NA<br>PASS | MD NA XD NA<br>MD 175.48 XD ___<br>PASS | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD NA XD NA<br>MD 175 XD ___<br>PASS | MD NA XD NA<br>MD 175.48 XD ___<br>PASS |
| 18. GRANULE EMBEDMENT: CLASS A ONLY MAX. 0.5g LOSS | NA | ___ | NA | ___ | NA | NA |
| 19. ACCELERATED WEATHERING: TYPE 1 ONLY<br>NO CRACKING OR BLISTERING (PASS/FAIL)<br>RETAIN 90% OF BREAKING STRENGTH (#6)(MD/XD)<br>RETAIN 90% OF ELONGATION AT BREAK (#1)(MD/XD) | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 92 XD 92<br>MD 66.15 XD 59.58 | ___<br>MD ___ XD ___<br>MD ___ XD ___ | PASS<br>MD 91.2 XD 92.1<br>MD 91.4 XD 92.1 | PASS<br>MD 92 XD 92<br>MD 91 XD 90 |
| 20. CRACK BRIDGING CAPABILITY (NO CRACKING, SPLITTING OR LOSS OF ADHESION):<br>**TYPE 1.A and 1.B** AT -22°F (PASS/FAIL)<br>**TYPE 2.A and 2.B** AT -14°F (PASS/FAIL) | PASS<br>PASS | PASS<br>PASS | NA<br>PASS | ___<br>___ | NA<br>PASS | NA<br>PASS |
| 21. FOR GENERAL INFORMATION SEE PG(s) | 30 | 30 | 30 | 30 | 30 | 30 |
| 22. SEE APPENDIX PAGE | | | | | | |

23. **LEGEND: NA = NOT APPLICABLE; MD = MACHINE DIRECTION; XD = CROSS MACHINE DIRECTION; BLANK LINES = APPLICABLE DATA NOT SUPPLIED BY MANUFACTURER**

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**FROM CGSB STANDARD 37-GP-56M**

**TYPE: 1.** For exposed roofing application
- **1.a.** Fully adhered
- **1.b.** Partially adhered

**TYPE: 2.** For covered roofing application
- **2.a.** Fully adhered
- **2.b.** Partially adhered
- **2.c.** Loose laid

**CLASS: A.** Granule surfaced
- **B.** Metallic surfaced
- **C.** Plain surfaced

**GRADE: 1.** Standard service
- **2.** Heavy duty service

# MODIFIED BITUMENS Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in CGSB Standard 37-GP-56M

**VILLAS ROOFING SYSTEMS, INC.**

| AP4M | AW4S | AP4S | AW4M | EP5M | EW4AL | EP4M | EW3.5M |
|---|---|---|---|---|---|---|---|
| TYPE 1 CLASS A GRADE 2 | TYPE 1 CLASS C GRADE 1 | TYPE 2 CLASS C GRADE 2 | TYPE 1 CLASS A GRADE 1 | TYPE 1 CLASS A GRADE 2 | TYPE 1 CLASS B GRADE 1 | TYPE 1 CLASS A GRADE 2 | TYPE 1 CLASS A GRADE 1 |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD 9 XD 9<br>MD ___ XD ___ |
| ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ | ___<br>___<br>___ |
| MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ | MD ___ XD ___ |
| ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | PASS<br>___ | ___<br>___ | PASS<br>___ | PASS<br>___ |
| 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | ___ | 0.2 | 0.3 |
| ___ | ___ | ___ | ___ | ___ | ___ | ___ | ___ |
| PASS | PASS<br>___ | PASS | PASS<br>___ | PASS | PASS<br>___ | PASS | PASS<br>___ |
| PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ | MD ___ XD ___<br>MD ___ XD ___<br>___ |
| ___ | ___ | ___ | ___ | ___ | ___ | ___ | ___ |
| MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ | MD ___ XD ___<br>MD ___ XD ___ |
| ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ | ___<br>___ |
| 30 | 30 | 30 | 30 | 31 | 31 | 31 | 31 |
| . | . | . | . | .81 | . | . | . |

## PVC POLYVINYL CHLORIDE Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | ALKOR-DIVISION HEDWIN CORPORATION | BARRA CORPORATION OF AMERICA, INC. | | DIVERSITECH GENERAL BUILDING SYSTEMS, DIV. | DYNAMIT NOBEL | | | | | IPW INTERPLASTIC |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | ALKORPLAN | RHENOFOL C-45 | RHENOFOL CV48 | GENSEAL ACR | TROCAL SMA | TROCAL SGMA | TROCAL S-60 | TROCAL SG-60 | TROCAL S-48* .48 MIL VERSION OF S-60 | INTEROOF "U" |
| 3. PRODUCT DESCRIPTION: | | | | | | | | | | |
| A. REINFORCEMENT | NONE | NONE | POLYESTER | NONE | NONE | GLASS | NONE | GLASS | NONE | NONE |
| B. COLOR | GREY | GREY | GREY/WHITE | GREY/BLACK | BEIGE | BEIGE | LT GREY | LT GREY | LT GREY | GREY/IVORY |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | .33 | .30 | .327 | .30 | .30 | .30 | .42 | .42 | .30 | .40 |
| 4. COATING REQUIRED | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ THERMAL |
| 7. TYPE OF ROOF SYSTEM: | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | 10 | | | X | 10 LBS MIN | 10 LBS MIN | | | | |
| B. PARTIALLY ADHERED (METHOD) | | | MECH FASTN | X | | | X | | X | MECH FASTN |
| C. FULLY ADHERED (METHOD) | | | | X | | | | | | |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | X | X | X | | X | X | | | | |
| 8. MINIMUM SLOPE | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| 9. USE OVER: | | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X | X | X | X | X |
| B. POLYURETHANE | X | X | X | X | X | X | X | X | X | X |
| C. WOOD FIBER | X | | | X | X | X | X | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X | |
| E. EXPANDED POLYSTYRENE | X | X | X | X* | X | X | X | X | X | X |
| F. FELT FACED COMPOSITES | X | X | X | X | W/SLIPSHEET | X | X | X | X | X |
| G. OTHER | POLY-ISOCYANURATE | EXTRUDED POLYSTYRENE ISOCYANURATE SEE SPECS | EXTRUDED POLYSTYRENE ISOCYANURATE SEE SPECS | ISOCYANURATE PERLITE, WOOD FIBRE *SLIPSHEET | SEE SPECIFI-CATIONS | SEE SPECIFI-CATIONS | SEE SPECIFI-CATIONS | SEE SPECIFI-CATIONS | SEE SPECIFI-CATIONS | |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | TROPICAL | SEE LITRATRE | SEE LITRATRE | SEE MFR | SEE LITRATRE | SEE LITRATRE | SEE LITRATRE | SEE LITRATRE | SEE LITRATRE | NONE |
| 11. WORKABLE TEMPERATURE RANGE | 0 F-115 F | 0 F-120 F | 0 F-120 F | SEE MFR | 0 F-120 F | 0 F-120 F | 0 F-120 F | 0 F-120 F | 0 F-120 F | 0 F-110 F |
| 12. FLASHING MATERIAL | PVC COATED METAL | PVC COATED METAL | PVC COATED METAL GREY/WHITE | MEMBRANE/ METAL | PVC COATED METAL/REIN-FORCED MEMBR | PVC COATED METAL/REIN-FORCED MEMBR | PVC COATED METAL/REIN-FORCED MEMBR | PVC COATED METAL/REIN-FORCED MEMBR | PVC COATED METAL/REIN-FORCED MEMBR | PVC COATED METAL |
| 13. FLASHING METHOD | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SEE MANUFACTURER | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | YES | YES | YES | | YES | YES | YES | YES | YES | YES |
| 15. COUNTRY: A. ORIGIN | BELGIUM | W GERMANY | W GERMANY | USA | W GERMANY | W GERMANY | W GERMANY | W GERMANY | W GERMANY | AUSTRIA |
| B. MANUFACTURE | BELGIUM | W GERM'Y/USA | W GERM'Y/USA | USA | USA | USA/W GERM'Y | USA/W GERM'Y | USA/W GERM'Y | USA/W GERM'Y | AUSTRIA |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1970 | 1966 | 1966 | 1983 | 1971 | | 1966 | | | 1970 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1980-LINCOLN,NE | 1976 | 1976 | 1980 | 1977-NEW YORK | | 1971-NEW YORK | | 1982-USA | 1982-LOS ANGELES |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | | | | | >20,000,000 | | >15,000,000 | | | |
| B. USA | 50,000 | THOUSANDS | THOUSANDS | 41,000 | >10,000,000 | | >5,000,000 | | | |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 5/10 | 5/10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | NO | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | X | | | | | X | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | X | X | X | X | X | X | X | X | X |
| D.2 ORIG. COST OF INSTALT'N | | | | X | | | | | | |
| D.3 $ PER SQUARE | | | | X | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | COAL TAR SEE CHEM RES LIS | COAL TAR OIL ANIMAL FATS | COAL TAR OIL ANIMAL FATS | COAL TAR | COAL TAR SEE CHEM RES LIS | COAL TAR SEE CHEM RES LIS | COAL TAR SEE CHEM RES LIS | COAL TAR SEE CHEM RES LIS | COAL TAR SEE CHEM RES LIS | COAL TAR |
| 20. METHOD OF DISTRIBUTION | MFR/REPS | DIRECT TO CONTRS | DIRECT TO CONTRS | DISTRI-BUTORS | MANUFACTURER | MANUFACTURER | MANUFACTURER | MANUFACTURER | MANUFACTURER | DIRECT |
| 21. NUMBER OF REGIONAL LOCATIONS | 5 | 8 | 8 | 8 | 4 | 4 | 4 | 4 | 4 | 6 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | ON JOB TRAINING | FACTORY FIELD | FACTORY FIELD | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| 24. SALES INFORMATION CONTACT | OFFICE | CUSTOMER SERVICE | CUSTOMER SERVICE | R SIMMONS | SALES AID GROUP | SALES AID GROUP | SALES AID GROUP | SALES AID GROUP | SALES AID GROUP | P DOWNEY |
| 25. TECHNICAL INFORMATION CONTACT | OFFICE | TECHNICAL SERVICE | TECHNICAL SERVICE | S WALKO | TECHNICAL SERVICE | TECHNICAL SERVICE | TECHNICAL SERVICE | TECHNICAL SERVICE | TECHNICAL SERVICE | |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 |
| 27. SEE APPENDIX PAGE | | | | | | | | | | 80 |

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| IPW INTERPLASTIC | PANTASOTE INC. | PMS/SUCOFLEX | | RUBBER PLASTICS COMPOUND COMPANY, INC. | | SARNAFIL INC. | | | WAT PRO INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTEROOF "B" | FLEXHIDE LR 50 | SUCOFLEX F-132 | SUCOFLEX F-127 | NERVAPLY BM | NERVAPLY UB | SARNAFIL G410 | SARNAFIL S327 | SARNAFIL G442 | FLAGON C | FLAGON MF | FLAGON SF | FLAGON MFR |
| NONE | POLYESTER | FIBERGLASS | POLYESTER | NONE | NONE | FIBERGLASS | POLYESTER | FIBERGLASS | NONE | NONE | FIBERGLAS | FIBERGLAS |
| GREY .30 | WHITE/GREY .32 | LIGHT GREY .33 | LIGHT GREY .37 | SLATE .36 | BONE .49 | GREY & AST'D .33 | GREY .33 | GREY .33 | LIGHT GREY .33 | LIGHT GREY .33 | OFF WHITE .33 | OFF WHITE .33 |
| NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| SOLVENT/ THERMAL | SOLVENT/ HEAT | HOT AIR WELD | HOT AIR WELD | SOLVENT/ HEAT | SOLVENT/ HEAT | HOT AIR WELD | HOT AIR WELD | HOT AIR WELD | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT |
| 10 | MECH FASTND | 10-12<br>X<br>X<br>X | MECH FASTEND | 10<br>LOOSE LAID<br>NO<br>NO | BAR/WASHER<br>NO<br>NO | X | MECH FASTEND<br>X<br>X | 10 | 10 | 10<br>MECH FASTEND | 10<br>MECH FASTEND | 10<br>MECH FASTEND |
| DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | 1:12 | 6:12+ | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X | X<br>X | X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| X<br>X<br>X | X<br>X<br>X<br>ISOCYANURATE EXTRUDED POLYSTYRENE | X<br>X<br>ISOCYANURATE CONCRETE, PLYWOOD, CONSULT MFGR | X<br>X<br>ISOCYANURATE CONCRETE, PLYWOOD, CONSULT MFGR | X<br>X<br>X | X<br>X<br>X | ISOCYANURATE | LAM'D SLPSHT<br>ISOCYANURATE | W/SLIPSHEET<br>ISOCYANURATE | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| NONE<br>0 F-100 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>5 F-140 F | NONE<br>5 F-140 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F |
| PVC COATED METAL | SELF OR PVC COATED METAL | PVC CLAD METAL & F132 MEMBRANE | PVC CLAD METAL & F132 MEMBRANE | SELF OR PVC METAL | SELF OR PVC METAL | G410 | G410 OR S327 | G442 | PVC/PVC CTD METAL | PVC/PVC CTD METAL | PVC/PVC CTD METAL | PVC/PVC CTD METAL |
| SOLVENT/ HEAT | SOLVENT/ HEAT | ADHESIVE & HEAT WELD | ADHESIVE & HEAT WELD | SOLVENT/ HEAT | SOLVENT/ HEAT | ADHESIVE & HEAT WELD | ADHESIVE & HEAT WELD | ADHESIVE & HEAT WELD | SOLVENT/ HEAT/ ADHESIVE | SOLVENT/ HEAT/ ADHESIVE | SOLVENT/ HEAT/ ADHESIVE | SOLVENT/ HEAT/ ADHESIVE |
| YES | YES | YES | YES | NO | NO | YES | YES | YES | YES | YES | YES | YES |
| AUSTRIA<br>AUSTRIA | USA<br>USA | SWITZERLAND<br>SWITZERLAND | SWITZERLAND<br>SWITZERLAND | USA<br>USA | USA<br>USA | SWITZERLAND<br>USA | SWITZERLAND<br>USA | SWITZERLAND<br>USA | ITALY<br>USA | ITALY<br>USA | ITALY<br>ITALY | ITALY<br>ITALY |
| 1968<br>1982-<br>DETROIT | 1978-<br>STANHOPE | 1966<br>1980-<br>HAWTHORNE | 1969<br>1980-<br>EL SEGUNDO | 1980-<br>NEW YORK CTY | 1980-<br>FLINT | 1964<br>1975-NEW<br>HAMPSHIRE | 1964<br>1978-<br>ILLINOIS | 1964<br>1977-MASSA-<br>CHUSETTS | 1963<br>1978 | 1963<br>1978 | 1963<br>1978 | 1963<br>1978 |
| | THOUSANDS | CONSULT MFR<br>100,000 | CONSULT MFR<br>CONSULT MFR | NONE<br>180,000 | NONE<br>170,000 | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS |
| 10<br><br>X | 5 OR 10<br>NO<br><br>X | 10<br>X<br><br>X | 10<br>X<br><br>X | 10<br>X<br><br>X | 10<br>X<br><br>X | 10<br>NO<br>X<br>X | 10<br>NO<br>X<br>X | 10<br>NO<br>X<br>X | 10<br><br><br>X | 10<br><br><br>X | 10<br><br><br>X | 10<br><br><br>X |
| X | X<br>X | X | X | X | X | REPLMT VALUE | REPLMT VALUE | REPLMT VALUE | X<br>REPLMT VALUE | X<br>REPLMT VALUE | X<br>REPLMT VALUE | X<br>REPLMT VALUE |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X | X | X |
| COAL TAR | PETROLEUM COAL TAR | BITUMEN, OILS ANIMAL FATS | BITUMEN, OILS ANIMAL FATS | COAL TAR | NEEDS SEPARATE SHEET | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | SEE APPENDIX | BITUMEN OILS COAL TAR |
| DIRECT | DIRECT | DIRECT | DIRECT | DIRECT & DISTRIBUTOR | DIRECT & DISTRIBUTOR | DIRECT | DIRECT | DIRECT | DIRECT, DISTRIBUTORS | DIRECT, DISTRIBUTORS | DIRECT, DISTRIBUTORS | DIRECT, DISTRIBUTORS |
| 6 | 1 | 8 | 8 | 2 | 2 | 6 | 6 | 6 | 7 | 7 | 7 | 7 |
| YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| FIELD, SEMINARS | FIELD, SEMINARS, FACTORY | FIELD, FACTORY | FIELD, FACTORY | FIELD | FIELD | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| P DOWNEY | J COPPOLA<br>L KAMP | D KENNEDY<br>T VALESH | D KENNEDY<br>T VALESH | J KLAUS<br>J LYNCH | J KLAUS<br>J LYNCH | R WARSHAW<br>E STEWART | R WARSHAW<br>E STEWART | R WARSHAW<br>E STEWART | 201/528-6727<br>201/528-6727 | 201/528-6727<br>201/528-6727 | 201/528-6727<br>201/528-6727 | 201/528-6727<br>201/528-6727 |
| 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 | 53 |
| 80 | | | | | | | 80 | | | 82 | | |

# PVC Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in Proposed ASTM Document D4434

PVC

| COMPANY NAME | | ALKOR-DIVISION HEDWIN CORP. | BARRA CORPORATION OF AMERICA INC. | | DIVERSITECH GENERAL BUILDING SYSTEMS DIVISION | DYNAMIT NOBEL | | | | | IPW INTERPLASTIC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT NAME | | ALKORPLAN | RHENOFOL C-45 | RHENOFOL CV48 | GENSEAL ACR | TROCAL SMA | TROCAL SCMA | TROCAL S-60 | TROCAL SG-60 | TROCAL S-48 .48 MIL VERSION OF S-60 | INTEROOF "U" |
| TYPE | | — | I | III | I | I | III | I | III | I | I |
| GRADE | | — | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1. OVERALL THICKNESS: TYPE I, II, III | | | | | | | | | | | |
| MIN., INCHES | 0.045 | — | 0.045 | 0.048 | 0.045 | 0.048 | 0.048 | 0.060 | 0.060 | 0.048 | 0.060 |
| 2. TENSILE STRENGTH AT BREAK: TYPE I, TYPE II-GRADE 1 | | | | | | | | | | | |
| MIN., psi MACHINE DIRECTION | 1500 | — | 2440 | NA | 2100 | >2130 | >1640 | >2130 | >1640 | >2130 | 2780 |
| CROSS MACHINE DIRECTION | 1500 | — | — | NA | 2100 | >2130 | >1640 | >2130 | >1640 | >2130 | 2690 |
| 3. BREAKING STRENGTH: TYPE II-GRADE 2, TYPE III | | | | | | | | | | | |
| MIN., lbf/INCH | 200 | — | NA | — | NA | NA | >200 | NA | >200 | NA | NA |
| 4. ELONGATION AT BREAK | | | | | | | | | | | |
| TYPE I, TYPE II-GRADE 1 | | | | | | | | | | | |
| MIN.,% MACHINE DIRECTION | 250 | — | 350 | NA | 300 | >300 | >300 | >300 | >300 | >300 | 360 |
| CROSS MACHINE DIRECTION | 250 | — | — | NA | 300 | >300 | >300 | >300 | >300 | >300 | 370 |
| TYPE II-GRADE 2, TYPE III | | | | | | | | | | | |
| MIN.,% MACHINE DIRECTION | 15(1) | — | NA | — | NA | NA | — | NA | — | NA | NA |
| CROSS MACHINE DIRECTION | 15(1) | — | NA | — | NA | NA | — | NA | — | NA | NA |
| 5. SEAM STRENGTH: TYPE I, II, III | | | | | | | | | | | |
| MIN.,% OF TENSILE OR BREAKING STRENGTH | 75.0 | — | — | — | >75.0 | >75 | >75 | >75 | >75 | >75 | — |
| 6. RETENTION OF PROPERTIES AFTER HEAT AGING | | | | | | | | | | | |
| TENSILE STRENGTH: TYPE I, TYPE II—GRADE 1 | | | | | | | | | | | |
| MIN.,% OF ORIGINAL | 80.0 | — | 100 | NA | >80.0 | >80 | NA | >80 | NA | >80 | +7 |
| BREAKING STRENGTH: TYPE II—GRADE 2, TYPE III | | | | | | | | | | | |
| MIN.,% OF ORIGINAL | 80.0 | — | NA | — | NA | NA | >80 | NA | >80 | NA | NA |
| ELONGATION: TYPE I, II, III | | | | | | | | | | | |
| MIN.,% OF ORIGINAL | 80.0 | — | 94 | — | >95.0 | >80 | >80 | >80 | >80 | >80 | 98 |
| 7. TEAR RESISTANCE: TYPE I, TYPE II-GRADE 1 | | | | | | | | | | | |
| MIN., lbf | 10.0 | — | — | NA | 15.0 | — | NA | — | NA | — | 17 |
| 8. TEARING STRENGTH: TYPE II-GRADE 2, TYPE III | | | | | | | | | | | |
| MIN., lbf | 45.0 | — | NA | 450 LBS | NA | NA | — | NA | — | NA | NA |
| 9. LOW TEMPERATURE BEND: TYPE I, II, III | PASS | — | — | — | — | PASS | PASS | PASS | PASS | PASS | -40 F |
| 10. ACCELERATED WEATHERING TEST | | | | | | | | | | | |
| CRACKING: TYPE I, II, III | PENDING | | | | | | | | | | |
| DISCOLORATION: TYPE I, II, III | PENDING | | | | | | | | | | |
| CRAZING: TYPE I, II, III | PENDING | | | | | | | | | | |
| 11. LINEAR DIMENSIONAL CHANGE | | | | | | | | | | | |
| TYPE I, MAX.,% | 3.0 | — | — | NA | <1.0 | <2 | NA | <2 | NA | <2 | 0.3 |
| TYPE II, MAX.,% | 0.1 | — | NA | NA | — | NA | NA | NA | NA | NA | NA |
| TYPE III, MAX.,% | 0.5 | — | NA | 0.5 | — | NA | <.1 | NA | <.1 | NA | NA |
| 12. CHANGE IN WEIGHT AFTER IMMERSION IN WATER | | | | | | | | | | | |
| TYPE I, II, III; MAX.,% | ±3.0 | — | — | — | +3.0 | +/-2 | +/-2 | +/-2 | +/-2 | +/-2 | 1.0 |
| 13. FOR GENERAL INFORMATION, SEE PAGE(S) | | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 14. SEE APPENDIX PAGE | | | | | | | | | | | 80 |

NOTE (1) FOR REINFORCING MATERIAL FABRIC ONLY
ELONGATION OF PVC MATERIAL SHALL BE THE SAME AS TYPE I.
NA = NOT APPLICABLE

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# PVC Part 2: Test Results *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in Proposed ASTM Document D4434



| IPW INTERPLASTIC | PANTASOTE INC. | PMS/SUCOFLEX | | RUBBER PLASTICS COMPOUND COMPANY, INC. | | SARNAFIL INC. | | | WAT PRO INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTEROOF "B" | FLEXHIDE LR 50 | SUCOFLEX F-132 | SUCOFLEX F-127 | NERVAPLY BM | NERVAPLY UB | SARNAFIL G410 | SARNAFIL S327 | SARNAFIL G442 | FLAGON C | FLAGON MF | FLAGON SF | FLAGON MFR |
| ___ | III | II | III | I | I | II | III | II | I | I | III | III |
| ___ | NA | 1 | NA | NA | NA | 1 | NA | 1 | NA | NA | NA | NA |
| .048 | 0.050 | 0.048 | 0.048 | 0.048 | 0.054 | 0.048 | 0.048 | 0.048 | 0.048 | 0.060 | 0.048 | 0.048 |
| 2160 | NA | 1552 | NA | 2390 | 2040 | 1550 | NA | 1800 | 2600 | 2600 | NA | NA |
| 2140 | NA | 1552 | NA | 2260 | 2520 | 1500 | NA | 1750 | 2600 | 2600 | NA | NA |
| ___ | 290 | NA | 295 | NA | NA | NA | 200 | NA | NA | NA | 220 | 220 |
| 360 | NA | 263 | NA | 325 | 325 | 330 | NA | 300 | 325 | 325 | NA | NA |
| 370 | NA | 253 | NA | 275 | 275 | 280 | NA | 300 | 325 | 325 | NA | NA |
| ___ | 25 | NA | 25 | NA | NA | NA | 80 | NA | NA | NA | >100 | >60 |
| ___ | 25 | NA | 21 | NA | NA | NA | 80 | NA | NA | NA | ____ | ____ |
| ___ | >80 | 79 | 78 | 80 | 80 | 100 | 100 | 100 | 80 | 80 | 80 | 80 |
| +7 | NA | ___ | NA | 109 | 107 | 110 | NA | 100 | >80 | >80 | NA | NA |
| ___ | 90 | 85 | 84 | NA | NA | NA | 100 | NA | NA | NA | >80 | >80 |
| 98 | 100 | 83 | 83 | 115 | 92.5 | 90 | 90 | 90 | >80 | >80 | >80 | >80 |
| 16 | NA | 12 | NA | 265 | 355 | 10.0 | NA | 10.0 | >10 | >10 | NA | NA |
| ___ | 110 | NA | 48 | NA | NA | NA | 50 | NA | NA | NA | 50 | 50 |
| -40 F | PASS | PASS | PASS | -30 F | -30 F | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| 0.3 | NA | NA | NA | 2.5 | 2.7 | NA | NA | NA | 0.5 | 0.5 | NA | NA |
| ___ | NA | 0.03 | NA | NA | NA | 0.04 | NA | 0.04 | NA | NA | NA | NA |
| ___ | 0.5 | NA | 0.2 | NA | NA | NA | 0.06 | NA | NA | NA | 0.1 | 0.1 |
| 1.0 | +1.2 | +0.2 | +0.5 | 2.0 | 2.3 | 1.3 | 1.5 | 1.3 | PASS | PASS | PASS | PASS |
| 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 |
| | | | | | | | 80 | | | 82 | | |

## EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | AMERICAN HYDROTECH, INC. | | | | BARRA CORPORATION OF AMERICA, INC. | | | | | CARLISLE SYNTEC SYSTEMS |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | HYDRO-SEAL .045 BLACK | HYDRO-SEAL .045 WHITE | HYDRO-SEAL .060 BLACK | HYDRO-SEAL .060 WHITE | RUBBERSHIELD 45 BLACK | RUBBERSHIELD 45 BLACK FIRE RATED | RUBBERSHIELD 60 BLACK | RUBBERSHIELD 60 WHITE | RUBBERSHIELD 60 WHITE FIRE RATED | SURE-SEAL EPDM - .045 |
| 3. PRODUCT DESCRIPTION: A. REINFORCEMENT | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| B. COLOR | BLACK | WHITE | BLACK | WHITE | BLACK | BLACK | BLACK | WHITE | WHITE | GREY/BLACK |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | .26 | .30 | .35 | .40 | .28 | .28 | .38 | .38 | .38 | .30 |
| 4. COATING REQUIRED | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE | ADHESIVE | ADHESIVE | ADHESIVE | ADHESIVE | ADHESIVE/ SEALANT |
| 7. TYPE OF ROOF SYSTEM: A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | 10 MIN | | 10 MIN | | 10 MIN | | X | | | X |
| B. PARTIALLY ADHERED (METHOD) | MECH FAST | MECH FAST | MECH FAST | MECH FAST | X | X | | | | MECH FAST |
| C. FULLY ADHERED (METHOD) | CONT ADHESVE | CONT ADHESVE | CONT ADHESVE | CONT ADHESVE | X | X | X | X | X | X |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | IRMA | | IRMA | | X | | X | | | X |
| 8. MINIMUM SLOPE | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | NONE |
| 9. USE OVER: A. PERLITE | X | X | X | X | X | X | | | | X |
| B. POLYURETHANE | X | X | X | X | X | X | X | X | X | X |
| C. WOOD FIBER | X | X | X | X | X | X | X | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | X | X | X | X | X | X | X | X | X |
| F. FELT FACED COMPOSITES | X | X | X | X | X | X | X | X | X | X |
| G. OTHER | CONTACT AHI FOR SPECIFICS | CONTACT AHI FOR SPECIFICS | CONTACT AHI FOR SPECIFICS | CONTACT AHI FOR SPECIFICS | SEE SPECS OR TECH BULLETINS | SEE SPECS OR TECH BULLETINS | SEE SPECS OR TECH BULLETINS | SEE SPECS OR TECH BULLETINS | SEE SPECS OR TECH BULLETINS | SEE SPECS |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | | NONE | | NONE |
| 11. WORKABLE TEMPERATURE RANGE | 20 F-110 F | 20 F-110 F | 20 F-110 F | 20 F-110 F | TECH SVCS | TECH SVCS | TECH SVCS | TECH SVCS | TECH SVCS | -25 F-180 F |
| 12. FLASHING MATERIAL | UNCRD NEOPRN PVC COATED METAL | UNCURED EPDM | UNCURED NEOPRENE | UNCURED EPDM | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED NEOPRENE | ELASTOFORM |
| 13. FLASHING METHOD | ADHESIVE/ SEALANT HEAT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | ADHESIVE |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | YES | YES | YES | YES | YES | YES | YES | YES | YES | NO |
| 15. COUNTRY: A. ORIGIN | USA | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| B. MANUFACTURE | USA | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | | | | | | | | | | 1963 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1981 | 1981 | 1981 | 1981 | 1965- MISHAWAKA | | 1965- MISHAWAKA | 1966- MISHAWAKA | | 1963- HARRISBURG |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN B. USA | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) A. DURATION (YEARS) | 10 | 10 | 10 | 10 | 5/10 | 5/10 | 5/10 | 5/10 | 5/10 | 15 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | NO | NO | NO | NO | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALT'N | | | | | X | X | X | X | X | X |
| D.3 $ PER SQUARE | X | X | X | X | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | SEE SPECS |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | CONTACT AHI | CONTACT AHI | CONTACT AHI | CONTACT AHI | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS |
| 20. METHOD OF DISTRIBUTION | REPS/DIRECT | REPS/DIRECT | REPS/DIRECT | REPS/DIRECT | CONTRACTORS | CONTRACTORS | CONTRACTORS | CONTRACTORS | CONTRACTORS | DISTRS/REPS |
| 21. NUMBER OF REGIONAL LOCATIONS | 30 | 30 | 30 | 30 | 8 | 8 | 8 | 8 | 8 | 39 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | SEMINARS, FIELD TRAINING | SEMINARS, FIELD TRAINING | SEMINARS, FIELD TRAINING | SEMINARS, FIELD TRAINING | FIELD | FIELD | FIELD | FIELD | FIELD | SEMINARS, FIELD, FACTORY |
| 24. SALES INFORMATION CONTACT | B LECUYER OFFICE | B LECUYER OFFICE | B LECUYER OFFICE | B LECUYER OFFICE | CUST SERV | CUST SERV | CUST SERV | CUST SERV | CUST SERV | H KENNY |
| 25. TECHNICAL INFORMATION CONTACT | E JARGER OFFICE | E JARGER OFFICE | E JARGER OFFICE | E JARGER OFFICE | TECH SERV | TECH SERV | TECH SERV | TECH SERV | TECH SERV | E KANE |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 61 | 63 | 61 | 63 | 61 | 61 | 61 | 63 | 64 | 61 |
| 27. SEE APPENDIX PAGE | | | | | | | | | | |

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# EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| | CARLISLE SYNTEC SYSTEMS | | | CELOTEX | | DIVERSITECH GENERAL BUILDING SYSTEMS DIVISION | | | | DUNLOP CONSTRUCTION PRODUCTS, INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SURE-SEAL EPDM - .060 | SURE-SEAL FR EPDM .045 | SURE-SEAL FR EPDM .060 | CELO I TYP I .045 LOOSE LAID & BALST | CELO I TY II .060 FULLY ADHERED | GENFLEX ACR .045 BLACK | GENFLEX ACR .045 WHITE | GENFLEX ACR .060 BLACK | GENFLEX ACR .060 WHITE | DUNSEAL .045 | DUNSEAL .060 | DUNSEAL .045 | DUNSEAL .060 |
| | NONE | NONE | NONE | NONE | NONE | NONE | NONE REQUIRED | NONE REQUIRED | NONE REQUIRED | WITH | WITH | WITHOUT | WITHOUT |
| | GREY/BLACK .40 | GREY/BLACK .30 | GREY/BLACK .40 | BLACK .27 | BLACK .36 | BLACK .26 | WHITE .26 | BLACK .36 | WHITE .36 | BLACK .28 | BLACK .38 | BLACK .28 | BLACK .38 |
| | NONE | X | X | NONE | NONE | | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| | X<br>X | X | X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE | ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | TAPE/ ADHESIVE | TAPE/ ADHESIVE | TAPE/ ADHESIVE | TAPE/ ADHESIVE |
| | X<br>MECH FAST<br>X<br>X | X<br>MECH FAST<br>X | X<br>MECH FAST<br>X | X | CONTACT ADHS | 10.5<br>X<br>X<br>X | 10.5<br>X<br>X | 10.5<br>X<br>X<br>X | 10.5<br>X<br>X<br>X | 10<br>MECH FAST<br>CONTACT ADHS<br>X | 10<br>MECH FAST<br>CONTACT ADHS<br>X | 10<br>MECH FAST<br>CONTACT ADHS<br>X | 10<br>MECH FAST<br>CONTACT ADHS<br>X |
| | NONE | NONE | NONE | DEAD LEVEL | DEAD LEVEL | LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | NONE | NONE | NONE | NONE |
| | X<br>X<br>X | X*<br>X*<br>X* | X*<br>X*<br>X* | X<br>X<br>X | X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| | X<br>X<br>X<br>SEE SPECS | X*<br>X*<br>X*<br>*SEE SPECS | X*<br>X*<br>X*<br>*SEE SPECS | X<br>PLYWOOD,WOOD PLANK SMOOTH BUR | X<br>PLYWOOD,WOOD PLANK SMOOTH BUR | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS |
| | NONE<br>-25 F-180 F | NONE<br>-25 F-180 F | NONE<br>-25 F-180 F | NONE<br>ABOVE 0 F | NONE<br>ABOVE 0 F | NONE | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-120 F | NONE<br>0 F-160 F | NONE<br>0 F-160 F | NONE<br>0 F-160 F | NONE<br>0 F-160 F |
| | ELASTOFORM | ELASTOFORM | ELASTOFORM | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED | UNCURED EPDM | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED EPDM OR NEOPRENE | UNCURED EPDM OR NEOPRENE | UNCURED EPDM OR NEOPRENE | UNCURED EPDM OR NEOPRENE |
| | ADHESIVE | ADHESIVE | ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CEMENT | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | TAPE AND/OR ADHESIVE | TAPE AND/OR ADHESIVE | TAPE AND/OR ADHESIVE | TAPE AND/OR ADHESIVE |
| | NO | NO | NO | X | X | YES | NO | YES | YES | YES | YES | YES | YES |
| | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | CANADA<br>CANADA | CANADA<br>CANADA | CANADA<br>CANADA | CANADA<br>CANADA |
| | 1963<br>1963-HARRISBURG | | | 1980-LEXINGTON | 1965-MISHAWAKA | 1981-ADRIAN | 1983-TEXAS | 1981-ADRIAN | 1981-ADRIAN | 1964<br>1981-BUFFALO | 1964<br>1982-CLEVELAND | 1964<br>1981-BUFFALO | 1964<br>1982-CLEVELAND |
| | THOUSANDS | | | 200,000 | 160,000 | THOUSANDS | 10,000 | THOUSANDS | THOUSANDS | THOUSANDS<br>THOUSANDS | THOUSANDS<br>THOUSANDS | THOUSANDS<br>THOUSANDS | THOUSANDS<br>THOUSANDS |
| | 15<br>X | | | 5,10<br>X | 5,10<br>X | 15<br>NO<br>X<br>X | 10<br>NO | 15<br>NO<br>X<br>X | 15<br>NO<br>X<br>X | 15<br>5/10 | 15<br>5/10 | 15<br>5/10 | 15<br>5/10 |
| | X | | | X | X | X | X | X | X | X | X | X | X |
| | SEE SPECS<br>X | SEE SPECS<br>X | SEE SPECS<br>X | SEE SPECS | SEE SPECS | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| | PETROLEUM OILS | PETROLEUM SEE SPECS | PETROLEUM OILS | PETROLEUM OILS | PETROLEUM OILS | SEE MANUFACTURER | SEE MANUFACTURER | SEE MANUFACTURER | SEE MANUFACTURER | HYDROCARBONS | HYDROCARBONS | HYDROCARBONS | HYDROCARBONS |
| | DISTRS/REPS | DISTRS/REPS | DISTRS/REPS | DISTRS/ APPRV CONTRS | DISTRS/ APPRV CONTRS | DISTRIBUTORS | APPROVED CONTRACTORS | APPROVED CONTRACTORS | APPROVED CONTRACTORS | AGENT/DIRECT | AGENT/DIRECT | AGENT/DIRECT | AGENT/DIRECT |
| | 39<br>YES | 39<br>YES | 39<br>YES | YES | YES | 8<br>YES | 8<br>YES | 8<br>YES | 8<br>YES | YES | YES | YES | YES |
| | SEMINARS, FIELD, FACTORY | SEMINARS, FIELD, FACTORY | SEMINARS, FIELD, FACTORY | SEMINARS | SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| | H KENNY<br>E KANE | H KENNY<br>E KANE | H KENNY<br>E KANE | REGIONAL OFF<br>C J KLASEN | REGIONAL OFF<br>C J KLASEN | 419-729-3731<br>419-729-3731 | 419-729-3731<br>419-729-3731 | 419-729-3731<br>419-729-3731 | 419-729-3731<br>419-729-3731 | P HYRSKO<br>D BRAZIER | P HYRSKO<br>D BRAZIER | P HYRSKO<br>D BRAZIER | P HYRSKO<br>D BRAZIER |
| | 61 | 61 | 61 | 61 | 61 | 61 | 64 | 61 | 64 | 63 | 63 | 61 | 61 |

# EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | ERA CORPORATION | | | | EVANITE PERMAGLAS INC. | | | | FIRESTONE BUILDING PRODUCTS COMPANY | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | ERA-EPDM 245 - BLACK | ERA-EPDM 260 - BLACK | ERA-EPDM 245 - WHITE | ERA-EPDM 260 - WHITE | EVANITE PERM GLASS DEPEND MEMB.045 BLK | EVANITE PERM GLAS DEPEND MEMB.060 BLK | EVANITE PERM GLAS DEPEND MEMB.045 WH | EVANITE PERM GLAS DEPEND MEMB.060 WH | RUBBERGARD .045 | RUBBERGARD .060 |
| 3. PRODUCT DESCRIPTION: A. REINFORCEMENT | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| B. COLOR | BLACK | BLACK | WHITE | WHITE | BLACK | BLACK | WHITE | WHITE | BLACK | BLACK |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | .28 | .35 | .30 | .40 | .30 | .45 | .40 | .60 | .28 | .38 |
| 4. COATING REQUIRED | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | YES | YES | YES | YES | YES | YES | YES | YES | X | X |
| B. REROOFING | YES | YES | YES | YES | YES | YES | YES | YES | X | X |
| 6. FIELD LAP JOINT METHOD | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | JOINT TAPE/ ADHESIVE | JOINT TAPE/ ADHESIVE | JOINT TAPE/ ADHESIVE | JOINT TAPE/ ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE |
| 7. TYPE OF ROOF SYSTEM: A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | X | X | X | X | 10 | 10 | 10 | 10 | 10 | 10 |
| B. PARTIALLY ADHERED (METHOD) | MECH FAST | MECH FAST | X | X | BATTENS | BATTENS | BATTENS | BATTENS | BATTENS | BATTENS |
| C. FULLY ADHERED (METHOD) | CONTACT ADHS | X | X | X | CONTACT ADHV | CONTACT ADHV | CONTACT ADHV | CONTACT ADHV | | X |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | | | | | | | | | X | X |
| 8. MINIMUM SLOPE | LEVEL | LEVEL | LEVEL | LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| 9. USE OVER: A. PERLITE | X | X | X | X | X* | X* | X* | X* | X | X |
| B. POLYURETHANE | X | X | X | X | X* | X* | X* | X* | X | X |
| C. WOOD FIBER | X | X | X | X | X* | X* | X* | X* | X | X |
| D. GLASS FIBER | X | X | X | X | X* | X* | X* | X* | X | X |
| E. EXPANDED POLYSTYRENE | X | X | X | X | X* | X* | X* | X* | X | X |
| F. FELT FACED COMPOSITES | X | X | X | X | X* | X* | X* | X* | X | X |
| G. OTHER | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | *EVANITE FOR APPL METHODS OVER EACH TYPE | *EVANITE FOR APPL METHODS OVER EACH TYPE | *EVANITE FOR APPL METHODS OVER EACH TYPE | *EVANITE FOR APPL METHODS OVER EACH TYPE | SEE SPECS | SEE SPECS |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 11. WORKABLE TEMPERATURE RANGE | 0 F-160 F | 0 F-160 F | 0 F-160 F | 0 F-160 F | -25 F-125 F | -25 F-150 F | -25 F-150 F | -25 F-150 F | 0 F-100 F | 0 F-100 F |
| 12. FLASHING MATERIAL | UNCURED EPDM | UNCURED EPDM | UNCURED EPDM | UNCURED EPDM | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED NEOPRENE | UNCURED NEOPRENE |
| 13. FLASHING METHOD | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | JOINT TAPE ADHV/SEALANT | JOINT TAPE ADHV/SEALANT | JOINT TAPE ADHV/SEALANT | JOINT TAPE ADHV/SEALANT | CONTACT ADHESIVE | CONTACT ADHESIVE |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | | | | | YES | YES | YES | YES | YES | YES |
| 15. COUNTRY: A. ORIGIN | USA | USA | USA | USA | USA/JAPAN | USA/JAPAN | USA/JAPAN | USA/JAPAN | USA | USA |
| B. MANUFACTURE | USA | USA | USA | USA | USA/JAPAN | USA/JAPAN | USA/JAPAN | USA/JAPAN | USA | USA |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | 1965 | 1965 | 1965 | 1965 | 1964 | 1964 | 1964 | 1964 | | |
| B. USA (YEAR)(CITY FIRST INSTALLED) | MISHAWAKA | MISHAWAKA | MISHAWAKA | MISHAWAKA | 1983- CORVALLIS | 1983- CORVALLIS | 1983- CORVALLIS | 1983- CORVALLIS | 1980- INDIANAPOLIS | 1980- INDIANAPOLIS |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | NA | NA | NA | NA | NA | NA | NA | NA | | |
| B. USA | NA | NA | NA | NA | NA | NA | NA | NA | MILLIONS | MILLIONS |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) A. DURATION (YEARS) | 5-11-21 | 21 | 21 | 21 | 5,10 | 5,10 | 5,10 | 5,10 | 10/15 | 10/15 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | | | | | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | X | X |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALT'N | X | X | X | X | X | X | X | X | X | X |
| D.3 $ PER SQUARE | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | PETROLEUM OILS | PETROLEUM OILS | PETROLEUM OILS | PETROLEUM OILS | HYDROC SOLVS SEE SPECS | HYDROC SOLVS SEE SPECS |
| 20. METHOD OF DISTRIBUTION | DIRECT | DIRECT | DIRECT | DIRECT | DISTRS/ DIRECT/REPS | DISTRS/ DIRECT/REPS | DISTRS/ DIRECT/REPS | DISTRS/ DIRECT/REPS | DIRECT/REPS | DIRECT/REPS |
| 21. NUMBER OF REGIONAL LOCATIONS | | | | | 11 | 11 | 11 | 11 | 45 | 45 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | FIELD | FIELD | FIELD | FIELD | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS |
| 24. SALES INFORMATION CONTACT | D MISCHO | D MISCHO | D MISCHO | D MISCHO | B HENRY | B HENRY | B HENRY | B HENRY | 1-800-428-4442 | 1-800-428-4442 |
| 25. TECHNICAL INFORMATION CONTACT | R AHREN | R AHREN | R AHREN | R AHREN | J EARLEY | J EARLEY | J EARLEY | J EARLEY | 1-800-428-4511 | 1-800-428-4511 |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 61 | 61 | 64 | 64 | 61 | 61 | 65 | 65 | 61 | 61 |
| 27. SEE APPENDIX PAGE | | | | | | | | | | |

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# EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| GATES ENGINEERING COMPANY, INC. | | GOODYEAR TIRE & RUBBER COMPANY | | | | INTERNATIONAL RUBBER ROOFING SYSTEMS, INC. | | | KELLY ENERGY SYSTEMS, INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GATES SYSTEM 1 EPDM-45 MILS | GATES SYSTEM 1 EPDM-60 MILS | VERSIGARD EPDM.045 | VERSIGARD EPDM.060 | VERSIGARD EPDM.060 | VERSIGARD II EPDM.060 FLAME RETRDT | INTERNAT'L BLACK | INTERNAT'L WHITE | INTERNAT'L WHITE FIRE RETARDANT | WHALESKIN/81 C-EPDM .045 | WHALESKIN/81 WHITE .045 EPDM | WHALESKIN/81 WHITE .045 C-EPDM | WHALESKIN/81 .045 EPDM |
| NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| BLACK .26 | BLACK .39 | BLACK .28 | BLACK .38 | WHITE .45 | BLACK | BLACK .30 | WHITE .35 | WHITE .40 | BLACK 45 MIL NOM | WHITE 45 MIL NOM | WHITE 45 MIL NOM | BLACK 45 MIL NOM |
| OPTIONAL | OPTIONAL | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHV HEAT SEAL | CONTACT ADHV HEAT SEAL | CONTACT ADHV | CONTACT ADHV | SPLICING CEMENT | SPLICING CEMENT | | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE |
| 10 MECH FAST CONTACT ADHV IRMA | 10 MECH FAST CONTACT ADHV IRMA | X<br>X<br>X | X<br>X<br>X<br>X | X<br>X<br>X<br>X | X<br>X<br>X<br>X | 10 PLATE BOUND CONT CEMENT X | 10 PLATE BOUND CONT CEMENT | PLATE BOUND PLATE | X<br>X<br>X<br>X | X<br>X<br>X<br>X | X<br>X<br>X<br>X | 10 MIN<br>X<br>X<br>X |
| DEAD LEVEL | DEAD LEVEL | NONE | NONE | NONE | NONE | DEAD LEVEL | DEAD LEVEL | | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | | | | X*<br>X*<br>X* | X*<br>X*<br>X* | X*<br>X*<br>X* | X*<br>X*<br>X* |
| X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | SOME MAY REQUIRE BARRIER SHT | SOME MAY REQUIRE BARRIER SHT | SOME MAY REQUIRE BARRIER SHT | X*<br>X*<br>X*<br>*SEE KES FOR APPL METHODS OR SEE SPECS | X*<br>X*<br>X*<br>*SEE KES FOR APPL METHODS OR SEE SPECS | X*<br>X*<br>X*<br>*SEE KES FOR APPL METHODS OR SEE SPECS | X*<br>X*<br>X*<br>*SEE KES FOR APPL METHODS OR SEE SPECS |
| NONE 50 F-90 F | NONE 50 F-90 F | NONE 0 F-150 F | NONE 0 F-150 F | NONE 0 F-150 F | NONE 0 F-150 F | NONE 0 F-160 F | NONE 0 F-160 F | NONE 0 F-160 F | NONE -25 F-180 F | NONE -25 F-180 F | NONE -25 F-180 F | NONE -25 F-180 F |
| EPDM | EPDM | WINGPRENE UNCURRED BLK NEO | WINGPRENE UNCURRED BLK NEO | WINGPRENE UNCURRED WHT NEO | WINGPRENE UNCURRED BLK NEO | UNCURED EPDM | UNCURED EPDM | UNCURED EPDM | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN |
| CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | SPECIAL ADHESIVE | SPECIAL ADHESIVE | SPECIAL ADHESIVE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE |
| NO | NO | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA |
| 1979- SOUIX CITY | 1979- SOUIX CITY | 1982<br>1965- NEW BEDFORD | 1982<br>1965- NEW BEDFORD | 1982<br>1965- NEW BEDFORD | | 1982<br>1965- MISHAWAKA | 1965- MISHAWAKA | 1982- FORT WAYNE | 1979- THOMASTON | 1982-ORLANDO | 1982-ORLANDO | 1965- MISHAWAKA |
| 109,000 | 44,000 | MILLIONS | MILLIONS | THOUSANDS | | 15,000<br>250,000 | 50,000 | 3,000 | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS |
| 15<br>X | 15<br>X | 10<br>X<br>X | 10<br>X<br>X | 10<br>X<br>X | 10<br>X<br>X | 10<br>X<br>X<br>X | 10<br>X<br>X<br>X | 10<br>X<br>X<br>X | 21<br>X<br>ALSO AVAIL<br>X | 21<br>X<br>ALSO AVAIL<br>X | 21<br>X<br>ALSO AVAIL<br>X | 21<br>X<br>ALSO AVAIL<br>X |
| | | X | X | X | X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X | X | X | X |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| SEE SPECS | SEE SPECS | CONTACT GOODYEAR | CONTACT GOODYEAR | CONTACT GOODYEAR | CONTACT GOODYEAR | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR |
| DISTR/REPS | DISTR/REPS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | CONTRS/ DISTRS | CONTRS/ DISTRS | CONTRS DISTRS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS |
| 31<br>YES | 31<br>YES | 90<br>YES | 90<br>YES | 90<br>YES | 90<br>YES | 20<br>YES | 20<br>YES | 20<br>YES | 106<br>NO | 106<br>NO | 106<br>NO | 106<br>NO |
| FIELD, SEMINARS | FIELD, SEMINARS | FACTORY | FACTORY | FACTORY | FACTORY | FIELD, FACTORY | FIELD, FACTORY | FIELD, FACTORY | IN FIELD, SEMINARS | IN FIELD, SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS |
| 302/656- 9951<br>302/656- 9951 | 302/656- 9951<br>302/656- 9951 | 1-800-321- 1692<br>1-617-999 0571 | 1-800-321- 1692<br>1-617-999 0571 | 1-800-321- 1692<br>1-617-999 0571 | 1-800-321- 1692<br>1-617-999 0571 | R WHITMAN<br>R WHITMAN | R WHITMAN<br>R WHITMAN | R WHITMAN<br>R WHITMAN | T ARRAS<br>A POREMBA<br>T ARRAS<br>A POREMBA | T ARRAS<br>A POREMBA<br>T ARRAS<br>A POREMBA | T ARRAS<br>A POREMBA<br>T ARRAS<br>A POREMBA | T ARRAS<br>A POREMBA<br>T ARRAS<br>A POREMBA |
| 61 | 61 | 61 | 61 | 65 | 62 | 62 | 65 | 65 | 62 | 65 | 66 | 62 |

## EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| | KELLY ENERGY SYSTEMS, INC. | | | | | | | | KENDALL COMPANY | |
|---|---|---|---|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | | | | | | | | | | |
| **2. PRODUCT NAME** | WHALESKIN/81 TALC FREE .045 EPDM | WHALESKIN/81 C-EPDM .060 | WHALESKIN/81 WHITE .060 EPDM | WHALESKIN/81 GREY .081 EPDM | WHALESKIN/81 WHITE .060 C-EPDM | WHALESKIN/81 EPDM .060 | WHALESKIN/81 EPDM .081 | WHALESKIN/81 TALC FREE .060 EPDM | POLYKEN M-45 | POLYKEN M-60 |
| **3. PRODUCT DESCRIPTION:** | | | | | | | | | | |
| A. REINFORCEMENT | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| B. COLOR | BLACK | BLACK | WHITE | GREY | WHITE | BLACK | BLACK | BLACK | BLACK | BLACK |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | 45 MIL NOM | .34-.60 MIL | .34-.60 MIL | .56 | .34-.60 MIL | .34-.60 MIL | .56-.81 MIL | .34-.60 MIL | .28 | .35 |
| **4. COATING REQUIRED** | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| **5. USE:** A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| **6. FIELD LAP JOINT METHOD** | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | | | TAPE OR ADHESIVE | SEAM TAPE | SEAM TAPE |
| **7. TYPE OF ROOF SYSTEM:** | | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | 10 MIN | X | X | X | X* | X* | X* | 10 MIN | 10 | 10 |
| B. PARTIALLY ADHERED (METHOD) | X | X | X | X | X* | X* | X* | X | MECH FAST | MECH FAST |
| C. FULLY ADHERED (METHOD) | X | X | X | X | X* | X* | X* | X | CONT ADHES | CONT ADHES |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | X | X | X | X | X* | X* | X* | X | X | X |
| **8. MINIMUM SLOPE** | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | NONE | NONE |
| **9. USE OVER:** | | | | | | | | | | |
| A. PERLITE | X* | X* | X* | X* | X* | X* | X* | X* | X | X |
| B. POLYURETHANE | X* | X* | X* | X* | X* | X* | X* | X* | X | X |
| C. WOOD FIBER | X* | X* | X* | X* | X* | X* | X* | X* | X | X |
| D. GLASS FIBER | X* | X* | X* | X* | X* | X* | X* | X* | X | X |
| E. EXPANDED POLYSTYRENE | X* | X* | X* | X* | X* | X* | X* | X* | X | X |
| F. FELT FACED COMPOSITES | X* | X* | X* | X* | X* | X* | X* | X* | X | X |
| G. OTHER | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | *SEE KES FOR APPL METHODS OR SEE SPECS | SEE SPECS | SEE SPECS |
| **10. RESTRICTED REGIONS** (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| **11. WORKABLE TEMPERATURE RANGE** | -50 F-220 F | -25 F-180 F | -25 F-180 F | -25 F-180 F | -25 F-180 F | -25 F-180 F | -25 F-180 F | -50 F-220 F | 0 F-110 F | 0 F-110 F |
| **12. FLASHING MATERIAL** | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED NEO SLF ADHERING FLASHG TAPE | UNCURED NEO SLF ADHERING FLASHG TAPE |
| **13. FLASHING METHOD** | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | CONTACT ADHV GUM TAPE | SLF ADHERING TAPE | SLF ADHERING TAPE |
| **14. PRE-FORMED ACCESSORIES AVAILABLE** YES/NO | YES | YES | YES | YES | YES | YES | YES | YES | NO | NO |
| **15. COUNTRY:** A. ORIGIN | USA | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| B. MANUFACTURE | USA/CANADA | USA | USA | USA | USA | USA | USA | USA/CANADA | USA | USA |
| **16. YEAR FIRST COMMERCIAL USE:** A. FOREIGN (YEAR) | | | | | | | | | | |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1983- | 1979- THOMASTON | 1965- MISHAWAKA | 1965- MISHAWAKA | 1965- MISHAWAKA | 1965- MISHAWAKA | 1965- MISHAWAKA | 1983- GREELEY,CO | 1982- FRANKLIN,KY | 1982- FRANKLIN,KY |
| **17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²)** A. FOREIGN | | | | | | | | | | |
| B. USA | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | |
| **18. WARRANTY** (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 21 | 21 | 21 | 30 | 21 | 21 | 30 | 21 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | X | X | X | X | X | X | X | X | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | ALSO AVAIL | ALSO AVAIL | ALSO AVAIL | ALSO AVAIL | ALSO AVAIL | ALSO AVAIL | ALSO AVAIL | ALSO AVAIL | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | X | X | X | X | X | X | XX | X | | |
| D.2 ORIG. COST OF INSTALT'N | | | | | | | | X | X | X |
| D.3 $ PER SQUARE | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| **19. LIMITATIONS OR RESTRICTED USE** | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | PETROLEUM CONTACT SPLR | | SEE KENDALL | SEE KENDALL |
| **20. METHOD OF DISTRIBUTION** | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DIRECT | DIRECT |
| **21. NUMBER OF REGIONAL LOCATIONS** | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 15 | 15 |
| **22. LICENSED APPLICATOR AGREEMENT (YES/NO)** | NO | NO | NO | NO | NO | NO | NO | NO | YES | YES |
| **23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)** | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD TRAING SEMINARS | FIELD SEMINARS | FIELD SEMINARS |
| **24. SALES INFORMATION CONTACT** | T ARRAS | T ARRAS | T ARRAS | T ARRAS | T ARRAS | T ARRAS | T ARRAS | T ARRAS | K COFFEY | K COFFEY |
| **25. TECHNICAL INFORMATION CONTACT** | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | A POREMBA T ARRAS A POREMBA | DALIANIS | DALIANIS |
| **26. FOR TECHNICAL INFORMATION SEE PAGE(S)** | 62 | 62 | 66 | 66 | 66 | 62 | 62 | 62 | 62 | 62 |
| **27. SEE APPENDIX PAGE** | | | | | | | | | | |

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# EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| KENDALL COMPANY | | MANVILLE | | | | PROTECTIVE COATINGS, INC. | | | REEVES BROS. | | SYENERGY METHODS, INC. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POLYKEN MFR-45 | POLYKEN MFR-60 | SPM 45 BLACK | SPM 60 BLACK | SP-60 FR BLACK | SPM 60 WHITE | SUPEROOF-BLACK | SUPEROOF-WHITE | SUPEROOF-WHITE FIRE RETARDANT | REEVETECH .045 | REEVETECH .060 | SYENERGY RUBBER ROOF .055 BLACK | SYENERGY RUBBER ROOF .055 WHITE |
| NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| BLACK .28 | BLACK .35 | BLACK .455 | BLACK .255 | WHITE .255 | WHITE .455 | BLACK .40-.055 | WHITE .40-.050 | WH/FIRE RET .40-.050 | BLACK .28 | BLACK .37 | BLACK .35 | WHITE .40 |
| NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| SEAM TAPE | SEAM TAPE | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | ADHESIVE/ SEALANT | SPLICING CEMENT | SPLICING CEMENT | SPLICING CEMENT | ADHESIVE SEALANT | ADHESIVE SEALANT | CONTACT ADHESIVE | CONTACT ADHESIVE |
| 10<br>MECH FAST<br>CONT ADHES<br>X | 10<br>MECH FAST<br>CONT ADHES<br>X | X<br><br>X<br>X | X<br><br><br>X | 10 MIN<br><br><br>X | 10 MIN<br>MECH FAST<br>X<br>X | 10<br>PLATE BOUND<br>CONT CEMENT<br>X | 10<br>PLATE BOUND<br>CONT CEMENT | PLATE BOUND<br>CONT CEMENT | 10 | 10<br>X<br>X | 10 MIN<br>PLATE BOND<br>X<br>X | 10 MIN<br>PLATE BOND<br>X<br>X |
| NONE | NONE | NONE | NONE | NONE | NONE | DEAD LEVEL | DEAD LEVEL | | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SOME MAY REQUIRE BARRIER SHT | X<br>X<br>X<br>SOME MAY REQUIRE BARRIER SHT | X<br>X<br>X<br>SOME MAY REQUIRE BARRIER SHT | X | X | X<br>X<br>X<br>SEE SPECS OR TECH BULLETN | X<br>X<br>X<br>SEE SPECS OR TECH BULLETN |
| NONE<br>0 F-110 F | NONE<br>0 F-110 F | NONE<br>25 F-160 F | NONE<br>25 F-160 F | NONE<br>25 F-160 F | NONE<br>25 F-160 F | NONE<br>0 F-120 F | NONE<br>0 F-160 F | NONE<br>0 F-160 F | NONE<br>35 F-120 F | NONE<br>35 F-120 F | NONE<br>SEE TECH SVC | NONE<br>SEE TECH SVC |
| UNCURED NEO SLF ADHERING FLASHG TAPE | UNCURED NEO SLF ADHERING FLASHG TAPE | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED NEO UNCURED EPDM | UNCURED NEO UNCURED EPDM | UNCURED EPDM | UNCURED EPDM | UNCURED EPDM METAL | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN |
| SLF ADHERING TAPE | SLF ADHERING TAPE | ADHESIVE | ADHESIVE | ADHESIVE | ADHESIVE | SPLICING/ ADHESIVE | SPLICING ADHESIVE | SPLICING ADHESIVE | ADHESIVE | ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE |
| NO | NO | | | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA |
| 1982-<br>FRANKLIN,KY | 1982-<br>FRANKLIN,KY | 1979-MUNCIE | 1979-MUNCIE | 1983-MUNCIE | 1983-MUNCIE | 1982<br>1965-<br>MISHAWAKA | 1965-<br>MISHAWAKA | 1982-<br>FORT WAYNE | 1981-<br>WASHINGTON | 1981-<br>WASHINGTON | 1965-<br>MISHAWAKA | 1965-<br>MISHAWAKA |
| THOUSANDS | | THOUSANDS | THOUSANDS | THOUSANDS | THOUSANDS | MILLIONS | THOUSANDS | 30,000 | | | 6-12 AVAIL | 6-12 AVAIL |
| 10<br><br>X | 10<br><br>X | 5,10<br><br>X | 5,10<br><br>X | 5,10<br><br>X | 5,10<br><br>X | UP TO 20<br>X<br>X | UP TO 20<br>X<br>X | UP TO 20<br>X<br>X | 10<br>NO<br>X | 10<br>NO<br>X | 6/12<br>NO<br>X<br>X | 6/12<br>NO<br>X<br>X |
| X | X | X | X | X | X | X | X | X | X | X | X | X |
| X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X | X<br><br>X |
| SEE KENDALL | SEE KENDALL | CONTACT SPLR | CONTACT SPLR | CONTACT SPLR | CONTACT SPLR | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | AROMATIC HYDROCARBONS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS |
| DIRECT | DIRECT | REPS/DISTRS | REPS/DISTRS | REPS/DISTRS | REPS/DISTRS | CONTR/DISTRS | CONTR/DISTRS | CONTR/DISTRS | DIRECT | DIRECT | DISTRIBUTORS | DISTRIBUTORS |
| 15<br>YES | 15<br>YES | YES | YES | YES | YES | 10<br>YES | 10<br>YES | 10<br>YES | 3<br>YES | 3<br>YES | 30<br>YES | 30<br>YES |
| FIELD SEMINARS | FIELD SEMINARS | SEMINARS FACTORY FIELD | SEMINARS FACTORY FIELD | SEMINARS FACTORY FIELD | SEMINARS FACTORY FIELD | FIELD FACTORY | FIELD FACTORY | FIELD FACTORY | FIELD TRAINING | FIELD TRAINING | FIELD SEMINARS | FIELD SEMINARS |
| K COFFEY<br>DALIANIS | K COFFEY<br>DALIANIS | J BUSCH<br>V GRECO | J BUSCH<br>V GRECO | J BUSCH<br>V GRECO | J BUSCH<br>V GRECO | SULLIVAN<br>MURRELL | SULLIVAN<br>MURRELL | SULLIVAN<br>MURRELL | K SCHWARZ<br>B SMITH | K SCHWARZ<br>B SMITH | D CREED<br>DONFRANCESCO | D CREED<br>DONFRANCESCO |
| 62 | 62 | 62 | 62 | 62 | 66 | 62 | 67 | 67 | 62 | 62 | 62 | 67 |

## EPDM ETHYLENE PROPYLENE DIENE MONOMER Part 1 *(See Part 2 for Test Results)*

| 1. COMPANY NAME | SYENERGY METHODS, INC. | | | | WEATHERGARD ROOFING SYSTEMS, INC. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | SYENERGY RUBBER ROOF .045 BLACK | SYENERGY RUBBER ROOF .045 WHITE | SYENERGY RUBBER ROOF .060 BLACK | SYENERGY RUBBER ROOF .045FIRESTOP | WEATHERGARD STANDARD BLACK .045 | FIREGARD F450 BLACK | WEATHERGARD STANDARD BLACK .060 | WEATHERGARD STANDARD WHITE .045 | WEATHERGARD STANDARD WHITE .060 | FIREGARD U600 BLACK |
| 3. PRODUCT DESCRIPTION: A. REINFORCEMENT | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| B. COLOR | BLACK | WHITE | BLACK | BLACK | BLACK | BLACK | BLACK | WHITE | WHITE | BLACK |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | .25 | .28 | | .25 | .28 | .28 | .36 | .28 | .36 | .38 |
| 4. COATING REQUIRED | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 5. USE: A. NEW ROOFING | X | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X | X |
| 6. FIELD LAP JOINT METHOD | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE |
| 7. TYPE OF ROOF SYSTEM: A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | 10 MIN | 10 MIN | 10 MIN | 10 MIN | 10 MIN | 10 MIN | 10 MIN | NO | NO | NO |
| B. PARTIALLY ADHERED (METHOD) | PLATE BOND | PLATE BOND | PLATE BOND | PLATE BOND | X | X | X | X | X | X |
| C. FULLY ADHERED (METHOD) | X | X | X | X | X | X | X | X | X | X |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | X | X | X | X | X | X | X | X | X | X |
| 8. MINIMUM SLOPE | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| 9. USE OVER: A. PERLITE | X | X | X | X | X | X | X | X | X | X |
| B. POLYURETHANE | X | X | X | X | X | X | X | X | X | X |
| C. WOOD FIBER | X | X | X | X | X | X | X | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | X | X | X | X | X | X | X | X | X |
| F. FELT FACED COMPOSITES | X | X | X | X | X | X | X | X | X | X |
| G. OTHER | SEE SPECS OR TECH BULLETN | SEE SPECS OR TECH BULLETN | SEE SPECS OR TECH BULLETN | SEE SPECS OR TECH BULLETN | CONTACT WEATHERGARD | CONTACT WEATHERGARD | CONTACT WEATHERGARD | CONTACT WEATHERGARD | CONTACT WEATHERGARD | CONTACT WEATHERGARD |
| 10. RESTRICTED REGIONS (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| 11. WORKABLE TEMPERATURE RANGE | SEE TECH SVC | SEE TECH SVC | SEE TECH SVC | SEE TECH SVC | 32 F-160 F | 32 F-160 F | 32 F-160 F | 32 F-160 F | 32 F-160 F | 32 F-160 F |
| 12. FLASHING MATERIAL | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED EPDM UNCRD NEOPRN | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED WHITE EPDM | UNCURED WHITE EPDM | UNCURED NEOPRENE |
| 13. FLASHING METHOD | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE |
| 14. PRE-FORMED ACCESSORIES AVAILABLE YES/NO | YES | YES | YES | YES | YES | YES | YES | YES | YES | NO |
| 15. COUNTRY: A. ORIGIN | USA | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| B. MANUFACTURE | USA | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| 16. YEAR FIRST COMMERCIAL USE: A. FOREIGN (YEAR) | | | | | 1983-PR | | 1983 | 1983 | 1983 | 1984 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1965-MISHAWAKA | 1965-MISHAWAKA | 1965-MISHAWAKA | 1965-MISHAWAKA | 1981-MEMPHIS | 1983 | 1981 | 1983 | 1983 | 1984 |
| 17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²) A. FOREIGN | | | | | | | | | | |
| B. USA | | | | | | | | | | |
| 18. WARRANTY (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | | |
| A. DURATION (YEARS) | 6/12 | 6/12 | 6/12 | 6/12 | 5/10/15 | 5/10/15 | 5/10/15 | 5/10/15 | 5/10/15 | 5/10/15 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | NO | NO | NO | NO | YES | YES | YES | YES | YES | YES |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | X | X | X | X | 20 | 20 | 20 | 20 | 20 | 20 |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | 5/10/15 | 5/10/15 | 5/10/15 | 5/10/15 | 5/10/15 | 5/10/15 |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | | |
| D.2 ORIG. COST OF INSTALT'N | X | X | X | X | X | X | X | X | X | X |
| D.3 $ PER SQUARE | | | | | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X | X |
| 19. LIMITATIONS OR RESTRICTED USE | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS | PETROLEUM SEE SPECS |
| 20. METHOD OF DISTRIBUTION | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRS/REPS | DISTRS/REPS | DISTRS/REPS | DISTRS/REPS | DISTRS/REPS | DISTRS/REPS |
| 21. NUMBER OF REGIONAL LOCATIONS | 30 | 30 | 30 | 30 | 35 | 35 | 35 | 35 | 35 | 35 |
| 22. LICENSED APPLICATOR AGREEMENT (YES/NO) | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY) | FIELD SEMINARS | FIELD SEMINARS | FIELD SEMINARS | FIELD SEMINARS | ON SITE SEMINARS | ON SITE SEMINARS | ON SITE SEMINARS | ON SITE SEMINARS | ON SITE SEMINARS | ON SITE SEMINARS |
| 24. SALES INFORMATION CONTACT | D CREED | D CREED | D CREED | D CREED | 1-800-USA-EPDM | 1-800-USA-EPDM | 1-800-USA-EPDM | 1-800-USA-EPDM | 1-800-USA-EPDM | 1-800-USA-EPDM |
| 25. TECHNICAL INFORMATION CONTACT | DONFRANCESCO | DONFRANCESCO | DONFRANCESCO | DONFRANCESCO | | | | | | |
| 26. FOR TECHNICAL INFORMATION SEE PAGE(S) | 62 | 67 | 62 | 62 | 62 | 62 | 67 | 67 | 67 | 62 |
| 27. SEE APPENDIX PAGE | | | | | | | | | | |

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# EPDM Part 2: Test Results, Non-Reinforced Black *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in RMA Document IPR-1/1985

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COMPANY NAME** | | AMERICAN HYDROTECH, INC. | | BARRA CORPORATION OF AMERICA, INC. | | | CARLISLE SYNTEC SYSTEMS | | | | WEATHERGARD ROOFING SYSTEMS, INC. | |
| **PRODUCT NAME** | | HYDRO-SEAL .045 BLACK | HYDRO-SEAL .060 BLACK | RUBBERSHIELD 45 BLACK | RUBBERSHIELD 45 BLACK FIRE RATED | RUBBERSHIELD 60 BLACK | SURE-SEAL EPDM .045 | SURE-SEAL EPDM .060 | SURE-SEAL FR EPDM .045 | SURE-SEAL FR EPDM .060 | FIREGARD U600 WHITE | |
| **PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-1/1985** | | | | | | | | | | | NONE | |
| 1. **THICKNESS** (MIN, INCHES) | 0.040 | .043-.048 | .058-.063 | 0.045 | 0.045 | 0.060 | .045 | .060 | .045 | .060 | WHITE .38 | |
| 2. **TENSILE STRENGTH** (MIN., psi) | 1305 | 1400 | 1400 | 1400 | 1400 | 1400 | 1755 | 1755 | 1780 | 1780 | NONE | |
| 3. **ELONGATION, ULTIMATE** (MIN., %) | 300 | 300 | 300 | 300 | 300 | 300 | 520 | 150 | 495 | 495 | | |
| 4. **TENSILE SET** (MAX., 50% ELONGATION) | 10 | 10 | 10 | 3 | 3 | 3 | 0.1 | 0.1 | 0.1 | 0.1 | | |
| 5. **TEAR RESISTANCE** (MIN., lbf/INCH) | 150 | 150 | 150 | 225 | 200 | 225 | 220 | 220 | 215 | 215 | | |
| 6. **BRITTLENESS POINT** (MAX., °F) | -49 | -67 | -67 | -60 | -60 | -60 | -85 | -85 | -85 | -85 | X | |
| 7. **LINEAR DIMENSIONAL CHANGE** (MAX. %) | ±2 | +/-2 | +/-2 | +/-2 | +/-2 | +/-2 | 0.5 | 0.5 | 0.5 | 0.5 | X | |
| 8. **OZONE RESISTANCE** | NO CRACKS | X | X | X | X | X | X | X | X | X | CONTACT ADHESIVE | |
| 9. **HEAT AGING:** 9.1 **TENSILE STRENGTH** (MIN., psi) | 1205 | 1205 | 1205 | 1205 | 1205 | 1205 | 1600 | 1600 | 1800 | 1800 | | |
| 9.2 **ELONGATION, ULTIMATE** (MIN.,%) | 200 | 200 | 200 | 225 | 225 | 225 | 230 | 230 | 230 | 230 | | |
| 9.3 **TEAR RESISTANCE** (MIN., lbf/INCH) | 125 | 125 | 125 | 150 | 150 | 150 | 200 | 200 | 200 | 200 | | |
| 10. **WATER ABSORPTION** (MAX., MASS.%) | +8-2 | +/-2 | +/-2 | +1 | +1 | +1 | 2.3 | 2.3 | 2.3 | 2.3 | NO | |
| 11. **FACTORY SEAM STRENGTH—** | SHEET FAILURE, OR 50 lbf/INCH MIN. | X | X | 55 | 55 | 55 | X | X | X | X | X | |
| 12. **ACCELERATED WEATHERING** | UNDER STUDY | | | | | | | | | | X | |
| 13. **FOR GENERAL INFORMATION** | SEE PAGE(S) | 54 | 54 | 54 | 54 | 54 | 54 | 55 | 55 | 55 | DEAD LEVEL | |
| 14. **SEE APPENDIX PAGE** | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COMPANY NAME** | | CELOTEX | | DIVERSITECH GENERAL BUILDING SYSTEMS DIVISION | | DUNLOP CONSTRUCTION PRODUCTS, INC. | | ERA CORPORATION | | | | |
| **PRODUCT NAME** | | CELO I TY II .060 FULLY ADHERED | CELO I TYP I .045 LOOSE LAID & BALST | GENFLEX ACR .045 BLACK | GENFLEX ACR .060 BLACK | DUNSEAL .045 | DUNSEAL .060 | ERA-EPDM 245 - BLACK | ERA-EPDM 260 - BLACK | | | |
| **PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-1/1985** | | | | | | | | | | | X | |
| 1. **THICKNESS** (MIN, INCHES) | 0.040 | .060 +/- 10 | .045 +/- 10 | .045 | .060 | .045 | .060 | .040 | .055 | | | |
| 2. **TENSILE STRENGTH** (MIN., psi) | 1305 | 1400 | 1400 | 1350 | 1350 | 1650 | 1650 | 1485 | 1485 | | | |
| 3. **ELONGATION, ULTIMATE** (MIN., %) | 300 | 300 | 300 | 350 | 350 | 510 | 510 | 360 | 360 | | | |
| 4. **TENSILE SET** (MAX., 50% ELONGATION) | 10 | <10 | <10 | <5.0 | <5.0 | | | 2 | 2 | | | |
| 5. **TEAR RESISTANCE** (MIN., lbf/INCH) | 150 | 150 | 150 | 200 | 200 | 185 | 185 | 185 | 185 | | | |
| 6. **BRITTLENESS POINT** (MAX., °F) | -49 | -60 | -60 | -67 | -67 | <= -50 | <= -50 | -6- | -60 | | | |
| 7. **LINEAR DIMENSIONAL CHANGE** (MAX. %) | ±2 | <1 | <1 | <2.0 | <2.0 | 0.5 | | +/-1 | +/-1 | | | |
| 8. **OZONE RESISTANCE** | NO CRACKS | X | X | X | X | X | X | X | X | | | |
| 9. **HEAT AGING:** 9.1 **TENSILE STRENGTH** (MIN., psi) | 1205 | 1200 | 1200 | 1260 | 1260 | 1700 | 1700 | 1400 | 1400 | | | |
| 9.2 **ELONGATION, ULTIMATE** (MIN.,%) | 200 | 225 | 225 | 245 | 245 | 300 | 300 | 210 | 210 | | | |
| 9.3 **TEAR RESISTANCE** (MIN., lbf/INCH) | 125 | 150 | 150 | 160 | 160 | | | 165 | 165 | | | |
| 10. **WATER ABSORPTION** (MAX., MASS.%) | +8-2 | 2 | 2 | +1.0 | +1.0 | 3.0 | 3.0 | +/22 | +/-2 | | | |
| 11. **FACTORY SEAM STRENGTH—** | SHEET FAILURE, OR 50 lbf/INCH MIN. | X | X | X | X | X | X | X | X | | | |
| 12. **ACCELERATED WEATHERING** | UNDER STUDY | | | | | | | | | | | |
| 13. **FOR GENERAL INFORMATION** | SEE PAGE(S) | 55 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | | | |
| 14. **SEE APPENDIX PAGE** | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COMPANY NAME** | | EVANITE PERMAGLAS INC. | | FIRESTONE BUILDING PRODUCTS COMPANY | | GATES ENGINEERING COMPANY, INC. | | GOODYEAR TIRE & RUBBER COMPANY | | | | |
| **PRODUCT NAME** | | EVANITE PERM GLASS DEPEND MEMB.045 BLK | EVANITE PERM GLAS DEPEND MEMB.060 BLK | RUBBERGARD .045 | RUBBERGARD .060 | GATES SYSTEM 1 EPDM-45 MILS | GATES SYSTEM 1 EPDM-60 MILS | VERSIGARD EPDM .045 | VERSIGARD EPDM .060 | | | |
| **PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-1/1985** | | | | | | | | | | | X | |
| 1. **THICKNESS** (MIN, INCHES) | 0.040 | .043-.048 | .058-.063 | .045 | .060 | .045 | .060 | .045 | .060 | | | |
| 2. **TENSILE STRENGTH** (MIN., psi) | 1305 | 1400 | 1400 | 1650 | 1650 | 1500 | 1500 | 1690 | 1690 | | | |
| 3. **ELONGATION, ULTIMATE** (MIN., %) | 300 | 300 | 300 | 450 | 450 | 350 | 350 | 570 | 570 | | | |
| 4. **TENSILE SET** (MAX., 50% ELONGATION) | 10 | 5 | 5 | <5 | <5 | 5 | 5 | <10 | <10 | | | |
| 5. **TEAR RESISTANCE** (MIN., lbf/INCH) | 150 | 150 | 150 | 125 | 125 | 175 | 175 | 180 | 180 | | | |
| 6. **BRITTLENESS POINT** (MAX., °F) | -49 | -49 | -49 | -75 | -75 | -94 | -94 | -75 | -75 | | | |
| 7. **LINEAR DIMENSIONAL CHANGE** (MAX. %) | ±2 | +/-2 | +/-2 | <2 | <2 | + 1.5 | + 1.5 | <2 | <2 | | | |
| 8. **OZONE RESISTANCE** | NO CRACKS | X | X | X | X | X | X | X | X | | | |
| 9. **HEAT AGING:** 9.1 **TENSILE STRENGTH** (MIN., psi) | 1205 | 1205 | 1205 | 1450 | 1450 | 1400 | 1400 | 1710 | 1710 | | | |
| 9.2 **ELONGATION, ULTIMATE** (MIN.,%) | 200 | 200 | 200 | 210 | 210 | 200 | 200 | 380 | 380 | | | |
| 9.3 **TEAR RESISTANCE** (MIN., lbf/INCH) | 125 | 125 | 125 | 175 | 175 | 135 | 135 | 150 | 150 | | | |
| 10. **WATER ABSORPTION** (MAX., MASS.%) | +8-2 | +8 -2 | +8 -2 | <2 | <2 | +2 | +2 | +2 | +2 | | | |
| 11. **FACTORY SEAM STRENGTH—** | SHEET FAILURE, OR 50 lbf/INCH MIN. | X | X | X | X | X | X | X | X | | | |
| 12. **ACCELERATED WEATHERING** | UNDER STUDY | 50 | 50 | | | 65 | 65 | | | | | |
| 13. **FOR GENERAL INFORMATION** | SEE PAGE(S) | 56 | 56 | 56 | 56 | 57 | 57 | 57 | 57 | | | |
| 14. **SEE APPENDIX PAGE** | | | | | | | | | | | | |

| | |
|---|---|
| 5/10/15 | |
| YES | |
| 20 | |
| 5/10/15 | |
| X | |
| X | |
| X | |
| PETROLEUM | |
| SEE SPECS | |
| DISTRS/REPS | |
| 35 | |
| YES | |
| ON SITE | |
| SEMINARS | |
| 1-800-USA | |
| EPDM | |
| 67 | |

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# EPDM Part 2: Test Results, Non-Reinforced Black *(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in RMA Document IPR-1/1985

EPDM

| COMPANY NAME | | GOODYEAR TIRE & RUBBER COMPANY | INTERNATIONAL RUBBER ROOFING SYSTEMS INC. | KELLY ENERGY SYSTEMS, INC. | | | | | | | KENDALL COMPANY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT NAME | | VERSIGARD II EPDM .060 FLAME RET | INTERNAT'L BLACK | WHALESKIN/81 C-EPDM .045 | WHALESKIN/81 .045 EPDM | WHALESKIN/81 TALC FREE .045 EPDM | WHALESKIN/81 C-EPDM .060 | WHALESKIN/81 EPDM .060 | WHALESKIN/81 EPDM .081 | WHALESKIN/81 TALC FREE .060 EPDM | POLYKEN M-45 |
| **PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-1/1985** | | | | | | | | | | | |
| 1. **THICKNESS** (MIN, INCHES) | 0.040 | .060 | | .043 | .043 | .043 | .058 | .058 | .079 | .058 | .045 |
| 2. **TENSILE STRENGTH** (MIN., psi) | 1305 | 1940 | | 1400 | 1400 | 1400 | 1400 | 1400 | 1400 | 1400 | 1583 |
| 3. **ELONGATION, ULTIMATE** (MIN., %) | 300 | 430 | | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 390 |
| 4. **TENSILE SET** (MAX., 50% ELONGATION) | 10 | | | | | | | | | | 2 |
| 5. **TEAR RESISTANCE** (MIN., lbf/INCH) | 150 | 180 | | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 210 |
| 6. **BRITTLENESS POINT** (MAX., °F) | -49 | -75 | | -55 | -49 | -49 | -49 | -49 | -49 | -49 | PASS |
| 7. **LINEAR DIMENSIONAL CHANGE** (MAX. %) | ±2 | <2 | | +/-2 | +/-2 | +/-2 | +/-2 | +/-2 | +/-2 | +/-2 | 1.4 |
| 8. **OZONE RESISTANCE** | NO CRACKS | X | | X | X | X | X | X | X | X | X |
| 9. **HEAT AGING:** 9.1 **TENSILE STRENGTH** (MIN., psi) | 1205 | 1900 | | 1205 | 1205 | 1205 | 1205 | 1205 | 1205 | 1205 | 1350 |
| 9.2 **ELONGATION, ULTIMATE** (MIN.,%) | 200 | 300 | | 225 | 225 | 225 | 225 | 225 | 225 | 225 | 215 |
| 9.3 **TEAR RESISTANCE** (MIN., lbf/INCH) | 125 | | | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 180 |
| 10. **WATER ABSORPTION** (MAX., MASS.%) | +8-2 | +2 | | +8 -2 | +8 -2 | +8 -2 | +8 -2 | +8 -2 | +8 -2 | +8 -2 | 1.3 |
| 11. **FACTORY SEAM STRENGTH**— | SHEET FAILURE, OR 50 lbf/INCH MIN. | X | | X | X | X | X | X | X | X | |
| 12. **ACCELERATED WEATHERING** | UNDER STUDY | | | | | | | | | | 58 |
| 13. **FOR GENERAL INFORMATION** | SEE PAGE(S) | 57 | 57 | 57 | 57 | 58 | 58 | 58 | 58 | 58 | 58 |
| 14. **SEE APPENDIX PAGE** | | | | | | | | | | | |

| COMPANY NAME | | KENDALL COMPANY | | | MANVILLE | | | PROTECTIVE COATINGS, INC. | REEVES BROS. | |
|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT NAME | | POLYKEN M-60 | POLYKEN MFR-45 | POLYKEN MFR-60 | SPM 45 | SPM 60 | SP 60 FR | SUPEROOF-BLACK .45 | REEVETECH .045 | REEVETECH .060 |
| **PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-1/1985** | | | | | | | | | | |
| 1. **THICKNESS** (MIN, INCHES) | 0.040 | .060 | .045 | .060 | .043 | .058 | | 0.45 | .045 | .060 |
| 2. **TENSILE STRENGTH** (MIN., psi) | 1305 | 1680 | 1500 | 1600 | 1400 | 1400 | | 1600 | 1600 | 1600 |
| 3. **ELONGATION, ULTIMATE** (MIN., %) | 300 | 390 | 350 | 350 | 350 | 350 | | 400 | 350 | 350 |
| 4. **TENSILE SET** (MAX., 50% ELONGATION) | 10 | 2 | 3 | 3 | 10 | 10 | | | | |
| 5. **TEAR RESISTANCE** (MIN., lbf/INCH) | 150 | 235 | 200 | 200 | 150 | 150 | | | 175 | 175 |
| 6. **BRITTLENESS POINT** (MAX., °F) | -49 | PASS | PASS | PASS | -75 | -75 | | -60 | -60 | -60 |
| 7. **LINEAR DIMENSIONAL CHANGE** (MAX. %) | ±2 | .9 | 1.4 | 1.0 | <1 | <1 | | | 1 | 1 |
| 8. **OZONE RESISTANCE** | NO CRACKS | X | X | X | X | X | | | X | X |
| 9. **HEAT AGING:** 9.1 **TENSILE STRENGTH** (MIN., psi) | 1205 | 1460 | 1300 | 1400 | >1300 | >1300 | | | 1800 | 1800 |
| 9.2 **ELONGATION, ULTIMATE** (MIN.,%) | 200 | 225 | 215 | 225 | 225 | 225 | | | 250 | 250 |
| 9.3 **TEAR RESISTANCE** (MIN., lbf/INCH) | 125 | 165 | 150 | 150 | >150 | >150 | | | 150 | 150 |
| 10. **WATER ABSORPTION** (MAX., MASS.%) | +8-2 | 1.5 | 2.0 | 2.0 | <2 | <2 | | | | |
| 11. **FACTORY SEAM STRENGTH**— | SHEET FAILURE, OR 50 lbf/INCH MIN. | 67 | 57 | 65 | X | X | | | X | X |
| 12. **ACCELERATED WEATHERING** | UNDER STUDY | | | | | | | | | |
| 13. **FOR GENERAL INFORMATION** | SEE PAGE(S) | 58 | 59 | 59 | 59 | 59 | 59 | 59 | 59 | 59 |
| 14. **SEE APPENDIX PAGE** | | | | | | | | | | |

| COMPANY NAME | | SYENERGY METHODS, INC. | | | | WEATHERGARD ROOFING SYSTEMS, INC. | | | |
|---|---|---|---|---|---|---|---|---|---|
| PRODUCT NAME | | SYENERGY RUBBER ROOF .055 BLACK | SYENERGY RUBBER ROOF .045 BLACK | SYENERGY RUBBER ROOF .060 BLACK | SYENERGY RUBBER ROOF .045 BLKFIRE | WEATHERGARD STANDARD .045 BLACK | FIREGARD F450 BLACK | WEATHERGARD STANDARD .060 BLACK | FIREGARD U600 BLACK |
| **PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-1/1985** | | | | | | | | | |
| 1. **THICKNESS** (MIN, INCHES) | 0.040 | .050 | .040 | .055 | .040 | .043 MIN | .043 MIN | .058 MIN | .058 MIN |
| 2. **TENSILE STRENGTH** (MIN., psi) | 1305 | 1680 | 1680 | 1680 | 1400 | 1400 | 1400 | 1400 | 1400 |
| 3. **ELONGATION, ULTIMATE** (MIN., %) | 300 | 350 | 350 | 350 | 300 | 300 | 300 | 300 | 300 |
| 4. **TENSILE SET** (MAX., 50% ELONGATION) | 10 | 8.7 | 8.7 | 8.7 | | 10 | 10 | 10 | 10 |
| 5. **TEAR RESISTANCE** (MIN., lbf/INCH) | 150 | 171 | 171 | 171 | 150 | 125 | 125 | 125 | 125 |
| 6. **BRITTLENESS POINT** (MAX., °F) | -49 | -49 | -49 | -49 | -60 | -49 | -49 | -49 | -49 |
| 7. **LINEAR DIMENSIONAL CHANGE** (MAX. %) | ±2 | -1.4 | -1.4 | -1.4 | 1% | +/- 2.0 | +/- 2.0 | +/- 2.0 | +/- 2.0 |
| 8. **OZONE RESISTANCE** | NO CRACKS | X | X | X | X | X | NO CRACKS | NO CRACKS | NO CRACKS |
| 9. **HEAT AGING:** 9.1 **TENSILE STRENGTH** (MIN., psi) | 1205 | 1590 | 1590 | 1590 | 1300 | 1205 | 1205 | 1205 | 1205 |
| 9.2 **ELONGATION, ULTIMATE** (MIN.,%) | 200 | 270 | 270 | 270 | 250 | 225 | 225 | 225 | 225 |
| 9.3 **TEAR RESISTANCE** (MIN., lbf/INCH) | 125 | 151 | 151 | 151 | 125 | +8 -2 | +8 -2 | +8 -2 | +8 -2 |
| 10. **WATER ABSORPTION** (MAX., MASS.%) | +8-2 | +5.7 | +5.7 | +5.7 | +1.5 | X | X | X | X |
| 11. **FACTORY SEAM STRENGTH**— | SHEET FAILURE, OR 50 lbf/INCH MIN. | X | X | X | X | | | | |
| 12. **ACCELERATED WEATHERING** | UNDER STUDY | | | | | | | | |
| 13. **FOR GENERAL INFORMATION** | SEE PAGE(S) | 59 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| 14. **SEE APPENDIX PAGE** | | | | | | | | | |

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## **EPDM Part 2:** Test Results, Fabric-Reinforced Black

*(See Part 1 for General Information)*

Test Description and Suggested Values As Specified in RMA Document IPR-2/1985

| COMPANY NAME | | DUNLOP CONSTRUCTION PRODUCTS | |
|---|---|---|---|
| PRODUCT NAME | | DUNSEAL .045 | DUNSEAL .060 |
| PHYSICAL PROPERTIES (PER RMA DOCUMENT IPR-2/1985 | | | |
| 1. THICKNESS (MIN., INCHES) | 0.040 | .045 | .060 |
| 2. THICKNESS OVER SCRIM (EACH SIDE) (MIN., INCHES) | 0.015 | .017 | .025 |
| 3. BREAKING STRENGTH (MIN., lbf) | 90 | 100 | 100 |
| 4. ELONGATION, ULTIMATE (MIN., %) | 250 | 510 | 510 |
| 5. TEARING STRENGTH (MIN., lbf) | 10 | 170 | 170 |
| 6. BRITTLENESS POINT (MAX., °F) | -49 | <= -50 F | <= -50 F |
| 7. LINEAR DIMENSIONAL CHANGE (MAX., %) | ±2 | .5 | .5 |
| 8. OZONE RESISTANCE | NO CRACKS | X | X |
| 9. HEAT AGING: 9.1 BREAKING STRENGTH (MIN., %) | 80 | 100 | 100 |
| 9.2 ELONGATION, ULTIMATE (MIN.,%) | 200 | 300 | 300 |
| 10. WATER ABSORPTION (MAX., MASS.%) | +8-2 | | |
| 11. FACTORY SEAM STRENGTH— | SHEET FAILURE, OR 50 lbf/INCH MIN. | X | X |
| 12. ACCELERATED WEATHERING | UNDER STUDY | | |
| 13. FOR GENERAL INFORMATION | SEE PAGE(S) | 55 | 55 |
| 14. SEE APPENDIX PAGE | | | |

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## **EPDM Part 2:** Test Results, Other Than Black EPDM *(See Part 1 for General Information)*

| 1. COMPANY NAME | | AMERICAN HYDROTECH, INC. | | BARRA CORPORATION OF AMERICA, INC. |
|---|---|---|---|---|
| 2. PRODUCT NAME | | HYDRO-SEAL.045 WHITE | HYDRO-SEAL.060 WHITE | RUBBERSHIELD 60 WHITE |
| 3. PRODUCT DESCRIPTION | | WHITE EPDM | WHITE EPDM | WHITE EPDM |
| 4. THICKNESS | METHOD: | | | |
| | RESULTS: | | | |
| 5. TENSILE STRENGTH | METHOD: | | | |
| | RESULTS: | | | |
| 6. LAP JOINT STRENGTH | METHOD: | | | |
| | RESULTS: | | | |
| 7. ELONGATION AT BREAK | METHOD: | | | |
| | RESULTS: | | | |
| 8. TENSILE SET | METHOD: | | | |
| | RESULTS: | | | |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | | | |
| | RESULTS: | | | |
| 10. WATER ABSORPTION | METHOD: | | | |
| | RESULTS: | | | |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | | | |
| | RESULTS | | | |
| 12. HEAT AGING | METHOD: | | | |
| | RESULTS: | | | |
| 13. OZONE RESISTANCE | METHOD: | | | |
| | RESULTS: | | | |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | | | |
| | RESULTS: | | | |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | | | |
| | RESULTS: | | | |
| 16. TEAR RESISTANCE | METHOD: | | | |
| | RESULTS: | | | |
| 17. TEARING STRENGTH | METHOD: | | | |
| | RESULTS: | | | |
| 18. LOW TEMPERATURE IMPACT | METHOD: | | | |
| | RESULTS: | | | |
| 19. PERMEABILITY | METHOD: | | | |
| | RESULTS: | | | |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | | | |
| | RESULTS: | | | |
| 21. CONE PENETRATION | METHOD: | | | |
| | RESULTS: | | | |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 54 | 54 | 54 |
| 23. SEE APPENDIX PAGE | | | | |

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# EPDM Part 2: Test Results, Other Than Black EPDM *(See Part 1 for General Information)*

EPDM

| 1. COMPANY NAME | | BARRA CORPORATION OF AMERICA, INC. | DIVERSITECH GENERAL BUILDING | | ERA CORPORATION | |
|---|---|---|---|---|---|---|
| 2. PRODUCT NAME | | 60 WHITE FIRE RATED | GENFLEX ACR.045 WHITE | GENFLEX ACR.060 WHITE | ERA-EPDM 245 - WHITE | ERA-EPDM 260 - WHITE |
| 3. PRODUCT DESCRIPTION | | WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM |
| 4. THICKNESS | METHOD: | | ASTM D412 | ASTM D412 | ASTM D412 | ASTM D412 |
| | RESULTS: | | 0.045 | 0.060 | .040 | .055 |
| 5. TENSILE STRENGTH | METHOD: | | ASTM D412 | ASTM D412 | ASTM D412 | ASTM D412 |
| | RESULTS: | | 1305 | 1305 | 1750 | 1750 |
| 6. LAP JOINT STRENGTH | METHOD: | | ASTM D816 | ASTM D816 | ASTM D816 | ASTM D816 |
| | RESULTS: | | SHEET FAILURE | SHEET FAILURE | SHEET FAILURE | SHEET FAILURE |
| 7. ELONGATION AT BREAK | METHOD: | | | | ASTM D412 | ASTM D412 |
| | RESULTS: | | | | 500 | 500 |
| 8. TENSILE SET | METHOD: | | ASTM D412 | ASTM D412 | ASTM D414 | ASTM D414 |
| | RESULTS: | | 10% MAX | 10% MAX | 4 1/2% | 4 1/2% |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | | ASTM D2137 | ASTM D2137 | ASTM D2137 | ASTM D2137 |
| | RESULTS: | | -49 F | -49 F | -60 | -60 |
| 10. WATER ABSORPTION | METHOD: | | ASTM D471 | ASTM D471 | ASTM D471 48 HRS | ASTM D471 48 HRS |
| | RESULTS: | | +1.3% | +1.3% | 3% | 3% |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | | ASTM D1204 | ASTM D1204 | | |
| | RESULTS | | (0.1 X 0.6) | (0.1 X 0.6) | | |
| 12. HEAT AGING | METHOD: | | ASTM D573 | ASTM D573 | | |
| | RESULTS: | | PASS | PASS | | |
| 13. OZONE RESISTANCE | METHOD: | | ASTM D1149 | ASTM D1149 | ASTM D1149 | ASTM D1149 |
| | RESULTS: | | NO CRACKS | NO CRACKS | NO CRACKS | NO CRACKS |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 16. TEAR RESISTANCE | METHOD: | | ASTM D624 | ASTM D624 | | |
| | RESULTS: | | 185 + 200 | 185 + 200 | | |
| 17. TEARING STRENGTH | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 18. LOW TEMPERATURE IMPACT | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 19. PERMEABILITY | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 21. CONE PENETRATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 54 | 55 | 55 | 56 | 56 |
| 23. SEE APPENDIX PAGE | | | | | | |

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# EPDM Part 2: Test Results, Other Than Black EPDM *(See Part 1 for General Information)*

| EVANITE PERMAGLAS INC. | | GOODYEAR TIRE & RUBBER COMPANY | INTERNATIONAL RUBBER ROOFING SYSTEMS | | KELLY ENERGY SYSTEMS, INC. |
|---|---|---|---|---|---|
| PERM GLS DEPEND MEMB.045 | PERM GLS DEPEND MEMB.060 | VERSIGARD .045 - .060 | INTERNATIONAL WHITE | INT'L WHITE FIRE RETARD. | WHALESKIN/81 WH.045 EPDM |
| WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM |
| | | ASTM D412<br>.045 - .060 | | | ASTM D751-66<br>NOMINAL .045 |
| | | ASTM D412<br>1305 | | | ASTM D412 DIE C<br>1400 |
| | | ASTM D412<br>300 % VE | | | |
| | | ASTM D412<br>10% MAX | | | ASTM D412 DIE C<br>300% MIN |
| | | ASTM D2137<br>-75 F | | | |
| | | ASTM D471, 48 HRS<br>+3% | | | ASTM D2137<br>NO CRACKS |
| | | ASTM D1204<br><1% | | | ASTM D471<br>2.0% MAX |
| | | ASTM D573 25 DAYS @ 240 F<br>1205 TENSILE<br>200 VE | | | ASTM D1204<br>+- 2.0% MAX |
| | | ASTM D1149<br>NO CRACKS | | | ASTM D573<br>260% |
| | | | | | ASTM D1149<br>NO CRACKS |
| | | | | | |
| | | ASTM D624, METHOD C<br>170 | | | |
| | | | | | ASTM D624<br>200 LBS AVG |
| | | | | | |
| | | ASTM E96 (B+W)<br><1 | | | |
| | | | | | ASTM E96<br>.002 |
| | | | | | |
| 56 | 56 | 57 | 57 | 57 | 57 |

# EPDM Part 2: Test Results, Other Than Black EPDM *(See Part 1 for General Information)*

| | | KELLY ENERGY SYSTEMS, INC. | | | | MANVILLE |
|---|---|---|---|---|---|---|
| 1. COMPANY NAME | | | | | | |
| 2. PRODUCT NAME | | WHALESKIN/81 WH.045C-EPDM | WHALESKIN/81 WH.060 EPDM | WHALESKIN/81 GR.081 EPDM | WHALESKIN/81 WH.060C-EPDM | SPM 60W |
| 3. PRODUCT DESCRIPTION | | WHITE EPDM | WHITE EPDM | GREY EPDM | WHITE EPDM | WHITE EPDM |
| 4. THICKNESS | METHOD: | ASTM D751-66 | ASTM D751-66 | ASTM D751-66 | ASTM D751-66 | ASTM D412 |
| | RESULTS: | NOMINAL .045 | NOMINAL .060 | .058 | .058 | 60 MIL |
| 5. TENSILE STRENGTH | METHOD: | ASTM D412 DIE C | ASTM D412 DIE C | ASTM D412 DIE C | ASTM D412 DIE C | ASTM D412 |
| | RESULTS: | 1400 | 1400 | 1400 | 1400 | 1440 PSI |
| 6. LAP JOINT STRENGTH | METHOD: | | | | | ASTM D816 |
| | RESULTS: | | | | | 21.8 PLI |
| 7. ELONGATION AT BREAK | METHOD: | ASTM D412 DIE C | ASTM D412 DIE C | ASTM D412 DIE C | ASTM D412 DIE C | ASTM D412 |
| | RESULTS: | 300% MIN | 300% MIN | 300% MIN | 300% MIN | 637% |
| 8. TENSILE SET | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | ASTM D2137 | ASTM D2137 | ASTM D2137 | ASTM D2137 | |
| | RESULTS: | NO CRACKS | NO CRACKS | NO CRACKS | NO CRACKS | |
| 10. WATER ABSORPTION | METHOD: | ASTM D471 | ASTM D471 | ASTM D471 | ASTM D471 | ASTM D471 |
| | RESULTS: | 2.0% MAX | 2.0% MAX | +8 -2 | +8 -2 | 7.5% WT CHANGE |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | ASTM D1204 | ASTM D1204 | ASTM D1204 | ASTM D1204 | ASTM D471 |
| | RESULTS | +- 2.0% MAX | +- 2.0% MAX | + - 2 | + - 2 | 9.4% VD CHANGE |
| 12. HEAT AGING | METHOD: | ASTM D573 | ASTM D573 | ASTM D573 | ASTM D573 | ASTM D573 |
| | RESULTS: | 260% | 260% | 75% MIN | 75% MIN | 1530 PSI<br>393% ELONGATION |
| 13. OZONE RESISTANCE | METHOD: | ASTM D1149 | ASTM D1149 | ASTM D1149 | ASTM D1149 | ASTM D1149 |
| | RESULTS: | NO CRACKS | NO CRACKS | NO CRACKS | NO CRACKS | NO CRACKS |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 16. TEAR RESISTANCE | METHOD: | ASTM D624 | ASTM D624 | ASTM D624 | ASTM D624 | ASTM D624 |
| | RESULTS: | 200 LBS AVG | 200 LBS AVG | 200 | 200 | 211 PPI |
| 17. TEARING STRENGTH | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 18. LOW TEMPERATURE IMPACT | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 19. PERMEABILITY | METHOD: | ASTM E96 | ASTM E96 | ASTM E96 | ASTM E96 | ASTM E96 |
| | RESULTS: | .002 | .002 | .002 | .002 | 3.6 PERM - MILS |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 21. CONE PENETRATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 57 | 58 | 58 | 58 | 59 |
| 23. SEE APPENDIX PAGE | | | | | | |

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# EPDM Part 2: Test Results, Other Than Black EPDM *(See Part 1 for General Information)*

| PROTECTIVE COATINGS, INC. | | SYENERGY METHODS, INC. | | WEATHERGARD ROOFING SYSTEMS | |
|---|---|---|---|---|---|
| SUPEROOF-WHITE | SUPEROOF WH FIRE RETARD´T | RUBBER ROOF.055 WHITE | RUBBER ROOF.045 WHITE | .045 WEATHERGARD WHITE | .060 WEATHERGARD WHITE & FIREGARD U600 WHITE |
| WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM | WHITE EPDM |
| .040 - .050 | .040 - .050 | | | | |
| ASTM D412, DIE C<br>1400 MIN | ASTM D412, DIE C<br>1500 MIN | ASTM D412<br>1400 PSI MIN | ASTM D412<br>1400 PSI MIN | | |
| ASTM D412<br>400 MIN | ASTM D412<br>400 MIN | ASTM D412<br>300% MIN | ASTM D412<br>300% MIN | | |
| ASTM D2137<br>NO CRACKS | -60 F ASTM D2137<br>NO CRACKS | @-60 F ASTM D2137<br>OK | @-60% ASTM D2157<br>OK | | |
| ASTM D471<br>1.5% | ASTM D471<br>1.5% | ASTM D471 VOL CHG<br>AFTER 48 HR @ 212 F<br>5.0% MAX | ASTM D471 VOL CHG<br>AFTER 48 HR @ 158 F<br>5.0% MAX | | |
| ASTM D1204<br>+ - 2 | 28 DAYS SHRINKAGE<br>2% MAX | 28 DAYS @ 212 F<br>LENGTH WIDTH SHRINKAGE<br>2.0% MAX | 28 DAYS @ 212 F<br>LENGTH WIDTH SHRINKAGE<br>2% MAX | | |
| ASTM D573, 7 DAYS<br>@250 F<br>1380 TENSILE | ASTM D573, 7 DAYS<br>@250 F<br>1600 TENSILE | RESIST ASTM D573<br>AGED 7 DAYS @ 250 F<br>1050 PSI MIN<br>225% ELONG | RESIST ASTM D573<br>AGED 7 DAYS @ 250 F<br>1050 PSI MIN<br>225% ELONG | | |
| ASTM D1149<br>NO CRACKS | ASTM D1149<br>NO CRACKS | ASTM D1149 50 PPHM<br>UNDER 20%<br>NO CRACKING | ASTM D1149 50 PPHM<br>UNDER 20%<br>NO CRACKING | | |
| ASTM D573, 35 DAYS<br>@240 F<br>1240 TENSILE | ASTM D573, 35 DAYS<br>@240 F<br>1220 TENSILE | | | | |
| ASTM D624 DIE C<br>100 | ASTM D624 DIE C<br>150 PLI | | | | |
| | | ASTM D624 DIE C<br>125 LBS MIN | ASTM D624 DIE C<br>125 LBS MIN | | |
| ASTM E96<br>.004 MAX | ASTM E96<br>.004 MAX | ASTM E96-66<br>METHOD B+BW<br>.004 MAX | ASTM E96-66<br>METHOD B+BW<br>.004 MAX | | |
| 59 | 59 | 59 | 60 | 60 | 60 |

# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 1 *(See Part 2 for Test Results)*

| | NEOPRENE Polychloroprene | | | | | CSPE HYPALON | | |
|---|---|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | CARLISLE SYNTEC SYSTEMS | GATES ENGINEERING COMPANY, INC. | | GOODYEAR TIRE & RUBBER COMPANY | WEATHERGARD ROOFING SYSTEMS, INC. | BARRA CORPORATION OF AMERICA INC. | BURKE RUBBER COMPANY | |
| **2. PRODUCT NAME** | SURE-SEAL NEOPRENE | GATES SYSTEM II NEO-GRAY | GATES SYSTEM II NEOPRENE-BLK | WINGPRENE NEOPRENE BLACK | WEATHERGARD NEOPRENE.060 | WEATHERGARD NEOPRENE.045 | HY-SHIELD | BURKELINE M-341 | BURKELINE M-356 |
| **3. PRODUCT DESCRIPTION:** | | | | | | | | | |
| A. REINFORCEMENT | NONE | NONE | NONE | NONE | NONE | NONE | POLYESTER | POLYESTER FIBER | MF BACKING |
| B. COLOR | GREY/BLACK | GRAY | BLACK | BLACK | BLACK | BLACK | WHITE | WHITE | WHITE |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | .46 | .45 | .45 | .41 | .50 | .40 | .30 | .25 | .31 |
| **4. COATING REQUIRED** | NONE | X | | NONE | NONE | NONE | NONE | NONE | NONE |
| **5. USE:** A. NEW ROOFING | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X |
| **6. FIELD LAP JOINT METHOD** | ADHESIVE/ SEALANT | CONTACT ADHESIVE | CONTACT ADHESIVE | ADHESIVE/ SEALANT | CONTACT ADHESIVE | CONTACT ADHESIVE | SOLVENT/ HEAT | SOLVENT/ HEAT | SOLVENT/ HEAT |
| **7. TYPE OF ROOF SYSTEM:** | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | X | | | X | X | X | 10-15 | 10 | 10 |
| B. PARTIALLY ADHERED (METHOD) | | MECH FAST | MECH FAST | BATTENS | X | X | MECH FAST | MECH FAST | |
| C. FULLY ADHERED (METHOD) | X | CONT ADHES | CONT ADHES | X | X | X | X | | LATEX ADHES |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | X | | | X | X | X | X | X | X |
| **8. MINIMUM SLOPE** | NONE | DEAD LEVEL | DEAD LEVEL | NONE | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| **9. USE OVER:** | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X | X | X | |
| B. POLYURETHANE | X | X | X | X | X | X | X | X | X |
| C. WOOD FIBER | X | X | X | X | X | X | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | X | X | X | X | X | X | X | |
| F. FELT FACED COMPOSITES | X | X | X | X | X | X | X | X | X |
| G. OTHER | SEE SPECS | SEE SPECS | SEE SPECS | CONSULT TECHNICAL DEPARTMENT | CONSULT WEATHERGARD TECHNICAL SERVICES | CONSULT WEATHERGARD TECHNICAL SERVICES | ISOCYANURATE EXTRUDED POLYESTYRENE | SEE SPECS | SEE SPECS |
| **10. RESTRICTED REGIONS** (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| **11. WORKABLE TEMPERATURE RANGE** | -25 F-180 F | 50 F-90 F | 50 F-90 F | 0 F-150 F | 32 F-160 F | 32 F-160 F | 0 F-120 F | 0 F-120 F | 0 F-120 F |
| **12. FLASHING MATERIAL** | ELASTOFORM | UNCURED NEOPRENE | UNCURED NEOPRENE | UNCURED WINGPRENE | UNCURED NEOPRENE | UNCURED NEOPRENE | REINFORCED MEMBRANE COATED METAL | BURKELINE HYPALON | BURKELINE HYPALON |
| **13. FLASHING METHOD** | ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE | CONTACT ADHESIVE OR PE SYSTEM | CONTACT ADHESIVE | CONTACT ADHESIVE | SOLVENT/HEAT WELD/ ADHESIVE | CONT ADHV TO OTHER SUBSTR SOLV HT WELD | CONT ADHV TO OTHER SUBSTR SOLV HT WELD |
| **14. PRE-FORMED ACCESSORIES AVAILABLE** YES/NO | YES | NO | NO | NO | NO | NO | | YES | YES |
| **15. COUNTRY:** A. ORIGIN | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| B. MANUFACTURE | USA | USA | USA | USA | USA | USA | USA | USA | USA |
| **16. YEAR FIRST COMMERCIAL USE:** A. FOREIGN (YEAR) | 1960 | '73-SAUDI AR | '73-SAUDI AR | | | | | 1982 | 1982 |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1960-CARLISLE | 1961-WASH DC | 1961-WASH DC | 1960's-NEW BEDFORD | | | 1984-GARLAND | 1976 | 1976 |
| **17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²)** A. FOREIGN | | 79M BLK+GR | 79M BLK+GR | | | | | | |
| B. USA | THOUSANDS | 210M BLK+GR | 210M BLK+GR | | | | | | |
| **18. WARRANTY** (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 15 | 15 | 10 | 10 | 10 | 5/10 | 10 | 10 |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | | | NO | NO | NO | | | |
| C. SCOPE OF COVERAGE C.1 MATERIAL ONLY | | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | X |
| D. MONETARY LIMITATION D.1 NONE | | | | | | | | | |
| D.2 ORIG. COST OF INSTALT'N | X | | | X | X | X | X | X | X |
| D.3 $ PER SQUARE | | VARIABLE | VARIABLE | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | SEE SPECS | X | X | SEE WARRANTY | X | X | X | X | X |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | X |
| **19. LIMITATIONS OR RESTRICTED USE** | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS |
| **20. METHOD OF DISTRIBUTION** | DISTRS/REPS | DISTRS/REPS | DISTRS/REPS | DISTRIBUTORS | DISTRS/REPS | DISTRS/REPS | DIRECT TO CONTRACTORS | DISTRIBUTORS | DISTRIBUTORS |
| **21. NUMBER OF REGIONAL LOCATIONS** | 39 | 31 | 31 | 90 | 25 | 25 | 8 | 3 | 3 |
| **22. LICENSED APPLICATOR AGREEMENT (YES/NO)** | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| **23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)** | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS | FIELD, SEMINARS | FACTORY | SEMINARS | SEMINARS | FACTORY & FIELD | FIELD | FIELD |
| **24. SALES INFORMATION CONTACT** | H KENNY | 302/656-9951 | 302/656-9951 | 800/321-1692 | 800-USA-EPDM | 800-USA-EPDM | CUSTOMER SERVICE | D BARTLETT | D BARTLETT |
| **25. TECHNICAL INFORMATION CONTACT** | E KANE | 302/656-9951 | 302/656-9951 | 617/999-0571 | | | TECHNICAL SERVICES | R WOODLEY | R WOODLEY |
| **26. FOR TECHNICAL INFORMATION SEE PAGE(S)** | 72 | 72 | 72 | 72 | 73 | 72 | 73 | 73 | 73 |
| **27. SEE APPENDIX PAGE** | | | | | | | | | |

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# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 1 *(See Part 2 for Test Results)*

| | CSPE HYPALON | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | CENTRAL STATES ASSOC. CORPORATION | | | CONKLIN COMPANY, INC. | DUNLOP CONSTRUCTION PRODUCTS INC. | GATES ENGINEERING COMPANY, INC. | KELLY ENERGY SYSTEMS, INC. | | PANTASOTE, INC. | STEVENS, J.P. | TREMCO, INC. | |
| | CSPE HYPALON UNIROOF 035 | CSPE HYPALON UNIROOF 040 | CSPE HYPALON UNIROOF 048 | MASTER BOND 40 MILS | DUNSEAL HYPALON | GATES SYSTEM III HYPALON 45 MILS | GREAT WHITE .045 HYPALON WHITE | GREAT WHITE HYPALON CUSTOM | FLEXHIDE HYPALON | HI-TUFF | TREMCO HHP | TREMCO HP 4510 |
| REINFORCEMENT | NONE | NONE | NONE | MINERAL FIBER BACKING | POLYESTER | YES | YES | YES | POLYESTER | 10 X 10 POLYESTER | WOVEN POLYESTER | 10 X 10 WOVEN POLYESTER |
| COLOR AVAILABILITY | ALL COLORS .25 | ALL COLORS .25 | ALL COLORS .25 | WHITE .30 | ALL COLORS .30-.40 | WHITE .30 | WHITE .40 | CUSTOM .30-.40 | WHITE .31 | WHITE .29 MIN | WHITE .26 | WHITE |
| FACTORY APPLIED COATINGS | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| SEAM TAPE | X<br>X | X<br>X | X<br>X | YES<br>YES | YES<br>YES | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| SEAMING METHOD | HEAT WELD | HEAT WELD | HEAT WELD | HEAT WELD | HEAT OR TAPE OR ADHESIVES | HEAT SEALED | SOLV/HEAT WELD/ADHES | SOLV/HEAT WELD/ADHES | SOLVENT/ HEAT | HEAT WELD | CONTACT ADHESIVES | CONTACT ADHESIVES |
| FLASHING | LATEX ADHES | LATEX ADHES | LATEX ADHES | YES | 10<br>MECH FAST<br>ADHESIVE<br>YES | MECH FAST | 10<br>X<br>X<br>X | 10<br>X<br>X<br>X | MECH FAST | 10<br>MECH FAST<br>X | X<br>X | 10<br>MECH FAST<br>X |
| MEMBRANE ATTACHMENT | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | NONE | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| WARRANTY | X<br>X | X<br>X | X<br>X | X*<br>X | X<br>X | X<br>X | X*<br>X* | X*<br>X* | X<br>X | X<br>X | X | X<br>X |
| | X<br>X<br>X<br>EXISTING ROOF | X<br>X<br>X<br>EXISTING ROOF | X<br>X<br>X<br>EXISTING ROOF | X<br>X*<br>X<br>*APPROVAL OF CONKLIN PROD SVCS DEPT | X<br>X<br>X<br>SEE SPECS | X<br>X<br>X<br>SEE SPECS | X*<br>X*<br>X*<br>*SEE KES FOR APPL METHODS OR SEE SPECS | X*<br>X*<br>X*<br>*SEE KES FOR APPL METHODS OR SEE SPECS | X<br>X<br>X<br>ISOCYANURATE EXTRUDED POLYSTRENE | X<br>X*<br>X<br>ISOCYANURATE SMOOTH ASPHT CONSULT JPS | X<br>X*<br>X<br>ISOCYANURATE FOAMGLASS FIBRGLS *EPS FIBERB ONLY | X<br>X<br>X<br>SEE SPECS |
| LOW TEMP FLEX | NONE<br>10 F-120 F | NONE<br>10 F-120 F | NONE<br>10 F-120 F | NONE<br>40 F-120 F | NONE<br>0 F-160 F | NONE<br>50 F-90 F | NONE<br>-25 F-150 F | NONE<br>-25 F-150 F | NONE<br>0 F-120 F | NONE<br>-25 F-140 F | NONE<br>20 F-160 F | 20 F-160 F |
| MEMBRANE COMPOSITION | HYPALON | HYPALON | HYPALON | HYPALON | UNREINFORCED HYPALON | UNCURED | HYPALON | HYPALON | SELF OR COATED METAL | REIN HYP NON-REIN HYP | REINFORCED HYPALON | REINFORCED HYPALON |
| ADHESIVE | CEMENT | CEMENT | CEMENT | ADHESIVE & HEAT WELD | ADHESIVE OR HEAT WELD | CONTACT ADHESIVE | SOLV HT WELD ADHES GUM TAPE FLASHNG | SOLVENT HEAT WELD ADHESIVE | SOLVENT/ HEAT | ADHESIVE & HEAT WELD | ADHESIVES (INSTALL'N SPECS) | ADHESIVES (INSTALL'N SPECS) |
| FIELD FABRICATION | YES | YES | YES | NO | NO | NO | | | YES | X | YES | YES |
| MANUFACTURING LOCATION | UK<br>UK | UK<br>UK | UK<br>UK | USA<br>USA | CANADA<br>CANADA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA |
| YEAR INTRODUCED<br>PRESENT OWNER | 1963<br>1978-<br>LAVERNE | 1984-<br>LANCASTER | 1981-<br>WINONA | 1983-<br>MINNEAPOLIS | 1972<br>1980-<br>TENNESSEE | 1984-<br>YUMA | 1983-<br>WATERBURY | 1983-<br>WATERBURY | 1982-<br>LOVELAND | 1977<br>1978-<br>CHICAGO | 1982-<br>CLEVELAND | 1981-<br>CLEVELAND |
| ANNUAL PRODUCTION | 500,000<br>20,000 | | 40,000 | 20,000 | THOUSANDS<br>THOUSANDS | 9,500 | | | THOUSANDS | 100'S/1000'S | | |
| MINIMUM ORDER | 10<br>YES | 10<br>YES | 10<br>YES | 10 | 15 | 15 | 21<br>ALSO AVAIL | 21<br>ALSO AVAIL | 5 OR 10<br>NO | 10 | 10<br>NO | 10<br>NO |
| TECHNICAL SERVICE | X | X | X | YES | 5-10 | X | X | X | X | X | X | X |
| FIELD REPRESENTATIVES | X | X | X | X | X | VARIABLE | X | X | X<br>X | X | X | X |
| | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| WARRANTY | NONE | NONE | NONE | SEE SPECS | NONE | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS | SEE SPECS |
| SALES REPRESENTATIVES | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | DISTRIBUTORS | AGENT/DIRECT | DISTR/REPS | DISTRIBUTORS | DISTRIBUTORS | DIRECT | DISTRIBUTORS | SALES REPS | SALES REPS |
| | 6<br>YES | 6<br>YES | 6<br>YES | 14<br>YES | YES | 31<br>YES | 106 | 106 | 1<br>YES | 47<br>YES | 18<br>YES | 18<br>YES |
| TECHNICAL SERVICE | FIELD | FIELD | FIELD | FIELD, SEMINARS, | FIELD SEMINARS | FIELD SEMINARS | FIELD SEMINARS | FIELD SEMINARS | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD SEMINARS | FIELD SEMINARS |
| TECHNICAL CONTACT | J HAUER<br>J WHITEMORE | J HAUER<br>J WHITEMORE | J HAUER<br>J WHITEMORE | 612/831-4044<br>612/831-4044 | P HYRSKO<br>D BRAZIER | 302/656-9951<br>302/656-9951 | T ARRAS<br>A POREMBA<br>P HOSMER | T ARRAS<br>A POREMBA | J COPPOLA<br>L KAMP | B ABBOTT<br>J FREEDMAN | P MITCHELL<br>BROZOZOWSKI | P MITCHELL<br>BROZOZOWSKI |
| | 73 | 73 | 74 | 74 | 74 | 74 | 74 | 75 | 75 | 75 | 75 | 75 |

# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 1 *(See Part 2 for Test Results)*

| | CSPE HYPALON | PIB Polyisobutylene | | CPE Chlorinated Polyethylene | | | | OTHER FABRICATED SHEET APPLIED MEMBRANES | |
|---|---|---|---|---|---|---|---|---|---|
| **1. COMPANY NAME** | TROPICAL INDUSTRIAL COATINGS INC. | AGR COMPANY | REPUBLIC POWDERED METALS | ALKOR-DIVISION HEDWIN CORPORATION | | COOLEY ROOFING SYSTEMS, INC. | PANTASOTE INC. | BOND COTE SYSTEMS | CARLISLE SYNTEC SYSTEMS |
| **2. PRODUCT NAME** | RHINOSHIELD 45 MILS | ALPHAGARD 100 S/D | GEOFLEX | ALKORFLEX 35091 | ALKORFLEX 35099 | COOL TOP 40 | FLEXHIDE CPE | BOND GREY 35 | SURE-SEAL POLYEPICH-LOROHYDRIN |
| **3. PRODUCT DESCRIPTION:** | | | | | | | | | |
| A. REINFORCEMENT | POLYESTER SCRIM | 60 MIL PIB 40 ML FLEECE | POLYESTER | NONE | POLYESTER FIBER | POLYESTER | POLYESTER | POLYESTER | NONE |
| B. COLOR | WHITE | BLK OR WHITE | BLK OR WHITE | LIGHT GREY | LIGHT GREY | WHITE | WHITE | LT. GREY | GREY/BLACK |
| C. INSTALLED WT (lbs/ft² W/O BALLAST) | .30 | .57 | .57 | .30 | .30 | .31 | .30 | .22 | .48 |
| **4. COATING REQUIRED** | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| **5. USE:** A. NEW ROOFING | X | X | X | X | X | X | X | X | X |
| B. REROOFING | X | X | X | X | X | X | X | X | X |
| **6. FIELD LAP JOINT METHOD** | HEAT WELD | PRE-FAB SEAM | SELF-SEALING | SOLVENT/ HEAT | SOLVENT/ HEAT | HEAT | SOLVENT/ HEAT | HEAT WELD | ADHESIVE/ SEALANT |
| **7. TYPE OF ROOF SYSTEM:** | | | | | | | | | |
| A. LOOSE LAID/BALLASTED (BALLAST:lbs/ft²) | | 10 | 10 | 10 | 10 | | | X | |
| B. PARTIALLY ADHERED (METHOD) | MECH FAST | ASPHALT/ADHV | X | | | X | MECH FASTN'D | MECHANICALLY | |
| C. FULLY ADHERED (METHOD) | | ASPHALT ADHV | | | | | | | X |
| D. PROTECTED MEMBRANE ROOFING ASSEMBLY | | X | X | X | X | | | | |
| **8. MINIMUM SLOPE** | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | NONE |
| **9. USE OVER:** | | | | | | | | | |
| A. PERLITE | X | X | X | X | X | X | X | X | X |
| B. POLYURETHANE | X | X | X | X | X | X | X | X | X |
| C. WOOD FIBER | X | X | X | X | X | | X | X | X |
| D. GLASS FIBER | X | X | X | X | X | X | X | X | X |
| E. EXPANDED POLYSTYRENE | X | X | X | X | X | X | X | X | X |
| F. FELT FACED COMPOSITES | X | RECOV BOARD | X | X | X | X | X | X | X |
| G. OTHER | SEE SPECS | EXISTING ROOF SEE SPECS | SEE SPECIFI-CATIONS | EXTRUDED POLYSTRENE ISOCYANURATE | ISOCYANURATE EXTRUDED POLYSTRENE | EXTRUDED POLYSTYRENE, ISOCYANURATE | EXTRUDED POLYSTYRENE, ISOCYANURATE | PHENOLIC ISOCYANURATE POLYSTYRENE | SEE SPECS |
| **10. RESTRICTED REGIONS** (REFER TO MFRS LITERATURE) | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| **11. WORKABLE TEMPERATURE RANGE** | 20 F-110 F | 20 F & ABOVE | 20 F-100 F | 0 F-115 F | 0 F-115 F | 0 F-120 F | 0 F-120 F | -30 F-180 F | -20 F-180 F |
| **12. FLASHING MATERIAL** | HYPALON | PIB U60 AND COVER TAPE | PIB | CPE COATED METAL 35093 | CPE COATED METAL 35093 | COOL TOP 40 & CPE COATED METAL | SELF OR CPE COATED METAL | ROOF MEMBRANE | ELASTOFORM |
| **13. FLASHING METHOD** | HEAT WELD & ADHESIVE | SOLVENT/ WELD & SELF ADHERING | SOLVENT & ADHESIVE | SOLVENT/ HEAT | SOLVENT/ HEAT | HEAT | SOLVENT/ HEAT | HEAT WELD | ADHESIVE |
| **14. PRE-FORMED ACCESSORIES AVAILABLE** YES/NO | NO | YES | YES | YES | YES | YES | YES | YES | NO |
| **15. COUNTRY:** A. ORIGIN | USA | W GERMANY | W GERMANY | BELGIUM | BELGIUM | USA | USA | USA | USA |
| B. MANUFACTURE | USA | USA | USA | BELGIUM | BELGIUM | USA | USA | USA | USA |
| **16. YEAR FIRST COMMERCIAL USE:** A. FOREIGN (YEAR) | | 1950 | 1950 | 1973 | 1974 | | | | |
| B. USA (YEAR)(CITY FIRST INSTALLED) | 1984- CANTON | 1977- ST LOUIS | 1977- ST LOUIS | 1979- MADISON | 1979- MADISON | 1978- NEWARK | 1982- STANHOPE | 1977- RADFORD | 1977- BATON ROUGE |
| **17. NO. OF SQUARES INSTALLED (1 SQ. = 100ft²)** A. FOREIGN | | 19,000,000 | | >250,000 | >250,000 | 600,000 | | | |
| B. USA | | 2,500,000 | THOUSANDS | >50,000 | >100,000 | 250,000 | THOUSANDS | | |
| **18. WARRANTY** (SEE MFRS LITERATURE TO DETERMINE EXACT TERMS, LIMITATIONS, EXCLUSIONS & REMEDIES) | | | | | | | | | |
| A. DURATION (YEARS) | 10 | 5 OR 10 | 5 OR 10 | 10 | 10 | 10 | 5 OR 10 | 10 | |
| B. RENEWABLE AFTER INSPECTION (YES/NO) | | NO | YES | CONT'T ALKOR | CONT'T ALKOR | | | YES | |
| C. SCOPE OF COVERAGE C1 MATERIAL ONLY | X | | | | | | | | |
| C.2 WORKMANSHIP & MAT'L | X | X | X | X | X | X | X | X | |
| D. MONETARY LIMITATION D.1 NONE | | | X | X | X | | X | X | |
| D.2 ORIG. COST OF INSTALT'N | X | | | | | X | X | | |
| D.3 $ PER SQUARE | | | X | | | | | | |
| E. EXCLUSION FROM COVERAGE | | | | | | | | | |
| E.1 DAMAGE TO OTHER BUILDING COMPONENTS | X | X | X | X | X | X | X | X | SEE SPECS |
| E.2 CONSEQUENTIAL DAMAGES | X | X | X | X | X | X | X | X | |
| **19. LIMITATIONS OR RESTRICTED USE** | SEE SPECS | CONTACT MANUFACTURER | YES SEE LITERATURE | FEW SEE SPECS | FEW SEE SPECS | CONSULT COOLEY | SEE SPECS | SEE SPECS | SEE SPECS |
| **20. METHOD OF DISTRIBUTION** | SALES FORCE | DISTRS/REPS | MFGR/REPS | MFGRS/REPS | MFGRS/REPS | MFGR/REPS | DIRECT | REPS | DISTRS/REPS |
| **21. NUMBER OF REGIONAL LOCATIONS** | | 2 | 4 | | | 2 | 1 | | 39 |
| **22. LICENSED APPLICATOR AGREEMENT (YES/NO)** | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| **23. APPLICATOR TRAINING (FIELD, SEMINARS, FACTORY)** | FIELD | YES | FIELD, SEMINARS, FACTORY | ON JOB TRAINING | ON JOB TRAINING | FIELD, SEMINARS | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY |
| **24. SALES INFORMATION CONTACT** | 800/321-8353 OUTSIDE OH | C KELLAR | J CHEW | OFFICE | OFFICE | OFFICE | J COPPOLA | K LAUDERDALE | H KENNY |
| **25. TECHNICAL INFORMATION CONTACT** | 216/273-2564 IN OHIO | W H HUHN | J CHEW | OFFICE | OFFICE | OFFICE | L KAMP | D HAYES | E KANE |
| **26. FOR TECHNICAL INFORMATION SEE PAGE(S)** | 75 | 76 | 76 | 76 | 76 | 76 | 77 | 77 | 77 |
| **27. SEE APPENDIX PAGE** | | | | | | | | | |

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# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 1 *(See Part 2 for Test Results)*

**OTHER FABRICATED SHEET APPLIED MEMBRANES**

| DURO-LAST ROOFING INC. | FUTURA COATINGS INC. | HITCHINS AMERICA INC. | PANTASOTE INC. | SEAL DRY/ USA INC. | | SEAMAN CORPORATION |
|---|---|---|---|---|---|---|
| DURO-LAST | FUTURA-PLY II | NURALITE | FLEXHIDE HYPALON COMPOSITE | SEAL-DRY SYS 7000 | SEAL-DRY SYS 5000 | FIBERTITE |
| REINFORCED POLYESTER | REINFORCED | MINERAL FIBERS | POLYESTER | POLYESTER | POLYESTER | REINFORCED POLYESTER |
| WHITE .27 | 4 COLORS 1 LB/SQ FT | BLK-TURNS GR .50 | WHITE .31 | WHITE .25 | WHITE .25 | BEIGE .25 |
| NONE | FUTURA-THANE 7550 | NONE | NONE | NONE | NONE | NONE |
| X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X | X<br>X |
| HEAT WELD | ADHESIVE/ TAPE | TORCH | SOLVENT/ HEAT | HEAT WELD | HEAT WELD | HEAT WELD |
| X<br>MECHANICALLY<br>X | RUBBER/ASPH | SPOT ADHERED | MECH FASTND | X<br>MECH FASTND<br>X | X<br>MECH FASTND<br>X | MECH FASTND |
| DEAD LEVEL | NONE | | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL | DEAD LEVEL |
| X<br>X<br>X | X<br>X<br>X | X* | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X | X<br>X<br>X |
| X<br>X<br>X<br>PHENOLIC<br>ISOCYANURATE<br>EXTRUDED<br>POLYSTYRENE | X<br>X<br>X<br>EXISTING ROOF | X*<br>CONCRETE, INS CONCR, *RIGID SKINNED INSULATION | X<br>X<br>X<br>ISOCYANURATE<br>EXTRUDED<br>POLYSTRENE | X<br>X<br>X<br>X | X<br>X<br>X<br>X | X<br>X<br>X<br>CHECK WITH MANUFACTURER |
| NONE<br>-30 F-160 F | NONE<br>40 F-110 F | NONE<br>NO RESTRNS | NONE<br>0 F-120 F | NONE<br>-30 F-160 F | NONE<br>-30 F-160 F | NONE<br>-30 F-160 F |
| ROOF MEMBRANE | FUTURA-PLY II MEMBRANE | SAME MATERIAL | SELF OR COATED METAL | ROOF MEMBRANE | ROOF MEMBRANE | ROOF MEMBRANE |
| HEAT WELD | ADHESIVE/ TAPE | ADHESIVE | SOLVENT/ HEAT | HEAT WELD | HEAT WELD | HEAT WELD |
| YES | NO | NO | YES | YES | YES | YES |
| USA<br>USA | USA<br>USA | ENGLAND<br>ENGLAND | USA<br>USA | USA<br>USA | USA<br>USA | USA<br>USA |
| 1978-<br>SAGINAW | 1982-<br>DALTON | 1947<br>1978-<br>ORLANDO | 1983-MARTH-A'S VINEYARD | 1983-<br>MICHIGAN | 1984-<br>CLEVELAND | 1974<br>1968-<br>SARASOTA |
| NONE<br>>300,000 | | 2-3 MILLION<br>50,000 | THOUSANDS | 30,000 | 20,000 | 10,000<br>THOUSANDS |
| 20<br>NO<br>X<br>X | 5 & 10<br><br><br>X | 10-LAB/25MAT<br><br><br>X | 5 OR 10<br>NO<br><br>X | 15<br>NO<br><br>X | 10<br>NO<br><br>X | 10<br><br><br>X |
| <br><br>X<br><br>X<br>X | X<br><br><br>X<br>X | X<br><br><br>X<br>X | X<br>X<br><br>X<br>X | X<br><br><br>X<br>X | X<br><br><br>X<br>X | <br><br>X<br><br>X<br>X |
| NONE | CONTACT FUTURA | | SEE SPECS | CONTACT MANUFACTURER | CONTACT MANUFACTURER | SEE SPECS |
| REPS/ DEALERS<br>2<br>YES | DIST/DIRECT<br>6<br>YES | HITCHINS<br>4<br>YES | DIRECT<br>1<br>YES | REPS/ INSTALLERS<br><br>YES | REPS/ INSTALLERS<br><br>YES | REPS/ INSTALLERS<br>3<br>YES |
| FIELD, SEMINARS, FACTORY | FIELD, SEMINARS | FIELD, SEMINARS | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY | FIELD, SEMINARS, FACTORY |
| B FREDERICK<br>J GREKO | R ALLEN<br>B SCHENKE | D HUTCHINS<br>K MINOR | J COPPOLA<br>L KAMP | B SHROYER<br>C BOWLBY | B SHROYER<br>C BOWLBY | B POWER<br>B POWER |
| 77 | 77 | 77 | 78 | 78 | 78 | 78 |

# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

**NEOPRENE**
Polychloroprene

| | | CARLISLE SYNTEC SYSTEMS | GATES ENGINEERING COMPANY INC. | | GOODYEAR TIRE & RUBBER COMPANY | WEATHERGARD ROOFING SYSTEMS, INC. |
|---|---|---|---|---|---|---|
| 1. COMPANY NAME | | | | | | |
| 2. PRODUCT NAME | | SURE-SEAL NEOPRENE | GATES SYS II NEOPRENE-BL | GATES SYS II NEOPRENE-GR | WINGPRENE | WEATHRG´D NEOPRENE .045 |
| 3. PRODUCT DESCRIPTION | | UNREINFORCED NEOPRENE | NEOPRENE | NEOPRENE | BLACK NEOPRENE | |
| 4. THICKNESS | METHOD: | ASTM D412 45 AND 60 MILS | ASTM D751 | ASTM D751 | ASTM D412 | |
| | RESULTS: | + - 10% | 60 MILS | 60 MILS | .040 MIN | |
| 5. TENSILE STRENGTH | METHOD: | ASTM D412 | ASTM D412 | ASTM D412 | ASTM D412 | |
| | RESULTS: | 1750 PSI | 2000 PSI | 1400 PSI | 1595 | |
| 6. LAP JOINT STRENGTH | METHOD: | | | | ASTM D816 | |
| | RESULTS: | | | | SHEET FAILURE | |
| 7. ELONGATION AT BREAK | METHOD: | ASTM D412 | ASTM D412 | ASTM D412 | ASTM D412 | |
| | RESULTS: | 360% | 350% | 750% | 250% | |
| 8. TENSILE SET | METHOD: | CGSB 37-GP-52M | | | ASTM D412 | |
| | RESULTS: | 1.0% | | | 10% MAX | |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | CGSB 37-GP-52M | ASTM D746 | ASTM D746 | ASTM D746 | |
| | RESULTS: | PASS | -42 F | -40 F | -30 F | |
| 10. WATER ABSORPTION | METHOD: | ASTM D471, CHANGE IN MASS 7 DAYS @ 158 F | ASTM D471 7 DAYS @ 75 F | ASTM D471 7 DAYS @ 75 F | ASTM D471 | |
| | RESULTS: | + 10% | 1% | 5% MAX | + - 15% | |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | | | | | |
| | RESULTS | | | | | |
| 12. HEAT AGING | METHOD: | ASTM D573 70 HRS @ 212 F | ASTM D573 96 HRS @ 158 F | ASTM D573 70 HRS @212 F | | |
| | RESULTS: | 1275 PSI, 150% | TENSILE:2000 PSI | TENSILE:1000 PSI | | |
| 13. OZONE RESISTANCE | METHOD: | ASTM D1149, 100 PPHM @ 20% STRAIN 100 HRS @104 F | ASTM D1149 | | ASTM D1149 100 HRS, 100 PPM | |
| | RESULTS: | NO CRACKS | PASS | | NO CRACKS | |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | CGSB 37-GP-52M | | | | |
| | RESULTS: | PASS | | | | |
| 16. TEAR RESISTANCE | METHOD: | ASTM D624 (DIE C) | ASTM D624 (DIE C) | ASTM D624 (DIE C) | ASTM D624 (DIE C) | |
| | RESULTS: | 120 LBF/IN | 200 LBF/IN | 125 LBF/IN | 150 | |
| 17. TEARING STRENGTH | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 18. LOW TEMPERATURE IMPACT | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 19. PERMEABILITY | METHOD: | | ASTM E96, METHOD BW | ASTM E96, METHOD BW | | |
| | RESULTS: | | 0.08 PERM IN | 0.4 PERM IN | | |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 21. CONE PENETRATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 68 | 68 | 68 | 68 | 68 |
| 23. SEE APPENDIX PAGE | | | | | | |

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# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

| NEOPRENE Polychloroprene | CSPE HYPALON | | | |
|---|---|---|---|---|
| WEATHERGARD ROOFING SYSTEMS, INC. | BARRA CORPORATION OF AMERICA INC. | BURKE RUBBER COMPANY | | CENTRAL STATES ASSOC. CORPORATION | |
| WEATHRG'D NEOPRENE .060 | HY-SHIELD | BURKELINE M-341 | BURKELINE M-356 | UNIROOF 035 | UNIROOF 040 |
| | CSPE HYPALON 0.045 IN | POLYESTER REINFORCED CSPE | CSPE W/M.F. BACKING | CSPE HYPALON | CSPE HYPALON |
| | | ASTM D751 36 MILS NOMINAL | ASTM D412 40 MILS NOMINAL | ASTM D751 0.035 IN | ASTM D751 0.040 IN |
| | | ASTM D751,GRAB METHOD 155 X 158 LBS | ASTM D882 24 X 17 LBS/INCH WIDTH | ASTM D412 1550 PSI | ASTM D412 1550 PSI |
| | | ASTM D751,GRAB METHOD 123 LBS | ASTM D3083,PARA 9.3 15 LBS/INCH WIDTH | ASTM D816 EXCEEDS PARENT MATERIAL | ASTM D816 EXCEEDS PARENT MATERIAL |
| | ASTM D751 (FABRIC REINFORCEMENT) 25% | ASTM D751,GRAB METHOD 103 X 90% | ASTM D882 400 X 590 % | ASTM D412 847% | ASTM D412 847% |
| | | NA | | | |
| | D2136 PASS -40 F | ASTM D2136 -40 F | NA | ASTM D2136 -40 F | ASTM D2136 -40 F |
| | | ASTM D741,7 DAYS @ 70 F 5% | ASTM D471,7 DAYS @ 70 F 5% | | |
| | | | | | |
| | | ASTM D573,14 DAYS @ 212 F TENSILE 100%,ELONG 60% | ASTM D573,14 DAYS @ 212 F TENSILE 100%,ELONG 60% | | |
| | D1149 100 DAYS @30PPHM @104 F & 30% ELONGATION NO CRACKS | ASTM D1149,100PPHM,1/8" BENTLOOP 7 DAYS @ 104 F NO CRACKS @ 7X | ASTM D1149,100 PPHM @20% STRAIN 7 DAYS @104 F NO CRACKS @ 7X | ASTM D1149 NO EFFECT | ASTM D1149 NO EFFECT |
| | ASTM E838 >2 MILLION LANGLEYS | ASTM E838 >1 MILLION LANGLEYS | ASTM E838 >1 MILLION LANGLEYS | ASTM G23 PASS | ASTM G23 PASS |
| | FTM 191 B METHOD 2031 200 LBS | FTMS 101C,METHOD 2031 151 LBS | FTMS 101C,METHOD 2031 51 LBS | | |
| | D751 90 LBS/IN | NA | ASTM D1004,DIE C 7/6 LBS | | |
| | | ASTM D751,TONGUE METHOD 47/58 LBS | NA | | |
| | | ASTM D2137 -40 F | ASTM D1790 -40 F | | |
| | | ASTM E96 3X10X(-3) METRIC PERM-CM | ASTM E96 3X10X(-3) METRIC PERM-CM | ASTM E96 0.78 PERMS | ASTM E96 0.78 PERMS |
| | | ASTM D1204 1 HR @ 212 F 1.5% | ASTM D1204 15 MIN @ 212 F 1.0% | | |
| 68 | 68 | 68 | 68 | 69 | 69 |

# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

| | | CSPE HYPALON | | | | |
|---|---|---|---|---|---|---|
| 1. COMPANY NAME | | CENTRAL STATES ASSOC. CORPORATION | CONKLIN COMPANY INC. | DUNLOP CONSTRUCTION PRODUCTS, INC. | GATES ENGINEERING COMPANY, INC. | KELLY ENERGY SYSTEMS, INC. |
| 2. PRODUCT NAME | | UNIROOF 048 | MASTERBOND | DUNSEAL HYPALON H301 | SYSTEM III HYP 45 MILS | GREAT WH. HYP .045 WHITE |
| 3. PRODUCT DESCRIPTION | | CSPE HYPALON | CSPE WITH MINERAL FIBER BACKING | REINFORCED POLYESTER SCRIM | CSPE HYPALON REINFORCED | .045 NOMINAL |
| 4. THICKNESS | METHOD: | ASTM D751 | ASTM D412 | RMA OPTICAL METHOD | | |
| | RESULTS: | 0.048 IN | 40 MILS | 36 MIL - 45 MIL | | |
| 5. TENSILE STRENGTH | METHOD: | ASTM D412 | ASTM D412 | ASTM D412 | | ASTM D412 |
| | RESULTS: | 1550 PSI | 1000 PSI | 1500 PSI | | 1500 |
| 6. LAP JOINT STRENGTH | METHOD: | ASTM D816 | | ASTM D816 | | |
| | RESULTS: | EXCEEDS PARENT MATERIAL | | EXCEEDS PARENT MATERIAL | | |
| 7. ELONGATION AT BREAK | METHOD: | ASTM D412 | ASTM D412 | ASTM D412 | ASTM D751, GRAB | ASTM D751 |
| | RESULTS: | 847% | 400% | 300% | 225 LBS | FABRIC 30% MIN MATERIAL 300% |
| 8. TENSILE SET | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | ASTM D2136 | ASTM D1737 | ASTM D2136 -45 F | ASTM D2136, 1/8" MANDREL | ASTM D2136 |
| | RESULTS: | -40 F | -36 F | NO CRACKS | -40 C PASS | -45 F |
| 10. WATER ABSORPTION | METHOD: | | | ASTM D570 | | |
| | RESULTS: | | | <2% | | |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | | | ASTM D 570 | | |
| | RESULTS | | | NO CHANGE | | |
| 12. HEAT AGING | METHOD: | | ASTM D573, 12 DAYS @212 F | ASTM D753, D412 | ASTM D753, 7 DAYS @ 200 F | ASTM D753(D412) |
| | RESULTS: | | 100% TENSILE 60% ELONGATION | RETAINS 100% PROPERTYS | RETAINS 100% | 100% |
| 13. OZONE RESISTANCE | METHOD: | ASTM D1149 | A.ASTM D1149 100 PPHM,20% STRAIN,28 DAYS @ 104 F | ASTM D1149 | ASTM D1149 (NON-REINFORCED) | ASTM D1149 |
| | RESULTS: | NO EFFECT | NO CRACKS, 7 X | NO EFFECT | NO EFFECT | NO EFFECT |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | ASTM G23 | ASTM E838 2 MILLION LANGLEYS | 10 YR PANAMA | ASTM E838 2 MILLION LANGLEYS | E838 |
| | RESULTS: | PASS | PASS WITHOUT DEGRADATION | PASS,CGSB TESTING IN PROGRESS | PASS | PASS |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | | FTM 101C METHOD 2031 | FTMS 101B METHOD 2031 | FTMS 191B, METHOD 2031 | FTM 101B METHOD 2031 |
| | RESULTS: | | 60 LBS | 200 LBS | 200 LBS | 200 LBS |
| 16. TEAR RESISTANCE | METHOD: | | | A.ASTM D751,TONGUE B.ASTM D1004 | | ASTM D751 |
| | RESULTS: | | | A.100 LBS MIN B.289 LBS MIN | | 90 LBS |
| 17. TEARING STRENGTH | METHOD: | | | ASTM D751,TONGUE METHOD | ASTM D751, TONGUE | |
| | RESULTS: | | | 90 LBS | 90 PSI MIN | |
| 18. LOW TEMPERATURE IMPACT | METHOD: | | ASTM D1790 | ASTM D2136 -45 F | | |
| | RESULTS: | | -40 F | NO CRACKS | | |
| 19. PERMEABILITY | METHOD: | ASTM E96 | ASTM E96B | ASTM E96 | | |
| | RESULTS: | 0.78 PERMS | .003 METRIC PERMS | <2.0 PERM | | |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | | ASTM D1204, 15 MIN @212 F | ASTM 1204 | ASTM D1204, 24 HRS @ 54 C | |
| | RESULTS: | | 1% | < +- 10% | 0.1% | |
| 21. CONE PENETRATION | METHOD: | | | | | |
| | RESULTS: | | | | | |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 69 | 69 | 69 | 69 | 69 |
| 23. SEE APPENDIX PAGE | | | | | | |

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# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

## CSPE HYPALON

| KELLY ENERGY SYSTEMS, INC. | PANTASOTE, INC. | STEVENS, J.P. | TREMCO INC. | | TROPICAL INDUSTRIAL COATINGS, INC. |
|---|---|---|---|---|---|
| GREAT WH HYP CUSTOM .045 | FLEXHIDE HYPALON | HI-TUFF | TREMCO HHP | TREMCO HP4510 | RHINOSHIELD |
| .045 NOMINAL | POLYESTER REINFORCED CSPE | POLYESTER REINFORCED CSPE | WOVEN POLYESTER | POLYESTER REINFORCED CSPE | CSPE HYPALON 0.045 |
| | ASTM D751<br>0.045 INCHES | ASTM D751<br>45 MILS NOMINAL | ASTM D751<br>.052 IN | ASTM D751<br>045 IN | |
| ASTM D412<br>1500 | ASTM D751,GRAB METHOD<br>250 LBS | ASTM D751,GRAB METHOD<br>225 LBS MIN | ASTM D751<br>250-300 LBF | ASTM D751<br>250-300 LBF | ASTM D751, GRAB METHOD<br>225 |
| | ASTM D751,MODIFIED GRAB METHOD<br>80% OF MATERIAL BREAKING STRENGTH | ASTM D751, MODIFIED<br>4" X 9" PLUS FIELD SEAM<br>225 LBS MIN | ASTM D413<br>15 LBF MIN | ASTM D413<br>15 LBF MIN | |
| ASTM D751<br>FABRIC 30% MIN<br>MATERIAL 300% | ASTM D751, GRAB METHOD<br>25% | ASTM D412<br>25% REINFORCED<br>550% NON-REINFORCED | ASTM D751<br>25 | ASTM D751<br>25 | |
| | NA | | NA | NA | |
| ASTM D2136<br>-45 F | ASTM D2136<br>-40 F,PASS | ASTM D2136,1/8" MANDREL<br>-40 F C,PASS | ASTM D2136<br>-40 F TO -45 F | ASTM D2136<br>-40 F TO -45 F | ASTM D2126<br>-40 C PASS |
| | | ASTM D570, 73 F 30 DAYS<br>1.0% | ASTM D471 7 DAYS @72 F<br><5 | ASTM D471<br><5 | |
| | | ASTM D570<br>NO CHANGE | | | ASTM D1204, 24 HRS @ 54 C<br>0.1% |
| ASTM D753(D412)<br>100% | ASTM D573, 7 DAYS @176 F (D751)<br>100% BREAKING STRENGTH RETAINED | ASTM D573,7 DAYS @ 200 F<br>100% STRENGTH RETENTION | ASTM D573<br>250-300 LBF | ASTM D573<br>100% STRENGTH RETENTION<br>250-300 LBF | ASTM D753<br>100% BREAKING STRENGTH RETENTION |
| ASTM D1149<br>NO EFFECT | ASTM D1149<br>NO EFFECT | ASTM D1149,3PPM@30% STRAIN,@104 F,72+2500 HRS<br>NO EFFECT | ASTM D1149<br>PASS | ASTM D1149<br>PASS | ASTM D1149<br>NO EFFECT |
| E838<br>PASS | A.ASTM D1499<br>B.ASTM E838<br>A.10,000 HRS<br>B.2,234,000 LANGLEYS | ASTM E838<br>>3 MILLION LANGLEYS | | | ASTM E838,<br>2 MILLION LANGLEYS<br>PASS |
| FTM 101B METHOD 2031<br>200 LBS | | FTM 191B,METHOD 2031<br>200 LBS | FTMS 101-2031<br>200 LBS AVG | FTMS 101-2031<br>200 LBS AVG | FTM 191B, METHOD 2031<br>200 LBS |
| ASTM D751<br>90 LBS | NA | ASTM D751,TONGUE TEAR<br>90 LBS MIN | ASTM D751<br>95 LBS | ASTM D751<br>95 LBS | |
| | ASTM D751,TONGUE TEAR<br>8" X 8" SPECIMEN<br>110 LBS | ASTM D751,TONGUE TEAR<br>90 LBS MIN | ASTM D751<br>60-75 LBF | ASTM D751<br>95 LBS | ASTM D751, TONGUE TEAR<br>90 LBS |
| | ASTM D2137<br>50 F,PASS | ASTM D2136<br>-40 F,NO CRACKS | ASTM 746B<br>-45 F | ASTM 746B<br>-45 F | |
| | ASTM E96, PROC A<br>0.04 PERMS | ASTM E96 PROC BW<br>.049 PERMS | ASTM E96 PROC BW(PERMS)<br>0.05 | ASTM E96 PROC BW(PERMS)<br>0.05 | |
| | ASTM D1204,176 F,72 HRS<br>0.5% | ASTM D1204<br>1.0% | ASTM D1204 1 HR@ 212 F<br>0.1-0.4% | ASTM D1704 1 HR @212 F<br>1-1 1/4% | |
| 69 | 69 | 69 | 69 | 69 | 70 |

# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

| | | PIB Polyisobutylene | | CPE Chlorinated Polyethylene | | |
|---|---|---|---|---|---|---|
| 1. COMPANY NAME | | AGR COMPANY | REPUBLIC POWDERED METALS | ALKOR DIVISION-HEDWIN CORPORATION | | COOLEY ROOFING SYSTEMS |
| 2. PRODUCT NAME | | ALPHAGARD 100S/D | GEOFLEX | ALKORFLEX 35091 | ALKORFLEX 35099 | COOL TOP 40 |
| 3. PRODUCT DESCRIPTION | | PIB<br>BLACK OR WHITE | PIB<br>BLACK OR WHITE | CPE<br>CHLORINATED POLYETHYLENE | CPE<br>CHLORINATED POLYETHYLENE | CPE<br>CHLORINATED POLYETHYLENE |
| 4. THICKNESS | METHOD: | ASTM D3767 INCHES | ASTM D3767 | ASTM D3083 | ASTM D3083 | ASTM D374,METHOD A |
| | RESULTS: | 100 MIL +-5% | 100 MIL +-5% | 44 MIL | 44 MILS | 40 MILS |
| 5. TENSILE STRENGTH | METHOD: | ASTM D751 GRAB | ASTM D751 GRAB | ASTM D412 | ASTM D412 | ASTM D882 |
| | RESULTS: | 200 LBF/FT | 200 LBF | 2000 PSI MD & XD | 2200 PSI MD & XD | 2500 PSI |
| 6. LAP JOINT STRENGTH | METHOD: | ASTM D751 | ASTM D751 | ASTM D412 | ASTM D412 | ASTM D751 |
| | RESULTS: | 90 LBS/2 " | 90 LBS | >95% MD & XD | >95% MD & XD | 95% OF MATERIAL BREAKING STRENGTH |
| 7. ELONGATION AT BREAK | METHOD: | ASTM 751 GRAB | ASTM 751 GRAB | ASTM D412 | ASTM D1682 | ASTM D751 |
| | RESULTS: | 70% | 70% | >400% MD & XD | >15% MD & XD | 27% |
| 8. TENSILE SET | METHOD: | | ASTM D395,METHOD B | ASTM D412 | ASTM D412 | |
| | RESULTS: | | 91.5% | <5.0% VARIATION | <5.0% VARIATION | |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | ASTM D2136,-40 F/-40 C | ASTM D2136 | MANDREL TEST | MANDREL TEST | MIL C-20696B |
| | RESULTS: | SATISFACTORY,<br>3 OF 3 PASSED | -40 F | -40 F | -40 F | -40 F |
| 10. WATER ABSORPTION | METHOD: | ASTM D570 | ASTM D570 | ASTM D2842 | ASTM D2842 | ASTM D2842-69,MODIFIED |
| | RESULTS: | | 0.17%,@640 HRS | <1.0% | <1.0% | 0.2% |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | | | ASTM D1204 | ASTM D1204 | |
| | RESULTS | | | <2% | <0.5% | |
| 12. HEAT AGING | METHOD: | ASTM D412 | ASTM D412 | CBSB STANDARD 37-GP-56M, TEST 2,TEST 4&DELAMINATN | CBSB STANDARD 37-GP-56M, TEST 2,TEST 4&DELAMINATN | ASTM D751 |
| | RESULTS: | TYPICAL VALUE RETAIN 75% AFTER 155 HRS@158 F | 75% MIN RETENTION AFTER 155 HRS@158 F | PASSED | PASSED | 100% OF BREAKING STRENGTH |
| 13. OZONE RESISTANCE | METHOD: | DIN 4102(NO US TEST) | DIN 4102,NO US TEST | ASTM D3041,100 HRS | ASTM D3041,100 HRS | |
| | RESULTS: | EXCELLENT | EXCELLENT | PASSED | PASSED | |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | ASTM G23 XENON ARC TEST | ASTM G23 XENON ARC TEST | XENON 1200 DIN 53387<br>XENON 150 DIN 53387 | XENON 1200 DIN 53387<br>XENON 150 DIN 53387 | A.TWIN CARBON ARC FED 195<br>B.DESERT SUN ASTM E838 |
| | RESULTS: | PASSED 16,000 HRS | PASSED 16,000 HRS | 20,000 HRS,NO CHANGE | 20,000 HRS,NO CHANGE | A.15,000 HRS<br>B.3 YRS |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | FTMS 191(METHOD 5120) | FTMS 191,METHOD 5120 | | FM SIMULATED HAIL | |
| | RESULTS: | 208.4 LBS | 208.4 LBS | | PASSED | |
| 16. TEAR RESISTANCE | METHOD: | | ASTM D624 | ASTM D624 | ASTM D624 | ASTM D2262 |
| | RESULTS: | | 120 LBS/IN THICKNESS | >335 LBS/IN MD & XD | >335 LBS/IN MD & XD | WARP 60 LBS<br>FILL 85 LBS |
| 17. TEARING STRENGTH | METHOD: | ASTM D751,TONGUE TEAR | ASTM D751,TONGUE TEAR | | | |
| | RESULTS: | 30 LBF | 30 LBF | | | |
| 18. LOW TEMPERATURE IMPACT | METHOD: | ASTM D2136,-1/8" MANDREL | ASTM D2136,-1/8" MANDREL | ASTM D746 | ASTM D746 | |
| | RESULTS: | NO CRACKS @ -40 F | NO CRACKS @ -40 F | -50 F | -60 F | |
| 19. PERMEABILITY | METHOD: | ASTM E96, PROC A | ASTM E96,PROCEDURE A GMS/24 HR/IN2 | ASTM E96,PROCEDURE E @ 100 F | ASTM E96,PROCEDURE E @ 100 F | ASTM E96 |
| | RESULTS: | 0.01 PERM | 0.112 WVT | 0.6 G/MXMD | 0.6 G/MXMD | .04 PERMS |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | ASTM D1204<br>6 HRS @ 86 F | ASTM D1204 | ASTM D1204,6 HRS@176 C | ASTM D1204,6 HRS @176 F | ASTM D1204 |
| | RESULTS: | -0.4% | -0.4% | <+-2.0% | <+0.5% | LESS THAN 1.0% |
| 21. CONE PENETRATION | METHOD: | | | DIN 53443,BLATT 2,<br>D=1.5MM | DIN 53443,BLATT 2,<br>D=1.5MM | |
| | RESULTS: | | | 1600 N@+23 C | 1500 N@+23 C | |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 70 | 70 | 70 | 70 | 70 |
| 23. SEE APPENDIX PAGE | | | | | | |

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# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

| CPE Chlorinated Polyethylene | OTHER FABRICATED SHEET APPLIED MEMBRANES | | | | |
|---|---|---|---|---|---|
| **PANTASOTE INC.** | **BOND COTE SYSTEMS** | **CARLISLE SYNTEC SYSTEMS** | **DURO-LAST ROOFING INC.** | **FUTURA COATINGS** | **HITCHINS AMERICA, INC.** |
| FLEXHIDE CPE | BOND GREY 35 | POLYEPICHLORHYDRIN ECO/CO | DURO-LAST | FUTURA-PLY II | NURALITE |
| POLYESTER REFINFORCED CPE | NBP NITRILE BUTADIENE POLYBLEND | UNREINFORCED POLYEPICHLOROHYDRIN | CO-POLYMER COATED POLYESTER | REINFORCED URETHANE 50 MIL REIN.50 MIL URETH. | |
| ASTM D751<br>0.045 IN | ASTM D3083<br>0.35 IN | ASTM D412<br>45 AND 60 MILS<br>+ - 10% | ASTM D751<br>35 MILS | | |
| ASTM D751,GRAB METHOD<br>250 LBS | A.ASTM D751,GRAB METHOD<br>B.ASTM D882<br>A.390 X 415 LBS<br>B.7500 PSI | ASTM D412<br>1650 PSI | ASTM D751,GRAB METHOD<br>380 X 345 LBS | ASTM D412 (DIE A<br>20 INCHES MIN)<br>1525 + - 50 | |
| ASTM D751,MODIFIED GRAB METHOD<br>80% OF MATERIAL BREAKING STRENGTH | ASTM D751<br>350 LBS | | ASTM D751<br>350 LBS | ASTM D751, GRAB METHOD<br>NO SEAM FAILURE<br>MEMBRANE FAILED FIRST | |
| ASTM D751, GRAB METHOD<br>25% | ASTM D751<br>28% | ASTM D412<br>250% | ASTM D751<br>27% | ASTM D412 (DIE A<br>20 INCHES)<br>-50 % | |
| | | | | | |
| ASTM D2136<br>-40 F,PASS | ASTM D2136<br>-30 F,NO CRACKS | | ASTM D2136<br>-30 F,NO CRACKS | ASTM D2136, 180 DEGREE BEND @ -30 F<br>PASS | |
| | ASTM D1204<br>0.75% | ASTM D471, CHANGE IN MASS<br>7 DAYS @ 158 F<br>+ 25% | | ASTM D471 (3 DAYS)<br>1.5% | |
| | | | | | |
| ASTM D573, 7 DAYS<br>@ 176 F (D751)<br>RETAINS 100%<br>BREAKING STRENGTH | 176 F,7 DAYS<br>RETAINS 95% OF TENSILE STRENGTH | ASTM D573<br>168 HRS @ 240 F<br>1800 PSI, 200% | | | |
| | ASTM D1149,100 PPHM,1/8",<br>104 F,1/8" BENT LOOP<br>NO CRACKS,7X | ASTM D1149, 100 PPHM @<br>50% STRAIN 168 HRS @104 F<br>NO CRACKS | ASTM D1149,100 PPHM,1/8",<br>104 F-7 DAYS<br>NO CRACKS,7X | ASTM D1149<br>NO EFFECT | |
| A.ASTM D1499<br>B.ASTM 3838<br>A.10,000 HRS<br>B.2234000 LANGLEYS | FS191,METHOD 5804,CARBON<br>& W/WATER SPRAY 5,000 HRS<br>NO CRACKING | | A.FS 191,MET 5804,CARBON<br>B.ASTM E838<br>A.NO CRACKING 6000 HRS<br>B.1,200,000 LANGLEYS | A.ASTM E838<br>B.ASTM D822<br>A.2 MILLION LANGLEYS<br>B.3,000 HRS PASS | |
| | FS101B,METHOD 2031<br>250 LBS | | FS101B,METHOD 2031<br>250 LBS | | |
| | SAME AS TEAR STRENGTH | ASTM D624 (DIE C)<br>120 LBF/IN | ASTM 751,TONGUE<br>8 X 8 SPECIMEN<br>90 X 90 LBS | ASTM D624 (DIE C)<br>270 PLI | |
| ASTM D751,TONGUE TEAR<br>8" X 8" SPECIMEN<br>100 LBS | ASTM D751,8"X10" SAMPLE<br>100 X 90 LBS | | ASTM D751,TONGUE<br>90 X 90 LBS | | |
| ASTM D2137<br>-50 F PASS | ASTM D2136,-30 F<br>NO CRACKING | | ASTM D2136, -30 F<br>NO CRACKING | | |
| ASTM E96, PROC A<br>0.04 PERMS | PERMEANCE,ASTM E96,<br>METHOD A<br>0.379 US PERMS | | A.ASTM 396,PROC B<br>B.ASTM E96,WVT,PROC B,M A<br>A.0.151 G/HR<br>B.0.151G/HR/MXM | ASTM E96,PROCEDURE B<br>0.93 + - .2 US PERMS<br>0.395 + - .2 METRIC PERMS | |
| ASTM D1204,176 F,72 HRS<br>0.5% | ASTM D1204<br>0.75% | | | | |
| | | | | | |
| 70 | 70 | 70 | 71 | 71 | 71 |

# Other Single-Ply Pre-Fabricated Sheet Applied Membranes, Part 2: Test Results *(See Part 1 for General Information)*

**OTHER FABRICATED SHEET APPLIED MEMBRANES**

| | | PANTASOTE INC. | SEAL DRY/USA INC. | | SEAMAN CORPORATION |
|---|---|---|---|---|---|
| 1. COMPANY NAME | | | | | |
| 2. PRODUCT NAME | | FLEXHIDE HYPALON/COMP | SEAL DRY SYS 7000 | SEAL DRY SYS 5000 | FIBERTITE |
| 3. PRODUCT DESCRIPTION | | POLYESTER REINFORCED CSPE/CPE | POLYESTER REINFORCED CPA | POLYESTER REINFORCED CPA | POLYESTER REINFORCED EIP |
| 4. THICKNESS | METHOD: | ASTM D751 | FS 191,METHOD 5030.2<br>ASTM D751 | FS 191,METHOD 5030.2<br>ASTM D751 | ASTM D3083 |
| | RESULTS: | 0.045 INCHES<br>0.050 INCHES | 40 MIL MIN | 36 MIL MIN | 30 MILS MIN |
| 5. TENSILE STRENGTH | METHOD: | ASTM D751,GRAB METHOD | A.ASTM D751,GRAB METHOD<br>B.ASTM D882 | A.ASTM D751,GRAB METHOD<br>B.ASTM D882 | A.ASTM D882<br>B.ASTM D751,GRAB METHOD |
| | RESULTS: | 250 LBS | A.450 X 380 LBS<br>B.7450 PSI | A.315 X 325 LBS<br>B.7450 PSI | A.8500 PSI<br>B.375 LBS X 350 LBS |
| 6. LAP JOINT STRENGTH | METHOD: | ASTM D751,MODIFIED GRAB METHOD | ASTM D751 | ASTM D751 | ASTM D751 |
| | RESULTS: | 80% OF MATERIAL BREAKING STRENGTH | >300 LBS | >300 LBS | >300 LBS |
| 7. ELONGATION AT BREAK | METHOD: | ASTM D751, GRAB METHOD | ASTM D751 | ASTM D751 | ASTM D751 |
| | RESULTS: | 25% | 30% x 40% | 30% X 35% | 20% WARP,30% FILL |
| 8. TENSILE SET | METHOD: | | | | |
| | RESULTS: | | | | |
| 9. LOW TEMPERATURE FLEXIBILITY | METHOD: | ASTM D2136 | ASTM D2136,-30 F,<br>1/8" MANDREL | ASTM D2136,-30 F,<br>1/8" MANDREL | ASTM D2136 |
| | RESULTS: | -40 F,PASS | NO CRACKS | NO CRACKS | -30 F,NO CRACKS |
| 10. WATER ABSORPTION | METHOD: | | ASTM D570@70 F,<br>@122 F,48 HRS | ASTM D570@70 F,<br>@122 F,48 HRS | SHELTERRITE WATER WICKING TEST,24 HRS |
| | RESULTS: | | 1.5% MAX,2.0% MAX | 1.5%/2.0% MAX | 1/8" MAX |
| 11. DIMENSIONAL STABILITY AFTER WATER ABSORPTION | METHOD: | | ASTM D570 | ASTM D570 | SHELTERRITE WATER WICKING TEST,24 HRS |
| | RESULTS | | NO CHANGE | NO CHANGE | LESS THAN 0.2% |
| 12. HEAT AGING | METHOD: | ASTM D573,7DAYS @176 F,(D751) | 14 DAYS@175 F | 14 DAYS@175 F | 160 F-7 DAYS |
| | RESULTS: | 100% BREAKING STRENGTH RETAINED | 100% STRENGTH RETAINED<br>NO CRACKING,CRAZING,BLIST | 100% STRENGTH RETAINED<br>NO CRACKING,CRAZING,BLIST | >95% STRENGTH RETENTION |
| 13. OZONE RESISTANCE | METHOD: | ASTM D1149 | | | 3 DAYS@100PPHM-100 F<br>&3 DAYS@300PPHM-100 F |
| | RESULTS: | NO EFFECT | | | NO CRACKING |
| 14. RESISTANCE TO ACCELERATED WEATHERING | METHOD: | A.ASTM D1499<br>B.ASTM E838 | A.ASTM D2565 WEATHER´MTR<br>B.ASTM E838(DSET) | A.ASTM D2565 WEATHER´MTR<br>B.ASTM E838(DSET) | CARBON ARC WEATHEROMETER W/WATER SPRAY,10,000 HRS |
| | RESULTS: | A.10,000 HRS<br>B.2,234,000 LANGLEYS | A.10,000 HRS<br>B.1,500,000 LANGLEYS | A.10,000 HRS<br>B.1,500,000 LANGLEYS | NO CRACKING |
| 15. DYNAMIC IMPACTING (PUNCTURING) | METHOD: | | FS 101B,METHOD 2031 | FS 101B,METHOD 2031 | FS 101B,METHOD 2031 |
| | RESULTS: | | 275 LBS | 230 LBS | 250 LBS |
| 16. TEAR RESISTANCE | METHOD: | | FS 191,METHOD 5134,<br>ASTM D751,8"X8" SAMPLE | FS 191,METHOD 5134,<br>ASTM D751,8"X8" SAMPLE | ASTM D751,8"X10" SAMPLE |
| | RESULTS: | | 130 LBS | 110 LBS | 100 LBS |
| 17. TEARING STRENGTH | METHOD: | ASTM D751,TONGUE TEAR<br>8" X 8" SPECIMEN | FS 191,METHOD 5134,<br>ASTM D751,8"X8" SAMPLE | FS 191,METHOD 5134,<br>ASTM D751,8"X8" SAMPLE | ASTM D751,8"X10" SAMPLE |
| | RESULTS: | 110 LBS | 130 LBS | 110 LBS | 100 LBS |
| 18. LOW TEMPERATURE IMPACT | METHOD: | ASTM D2137 | ASTM D2136 -30 F | ASTM D2136 -30 F | ASTM D2136,-30 F |
| | RESULTS: | -50 F PASS | NO CRACK | NO CRACK | NO CRACKING |
| 19. PERMEABILITY | METHOD: | ASTM E96,PROC A | ASTM E96,PROC A | ASTM E96,PROC A | WATER VAPOR TRANSMISSION,<br>ASTM E96,PROC A |
| | RESULTS: | 0.035 PERMS | .8 G/MXM/24H | .8 G/MXM/24H | 1.3 G/MXM/24H |
| 20. DIMENSIONAL CHANGE AFTER STRESS RELAXATION | METHOD: | ASTM D1204,176 F,72 HRS | | | 37-GP-54M |
| | RESULTS: | 0.5% | | | SHALL NOT CHANGE MORE THAN 0.24 |
| 21. CONE PENETRATION | METHOD: | | | | 37-GP-54M |
| | RESULTS: | | | | PASS |
| 22. FOR GEN'L INFORMATION SEE PAGE(S) | | 71 | 71 | 71 | 71 |
| 23. SEE APPENDIX PAGE | | | | | |

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# APPENDIX: Roofing Membranes

1. **ALLROOF INTERNATIONAL, INC.**

**BELROOF SD-4, BELROOF SD4M**
Easy: It takes just a torch, gloves, knife, and trowel to apply the Belroof modified bitumen roofing system. What roof could be easier to apply?

Cost: The simple equipment required and the easy application makes the Belroof system less labor intensive.

Warranty: The Belroof system has proven itself throughout the world, ALLROOF INTERNATIONAL, INC., is the only manufacturer to offer a warranty that covers damage below the roof level for a full ten years.

Application: The substrate must be checked and approved for application. Substrates may be primed, insulated, a base sheet applied, or a combination of these methods may be used depending on the desired specification. Rolls should be laid from the low side when working up the slopes. Water will flow across and not against the seams. On roofs with a 3 in 12 pitch or greater, the rolls may be applied with the slope. Belroof membranes may be applied using hot asphalt or a propane roofing torch, which is available from ALLROOF INTERNATIONAL, INC. Slopes from dead level to vertical are acceptable. Belroof membranes may be fully adhered, partially adhered, or loosely laid. Both end and side laps should have a minimum 3" lap and must always be torched. Special care must be taken around roof penetrations and flashings. Belroof membranes shall not be applied when precipitation is immiment or during periods of precipitation. The roof surface shall be free of ponded water, ice, snow, etc. to eliminate future condensation problems. Applications below a workable temperature range need special consideration.

Contact ALLROOF INTERNATIONAL, INC., at (801) 973-2400 for specifications.

**ALLROOF POLYPREN**
Application: The substrate must be checked and approved for application. Substrates may be primed, insulated, a base sheet applied, or a combination of these methods may be used depending on the desired specification. Rolls should be laid from the low side working up the slopes. Water will flow across and not against the seams. On roofs with a 3 in 12 pitch or greater, the rolls may be applied with the slope. Allroof Polypren may be fully adhered using hot asphalt, partially adhered using hot asphalt or mechanical fasteners, or loosely laid with ballast. Slopes from dead level to vertical are acceptable. Both end and side laps should be 4". Wirebrush off fiberglass backing before welding. Vulcanize seam (2" minimum) with a hot air gun (automatic or handheld). The following job conditions must exist before applying the Allroof Polypren membrane.

A. The membrane shall not be applied when precipitation is imminent or during periods of precipitation.

B. The roof surface shall be free of ponded water, ice, snow, etc. to eliminate future condensation problems.

C. Cold temperatures will not restrict installtion of the single-ply membrane.

D. 220 V, 4000-Watt electrical outlet shall be in place for the hot air welding gun for seaming purposes.

Allroof International Inc., a Utah corporation with principal offices in Salt Lake City, Utah, warrants that the Belroof SD-4 or SD-4M roofing membrane installed as noted above will remain in a watertight condition for a period of ten (10) years, with a optional extension of five (5) years, from effective date. If water penetrates through the membrane because of defective workmanship, defective material, or ordinary wear and tear by natural elements, Allroof Internationa, Inc., and/or its Authorized Representative, will recondition, repair, or replace at the option of Allroof International, Inc., the defective component or components of the roof system.

Five Year Warranty Extension - Owner must request extension of warranty in writing to Allroof International, Inc., and must submitt to a maintenance inspection at Manufacturer's expense. Manufacturer will determine whether the product was maintained in accordance with Manufactuer's specifications. Any repair or remedial action to be performed shall be at Owner's expense. Any repairs deemed necessary by Allroof International, Inc., that come under dispute by Owner shall be submitted to a mutually agreed upon third party for arbitration and settlement. Any fee incurred by arbitration shall be paid by the party found to be in fault. Upon completion of any necessary repairs, Allroof International, Inc., will extend this Warranty an additional five (5) years.

2. **CELOTEX**

**CELOPAL 1, CELOPAL 2, AND CELOPAL 3**
Celopal is the only modified system that can be applied by torch only. Celopal 3 is spot torched over the insulation with Celopal 1 or 2 fully torched over this. Celopal products exceed the tensile strength requirement of NBS55 and can be applied by either mopping in steep asphalt or torching, thus eliminating the need for dual inventories. Celopal is manufactured at our Lockland, Ohio plant and stocked at Perth Amboy, New Jersey; Birmingham, Alabama and Houston, Texas. Celopal is based on specifications of the Icopal Company of Copenhagen, Denmark, that have been performing throughout Europe for 20 years.

## 3. IPW INTERPLASTICS

**INTERROOF SYSTEM**
Interoof is a single ply membrane system designed for installation as a mechanically fastened or loose laid ballasted roof. It is available as an Ivory colored membrane with a surface reflectivity of 82%. The earliest installations were made in 1968 and there are literally thousands of Interoof projects world-wide.

Construction: Interoof is manufactured from multiple plys of calandered roll stock to dimensions stability of 0.3% (ASTM D-1204) and elongations of 365% (ASTM D-638). It's dimensional stability is typical of only reinforced membranes, yet the high elongation allows for unhindered expansion and contraction.

Code Approvals: Interoof is UL listed as a Class A & B system in mechanically fastened assemblies. There is no requirement for rock, coatings or other special surface treatments with these listings. A wide variety of insulation boards may be used, consult UL file card R10159 or IPW for details. It is also FM class 1 I-90 rated.

Guarantee: 5 and 10 year guarantees for labor and materials are available with the Interoof System. There is no limitation to the dollar value, up to complete roof replacement.

Limitations: Care shall be taken to assure the Interoof membrane does not come in direct contact with noncompatable materials, ie. bitumenous materials, EPS, petroleum oils, etc. Consult IPW for details

IPW Interplastic, Division of Semperit of America, 1974 Ellenwood Drive, Roswell, GA 30075 404/993-5360

## 4. IMPER ITALIA SPA

**IMPER ITALIA WATERPROOFING SYSTEMS**
New Roofing and Reroofing
IMPER ITALIA membranes are well suited for all new roofings and most reroofing applications. In every circumstance the specifier or the roofing contractor shall have to take into consideration the following requirements: Type and conditions of the surfacing, insulation and, most important, to ensure a proper drainage. To ensure a good bonding use a proper primer as IMPERTENE PRIMER or other approved by IMPER ITALIA SPA.

Protection
When the black membranes as 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 colours, while PARWENOL 4822 Alluminio is a solvent-based aluminium paint. Other membranes are already self-protected.

Special Instructions
The rolls should be stored in covered warehouses and in vertical positions, if possible not stacked. It is recommended to stock at a temperature of not less than 41 F. Their unloading at the worksite or in the warehouse should be accomplished with care.

Note
All the membranes are treated with "Termotene". Termotene is a patented treatment in which a thin film or thermoplastic resins is applied to the undersurface during the manufacturing process. Under normal circumstances the Termotene treatment performs as a separating layer between the differenet turns of the roll, but when heated by the flame it becomes a high-power adhesive. The advantages one obtains with Termotene include a reduced gas consumption and a greater speed of application. The flame of the torch should preferrable directed to the support and not only to the waterproofing membrane to be fixed.

## 5. SARNAFIL, INC.

**C 410**
Only SARNAFIL G 410 membrane should be used in fully adhered applications. Reinforced with non-woven fiberglass mat, the 410 membrane has 100% 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 gray. Adhesive is either a solvent-based adhesive (Sarnacol 2170) or a waterbased emulsion (Sarnacol 2121). Sarnacol 2121 is restricted to use during warm weather, and over water-absorbent substrates. Sarnacol 2170 must be used on vertical surfaces with the substrate must be assured; only approved insulations and substrates provide the code approval required.

**G 442**
SARNAFIL G 442 membranes should be used in loosely laid and ballasted systems. Coverage rate of ballast is a minimum ten pounds per square foot; weight-bearing capacity of deck should be verified by a professional engineer prior to system design. The ballasted membrane is not the system of choice on high rise structures or in areas of high wind.

**S 327**
SARNAFIL S 327 membranes should be used for mechanically fastened applications. Reinforced with woven polyester fabric, the 327 membrane is specifically designed to provide the necessary characteristics of elongation and tensile strength to control the stressing of the membrane which occurs as a result of dynamic loading, and thus is ideally suited to use in areas of high wind. The fastening pattern must be determined for each individual job, and is calculated based on building geometry, ground roughness, and wind zone. The fastening element is a 14-

gauge perforated u-shaped galvanized steel profile and corrosion-resistant screws. Bar and screw assembly is covered by a hot air welded strip of SARNAFIL.

## 6. TROPICAL INDUSTRIAL COATINGS, INC.

**TROPISEAL MODIFIED BITUMEN ROOFING SHEET**

Tropiseal Description and Use: The Tropiseal membrane is manufactured with a tough core of non-woven polyester fabric, which is impregnated on both sides with APP modified bitumen.

Each roll measure 107 square feet and weighs 88 lbs. Tropiseal is 4 mm thick with convenient "burn off" sheet and lined for easy and accurate installation.

Tropiseal is designed primarily to provide complete waterproofing protection for both flat and sloped roofs. Ideal for new roof construction and retrofit, as well as, roof and flashing repair. Tropiseal is also excellent for use on vertical walls and underground, protected applciations.

Application Precautions: Tropiseal should never be applied over existing roof systems which are loose or improperly anchored. Tropiseal should not be applied over wet insulation or other moisture trapped in the existing roof system.

Metal, masonry and concrete surfaces must be primed with a light asphalt primer (Tropilastic) and allowed to cure prior to installation of Tropiseal membrane flashing.

In extremely cold weather, Tropiseal and other roof components should be stored in protected areas until the time of installation.

Warranty Information: Warranties are available only where a complete roof survey is on file, in advance of the actual quotation...and then, only when the roof is accepted by Home Offices of Tropical Industrial Coatings, Inc., Brunswick, Ohio, as a proper substrate to accept successful application of Tropiseal. Standard roof survey forms are available from Tropical. Representative core sample of roof must be sent to Tropical, as confirmation that substrate does not contain excessive moisture, wet or rotting insulation or other "infectious" conditions that can later lead to failure of Tropiseal. All Tropical invoices for material must be paid within term of sale. When all above conditions are met, Tropiseal warranties are available as follows: a) Limited 5 year warranty, or b) Limited 10 year warranty--10 year warranty issued on APP-4 only when it is coated with tropical Four Seasons Aluminum.

Ratings: Factory Mutual, Class 1, I-90 Wind Uplift Rating Underwriters Laboratores, Inc., Class A.

## 7. VILLAS ROOFING SYSTEMS, INC.

**SBS APP MODIFIED BITUMEN MEMBRANES**

Refer to the specific warranty for terms and conditions.

Ten (10) Year Limited Warranty:
This document assures the buyer of Villas roofing membranes that a replacement product for a Villas product not performing under normal rooftop conditions will be sent to the Owner during the ten year period. Villas will not cover the labor cost of installation for this replacement product.

Ten (10) Year Full Warranty:
This document assures that the owner that leaks will be repaired at Villas' expense during the ten year warranty period up to a maximum of $250/square.

Warranty Costs To The Building Owner:
Limited Warranty: There is no additional fee to be paid to Villas in addition to the purchase price of the roofing material.

Full Warranty: In addition to the material purchase price this warranty shall cost $4.00 per square (100 square feet) with a minimum charge of $100. Said fee must be paid before the warranty will be issued.

ADDITIONAL PROTECTION FOR THE BUILDING OWNER
Villas Roofing Systems, Inc. is a Delaware Corporation with offices and manufacturing plant located in Chester, Pennsylvania. Villas carries a ONE MILLION DOLLAR PRODUCT LIABILITY INSURANCE POLICY that protects the owners building and its contents if it is damaged because of failure of the Villas roofing material or fabrication.

Products & Applications:
Buildings themselves differ all over the country with respect to ages and types of construction. For reasons such as these, VILLAS strongly believes that a varied product line is best. Therefore, the VILLAS membranes include oxidized asphaltic, APP (plastomeric) modified, SBS (elastomeric) modified with carriers ranging from glass mat to the strong reinforcement like woven glass and durable polyester.

The VILLAS roof membrane line is complete. We feel that the roof specifying community has tools and materials now available to construct the best possible modified bitumen roof for any given building. The following types of rigid roof insulation panels are acceptable under Villas guaranteed roof systems: fibrous glass, fiberboard, perlite, and cellular glass.

Isocyanurates manufactured at not less than 2lb. density meeting TIMA (Thermal Insulation Manufacturers Association) standards with white fiberglass or asphalt coated fiberglass facers.

The following rigid roof insulations are not approved when used in one layer fashion by themselves. They must be overlaid with an additional insulation board not less than 1/2" thick, properly anchored or secured, with joints between layers staggered: isocyanturates other than defined above, polystyrene, polstyrene composites, urethane, and urethane composites.

The 1/2" minimum thickness overlaying panels may be: perlite, fiberboard, and fibrous glass.

8. **WATPRO, INC.**

**FLAGON SF TRIPOLYMER**

Flagon SF should only be used in a fully adhered configuration. The adhesives approved for application are: 1) Hot steep asphalt and WatPro's Substrate Emulsion Adhesive. The insulation boards approved are typically found with most commercial distributors. For details consult WatPro's specifications. The system is Class A rated at U.L. and Class I-90 at Factory Mutual.

**FLAGON C**

Flagon C is used in ballasted applications in a loosely laid configuration. Minimum ballast in 6 lbs/square foot in the field of the roof and minimum 10 lbs/square foot at the perimeter. For more details on insulation boards and flashing details consult WatPro. The system is Class A rated at U.L. Roll sizes range from 5 to 10 feet in width and up to 100 feet in length.

**FLAGON MFR**

Flagon MFR is a mechanically fastened roofing membrane system. The fastening is done in either of two ways: 1) with metal rails fastened maximum 12" o.c. in the field of 8" o.c. at the perimeter. The rails may be placed in the lap or at 90 degrees to the seamed rolls and capped. 2) With metal disks and fasteners. The disks are placed in the laps at maximum 15" o.c. in the field and 8" o.c. at the perimeter. Plates are available through WatPro. The system is a Class I-90 at Factory Mutual.

## BUILT-UP BITUMINOUS MEMBRANES:

A built-up bituminous membrane is the continuous semi-flexible component of a roof system whose primary function is the exclusion of water. The membrane consists of two or more alternate plies of felts, fabrics or mats which are often saturated and sometimes coated with bituminous materials, assembled in place and adhered to each other with alternate layers of bituminous products. Surfacing and parts of the substrate are not considered components of the membrane.

## SINGLE PLY ROOFING MEMBRANE MATERIALS

The following information is reproduced from ***Single Ply Roofing: A Professional's Guide to Specifications*** with approval of the Single Ply Roofing Institute.

The synthetic materials which are used today as single ply roofing membranes have a long history of use in other types of products; for example, synthetic rubber sheeting has been used to make tarpaulins and tires, and vinyl products have been used for window framing and exterior siding. The specific formulations of these materials are determined by the way they will be used. MATERIALS WHICH ARE TO BE USED AS SHEET-APPLIED ROOFING MEMBRANES MUST BE FORMULATED TO EXHIBIT CERTAIN CHARACTERISTICS WHICH MAKE THEM SUITABLE FOR THAT PURPOSE.

The function of a roof membrane . . . is to provide a watertight covering for a building. It must be durable, strong, and resistant to climate and weathering. It must be able to accommodate anticipated structural movement without splitting or cracking. And, it must retain all of these properties over a reasonable period of time.

In order to formulate materials which meet all of these requirements, the proper mix of ingredients must be used. The materials' properties must be consistent from batch to batch. MANUFACTURERS ADHERE TO STRICT QUALITY CONTROL PROGRAMS TO ENSURE THAT MINIMUM PHYSICAL PROPERTIES ARE ACHIEVED AND MAINTAINED.

### PRODUCTS BEING USED TODAY FOR SINGLE PLY ROOFING MEMBRANES

The list is long and growing, and the chemistry is complex. From a purely chemical point of view, all of the assorted materials can be labelled "polymeric," meaning "macromolecular material formed by the chemical combination of monomers having either the same or different chemical composition." ("Terminology Pertaining to Elastomeric and Plastomeric Material." The Roofing Industry Educational Institute, 1981.)

### THE FOUR GROUPS OF SINGLE PLY PRODUCTS

defined by their chemical nature are:

1. *Vulcanized Elastomers* — also referred to as "thermosets." Both terms relate to the chemical cross-linkage of the polymers, which occurs during the manufacturing process. Once the linkages have been formed, a process also termed "curing," they cannot be changed. A distinguishing characteristic of a vulcanized elastomer is that it can only be bonded to itself (for example, to seam overlapping sheets) by the use of an adhesive because, once cured, new molecular linkages cannot be formed.

2. *Non-Vulcanized Elastomers* — also referred to as "uncured elastomers" — are not physically cured during manufacture. However, they may cure or vulcanize naturally over some period of time, upon exposure to the elements. Once they have cured, their behavior is similar to that of the vulcanized elastomers, and they have become thermosets.

3. *Thermoplastic* materials — distinguished from thermosets in that there is no cross-linking or vulcanization — can be welded together with heat or solvent and develop in these welds bond strengths which equal or surpass the strength of the base material.

4. *Modified Bitumen* roofing membranes — composite sheets consisting of bitumen, modifiers, and reinforcement. The term "modified bitumen" encompasses a broad range of materials, and each specific material differs from the others with respect to the modifiers and reinforcements used. They exhibit the thermoplastic quality of being softened by heat, but are separated into their own generic category because of the significant differences in their chemical makeup from the other thermoplastic materials.

# GENERIC PRODUCT TYPES

Recognizing that no two products are identical even if they consist of the same predominant polymeric composition, the following descriptions provide some general information about each generic product type.

*VULCANIZED ELASTOMERS*

1. EPDM

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 which are non-vulcanized. Used as a roofing material in the United States since the early 1960's, EPDM sheets range in thickness from 30-60 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.

2. NEOPRENE

Neoprene, or chloroprene rubber, is the first commercially available synthetic rubber product. Neoprene is formulated from polymers of chloroprene that were initially developed by E.I. DuPont deNemours 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 30-120 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 non-staining neoprene products require such a coating for weather protection.

*NON-VULCANIZED ELASTOMERS*

1. CSPE

Chlorosulfonated polyethylene, a synthetic rubber manufactured by DuPont, was introduced in 1951 under the trade name HYPALON® *. It is a self-curing non-vulcanized 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 30-60 mils. CSPE is a non-vulcanized product which 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.

2. 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 non-reinforced or reinforced with scrim and range in thickness from 40-48 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.

* Hypalon® is a registered trade mark of E.I. DuPont de Nemours & Co.

3. PIB

PIB (polyisobutylene) is an elastomeric compound, made of isobutylene and other polymers, which was first used as a roofing membrane in Europe in the 1960's. It has been available domestically in the form used today since the mid-1970's. 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.

4. NBP

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

1. PVC

PVC (polyvinyl chloride) polymers, originally produced in Germany almost 30 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 which 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 calendering, extruding, or spread-coating, and they may be non-reinforced or reinforced with glass fibers or polyester fabric. They are usually 40-48 mils thick. PVC membranes are available which have provided up to 20 years of service life as exposed roofing. They are resistant to bacterial growth, industrial chemical atmospheres, root 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.

2. 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.

*MODIFIED BITUMENS*

Polymer modified bituminous membranes were developed in Europe in the mid 1960's and have been in use in the United States since 1975. Both the bitumen and polymers used in these systems have been carefully selected and combined to result in an engineered coating which is coupled with various reinforcements to form a membrane specifically designed to meet the requirements for successful performance in a roofing system. The modifying compounds, such as styrene butadiene or atactic polypropylene, impart flexibility and elasticity, and improve cohesive strength, resistance to flow at high temperatures, and toughness. Reinforcing materials consist variously of plastic film, polyester mat, glass fibers, felt, or fabric; they may be embedded within or laminated to the surface of the modified bitumen membrane. The membrane may be surfaced with liquid coatings, metallic laminates, ceramic granules, or mineral aggregates to enhance UV and fire resistance. Modified bitumen membranes range in thickness from 40 to 160 mils.

## PHYSICAL PROPERTIES

Although it is difficult to directly correlate physical property data with actual performance or life expectancy, manufacturers typically utilize such data in their quality control programs to ensure the suitability of the compound for its end use.

The following is a list of twelve basic material properties which SPRI's Technical Committee has identified 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 NON-REINFORCED 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 the American Society for Testing and Materials (ASTM). There are also other agencies worldwide which define testing methods for single ply membranes which may be similar to, but not exactly the same as, the ASTM methods. Some of these agencies utilize ad hoc procedures which may be difficult to duplicate or which do not differentiate between generic membrane types. IF PHYSICAL PROPERTY DATA ARE TO BE USED TO AID IN PRODUCT SELECTION, THE TEST METHODS SHOULD ALSO BE CONSIDERED. SOMETIMES THE DIFFERENCE IN TEST METHOD ACCOUNTS FOR THE DIFFERENCE IN THE PARTICULAR RESULTS REPORTED.

**TEST METHODS**

Much work is currently being done by ASTM in the area of standards for single ply roofing membranes, and it is expected that standard test methods and minimum material property valves will be developed for the vulcanized elastomers EPDM and Neoprene, and the thermoplastic PVC. Another ASTM group is addressing the testing of modified bitumen membranes. Historically, however, these products have not had standard ASTM procedures which were designed specifically for them as opposed to built-up bituminous roofing membranes. Therefore, the test procedures for these materials are in the development stage. The Modified Bitumen Sub-Committee of SPRI's Technical Committee has developed new and/or adapted existing ASTM methods which they feel best evaluate the physical characteristics of their products.

Table III lists the membrane properties discussed and the test methods which are preferred for each generic membrane type. A short description of the test methods can be found in Appendix A, entitled "Index and Abstract of ASTM Test Methods for Elastomeric and Plastic Materials." This document was reprinted with the permission of The Roofing Industry Educational Institute (RIEI), whom we would like to thank for their cooperation in making this available to us. Appendix B contains a list of recommended modifications to existing ASTM test procedures and the newly developed methods as provided by SPRI's Modified Bitumen Sub-Committee. The applicable ASTM documents for which SPRI has recommended modifications are referenced, and should be consulted by the user of this guide for the complete texts.

**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 thicknesses 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, which 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 or stress required to break a membrane sample. For non-reinforced 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 which 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 which 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 — 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% 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 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 which 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 non-reinforced 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 the 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 affect dimensional stability and membrane thickness, and may cause internal stress which 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 which 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 which 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 which occur in cold climates. However, there may not 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 which 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.

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## INDEX: Roof Board Insulation

| | Expanded Polystyrene | Extruded Polystyrene | Glass Fiber | Cellular Glass | Phenolic | Fiberboard | Perlite | Polyurethane | Polyiso-cyanurate | Composite |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. ADAMS, R.L. PLASTICS, INC<br>2450 BUCHANAN S.W.<br>GRAND RAPIDS, MI 49508<br>616/241-3605 | | 95 | | | | | | | | |
| 2. ADVANCE FOAM PLASTICS, INC<br>5250 N. SHERMAN STREET<br>DENVER, CO 80216<br>303/297-3844 | 92 | | | | | | | | | 105 |
| 3. AMERICAN WESTERN MFG.<br>P.O. BOX 1422<br>MESA, AR 85201<br>602/969-5966 | | | | | | | | | 101 | 105 |
| 4. APACHE BLDG PRODUCTS CO.<br>2025 EAST LINDEN AVENUE<br>LINDEN, NJ 07036<br>201/486-6723 | | | | | | | | | 102 | |
| 5. ARCO CHEMICAL CO.<br>1500 MARKET STREET<br>P.O. BOX 7258<br>PHILADELPHIA, PA 19101<br>214/557-2000 | | | | | | | | | | 105 |
| 6. ARVRON INC<br>459 36TH STREET S.E.<br>GRAND RAPIDS, MI 49508<br>616/452-1431 | 92 | | | | | | | | | |
| 7. ASSOCIATED FOAM MFRS.<br>P.O. BOX 246<br>EXCELSIOR, MN 55331<br>800/255-0176 | 93 | 95 | | | | | | | | |
| 8. AVILITE IND. DIV CONPROCO<br>P.O. BOX 311<br>MARLBOROUGH, NH 03455<br>603/876-3313 | 93 | | | | | | | | | |
| 9. B-TECH INC.<br>1601 CLAY STREET<br>DETROIT, MI 48212<br>313/872-2577 | 92 | | | | | | | | | |
| 10. BIG SKY INSUL. UNLIMITED<br>15 ARDEN DRIVE<br>P.O. BOX 838<br>BELGRADE, MT 59714<br>406/388-4146 | 93 | 95 | | | | | | | | 105 |
| 11. BRANCH RIVER FOAM PLASTICS INC<br>15 THURBERS BOULEVARD<br>SMITHFIELD, RI 02917<br>401/232-0270 | 93 | | | | | | | | | 105 |
| 12. CARLISLE SYNTEC SYSTEMS<br>P.O. BOX 7000<br>CARLISLE, PA 17013<br>717/233-0452 | 93 | | | | | 99 | | | 102 | 106 |
| 13. CARPENTER INSULATION COMPANY<br>P.O. BOX 27205<br>RICHMOND, VA 23261 | 94 | | | | | | | | | 106 |
| 14. CELOTEX CORPORATION, THE<br>1500 NORTH DALE MABRY HWY.<br>TAMPA, FL 33607<br>813/871-4811 | | | | | | 99 | 100 | | 102 | 107 |
| 15. CORNELL CORP.<br>P.O. BOX 338<br>CORNELL, WI 54732<br>717/239-6411 | | | | | | | | | | 107 |
| 16. DOW CHEMICAL CO.<br>GRANVILLE RESEARCH<br>CENTER FOAM PROD.<br>TS&D BOX 515<br>GRANVILLE, OH 43023<br>614/587-4250 | | 95 | | | | | | | | 107 |
| 17. DREW FOAM OF COLORADO<br>1450 W. COLFAX<br>DENVER, CO 80204<br>303/534-3904 | 92 | | | | | | | | | |
| 18. DYRELITE CORP. INC<br>63 DAVID STREET<br>P.O. BOX B-947<br>NEW BEDFORD, MA 02741<br>617/993-9955 | 92 | | | | | | | | | |
| 19. EPS MOLDING INC.<br>2019 BROOKS<br>HOUSTON, TX 77026<br>713/237-9115 | 93 | 96 | | | | | | | | 107 |
| 20. ENERGY IND. INC<br>3100 9TH AVE. S.E.<br>WATERTOWN, SD 57201<br>605/882-2222 | 93 | | | | | | | | | 107 |
| 21. FALCON MFG. OF CALIFORNIA<br>14110 TOWNE AVENUE<br>P.O. BOX 61216<br>LOS ANGELES, CA 90061<br>213/515-7102 | 92 | | | | | | | | | |
| 22. FALCON MFG. OF MICHIGAN INC<br>8240 BYRON CENTER ROAD<br>BYRON CENTR, MI 49315<br>616/878-1568 | 92 | | | | | | | | | |
| 23. FOAM PLASTIC OF NEW ENGLAND<br>ROUTE 69<br>PROSPECT, CT 06712<br>203/758-6411 (CT)<br>800/237-3763 ALL OTHERS | 92 | | | | | | | | | |
| 24. FOAM TECH INC<br>10801 MILLINGTON COURT<br>CINCINNATI, OH 45240<br>513/791-6750 | 93 | | | | | | | | | |
| 25. GAF CORPORATION<br>1361 ALPS ROAD<br>WAYNE, NJ 07470<br>201/628-3000 | | | | | | | 100 | | 102 | |
| 26. GILMAN BROS CO<br>GILMAN CT 06336<br>203/889-8444 | 92 | | | | | | | | | |
| 27. HOMASOTE COMPANY<br>BOX 7240<br>WEST TRENTON, NJ 08628<br>609/883-3300 | | | | | | | | | 102 | 108 |
| 28. HUEBERT FIBERBOARD INC.<br>E. MORGAN STREET<br>BOX 167<br>BOONVILLE, MO 65233<br>816/882-2704 | | | | | | 99 | | | | |
| 29. INDUSTRIAL FOAM PRODUCTS<br>BOX 352<br>PERRYVILLE, MO 63775<br>314/547-6558 | 93 | | | | | | | | | |
| 30. INSUL-BOARD<br>2647 W. 12 STREET<br>P.O. BOX 8103<br>ERIE, PA 16505<br>814/833-7400 | 93 | | | | | | | | | |
| 31. INSULATED BUILDING<br>SYSTEMS, INC.<br>100 POWERS COURT<br>STERLING, VA 22170<br>703/450-4886 | 94 | | | | | | | | | |
| 32. INSUL. CORP OF AMERICA<br>2571 MITCHELL AVENUE<br>ALLENTOWN, PA 18103<br>215/791-4200 | 93 | | | | | | | | | 108 |
| 33. INT'L PERMALITE INC<br>300 NORTH HAVEN AVENUE<br>ONTARIO, CA 91761<br>714/983-9591 | | | | | | | 100 | | 102 | 108 |
| 34. KOPPERS COMPANY<br>724 KOPPERS BUILDING<br>PITTSBURGH, PA 15219<br>412/227-2229 | | | | | 99 | | | | | |
| 35. LOW-TEMP ENG INC<br>308 EAST MAIN STREET<br>NORTON, MA 02766<br>617/285-7737 | 92 | 96 | | | | | | | | 109 |
| 36. LUCAS SALES CO INC<br>10623 BAUR BLVD<br>ST. LOUIS, MO 63132<br>314/993-9610 | | 96 | | | | | 100 | | | |
| 37. MANVILLE BLDG MAT'LS CORP<br>P.O. BOX 5108<br>DENVER, CO 80217<br>303/978-2000 | | | | | | | 100 | | 103 | 109 |
| 38. MARKO FOAM PRODUCTS INC<br>2500 W. 1100 SOUTH<br>SALT LAKE CITY, UT 84104<br>801/972-1354 | 94 | | | | | | | | | |
| 39. MINNESOTA DIVERSIFIED PROD<br>1901 13TH STREET N.E.<br>NEW BRIGHTON, MN 55112<br>612/633-6770 | 93 | 96 | | | | | | | | |
| 40. NPS CORPORATION<br>P.O. BOX 31<br>PERRYVILLE, MO 63775<br>314/547-8389 | 93 | | | | | | | | | |
| 41. NRG BARRIERS INC<br>61 EMERY STREET<br>SANFORD, ME 04073<br>207/324-7745 | | | | | | | | 101 | 103 | 109 |
| 42. NORTHWEST EPS INC<br>1215 WEST FIRST<br>P.O. BOX 970<br>THE DALLES, OR 97058 | 93 | | | | | | | | | 109 |
| 43. OWENS-CORNING FIBERGLAS<br>FIBERGLAS TOWER<br>TOLEDO, OH 43659<br>419/248-8000 | | | 98 | | | 99 | | | 103 | |
| 44. PACEMAKER PLASTICS INC<br>DIVISION MARK IV IND<br>P.O. BOX 266<br>DOVER, OH 44622<br>216/364-8862 | 93 | | | | | | | | | 109 |
| 45. PACIFIC ALLIED PRODUCTS LTD<br>CAMPBELL INDUSTRIAL PARK<br>91-102 B KAOMI LOOP<br>EWA BEACH, HI 96706 | 92 | | | | | | | | | |
| 46. PITTSBURGH CORNING CORP<br>800 PRESQUE ISLE DRIVE<br>PITTSBURGH, PA 15239<br>412/327-6100 | | | | 98 | | | | | | |
| 47. PLASTIFOAM CORPORATON, THE<br>66-68 WEST STREET<br>ROCKVILLE, CT 06066<br>203/875-6274 | 92 | | | | | | | | | 109 |
| 48. POLYFAB INDUSTRIES<br>9540 83RD AVENUE NORTH<br>MAPLE GROVE, MN 55369<br>612/425-8855 | 93 | | | | | | | | 103 | 109 |
| 49. POLY FOAM INC<br>116 PINE STREET<br>LESTER PRAIRIE, MN 55354<br>612/395-2551 | 93 | | | | | | | | | |
| 50. POLYSTYRENE PRODUCTS CO INC<br>500 EARLS ROAD<br>BALTIMORE, MD 21220<br>301/335-2666 | 92 | | | | | | | | | |

## INDEX: Roof Board Insulation

| | Expanded Polystyrene | Extruded Polystyrene | Glass Fiber | Cellular Glass | Phenolic | Fiberboard | Perlite | Polyurethane | Polyiso-cyanurate | Composite |
|---|---|---|---|---|---|---|---|---|---|---|
| 51. RADVA CORP<br>BOX 2900 F.S.S.<br>RADFORD, VA 24143<br>703/639-2458 | 94 | | | | | | | | | |
| 52. R-MAX INC<br>14651 DALLAS PARKWAY SUITE 319<br>DALLAS, TX 75240<br>214/387-4500 | | | | | | | | | 103 | 110 |
| 53. REACH PLASTICS<br>& CHEMICAL INC<br>4294 ALBANY STREET<br>COLONIE, NY 12205<br>518/456-8636 | 93 | | | | | | | | | |
| 54. SEQUOYAH FOAM INC<br>1110 WEST ARLINGTON ST<br>SALLISAW, OK 74955<br>918/775-6271 | 93 | | | | | | | | | 110 |
| 55. SOUTHERN OHIO FOAM<br>139 HARMON AVENUE<br>P.O. BOX 304<br>LEBANON, OH 45036<br>513/923-6923 | 93 | | | | | | | | | |
| 56. SPECTRUM MFG<br>P.O. BOX 185<br>BIG BEND, WI 53103<br>414/662-4412 | 94 | | | | | | | | | |
| 57. TEMPLE-EASTEX INC<br>P.O. DRAWER N<br>DIBOLL, TX 75941<br>800/231-7060 | | | | | | | | | 103 | |
| 58. TEX-STYRENE PLASTICS INC<br>RT 9 BOX 104<br>FT. WORTH, TX 76179<br>817/831-0533 | 94 | | | | | | | | | |
| 59. THERMA FOAM INC<br>2324 FRANKLIN AVENUE<br>FT. WORTH, TX 76106<br>817/624-7204 | 94 | | | | | | | | | 110 |
| 60. THERMAL FOAMS INC<br>2101 KENMORE AVENUE<br>BUFFALO, NY 14207<br>716/874-6474 | 93 | | | | | | | | | 110 |
| 61. THERMAL SYSTEMS INC<br>3055 W 2100 STREET<br>SALT LAKE CITY, UT 84119<br>801/972-6650 | | | | | | | | | 104 | 110 |
| 62. UC INDUSTRIES<br>2 SYLVAN WAY<br>PARSIPPANY, NJ 07054<br>201/267-1605 | | 97 | | | | | | | | |
| 63. UNITED INDUSTRIES<br>HIGHWAY 72 EAST<br>P.O. BOX 715<br>BENTONVILLE, AR 72712<br>501/273-2924 | 92 | | | | | | | | | |
| 64. WESTERN INSULFOAM CORP<br>628 OCEAN DOCK ROAD<br>ANCHORAGE, AK 99501<br>907/279-9407 | 92 | | | | | | | | | 111 |
| 65. WESTERN INSULFOAM CORP<br>8409 W. PALMAIRE<br>PHOENIX, AZ 83021<br>602/423-6848 | 92 | | | | | | | | | 111 |
| 66. WESTERN INSULFOAM CORP<br>5635 SCHAEFER<br>P.O. BOX 765<br>CHINO, CA 91710<br>714/591-7425 | 92 | | | | | | | | | 111 |
| 67. WESTERN INSULFOAM CORP<br>11155 INDUSTRIAL PLACE<br>P.O. BOX 1058<br>DIXON, CA 95620<br>916/753-4010 | 92 | | | | | | | | | 111 |
| 68. WESTERN INSULFOAM CORP<br>19041 80TH AVENUE S.<br>P.O. BOX 278<br>KENT, WA 98032<br>206/242-9424 | 94 | | | | | | | | | 111 |
| 69. WIN-TEC INC<br>10 FOAM FORM PLACE<br>WAUKEGAN, IL 60085<br>312/827-6680 | | | | | | | | | 104 | 111 |
| 70. WOOLEY & COMPANY<br>6865 MIMMS DRIVE<br>DORAVILLE, GA 30340<br>404/448-8473 | 92 | | | | | | | | | |

Following is a reference table showing the "C" and "R" values for various thicknesses of expanded polystyrene roof board insulation. Use with the expanded polystyrene listings which immediately follow.

**Material Data Sheet**
**Expanded Polystyrene (EPS) Homogeneous Roof Board Insulation**

| | | TYPICAL THICKNESSES[c] | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ¾″ | | | 1″ | | | 2″ | | | 3″ | | | 4″ | | | 5″ | | | 6″ | | |
| Density | | Thermal Values | | | Thermal Values | | | Thermal Values | | | Thermal Values | | | Thermal Values | | | Thermal Values | | | Thermal Values | | |
| | | C | R | lbs/ft² | C | R | lbs/ft² | C | R | lbs/ft² | C | R | lbs/ft² | C | R | lbs/ft² | C | R | lbs/ft² | C | R | lbs/ft² |
| 1.0 lbs/ft³ | @40°F | .32 | 3.13 | .063 | .24[b] | 4.17[b] | .083 | .12[b] | 8.3[b] | .166 | .08[b] | 12.50[b] | .249 | .06[b] | 16.6[b] | .332 | .05[b] | 20.8[b] | .415 | .04[b] | 25.00[b] | .498 |
| | @75°F | .346 | 2.89 | | .26[b] | 3.85 | | .13 | 7.69 | | .087 | 11.49 | | .065 | 15.38 | | .052 | 19.23 | | .043 | 23.26 | |
| 1.25 lbs/ft³ | @40°F | .313 | 3.19 | .078 | .235[b] | 4.26 | .104 | .118 | 8.47 | .208 | .078 | 12.82 | .312 | .059 | 16.95 | .416 | .047 | 21.28 | .52 | .039 | 25.64 | .624 |
| | @75°F | .34 | 2.94 | | .255[b] | 3.92 | | .128 | 7.81 | | .085 | 11.76 | | .064 | 15.63 | | .051 | 19.61 | | .043 | 23.26 | |
| 1.50 lbs/ft³ | @40°F | .293 | 3.41 | .094 | .22[b] | 4.55 | .125 | .11 | 9.09 | .25 | .073 | 13.70 | .375 | .055 | 18.18 | .50 | .044 | 22.73 | .625 | .037 | 27.03 | .75 |
| | @75°F | .32 | 3.13 | | .24[b] | 4.17 | | .12 | 8.33 | | .08 | 12.50 | | .06 | 16.67 | | .048 | 20.83 | | .04 | 25.00 | |
| 2.0 lbs/ft³ | @40°F | .30 | 3.33 | .125 | .21[b] | 4.76 | .167 | .105 | 9.52 | .334 | .07 | 14.29 | .501 | .053 | 18.87 | .668 | .042 | 23.81 | .835 | .035 | 28.57 | 1.00 |
| | @75°F | .307 | 3.26 | | .23[b] | 4.35 | | .115 | 8.70 | | .077 | 12.99 | | .058 | 17.24 | | .046 | 21.74 | | .038 | 26.32 | |

| | | | | |
|---|---|---|---|---|
| Density (per ASTM C303) lbs/cubic ft | 1.0 | 1.25 | 1.50 | 2.0 |
| Applicable Standard Specifications: ASTM C578-83 (Types I, II, III); Fed. Spec. HHI-524C | X | X | X | X |
| Compressive Strength (per ASTM D1621) psi @ 10% Deformation | 10-14 psi | 13-18 psi | 15-21 psi | 25-33 psi |
| Water Absorption (per ASTM C272) % by volume (does not include facer) | <2.5% | <2.5% | <2.0% | <1.0% |
| Flexural Strength (per ASTM C203) psi | 25-30 psi | 32-38 psi | 40-50 psi | 55-75 psi |

**Note: Above data from SPI**

**Note a: Available Sizes:** Sized material is typically fabricated to order and is available in commonly used dimensions of 2′ x 4′, 3′ x 4′, 4′ x 4′, 4′ x 8′ and custom sizes available in any dimension from 20″ thickness, 48″ wide and 16′ long.

**Note b: Thermal Conductance "C"** values shown here with a 'b' were supplied by SPI; all others are approximate and were calculated.

**Note c: Above Thicknesses** were selected to show relative 'C' values and weight per square foot. Typically, EPS can be fabricated to any required thickness up to 24″.

# Expanded Polystyrene (Homogeneous Only) Roof Board Insulation

*Products listed in state alphabetic sequence.*

| 1. Company<br>2. State | WESTERN INSULFOAM CORPORATION<br>AK | UNITED INDUSTRIES INC.<br>AR | WESTERN INSULFOAM CORPORATION<br>AZ | FALCON MFG. OF CALIFORNIA<br>CA | WESTERN INSULFOAM CORPORATION<br>CA | ADVANCE FOAM PLASTICS INC.<br>CO | DREW FOAM OF COLORADO<br>CO | FOAM PLASTICS OF NEW ENGLAND<br>CT | GILMAN BROS. COMPANY<br>CT |
|---|---|---|---|---|---|---|---|---|---|
| 3. Product Trade Name | Insulfoam | United Foam | Insulfoam | Falcon BeadBoard | Insulfoam | AFM Perform 1 | Drew Foam EPS | DuraFoam | Cellulite |
| 4. Density(ies) (per ASTM C-303) or (Other) | | | | | | | | | |
| 4.1 1.00 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.2 1.25 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.3 1.50 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.4 2.00 lbs/ft³ | X | X | X | X | X | X | X | X | |
| 5. Surface Treatment: | | | | | | | | | |
| 5.1 Roofing Felt | | | | | | | | | |
| 5.2 Foil Faced Kraft | X | X | X | X | X | X | X | X | X |
| 5.3 Treated Kraft | | | | | | | | X | |
| 5.4 Kraft | | X | | X | | | | | X |
| 5.5 Other | X | | X | | X | X (See Mfr) | | | |
| 6. Available as Tapered Material | | | | | | | | | |
| 6.1 With Facer | YES | | YES | YES | YES | YES | | | |
| 6.2 Without Facer | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| 7. Year First Used in Commercial Roofing Systems | | 1981 | | 1976 | | 1971 | 1972 | 1976 | 1955 |
| 8. Estimated % of Thermal Value Retention @ 1 year | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| (Assuming a continuous mean temperature 5 years | 100 | 100 | 100 | 90 | 100 | 100 | 95 | 90 | 96 |
| differential & constant moisture content) 10 years | 100 | 100 | 100 | 90 | 100 | 100 | 95 | 90 | 96 |
| 9. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | UL5212<br>ICBO 3414<br>ICBO 3401<br>ICBO 3530<br>HUD 71 | | UL5212<br>ICBO 3414<br>ICBO 3401<br>ICBO 3530<br>HUD 71 | ICBO 4059<br>ICBO 3401<br>ICBO 3504<br>ICBO 3530<br>RADCO 1116<br>FHA 808<br>HUD 71<br>LA R1R 24158,<br>24195,24231 | UL5212<br>ICBO 3414<br>ICBO 3401<br>ICBO 3530<br>HUD 71<br>CQSLA24158<br>CQSLA24195 | ICBO 4169 | | P225<br>P231<br>P234<br>P703<br>ICBO 3504<br>BOCA 79-06 | |
| 10. Limitations and/or Restrictions | | | | | | | | | |
| 11. See Appendix Page | | | | | | | | | |
| 12. For Thermal Conductance (C) and Thermal Resistance (R), see the MATERIAL DATA SHEET table immediately following the "INDEX: Roof Board Insulation." | | | | | | | | | |

| 1. Company<br>2. State | Plastifoam Corp, The<br>CT | Woolley & Co<br>GA | Pacific Allied Products, Ltd<br>HI | Dyrelite Corp Inc<br>MA | Low-Temp Eng. Foam Div.<br>MA | Polystyrene Products Co Inc<br>MD | Arvron Inc.<br>MI | B-Tech Corp.<br>MI | Falcon Mfg<br>MI |
|---|---|---|---|---|---|---|---|---|---|
| 3. Product Trade Name | Plastifoam Aquaflo Taper | Acraspan | Solar Shield | Dyrelite | LowTemp Foam EPS | EPS | Steer-O-Cell | EPS Insulation | Falcon Foam |
| 4. Density(ies) (per ASTM C-303) or (Other) | | | | | | | | | |
| 4.1 1.00 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.2 1.25 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.3 1.50 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.4 2.00 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 5. Surface Treatment: | | | | | | | | | |
| 5.1 Roofing Felt | | | | | | | | | X |
| 5.2 Foil Faced Kraft | | | | X | X | | X | X | X |
| 5.3 Treated Kraft | | | | | | | | | |
| 5.4 Kraft | Fibreboard | | | | X | | X | X | X |
| 5.5 Other | Perlite | | | | X | | | | |
| 6. Available as Tapered Material | | | | | | | | | |
| 6.1 With Facer | YES | | | NO | YES | NO | YES | YES | YES |
| 6.2 Without Facer | YES | YES | YES | YES | YES | YES | YES | YES | |
| 7. Year First Used in Commercial Roofing Systems | 1956 | 1976 | 1982 | 1962 | 1978 | 1979 | 1978 | | 1980 |
| 8. Estimated % of Thermal Value Retention @ 1 year | 100 | | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| (Assuming a continuous mean temperature 5 years | 100 | | 100 | 100 | 100 | 100 | 96 | 100 | 100 |
| differential & constant moisture content) 10 years | 100 | | 100 | 100 | 100 | 100 | 96 | 100 | 100 |
| 9. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | BOCA 1319<br>ICBO 1712<br>SBCC 718<br>HH-I-524-C<br>MIL-P-19644-C | | | | BOCA 1319<br>SBCCI 718<br>ICBO 3504 | | | | |
| 10. Limitations and/or Restrictions | See Appendix | | | | | | | | |
| 11. See Appendix Page | | | | | | | | | |
| 12. For Thermal Conductance (C) and Thermal Resistance (R), see the MATERIAL DATA SHEET table immediately following the "INDEX: Roof Board Insulation." | | | | | | | | | |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide. **Note 2:** NA = Not applicable.

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# Expanded Polystyrene (Homogeneous Only) Roof Board Insulation

*Products listed in state alphabetic sequence.*



| ASSOCIATED FOAM MANUFACTURERS MN | | MINNESOTA DIVERSIFIED PRODUCTS MN | POLY FAB INDUSTRIES INC. MN | POLY FOAM INC. MN | INDUSTRIAL FOAM PRODUCTS MO | NPS CORPORATION MO | BIG SKY INSULATIONS UNLIMITED MT | AVILITE INDUSTRIES DIV. CONPROCO NH | REACH PLASTICS & CHEMICALS NY | THERMAL FOAMS INC. NY | FOAM TECH INC. OH |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AFM Perform | Contour Taper Tile | Raylite | PF100, PF125 PF150, PF200 | Dri-Lite | Insul-Drain | Energy Foam | SnoFoam EPS | EPS | Permavon | Thermal Foam EPS | FTI EPS |
| X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | X | X | X | X |
| X | X | X | X | X | X | X | X | | X | X | X |
| X | X | X | | X | X | | | | | | X |
| X | X | X | | X | X | X | X | X | | | |
| | | X | | | | X | | | | | |
| X(See Mfr) | X(See Mfr) | X | | X | | | | | X(See Mfr) | X(See Mfr) | |
| | YES | YES | NO | YES | YES | NO | NO | NO | NO | NO | YES |
| | YES | YES | YES | YES | YES | YES | YES | YES | NO | YES | YES |
| 1980 | 1966 | 1964 | 1979 | 1960 | 1982 | 1978 | 1977 | | | 1976 | 1983 |
| 100 | 100 | 100 | 100 | 100 | 100 | 98 | 95 | 100 | 80 | 80 | |
| 100 | 100 | 98 | 100 | 97 | 95 | 95 | 95 | 100 | 80 | 80 | |
| 100 | 100 | 94 | 100 | 95 | 94 | 95 | 95 | 100 | 80 | 80 | |
| ICBO 4169 P703 | ICBO 4169 P703 | P703 ICBO 4169 | P703 P513 ICBO 3401 | ICBO 4169 P703 | ICBO 1717 BOCA 876.6 SBCCI 717 AIA 702.9 | | P803,P814, P815,P225, P701,P801, ICBO A169 | | | ICBO 4169 | |
| | See Appendix | | | | | | | | | | |
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| Pacemaker Plastics Inc OH | Southern Ohio Foam OH | Sequoyah Foam OK | Northwest EPS Inc. OR | Carlisle SynTec Systems PA | Insul-Board PA | Insulation Corporation of America PA | Branch River Foam Plastics RI | Energy Ind Inc SD | EPS Molding Inc TX | EPS Molding Inc TX | EPS Molding Inc TX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Polyboard | Delta Foam | | Sno-Foam EPS | Sure-Seal EPS | Insul-Board | Insolite Roof Ins | BRFP-EPS | Permafoam | Contour Taper Tile | TC-Board | Lt Deck 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 | | X | | X | X | X | X | | | |
| | X | | X | | | | | X | X | X | |
| X | | X | X | | X | X | X | X | X | X | |
| | | | | | | | X | | X | X | |
| X | | | X | | | | X | | X | | |
| X | Mylar | | | | X | | | | | | |
| YES | YES | YES | NO | | YES | YES | YES | YES | YES | | |
| YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | |
| 1975 | 1970 | 1980 | 1977 | 1981 | 1978 | 1979 | 1979 | 1977 | 1966 | 1982 | 1977 |
| 100 | 100 | 95 | 100 | 80 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 100 | 95 | 95 | 100 | 80 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 100 | 95 | 95 | 100 | 80 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| OBBC 1319 ICBO 4169 P703 | | ICBO 3401 | P251 P513 P801 P803 P814 P815 P902 P923 | P701 P801 | | P701 P801 P803 P814 P815 | ICBO 3530 BOCA 82-62 SBCCI 7420D | | ICBO 4169 P703 | P703 | P513 |
| | | | | See Appendix | | | See Appendix | | | | See Appendix |
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# Expanded Polystyrene (Homogeneous Only) Roof Board Insulation

*Products listed in state alphabetic sequence.*

| 1. Company / 2. State | EPS MOLDING INC. TX | TEX-ST YRENE INC. TX | THERMA FOAM INC. TX | MARKO FOAM PRODUCTS INC. UT | CARPENTER INSULATION COMPANY VA | INSULATED BUILDING SYSTEMS, INC. VA | | | RADVA CORPORATION VA |
|---|---|---|---|---|---|---|---|---|---|
| 3. Product Trade Name | EPS-M Board | Raylite | EPS | Blue Dot EPS | Carpenter | Contour Taper Tile | Perform I | Insultech EPS | ThermaStruct Roof Panel |
| 4. Density(ies) (per ASTM C-303) or (Other) | | | | | | | | | |
| 4.1 1.00 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.2 1.25 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.3 1.50 lbs/ft³ | X | X | X | X | X | X | X | X | X |
| 4.4 2.00 lbs/ft³ | | X | X | X | X | X | X | X | X |
| 5. Surface Treatment: | | | | | | | | | |
| 5.1 Roofing Felt | X | | X | | X | X | X | X | |
| 5.2 Foil Faced Kraft | X | X | X | | X | X | X | X | |
| 5.3 Treated Kraft | X | | | | X | | | | |
| 5.4 Kraft | X | | | | X | | | | |
| 5.5 Other | | | | | X | X | X | | |
| 6. Available as Tapered Material | | | | | | | | | |
| 6.1 With Facer | YES | NO | NO | | YES | YES | YES | YES | |
| 6.2 Without Facer | YES | YES | YES | | YES | YES | YES | YES | YES |
| 7. Year First Used in Commercial Roofing Systems | 1977 | 1982 | 1980 | 1974 | 1977 | 1966 | | 1979 | |
| 8. Estimated % of Thermal Value Retention @ 1 year | 100 | 99 | 100 | | 100 | 100 | 100 | 100 | |
| (Assuming a continuous mean temperature 5 years | 100 | 98 | 100 | | 100 | 100 | 100 | 100 | |
| differential & constant moisture content) 10 years | 100 | 95 | 100 | | 100 | 100 | 100 | 100 | |
| 9. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | P703 ICBO 4169 | P703 P810 P901 P905 P906 P910 P913 | P703 ICBO 4169 | | ICBO 3401 BOCA 82-62 SBCCI 74201 P225, P701 P801, 803, 814, 815 P900 | ICBO 4169 P703 | ICBO 4169 P703 | P513 P701 ICBO 3401 | ICBO 3343 BOCA 81-47 SBCCI 8028 |
| 10. Limitations and/or Restrictions | | | | | | | | | |
| 11. See Appendix Page | | | | | | | | | |
| 12. For Thermal Conductance (C) and Thermal Resistance (R), see the MATERIAL DATA SHEET table immediately following the "INDEX: Roof Board Insulation." | | | | | | | | | |

| 1. Company / 2. State | Western Insulfoam Corp WA | Spectrum Mfg WI |
|---|---|---|
| 3. Product Trade Name | Insulfoam | EPS Board |
| 4. Density(ies) (per ASTM C-303) or (Other) | | |
| 4.1 1.00 lbs/ft³ | X | X |
| 4.2 1.25 lbs/ft³ | X | X |
| 4.3 1.50 lbs/ft³ | X | X |
| 4.4 2.00 lbs/ft³ | X | X |
| 5. Surface Treatment: | | |
| 5.1 Roofing Felt | | |
| 5.2 Foil Faced Kraft | X | X |
| 5.3 Treated Kraft | | |
| 5.4 Kraft | | X |
| 5.5 Other | X | |
| 6. Available as Tapered Material | | |
| 6.1 With Facer | YES | YES |
| 6.2 Without Facer | YES | YES |
| 7. Year First Used in Commercial Roofing Systems | 1968 | 1976 |
| 8. Estimated % of Thermal Value Retention @ 1 year | 100 | |
| (Assuming a continuous mean temperature 5 years | 100 | |
| differential & constant moisture content) 10 years | 100 | |
| 9. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | UL5212 ICBO 3414 ICBO 3401 ICBO 3530 HUD 71 | |
| 10. Limitations and/or Restrictions | | |
| 11. See Appendix Page | | |
| 12. For Thermal Conductance (C) and Thermal Resistance (R), see the MATERIAL DATA SHEET table immediately following the "INDEX: Roof Board Insulation." | | |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide. **Note 2:** NA = Not applicable.

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# Extruded Polystyrene (Homogeneous Only) Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | ADAMS, R.L. PLASTICS, INC. | ASSOCIATED FOAM MANUFACTURERS | | BIG SKY INSULATIONS UNLIMITED | | DOW CHEMICAL, USA | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | MI | MN | | MT | | OH | | | |
| 3. Product Trade Name | USB Under-Siding Bd | Contour Taper Tile X | Contour Taper Tile X | Contour Taper Tile X | Contour Taper Tile X | Styrofoam PD Brand Insl | Styrofoam RM Brand Insl | Styrofoam TG Brand Insl | Styrofoam SM Brand Insl |
| 4. Density (per ASTM C-303) or (Other); lbs/ft³ | 2.0 | 1.8 | 1.4 | 1.4 | 1.8 | 2.4 Typ | 2.2 Typ | 1.9 Typ | 1.9 Typ |
| 5. Surface Treatment: Top Surface | Krft 2 Sides Foil 2 Sides Plastic | Continuous Skin 1 Side Taper=1 Side | Continuous Skin 1 Side Taper=1 Side | Continuous Skin 1 Side Taper=1 Side | Continuous Skin 1 Side Taper=1 Side | None-Natural Skin | None-Natural Skin | None-Natural Skin | None-Natural Skin |
| Bottom Surface | Kraft Foil Plastic | Continuous Skin 1 Side Taper=1 Side | Continuous Skin 1 Side Taper=1 Side | Continuous Skin 1 Side Taper=1 Side | Continuous Skin 1 Side Taper=1 Side | None-Natural Skin | None-Natural Skin | None-Natural Skin | None-Natural Skin |
| 6. Available as Tapered Material | NO | YES | YES | YES | YES | YES | YES | NO | YES |
| 7. Year First Used in Commercial Roofing Systems | | 1980 | 1980 | 1980 | 1980 | 1976 | | 1976 | 1976 |
| 8. Meets Applicable Standard Specifications | | HHI524C-III ASTMC578-83-II | HHI524C-IV ASTMC578-83-IV | HHI524C-IV ASTMC578-83-IV | HHI524C-III ASTMC578-83-II | ASTMC578-83 IV | ASTMC578-83 IV | ASTMC578-83 IV | ASTMC578-83 IV |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | | 15 | 25 | 25 | 15 | 70 Typ/60 Mn | 45 Typ/25 Mn | 40 Typ/25 Mn | 40 Typ/25 Mn |
| 10. Water Absorption (per ASTM C-272) or (Other); % by vol. | | .20 | .15 | .15 | .20 | .1 Typ/.3 Mx | .1 Typ/.3 Mx | .1 Typ/.3 Mx | .1 Typ/.3 Mx |
| 11. Flexural Strength (per ASTM C-203); psi | | 62 LG,42 TR | 100 LG,62 TR | 100 LG,62 TR | 62 LG,42 TR | 80 Typ/60 Mn | 80 Typ/60 Mn | 80 Typ/60 Mn | 80 Typ/60 Mn |
| 12. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 12.1 2′x4′ | | | | | | | X | | |
| 12.2 3′x4′ | | | | | | | | | |
| 12.3 4′x4′ | | | | | | | | | |
| 12.4 4′x8′ | | | X | X | | | | X | X |
| 12.5 Other | X (4′x 50′) | 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 (See Mfgr) | X (See Mfgr) |
| 13. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 13.1 Thickness; in inches | 1/4 | 1 | 1 | 1 | 1 | 1.5 | 1.0 | .8 | .5 |
| Thermal Conductance (C) @ 40° F | | .18 | .18 | .18 | .18 | .123 | .185 | .247 | .37 |
| @ 75° F | .78 | .20 | .20 | .20 | .20 | .133 | .20 | .267 | .40 |
| Thermal Resistance (R) @ 40° F | | 5.55* | 5.55* | 5.55* | 5.55* | 8.13* | 5.40* | 4.04* | 2.70* |
| @ 75° F | 1.27 | 5.0* | 5.0* | 5.0* | 5.0* | 7.51* | 5.00* | 3.74* | 2.50* |
| Weight; lbs/ft² | .094 | .13 | .15 | .15 | .13 | .30 | .183 | .119 | .079 |
| 13.2 Thickness; in inches | | 1.5 | 1 1/2 | 1 1/2 | 1.5 | 2.0 | 1.5 | 1.0 | 1.0 |
| Thermal Conductance (C) @ 40° F | | .16 | .16 | .16 | .16 | .093 | .123 | .185 | .185 |
| @ 75° F | | .173 | .173 | .173 | .173 | .10 | .133 | .20 | .20 |
| Thermal Resistance (R) @ 40° F | | 6.25* | 6.25* | 6.25* | 6.25* | 10.75* | 8.13* | 5.40* | 5.40* |
| @ 75° F | | 5.78* | 5.78* | 5.78* | 5.78* | 10.00* | 7.51* | 5.00* | 5.00* |
| Weight; lbs/ft² | | .195 | .225 | .225 | .195 | .40 | .275 | .158 | .158 |
| 13.3 Thickness; in inches | | 2 | 2 | 2 | 2 | 2.5 | 2.0 | 1.5 | 1.5 |
| Thermal Conductance (C) @ 40° F | | .12 | .12 | .12 | .12 | .074 | .093 | .123 | .123 |
| @ 75° F | | .129 | .129 | .129 | .129 | .080 | .10 | .133 | .133 |
| Thermal Resistance (R) @ 40° F | | 8.33* | 8.33* | 8.33* | 8.33* | 13.51* | 10.75* | 8.13* | 8.13* |
| @ 75° F | | 7.75* | 7.75* | 7.75* | 7.75* | 12.50* | 10.00* | 7.51* | 7.51* |
| Weight; lbs/ft² | | .26 | .30 | .30 | .26 | .50 | .367 | .238 | .238 |
| 13.4 Thickness; in inches | | 2.5 | 2 1/2 | 2 1/2 | 2.5 | 3.0 | 2.5 | 2.0 | 2.0 |
| Thermal Conductance (C) @ 40° F | | .103 | .103 | .103 | .103 | .062 | .074 | .093 | .093 |
| @ 75° F | | .096 | .096 | .096 | .096 | .067 | .080 | .10 | .10 |
| Thermal Resistance (R) @ 40° F | | 9.71* | 9.71* | 9.71* | 9.71* | 16.12* | 13.51* | 10.75* | 10.75* |
| @ 75° F | | 10.42* | 10.42* | 10.42* | 10.42* | 14.92* | 12.50* | 10.00* | 10.00* |
| Weight; lbs/ft² | | .325 | .375 | .375 | .325 | .60 | .458 | .317 | .317 |
| 13.5 Thickness; in inches | | 3 | 3 | 3 | 3 | 3.5 | 3.0 | 3.0 | 2.5 |
| Thermal Conductance (C) @ 40° F | | .086 | .086 | .086 | .086 | .053 | .062 | .062 | .074 |
| @ 75° F | | .08 | .08 | .08 | .08 | .057 | .067 | .067 | .080 |
| Thermal Resistance (R) @ 40° F | | 11.63* | 11.63* | 11.63* | 11.63* | 18.86* | 16.12* | 16.12* | 13.51* |
| @ 75° F | | 12.50* | 12.50* | 12.50* | 12.50* | 17.54* | 14.92 | 14.92* | 12.50* |
| Weight; lbs/ft² | | .39 | .45 | .45 | .39 | .70 | .550 | .356 | .396 |
| 13.6 Thickness; in inches | | | | | | | 4.0 | | 4.0 |
| Thermal Conductance (C) @ 40° F | | | | | | | .04 | | .04 |
| @ 75° F | | | | | | | .05 | | .05 |
| Thermal Resistance (R) @ 40° F | | | | | | | 25.00* | | 25.00* |
| @ 75° F | | | | | | | 20.00* | | 20.00* |
| Weight; lbs/ft² | | | | | | | .73 | | .63 |
| 14. Estimated % of Thermal Value Retention @ 1 year | | 100 | 100 | | | 100 | 100 | 100 | 100 |
| (Assuming a continuous mean temperature differential & constant moisture content) 5 years | | 95 | 95 | | | 100 | 100 | 100 | 100 |
| 10 years | | 95 | 95 | | | 97 | 97 | 97 | 97 |
| 15. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | | | | | | See Appendix | See Appendix | ICBO 2257 BOCA 80-72 SBCCI 8183 | ICBO 2257 BOCA 80-72 SBCCI 8183 |
| 16. Limitations and/or Restrictions | | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix |
| 17. See Appendix Page | | · 113 | · 113 | · | · | · 114 | · 114 | · 114 | · 114 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Extruded Polystyrene (Homogeneous Only) Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | EPS MOLDING INC. | | | LOW-TEMP ENG. INC. FOAM DIVISION | | | LUCAS SALES COMPANY, INC. | | MINNESOTA DIVERSIFIED PRODUCTS |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | TX | | | MA | | | MO | | MN |
| 3. Product Trade Name | Contour Taper Tile X | Contour Taper Tile X | Contour Protected Board | Foamula R 404 | Foamula R 150 | Foamula R 250 | Lucas Lite Tapered | Lucas Lite Tapered | Certifoam |
| 4. Density (per ASTM C-303) or (Other); lbs/ft³ | 1.8 | 1.4 | 2.4 | 2.4 | 1.3 | 1.8 | 1.4 | 1.8 | 2.5 |
| 5. Surface Treatment: Top Surface | Continuous Skin 2 Sides Taper=1 Side | Continuous Skin 2 Sides Taper=1 Side | Continuous Skin | None Natural Surface | None Natural Surface | None Natural Surface | Continuous Extruded Skin | Continuous Extruded Skin | Continuous Extruded Skin |
| Bottom Surface | Continuous Skin 2 Sides Taper=1 Side | Continuous Skin 2 Sides Taper=1 Side | Continuous Skin | None Natural Surface | None Natural Surface | None Natural Surface | Saw Cut Surface | Saw Cut Surface | Continuous Extruded Skin |
| 6. Available as Tapered Material | YES | YES | NO | NO | YES | YES | YES | YES | YES |
| 7. Year First Used in Commercial Roofing Systems | 1980 | 1980 | 1984 | | 1980 | 1980 | 1983 | 1983 | 1983 |
| 8. Meets Applicable Standard Specifications | HHI524C-III ASTMC578-83-II | HHI524C-IV ASTMC578-83-IV | HHI524C-IV ASTMC578-83 | HHI524C ASTMC578 | HHI524C ASTMC578 | HHI524C ASTMC578 | HHI524C-II ASTMC578-83-II | HHI524C-IV ASTMC578-83-IV | HHI524C-IV ASTMC578-83-IV |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | 25 | 15 | 40 | 40 Mn | 15 Mn | 25 Mn | 15 | 25 | 40 |
| 10. Water Absorption (per ASTM C-272) or (Other); % by vol. | .15 | .20 | .06 | .06 | .20 | .15 | .20 | .15 | .17 |
| 11. Flexural Strength (per ASTM C-203); psi | 100 LG,62 TR | 62 LG,42 TR | 100 | 120LG 75TR | 62LG 42TR | 100LG 62TR | 62 | 100 | 117 |
| 12. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 12.1 2′x4′ | | X | | X | | | | | X |
| 12.2 3′x4′ | | | | | | | | | X |
| 12.3 4′x4′ | | | | | | | | | X |
| 12.4 4′x8′ | X | X | | | X | X | | | X |
| 12.5 Other | 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′) | X |
| 13. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 13.1 Thickness; in inches | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 3/4 |
| Thermal Conductance (C) @ 40° F | .18 | .18 | .18 | .18 | .18 | .18 | | | |
| @ 75° F | .20 | .20 | .20 | .20 | .20 | .20 | .10* | .10* | .22* |
| Thermal Resistance (R) @ 40° F | 5.55* | 5.55* | 5.55 | 5.40 | 5.40 | 5.40 | | | 4.5 |
| @ 75° F | 5.0* | 5.0* | 5.0* | 5.00 | 5.00 | 5.00 | 10.0 | 10.0 | |
| Weight; lbs/ft² | .15 | .13 | | .20 | .11 | .15 | | | |
| 13.2 Thickness; in inches | 1.5 | 1.5 | 1.5 | 1 1/2 | 1 1/2 | 1 1/2 | 2 1/2 | 2 1/2 | 1 |
| Thermal Conductance (C) @ 40° F | .16 | .16 | .16 | .12 | .12 | .12 | | | |
| @ 75° F | .173 | .173 | .173 | .133 | .133 | .133 | .08* | .08* | .17* |
| Thermal Resistance (R) @ 40° F | 6.25 | 6.25 | 6.25 | 8.10 | 8.10 | 8.10 | | | |
| @ 75° F | 5.78 | 5.78 | 5.78 | 7.50 | 7.50 | 7.50 | 12.5 | 12.5 | 6.0 |
| Weight; lbs/ft² | .225 | .195 | .23 | .30 | .165 | .225 | | | |
| 13.3 Thickness; in inches | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 1 1/2 |
| Thermal Conductance (C) @ 40° F | .12 | .12 | .12 | .09 | .09 | .09 | | | |
| @ 75° F | .129 | .129 | .129 | .10 | .10 | .10 | .066* | .066* | .13* |
| Thermal Resistance (R) @ 40° F | 8.33 | 8.33 | 8.33 | 10.80 | 10.80 | 10.80 | | | |
| @ 75° F | 7.75 | 7.75 | 7.75 | 10.00 | 10.00 | 10.00 | 15.0 | 15.0 | 7.5 |
| Weight; lbs/ft² | .30 | .30 | .35 | .40 | .22 | .30 | | | |
| 13.4 Thickness; in inches | 2.5 | 2.5 | 2.5 | 2 1/2 | 2 1/2 | 2 1/2 | | | 2 |
| Thermal Conductance (C) @ 40° F | .103 | .103 | .103 | .072 | .072 | .072 | | | |
| @ 75° F | .096 | .096 | .096 | .08 | .08 | .08 | | | .10* |
| Thermal Resistance (R) @ 40° F | 9.71 | 9.71 | 9.71 | 13.50 | 13.50 | 13.50 | | | |
| @ 75° F | 10.42 | 10.42 | 10.42 | 12.50 | 12.50 | 12.50 | | | 10.0 |
| Weight; lbs/ft² | .375 | .375 | .4 | .50 | .275 | .375 | | | |
| 13.5 Thickness; in inches | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| Thermal Conductance (C) @ 40° F | .086 | .086 | .086 | .06 | .06 | .06 | | | |
| @ 75° F | .08 | .08 | .08 | .066 | .066 | .066 | | | |
| Thermal Resistance (R) @ 40° F | 11.63 | 11.63 | 11.63 | 16.2 | 16.2 | 16.2 | | | |
| @ 75° F | 12.50 | 12.50 | 12.50 | 15.00 | 15.00 | 15.00 | | | |
| Weight; lbs/ft² | .45 | .45 | .5 | .60 | .33 | .45 | | | |
| 13.6 Thickness; in inches | | | | | | | | | |
| Thermal Conductance (C) @ 40° F | | | | | | | | | |
| @ 75° F | | | | | | | | | |
| Thermal Resistance (R) @ 40° F | | | | | | | | | |
| @ 75° F | | | | | | | | | |
| Weight; lbs/ft² | | | | | | | | | |
| 14. Estimated % of Thermal Value Retention @ 1 year | | | | 100 | 100 | 100 | 99 | 99 | 98 |
| (Assuming a continuous mean temperature 5 years | | | | 100 | 100 | 100 | 95 | 95 | 94 |
| differential & constant moisture content) 10 years | | | | 100 | 100 | 100 | 80 | 80 | >80 |
| 15. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | | | | | ICBO 2257 BOCA 80-72 SBCCI 8183 | ICBO 2257 BOCA 80-72 SBCCI 8183 | | | |
| 16. Limitations and/or Restrictions | See Appendix | See Appendix | See Appendix | | | | See Appendix | See Appendix | |
| 17. See Appendix Page | · 116 | · 116 | · 115 | | | | · 117 | · 117 | |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Extruded Polystyrene (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*



| UC INDUSTRIES OH | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Foamular 250 | Foamular 150 | Foamular 404 | | | | | | | | | |
| 1.8 Typ | 1.4 Typ | 2.4 Typ | | | | | | | | | |
| Continuous Extruded Skin | Continuous Extruded Skin | Continuous Extruded Skin | | | | | | | | | |
| Continuous Skin | Continuous Skin | Continuous Skin | | | | | | | | | |
| YES | YES | NO | | | | | | | | | |
| 1983 | 1983 | 1984 | | | | | | | | | |
| ASTMC578-83 HHI524C-IV | ASTMC578-83 HHI524-II | ASTMC578-83 HHI524C-IV | | | | | | | | | |
| 25 Min<br>.15<br>100 LG,62 TR | 15 Min<br>.20<br>62 LG,42 TR | 40 Min<br>.06<br>120 LG,75 TR | | | | | | | | | |
| | | X | | | | | | | | | |
| X<br>X (2'x 8') | X<br>X (2'x 8') | | | | | | | | | | |
| 1<br>.18<br>.20<br>5.4<br>5.0 | 1<br>.18<br>.20<br>5.4<br>5.0 | 1<br>.18<br>.20<br>5.4<br>5.0 | | | | | | | | | |
| 1 1/2<br>.123*<br>.133*<br>8.1<br>7.5 | 1 1/2<br>.133*<br>7.5 | 1 1/2<br>.123*<br>.133*<br>8.1<br>7.5 | | | | | | | | | |
| 2<br>.092*<br>.10*<br>10.8<br>10.0 | 2<br>.10*<br>10.0 | 2<br>.092*<br>.10*<br>10.8<br>10.0 | | | | | | | | | |
| 2 1/2<br>.074*<br>.08*<br>13.5<br>12.5 | 2 1/2<br>.08*<br>12.5 | 2 1/2<br>.074*<br>.08*<br>13.5<br>12.5 | | | | | | | | | |
| 3<br>.061*<br>.066*<br>16.2<br>15.0 | 3<br>.066*<br>15.0 | 3<br>.061*<br>.066*<br>16.2<br>15.0 | | | | | | | | | |
| | | | | | | | | | | | |
| 99<br>95<br>>80 | 99<br>95<br>>80 | 99<br>95<br>>80 | | | | | | | | | |
| See Appendix | See Appendix | See Appendix | | | | | | | | | |
| See Appendix | See Appendix | See Appendix | | | | | | | | | |
| • 121 | • 121 | • 121 | | | | | | | | | |

# Glass Fiber/Mineral Fiber (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| | | | |
|---|---|---|---|
| **1. Company** | OWENS-CORNING FIBERGLAS | | |
| **2. State** | OH | | |
| **3. Product Trade Name** | Fiberglas | | |
| **4. Surface Treatment:** Top Surface | Asphalt and Kraft Cap Sheet | | |
| Bottom Surface | None | | |
| **5. Available as Tapered Material** | YES | | |
| **6. Year First Used in Commercial Roofing Systems** | 1941 | | |
| **7. Meets Applicable Standard Specifications** | HHI526 ASTMC726 | | |
| **8. Compressive Strength** (per ASTM C-165) or (Other); psi | Above 12 | | |
| **9. Water Absorption** (per ASTM C-209) or (Other); % by vol. | Below 10 | | |
| **10. Flexural Strength** (per ASTM C-203) or (Other); psi | | | |
| **11. Common Available Sizes** (Contact mfr. for other sizes and special orders) | | | |
| 11.1 2'x4' | | | |
| 11.2 3'x4' | X | | |
| 11.3 4'x4' | | | |
| 11.4 4'x8' | X | | |
| 11.5 Other | | | |
| **12. Common Available Thicknesses** (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | |
| 12.1 Thickness; in inches | 3/4 | | |
| Thermal Conductance (C) @ 40° F | | | |
| @ 75° F | .36 | | |
| Thermal Resistance (R) @ 40° F | | | |
| @ 75° F | 2.78 | | |
| Weight; lbs/ft² | .98 | | |
| 12.2 Thickness; in inches | 1 5/16 | | |
| Thermal Conductance (C) @ 40° F | | | |
| @ 75° F | .27 | | |
| Thermal Resistance (R) @ 40° F | | | |
| @ 75° F | 3.70 | | |
| Weight; lbs/ft² | 1.03 | | |
| 12.3 Thickness; in inches | 1 1/16 | | |
| Thermal Conductance (C) @ 40° F | | | |
| @ 75° F | .24 | | |
| Thermal Resistance (R) @ 40° F | | | |
| @ 75° F | 4.17 | | |
| Weight; lbs/ft² | 1.06 | | |
| 12.4 Thickness; in inches | 1 15/16 | | |
| Thermal Conductance (C) @ 40° F | | | |
| @ 75° F | .19 | | |
| Thermal Resistance (R) @ 40° F | | | |
| @ 75° F | 5.26 | | |
| Weight; lbs/ft² | 1.30 | | |
| 12.5 Thickness; in inches | 2 1/16 | | |
| Thermal Conductance (C) @ 40° F | | | |
| @ 75° F | .12 | | |
| Thermal Resistance (R) @ 40° F | | | |
| @ 75° F | 8.33 | | |
| Weight; lbs/ft² | 1.70 | | |
| 12.6 Thickness; in inches | 2 7/16 | | |
| Thermal Conductance (C) @ 40° F | | | |
| @ 75° F | .10 | | |
| Thermal Resistance (R) @ 40° F | | | |
| @ 75° F | 10.00 | | |
| Weight; lbs/ft² | 1.95 | | |
| **13. Estimated % of Thermal Value Retention @ 1 year** (Assuming a continuous mean temperature differential & constant moisture content) **5 years** | 100 | | |
| **10 years** | 100 | | |
| | 100 | | |
| **14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others)** | | | |
| **15. Limitations and/or Restrictions** | See Appendix | | |
| **16. See Appendix Page** | 118 | | |

★ = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Cellular Glass (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| | | | |
|---|---|---|---|
| **1. Company** | 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 Systems** | 1943 | | |
| **7. Meets Applicable Standard Specifications** | ASTMC552 HHI551E | | |
| **8. Compressive Strength** (per ASTM C-165) or (Other); psi | 100 | | |
| **9. Water Absorption** (per ASTM C-240) or (Other); % by vol. | 0.2 | | |
| **10. Flexural Strength** (per ASTM C-203) or (Other); psi | 80 | | |
| **11. Common Available Sizes** (Contact mfr. for other sizes and special orders) | | | |
| 11.1 2'x4' | X | | |
| 11.2 3'x4' | | | |
| 11.3 4'x4' | | | |
| 11.4 4'x8' | | | |
| 11.5 Other | | | |
| **12. Common Available Thicknesses** (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | |
| 12.1 Thickness; in inches | 1.5 | | |
| Thermal Conductance (C) @ 40° F | .216 | | |
| @ 75° F | .233 | | |
| Thermal Resistance (R) @ 40° F | 4.63* | | |
| @ 75° F | 4.29* | | |
| Weight; lbs/ft² | 1.06 | | |
| 12.2 Thickness; in inches | 2.0 | | |
| Thermal Conductance (C) @ 40° F | .162 | | |
| @ 75° F | .175 | | |
| Thermal Resistance (R) @ 40° F | 6.17* | | |
| @ 75° F | 5.72 | | |
| Weight; lbs/ft² | 1.42 | | |
| 12.3 Thickness; in inches | 2.5 | | |
| Thermal Conductance (C) @ 40° F | .130 | | |
| @ 75° F | .140 | | |
| Thermal Resistance (R) @ 40° F | 7.69* | | |
| @ 75° F | 7.15 | | |
| Weight; lbs/ft² | 1.77 | | |
| 12.4 Thickness; in inches | 3.0 | | |
| Thermal Conductance (C) @ 40° F | .108 | | |
| @ 75° F | .117 | | |
| Thermal Resistance (R) @ 40° F | 9.26* | | |
| @ 75° F | 8.58 | | |
| Weight; lbs/ft² | 2.12 | | |
| 12.5 Thickness; in inches | 3.5 | | |
| Thermal Conductance (C) @ 40° F | .092 | | |
| @ 75° F | .100 | | |
| Thermal Resistance (R) @ 40° F | 10.87* | | |
| @ 75° F | 10.01 | | |
| Weight; lbs/ft² | 2.48 | | |
| 12.6 Thickness; in inches | 4.0 | | |
| Thermal Conductance (C) @ 40° F | .081 | | |
| @ 75° F | .087 | | |
| Thermal Resistance (R) @ 40° F | 12.35* | | |
| @ 75° F | 11.44 | | |
| Weight; lbs/ft² | 2.83 | | |
| **13. Estimated % of Thermal Value Retention @ 1 year** (Assuming a continuous mean temperature differential & constant moisture content) **5 years** | 100 | | |
| **10 years** | 100 | | |
| | 100 | | |
| **14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others)** | P227,P508 P801,P701 | | |
| **15. Limitations and/or Restrictions** | | | |
| **16. See Appendix Page** | | | |

★ = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Phenolic (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| 1. Company | KOPPERS COMPANY, INC. | |
|---|---|---|
| 2. State | PA | |
| 3. Product Trade Name | RX Insulation | RX Insulation SPLL |
| 4. Density (per ASTM D-1622) or (Other); lbs/ft³ | 2.5 Min | 2.5 Min |
| 5. Surface Treatment: Top Surface | Glass | Foil |
| Bottom Surface | Glass | Glass |
| 6. Available as Tapered Material | NO | NO |
| 7. Year First Used in Commercial Roofing Systems | 1982 | 1982 |
| 8. Meets Applicable Standard Specifications | HHI1972 | HHI1972 |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | 25 | 25 |
| 10. Water Absorption (per ASTM C-272) or (Other); % by volume | 1.8 | 1.8 |
| 11. Common Available Sizes (Contact mfr. for other sizes and special orders) | | |
| 11.1 2′ x 4′ | | |
| 11.2 3′ x 4′ | X | X |
| 11.3 4′ x 4′ | | |
| 11.4 4′ x 8′ | | |
| 11.5 Other | | |
| 12. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | |
| 12.1 Thickness; in inches | 1.2 | 1.2 |
| Thermal Conductance (C) @ 40°F | | |
| @ 75°F | .10 | .10 |
| Thermal Resistance (R) @ 40°F | | |
| @ 75°F | 10.00 | 10.00 |
| Weight; lbs/ft² | | |
| 12.2 Thickness; in inches | 1.4 | 1.4 |
| Thermal Conductance (C) @ 40°F | | |
| @ 75°F | .085 | .085 |
| Thermal Resistance (R) @ 40°F | | |
| @ 75°F | 11.67 | 11.67 |
| Weight; lbs/ft² | | |
| 12.3 Thickness; in inches | 1.5 | 1.5 |
| Thermal Conductance (C) @ 40°F | | |
| @ 75°F | .080 | .080 |
| Thermal Resistance (R) @ 40°F | | |
| @ 75°F | 12.50 | 12.50 |
| Weight; lbs/ft² | | |
| 12.4 Thickness; in inches | 1.75 | 1.75 |
| Thermal Conductance (C) @ 40°F | | |
| @ 75°F | .068 | .068 |
| Thermal Resistance (R) @ 40°F | | |
| @ 75°F | 14.58 | 14.58 |
| Weight; lbs/ft² | | |
| 12.5 Thickness; in inches | 2.0 | 2.0 |
| Thermal Conductance (C) @ 40°F | | |
| @ 75°F | .060 | .060 |
| Thermal Resistance (R) @ 40°F | | |
| @ 75°F | 16.67 | 16.67 |
| Weight; lbs/ft² | | |
| 12.6 Thickness; in inches | 3.0 | 3.0 |
| Thermal Conductance (C) @ 40°F | | |
| @ 75°F | .040 | .040 |
| Thermal Resistance (R) @ 40°F | | |
| @ 75°F | 25.00 | 25.00 |
| Weight; lbs/ft² | | |
| 13. Estimated % of Thermal Value Retention @ 1 year (Assuming a continuous mean temperature differential & constant moisture content) 5 years 10 years | 100 | 100 |
| 14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | See Appendix | See Appendix |
| 15. Limitations and/or Restrictions | See Mfgr | See Mfgr |
| 16. See Appendix Page | · 117 | · 117 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** (C) and/or (R) values supplied by manufacturer are in accordance with RIC/TIMA Roof Insulation Specimen Conditioning Procedure #281-1.

**Note 3:** NA = Not applicable.

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# Fiberboard (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| 1. Company | CARLISLE SYNTEC SYSTEMS | CELOTEX CORPORATION, THE | HUEBERT FIBERBOARD INC. | OWENS CORNING FIBERGLAS |
|---|---|---|---|---|
| 2. State | PA | FL | MO | OH |
| 3. Product Trade Name | HP Recovery Board | Fiberboard | HFB | O-C Wood Fiber RF Ins |
| 4. Surface Treatment: Top Surface | Asphalt Emulsion | | None | Impregnated Surface Treatment |
| Bottom Surface | None | None | None | None |
| 5. Available as Tapered Material | No | NO | NO | NO |
| 6. Year First Used in Commercial Roofing Systems | 1981 | 1928 | 1961 | 1955 |
| 7. Meets Applicable Standard Specifications | C208-72 LLLI535B,C1sE | LLLI535B, C1sC,C208 | C208-72 LLLI535B,C1sC PS57-73 | C208-72 LLLI535B,C1sC |
| 8. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | |
| 8.1 2′x4′ | | X | X | X |
| 8.2 3′x4′ | | | | |
| 8.3 4′x4′ | X | X | X | X |
| 8.4 4′x8′ | X | X | | X |
| 8.5 Other | | | | |
| 9. Common Available Thicknesses (Contact mfr. for other thicknesses) Water Absorbtion, Transverse Strength, (C) Values, (R) Values, Wt./ft² | | | | |
| 9.1 Thickness; in inches | 1/2 | 1/2 | 1/2 | 1/2 |
| Water Absorbt. (per ASTM C-209) or (Other); % by vol. | 7 max | | 5 to 10 | |
| Transverse Strength (per ASTM C-203) or (Other); psi | 14 | | 8 | |
| Thermal Conductance (C) @ 40°F | | | | |
| @ 75°F | .80 | .72 | | .72 |
| Thermal Resistance (R) @ 40°F | | | | |
| @ 75°F | 1.25 | 1.39* | | 1.39* |
| Weight; lbs/ft² | .65 | .70 | .81 | .63 |
| 9.2 Thickness; in inches | | 1 | 3/4 | 3/4 |
| Water Absorbt. (per ASTM C-209) or (Other); % by vol. | | | 5 to 10 | |
| Transverse Strength (per ASTM C-203) or (Other); psi | | | 12 | |
| Thermal Conductance (C) @ 40°F | | | | |
| @ 75°F | | .36 | | .48 |
| Thermal Resistance (R) @ 40°F | | | | |
| @ 75°F | | 2.78* | | 2.08* |
| Weight; lbs/ft² | | 1.4 | 1.1 | .92 |
| 9.3 Thickness; in inches | | 1 1/2 | 1 | 1 |
| Water Absorbt. (per ASTM C-209) or (Other); % by vol. | | | 5 to 10 | |
| Transverse Strength (per ASTM C-203) or (Other); psi | | | 15 | |
| Thermal Conductance (C) @ 40°F | | | | |
| @ 75°F | | .24 | .36 | .36 |
| Thermal Resistance (R) @ 40°F | | | | |
| @ 75°F | | 4.17* | 2.78* | 2.78* |
| Weight; lbs/ft² | | 2.1 | 1.35 | 1.28 |
| 9.4 Thickness; in inches | | 2 | 1 1/2 | 1 1/2 |
| Water Absorbt. (per ASTM C-209) or (Other); % by vol. | | | | |
| Transverse Strength (per ASTM C-203) or (Other); psi | | | | |
| Thermal Conductance (C) @ 40°F | | | | |
| @ 75°F | | .19 | .24 | .24 |
| Thermal Resistance (R) @ 40°F | | | | |
| @ 75°F | | 5.26* | 4.17* | 4.17* |
| Weight; lbs/ft² | | 2.8 | 2.3 | 1.93 |
| 9.5 Thickness; in inches | | | 2 | 2 |
| Water Absorbt. (per ASTM C-209) or (Other); % by vol. | | | | |
| Transverse Strength (per ASTM C-203) or (Other); psi | | | | |
| Thermal Conductance (C) @ 40°F | | | | |
| @ 75°F | | | .19 | .19 |
| Thermal Resistance (R) @ 40°F | | | | |
| @ 75°F | | | 5.26* | 5.26 |
| Weight; lbs/ft² | | | | 2.6 |
| 10. Estimated % of Thermal Value Retention @ 1 year (Assuming a continuous mean temperature differential & constant moisture content) 5 years 10 years | | | 100<br>100<br>100 | 100<br>100<br>100 |
| 11. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | | | | |
| 12. Limitations and/or Restrictions | | See Appendix | See Appendix | See Appendix |
| 13. See Appendix Page | | · 113 | · 116 | · 118 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Perlite
## (Homogeneous Only) Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | CELOTEX CORPORATION, THE | GAF CORPORATION | INTERNATIONAL PERMALITE INC. | LUCAS SALES COMPANY, INC. | MANVILLE BUILDING MATERIAL CORPORATION | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | FL | NJ | CA | MO | CO | | | | |
| 3. Product Trade Name | Celo-Therm Perlite | GAFTemp Perlite | Permalite Sealskin | Lucas Tapered Sys | Fesco Board | 1/2 Retro-fit Board | | | |
| 4. Surface Treatment: Top Surface | Coated | Impregnated | Coated To LimitBitumen Soak-up | Impregnated with Asphalt | Coated | Coated | | | |
| Bottom Surface | None | None | None | Saw Cut Surface | None | None | | | |
| 5. Available as Tapered Material | NO | NO | YES | YES | YES | NO | | | |
| 6. Year First Used in Commercial Roofing Systems | 1962 | | 1962 | 1974 | 1958 | 1982 | | | |
| 7. Meets Applicable Standard Specifications | HHI529b ASTMC208 | HHI529b ASTMC728 | HHI529b ASTMC728 | HHI529b ASTMC728 | HHI529b ASTMC728-72 | | | | |
| 8. Compressive Strength (per ASTM C-165) or (Other); psi | 35 | 35 | 35 Nominal | 35 | 35 | 24-40 | | | |
| 9. Water Absorption (per ASTM C-209) or (Other); % by vol. | 1.5 | | 1.2 Nominal | 1.2 | 1.5 | <7 | | | |
| 10. Flexural Strength (per ASTM C-203) or (Other); psi | 40 | 40 | 60 Nominal | 60 | 40 | | | | |
| 11. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 11.1 2'x4' | X | | X | X | X | X | | | |
| 11.2 3'x4' | | | X | | | | | | |
| 11.3 4'x4' | | | X | | | X | | | |
| 11.4 4'x8' | | | | | | X | | | |
| 11.5 Other | | | | | | | | | |
| 12. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 12.1 Thickness; in inches | .3/4 | .75 | .50 | 1.0 | .75 | .50 | | | |
| Thermal Conductance (C) @ 40° F | | | .66 | | | | | | |
| @ 75° F | .48 | .48 | .72 | .36 | .48 | .72 | | | |
| Thermal Resistance (R) @ 40° F | | | 1.52* | | | | | | |
| @ 75° F | 2.08* | 2.08* | 1.39* | 2.78 | 2.08* | 1.39* | | | |
| Weight; lbs/ft² | .6 | .6 | .45 | | .6 | .4 | | | |
| 12.2 Thickness; in inches | 1.0 | 1.0 | .75 | 2.0 | 1.0 | | | | |
| Thermal Conductance (C) @ 40° F | | | .43 | | | | | | |
| @ 75° F | .36 | .36 | .48 | .18 | .36 | | | | |
| Thermal Resistance (R) @ 40° F | | | 2.33* | | | | | | |
| @ 75° F | 2.78* | 2.78* | 2.08* | 5.56 | 2.78* | | | | |
| Weight; lbs/ft² | .8 | .8 | .68 | 1.6 | .8 | | | | |
| 12.3 Thickness; in inches | 1 1/2 | 1.5 | 1.0 | 3.0 | 1.5 | | | | |
| Thermal Conductance (C) @ 40° F | | | .32 | | | | | | |
| @ 75° F | .24 | .24 | .36 | .12 | .24 | | | | |
| Thermal Resistance (R) @ 40° F | | | 3.13* | | | | | | |
| @ 75° F | 4.17* | 4.17* | 2.78* | 8.33 | 4.17* | | | | |
| Weight; lbs/ft² | 1.2 | 1.2 | .90 | 2.4 | 1.2 | | | | |
| 12.4 Thickness; in inches | 2.0 | 2.0 | 1.5 | | 2.0 | | | | |
| Thermal Conductance (C) @ 40° F | | | .22 | | | | | | |
| @ 75° F | .18 | .18 | .24 | | .18 | | | | |
| Thermal Resistance (R) @ 40° F | | | 4.55* | | | | | | |
| @ 75° F | 5.56* | 5.56* | 4.17* | | 5.56* | | | | |
| Weight; lbs/ft² | 1.6 | 1.6 | 1.35 | | 1.6 | | | | |
| 12.5 Thickness; in inches | | | 2.0 | | 3.0 | | | | |
| Thermal Conductance (C) @ 40° F | | | .16 | | | | | | |
| @ 75° F | | | .18 | | .12 | | | | |
| Thermal Resistance (R) @ 40° F | | | 6.25* | | | | | | |
| @ 75° F | | | 5.56* | | 8.33* | | | | |
| Weight; lbs/ft² | | | 1.8 | | 2.4 | | | | |
| 12.6 Thickness; in inches | | | 2.50 | | | | | | |
| Thermal Conductance (C) @ 40° F | | | .13 | | | | | | |
| @ 75° F | | | .15 | | | | | | |
| Thermal Resistance (R) @ 40° F | | | 7.69 | | | | | | |
| @ 75° F | | | 6.67 | | | | | | |
| Weight; lbs/ft² | | | 2.25 | | | | | | |
| 13. Estimated % of Thermal Value Retention @ 1 year | 100 | | 100 | 100 | 100 | 100 | | | |
| (Assuming a continuous mean temperature 5 years | 100 | | 100 | 100 | 100 | 100 | | | |
| differential & constant moisture content) 10 years | 100 | | 100 | 100 | 100 | 100 | | | |
| 14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | | See Appendix | See Appendix | See Appendix | See Appendix | | | | |
| 15. Limitations and/or Restrictions | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | | | |
| 16. See Appendix Page | · 113 | · 116 | · 116-117 | · 117 | · 118 | · 118 | | | |

★ = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Polyurethane (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| 1. Company | NRG BARRIERS, INC. |
|---|---|
| 2. State | ME |
| 3. Product Trade Name | Barrier Board |
| 4. Density (per ASTM D-1622) or (Other); lbs/ft³ | 2.0 Min |
| 5. Surface Treatment: Top Surface | a. Asph/FG<br>b. Foil/FG<br>c.Non-Ash/FG |
| Bottom Surface | a. Asph/FG<br>b. Foil/FG<br>c.Non-Ash/FG |
| 6. Available as Tapered Material | YES |
| 7. Year First Used in Commercial Roofing Systems | 1980 |
| 8. Meets Applicable Standard Specifications | HHI1972/2 |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | (D1621) 25 |
| 10. Flexural Strength (per ASTM C-466) or (Other); psi | |
| 11. Common Available Sizes (Contact mfr. for other sizes and special orders) | |
| 11.1 2′x4′ | X |
| 11.2 3′x4′ | X |
| 11.3 4′x4′ | X |
| 11.4 4′x8′ | X |
| 11.5 Other | X |
| 12. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R)Values, Weight/ft² | |
| 12.1 Thickness; in inches | 1.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .150 |
| Thermal Resistance (R) @ 40°F @ 75°F | 6.7 |
| Weight; lbs/ft² | .2 |
| 12.2 Thickness; in inches | 1.5 |
| Thermal Conductance (C) @ 40°F @ 75°F | .10 |
| Thermal Resistance (R) @ 40°F @ 75°F | 10.0 |
| Weight; lbs/ft² | .3 |
| 12.3 Thickness; in inches | 2.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .070 |
| Thermal Resistance (R) @ 40°F @ 75°F | 14.29* |
| Weight; lbs/ft² | .4 |
| 12.4 Thickness; in inches | 2.5 |
| Thermal Conductance (C) @ 40°F @ 75°F | .055 |
| Thermal Resistance (R) @ 40°F @ 75°F | 18.2 |
| Weight; lbs/ft² | .5 |
| 12.5 Thickness; in inches | 3.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .046 |
| Thermal Resistance (R) @ 40°F @ 75°F | 21.74* |
| Weight; lbs/ft² | .54 |
| 12.6 Thickness; in inches | 4.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .034 |
| Thermal Resistance (R) @ 40°F @ 75°F | 29.8 |
| Weight; lbs/ft² | .71 |
| 13. Estimated % of Thermal Value Retention @ 1 year (Assuming a continuous mean temperature differential & constant moisture content) 5 years 10 years | |
| 14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | |
| 15. Limitations and/or Restrictions | |
| 16. See Appendix Page | |

# Polyisocyanurate (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| 1. Company | AMERICAN WESTERN | | | | |
|---|---|---|---|---|---|
| 2. State | AZ | | | | |
| 3. Product Trade Name | G-3003 R-Board | G-450 R-Board | AL-200 R-Board | AL-100 R-Board | G-300 R-Board |
| 4. Density (per ASTM D-1622) or (Other); lbs/ft³ | 2 Nominal | 2 Nominal | 2 Nominal | 2 Nominal | 2 Nominal |
| 5. Surface Treatment: Top Surface | Asphalt Saturated Fiberglass Facer | Special #1279 Paper Paced (Non-Coated) | Pure Foil/ Glass Facer | Foil-Krft Facd Both Sides(One Side Perfratd) | Asphalt Saturated Fiberglass Facer |
| Bottom Surface | Asphalt Saturated Fiberglass Facer | Special #1279 Paper Paced (Non-Coated) | Pure Foil/ Glass Facer | Foil-Krft Facd Both Sides(One Side Perfratd) | Asphalt Saturated Fiberglass Facer |
| 6. Available as Tapered Material | NO | NO | NO | NO | NO |
| 7. Year First Used in Commercial Roofing Systems | 1982 | 1982 | 1982 | 1982 | 1982 |
| 8. Meets Applicable Standard Specifications | HHI1972/1,530A ASTM E84 Cls 1 UBC42-1,UL-723 | HHI1972/1,530A ASTM E84 Cls 1 UBC42-1,UL-723 | HHI1972/1,530A ASTM E84 Cls 1 UBC42-1,UL-723 | HHI1972/1,530A ASTM E84 Cls 1 UBC42-1,UL-723 | HHI1972/1,530A ASTM E84 Cls 1 UBC42-1,UL-723 |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | 25 | 25 | 25 | 25 | 25 |
| 10. Water Absorption (per ASTM C-272) or (Other); % by volume | | | | | |
| 11. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | | |
| 11.1 2′x4′ | | | | | |
| 11.2 3′x4′ | X | X | X | X | X |
| 11.3 4′x4′ | | | | | |
| 11.4 4′x8′ | X | X | X | X | X |
| 11.5 Other | | Custom | | | |
| 12. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | |
| 12.1 Thickness; in inches | 1.5 | 1.0 | 1.0 | 1.0 | 1.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .090 | .135 | .136 | .136 | .135 |
| Thermal Resistance (R) @ 40°F @ 75°F | 11.11* | 7.41* | 7.35* | 7.35* | 7.41* |
| Weight; lbs/ft² | .44 | .37 | .166 | .166 | .37 |
| 12.2 Thickness; in inches | 1.75 | 1.5 | 1.5 | 1.5 | 1.5 |
| Thermal Conductance (C) @ 40°F @ 75°F | .077 | .090 | .091 | .091 | .090 |
| Thermal Resistance (R) @ 40°F @ 75°F | 12.99* | 11.11* | 10.99* | 10.99* | 11.11* |
| Weight; lbs/ft² | .513 | .44 | .23 | .23 | .44 |
| 12.3 Thickness; in inches | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .068 | .068 | .065 | .065 | .068 |
| Thermal Resistance (R) @ 40°F @ 75°F | 14.71* | 14.71* | 15.38* | 15.38* | 14.71* |
| Weight; lbs/ft² | .518 | .518 | .30 | .30 | .518 |
| 12.4 Thickness; in inches | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| Thermal Conductance (C) @ 40°F @ 75°F | .054 | .054 | .054 | .054 | .054 |
| Thermal Resistance (R) @ 40°F @ 75°F | 18.52* | 18.52* | 18.52* | 18.52* | 18.52* |
| Weight; lbs/ft² | .593 | .593 | .366 | .366 | .593 |
| 12.5 Thickness; in inches | 2.75 | 3.0 | 3.0 | 3.0 | 3.0 |
| Thermal Conductance (C) @ 40°F @ 75°F | .049 | .045 | .045 | .045 | .045 |
| Thermal Resistance (R) @ 40°F @ 75°F | 20.41* | 22.22* | 22.22* | 22.22* | 22.22* |
| Weight; lbs/ft² | .65 | .67 | .43 | .43 | .67 |
| 12.6 Thickness; in inches | 3.0 | 3.5 | 3.5 | 3.5 | 3.5 |
| Thermal Conductance (C) @ 40°F @ 75°F | .045 | .039 | .038 | .038 | .039 |
| Thermal Resistance (R) @ 40°F @ 75°F | 22.22* | 25.64* | 26.32* | 26.32* | 25.64* |
| Weight; lbs/ft² | .67 | .78 | .50 | .50 | .78 |
| 13. Estimated % of Thermal Value Retention @ 1 year (Assuming a continuous mean temperature differential & constant moisture content) 5 years 10 years | | | | | |
| 14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | | See Appendix | See Appendix | See Appendix | See Appendix |
| 15. Limitations and/or Restrictions | | See Appendix | See Appendix | See Appendix | See Appendix |
| 16. See Appendix Page | | · 112 | · 112 | · 112 | · 112 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** (C) and/or (R) values supplied by manufacturer are in accordance with RIC/TIMA Roof Insulation Specimen Conditioning Procedure #281-1.

**Note 3:** NA = Not applicable.

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# Polyisocyanurate (Homogeneous Only) Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | APACHE BUILDING PRODUCTS COMPANY | | CARLISLE SYNTEC SYSTEMS | | CELOTEX CORPORATION, THE | GAF CORPORATION | HOMASOTE COMPANY | | INTERNATIONAL PERMALITE, INC. |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | NJ | | PA | | FL | NJ | NJ | | CA |
| 3. Product Trade Name | White Line Pyrox-Plus | White Line Pyrox, | Polyisocy-anurate I | Polyisocy-anurate II | Thermax Hy-Tec RF Insul | GAFTEMP Isotherm R | Ultra/M | Ultra/M-II Iso/Glas | Permalite Iso-Lite |
| 4. Density (per ASTM D-1622) or (Other); lbs/ft³ | 2.0 | 2.0 | 2.0 | 2.0 | 2 Nominal | 2.0 | 2.0 | 2.0 | 2.0 Nominal |
| 5. Surface Treatment: Top Surface | Thick White Fibers Glass Mat | White Fibr-ous Glass Mat | Glass Fiber Facer | F/Glass Reinforced Alum Foil | Facer | White Fibr-ous Glass Mat | Foil Laminate Facer | Non-Saturated Fibrous Glass Facer | Various Facers |
| Bottom Surface | Coated Fibr-ous Glass Mat | White Fibr-ous Glass Mat | Glass Fiber Facer | Foil/Kraft Facer | Facer | White Fibr-ous Glass Mat | Foil Laminate Facer | Non-Saturated Fibrous Glass Facer | Various Facers |
| 6. Available as Tapered Material | YES | YES | No | No | NO | YES | NO | NO | NO |
| 7. Year First Used in Commercial Roofing Systems | 1982 | 1982 | 1984 | 1981 | 1983 | 1982 | 1983 | 1984 | 1982 |
| 8. Meets Applicable Standard Specifications | HHI1972 | HHI1972 | HHI 1972/1 Class 2 | HHI 1972/1 Class 2 | HHI1972 | HHI1972 | HHI1972/1 | HHI1972/GEN | HHI1972/2 |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | 20 | 20 | 2.5 | 2.5 | 20 Nominal | 20 | 25 | 25 | 25 Nominal |
| 10. Water Absorption (per ASTM C-272) or (Other); % by volume | <1.0 | <1.0 | <1.0 | <1.0 | MOD .C209 <1 | <1.0 | (C209) 1.0 | | <1.0 |
| 11. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 11.1 2′×4′ | | | | | X | | | | X |
| 11.2 3′×4′ | | | | | X | X | | | X |
| 11.3 4′×4′ | X | X | | | X | X | | | X |
| 11.4 4′×8′ | X | X | X | X | X | X | X | X | X |
| 11.5 Other | | | | | | | | | |
| 12. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 12.1 Thickness; in inches | 1.0 | 1.0 | 1.25 | 1.25 | 1.0 | 1.0 | 1.0 | 1.0 | 1.3 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | .11 |
| @ 75°F | .15 | .15 | .14 | .111 | .17 | .15 | .16 | .17 | .12 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | 9.09 |
| @ 75°F | 6.7 | 6.7 | 7.1 | 9.0 | 5.88* | 6.7 | 6.1 | 5.8 | 8.33 |
| Weight; lbs/ft² | .25 | .25 | .28 | .25 | | .25 | .22 | .22 | .26 |
| 12.2 Thickness; in inches | 1.5 | 1.5 | 1.60 | 1.50 | 1.6 | 1.5 | 1.5 | 1.3 | 1.5 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | .09 |
| @ 75°F | .10 | .10 | .10 | .092 | .10 | .10 | .10 | .12 | .10 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | 11.11 |
| @ 75°F | 10.0 | 10.0 | 10.0 | 10.8 | 10.00 | 10.0 | 10.0 | 8.3 | 10.00 |
| Weight; lbs/ft² | .33 | .33 | .35 | .29 | | .33 | .33 | .28 | .29 |
| 12.3 Thickness; in inches | 2.0 | 2.0 | 1.70 | 1.75 | 1.8 | 2.0 | 1.9 | 1.5 | 1.8 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | .07 |
| @ 75°F | .07 | .07 | .09 | .079 | .09 | .07 | .08 | .10 | .08 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | 14.29 |
| @ 75°F | 14.3 | 14.3 | 11.1 | 12.6 | 11.1 | 14.3 | 12.5 | 10.0 | 12.50 |
| Weight; lbs/ft² | .43 | .43 | .37 | .33 | | .43 | .42 | .34 | .33 |
| 12.4 Thickness; in inches | 2.8 | 2.8 | 2.10 | 2.0 | 2.0 | 2.8 | 2.1 | 2.0 | 2.1 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | .06 |
| @ 75°F | .05 | .05 | .070 | .069 | .08 | .05 | .07 | .08 | .07 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | 16.67 |
| @ 75°F | 20.0 | 20.0 | 14.3 | 14.4 | 12.50* | 20.0 | 14.3 | 12.5 | 14.29 |
| Weight; lbs/ft² | .54 | .54 | .45 | .37 | | .54 | .48 | .45 | .38 |
| 12.5 Thickness; in inches | 3.4 | 3.4 | 2.50 | 2.5 | 2.5 | 3.4 | 2.9 | 2.2 | 2.4 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | .05 |
| @ 75°F | .04 | .04 | .060 | .055 | .06 | .04 | .05 | .07 | .06 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | 20.00* |
| @ 75°F | 25.0 | 25.0 | 16.7 | 18.0 | 16.67* | 25.0 | 20.0 | 14.3 | 16.67* |
| Weight; lbs/ft² | .63 | .63 | .49 | .46 | | .63 | .64 | .49 | .41 |
| 12.6 Thickness; in inches | 4.1 | 4.1 | 2.90 | 3.0 | 3.0 | 4.1 | 3.0 | 3.0 | 2.8 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | .045 |
| @ 75°F | .033 | .033 | .050 | .046 | .05 | .033 | .046 | .05 | .05 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | 22.22* |
| @ 75°F | 30.0 | 30.0 | 20.0 | 21.6 | 20.00* | 30.0 | 20.00* | 20.00 | 20.00* |
| Weight; lbs/ft² | .72 | .72 | .58 | .54 | | .72 | .69 | .68 | .47 |
| 13. Estimated % of Thermal Value Retention @ 1 year | | | 99 | 99 | | | | | |
| (Assuming a continuous mean temperature differential & constant moisture content) 5 years | | | 95 | 95 | | | | | |
| 10 years | | | 95 | 95 | | | | | |
| 14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | See Appendix | See Appendix | | | | See Appendix | | | |
| 15. Limitations and/or Restrictions | See Appendix | See Appendix | | | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix |
| 16. See Appendix Page | · 112 | · 112 | | | · 113 | · 116 | · 116 | · 116 | · 116 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** (C) and/or (R) values supplied by manufacturer are in accordance with RIC/TIMA Roof Insulation Specimen Conditioning Procedure #281-1.

**Note 3:** NA = Not applicable.

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# Polyisocyanurate (Homogeneous Only) Roof Board Insulation

*Products listed by alphabetic company name.*

| INTERNATIONAL PERMALITE, INC. CA | MANVILLE BLDG. MAT'LS CORP. CO | NRG BARRIERS, INC. ME | OWENS-CORNING FIBERGLAS OH | POLY FAB INDUSTRIES, INC. MN | | | RMAX, INC. TX | | | | TEMPLE-EASTEX, INC. BLDG. PROD. DIV. TX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Permalite Iso-Thane | Ultra Gard Gold | Enrgy-1 | OC Foam Roof Insulation | Lithane X | Lithane BUR | Lithane M | Thermaroof Standard | Max-I | Thermaroof Plus | Multi-Max | Tempro Standard |
| 2.0 Nominal | 2.40 - 3.15 | 2.0 Min | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal |
| Various Facers | Fiberglass Facer | Asphalt Fiberglass | White Glass Fiber Facing | Fiberglass Reinforced Facer | Asphalt Emulsified Glas Fiber Mat | Foil Faced Kraft Paper | Asphalt Coated FG Felt | Asphalt Coated FG Felt | Fiberglass Reinforced Alum Foil | Fiberglass | Glass Reinforced, Saturated Facers |
| Various Facers | Fiberglass Facer | Asphalt Fiberglass | White Glass Fiber Facing | Fiberglass Reinforced Facer | Asphalt Emulsified Glas Fiber Mat | Foil Faced Kraft Paper | Asphalt Coated FG Felt | Asphalt Coated FG Felt | Fiberglass Reinforced Alum Foil | Fiberglass | Glass Reinforced, Saturated Facers |
| NO | NO | YES | NO | NO | | NO | NO | NO | NO | NO | NO |
| 1972 | 1983 | | 1983 | | | | 1979 | 1982 | 1980 | 1985 | 1983 |
| HHI1972 | HHI1972/Gen | HHI1972/1&2 Class 2 | HHI1972/2 | See Appendix | See Appendix | See Appendix | HHI1972/2 | HHI 1972/2 | HHI1972/1 | HHI1972/GEN | HHI1972/2 CL #1, ASTME-84, Class #1 |
| 25 Nominal<br><1.0 | 16 Min<br>(C209) 1 Max | 25<br>(C209-72) <1 | 20 Min<br><1.0 | >30<br>>1.0 | >30<br><1.0 | >30<br><1.0 | 25<br><1.0 | 25<br><1.0 | 25<br><1.0 | 25<br><1.0 | 25 Minimum |
| | | X | | | | | | | | | |
| X | X | X | X | X | | | | | | | |
| X | | X | | | | | X | X | | | |
| X | X | X | X | X | | X | X | X | | X | X<br>X |
| 1.3<br>.11 | 1.4 | 1.4 | 1.0 | 1.2 | 1.0 | 1.0 | 1.00 | 1.30 | 1.00 | 1.25 | 1.0 |
| .12<br>9.09 | .12 | .12 | .16 | .116 | .138 | .138 | .16 | .120 | .139 | .14 | .150 |
| 8.33<br>.26 | 8.33*<br>.3 | 8.33<br>.28 | 6.25<br>.23 | 8.62*<br>.22 | 7.25*<br>.18 | 7.25*<br>.17 | 6.3<br>.24 | 8.3<br>.29 | 7.2<br>.21 | 7.1<br>.28 | 6.67*<br>.20 |
| 1.5<br>.09 | 1.5 | 2.0 | 1.3 | 1.6 | 1.5 | 1.5 | 1.2 | 1.6 | 1.25 | 1.60 | 1.25 |
| .10<br>11.11 | .10 | .070 | .12 | .086 | .092 | .092 | .14 | .10 | .111* | .10 | .120 |
| 10.00<br>.29 | 10.00*<br>.4 | 14.29*<br>.37 | 8.33*<br>.34 | 11.63*<br>.29 | 10.87*<br>.28 | 10.87*<br>.26 | 7.1<br>.28 | 10.0<br>.35 | 9.0<br>.25 | 10.0<br>.35 | 8.33*<br>.24 |
| 1.8<br>.07 | 1.8 | 2.25 | 1.5 | 2.0 | 2.0 | 2.0 | 1.6 | 1.9 | 1.50 | 1.90 | 1.5 |
| .08<br>14.29 | .08 | .060 | .10 | .069 | .069 | .069 | .10 | .08 | .093 | .08 | .100 |
| 12.50<br>.33 | 12.50*<br>.4 | 16.67<br>.41 | 10.00*<br>.38 | 14.92*<br>.37 | 10.87*<br>.37 | 14.92*<br>.35 | 10.0<br>.35 | 12.5<br>.41 | 10.8<br>.29 | 12.5<br>.41 | 10.00*<br>.29 |
| 2.1<br>.06 | 2.0 | 2.5 | 1.8 | 2.5 | 2.6 | 2.5 | 1.9 | 2.1 | 2.00 | 2.50 | 2.0 |
| .07<br>16.67 | .07 | .055 | .08 | .055 | .053 | .055 | .08 | .07 | .069* | .06 | .075 |
| 14.29<br>.38 | 14.29*<br>.5 | 18.2<br>.45 | 12.50<br>.42 | .46 | 18.87*<br>.48 | 18.18*<br>.44 | 12.5<br>.41 | 14.3<br>.45 | 14.4<br>.38 | 16.7<br>.49 | 13.33*<br>.375 |
| 2.4<br>.05 | 2.3 | 3.0 | 2.7 | 3.0 | 3.0 | 3.0 | 2.50 | 2.9 | 2.50 | 2.90 | 2.5 |
| .06<br>20.00* | .06 | .046 | .05 | .046 | .046 | .046 | .06 | .05 | .056 | .05 | .060 |
| 16.67*<br>.41 | 16.67*<br>.6 | 21.74*<br>.54 | 20.00*<br>.57 | 18.18*<br>.55 | 21.74*<br>.55 | 21.74*<br>.53 | 16.7<br>.49 | 20.0<br>.58 | 18.0<br>.46 | 20.0<br>.58 | 16.67*<br>.46 |
| 2.8<br>.045 | 2.65 | 3.5 | 3.4 | 4.0 | 4.0 | 4.0 | 3.50 | 3.50 | 3.00 | 3.50 | 3.00 |
| .05<br>22.22* | .05 | .040 | .04 | .034 | .034 | .034 | .04 | .04 | .046* | .04 | .050 |
| 20.00*<br>.47 | 20.00*<br>.6 | 25.00*<br>.62 | 25.00<br>.70 | 29.41*<br>.73 | 29.41*<br>.73 | 29.41*<br>.70 | 25.0<br>.66 | 25.0<br>.66 | 21.6<br>.54 | 25.0<br>.66 | 20.00*<br>.54 |
| | | | | 90 | 90 | 90 | | | | | 99<br>95<br>95 |
| BOCA 83-36<br>SBCCI 8392 | | | P238 | | | | | | | | |
| See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix |
| · 116 | · 118 | · 118 | · 118 | · 119 | · 119 | · 119 | · 119 | · 119 | · 119 | · 119 | · 119 |

# Polyisocyanurate (Homogeneous Only) Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | TEMPLE-EASTEX, INC. BUILDING PRODUCTS DIVISION | | THERMAL SYSTEMS, INC. | | | WIN-TEC, INC. | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | TX | | UT | | | IL | | | |
| 3. Product Trade Name | Tempro S.P. | Tempro Basic | Standard RF Insulation | Protherm | Thermalglas | R-U-K Board KFL/150 | R-U-K Board GL-100 | R-U-K Board GP-100 | R-U-K Board GF-100 |
| 4. Density (per ASTM D-1622) or (Other); lbs/ft³ | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.20 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal | 2.0 Nominal |
| 5. Surface Treatment: Top Surface | Glass Reinforced Alum Foil Facers | White, Glass Reinforced, Saturtd FCR | Kraft Foil, Asph Sat Flt Non-Asph FG | Asphalt Saturated Felt | Fiberglas Foil Non-Asph FG | Kraft/Foil Facer | Reinforced Aluminum Foil | All-Glass Facer | Asphalt Saturated Fiber Glass |
| Bottom Surface | Glass Reinforced Alum Foil Facers | White, Glass Reinforced, Saturtd FCR | Kraft Foil, Asph Sat Flt Non-Asph FG | Glass Fiber | Fiberglass Foil, Non-Asph FG | Kraft/Foil Facer | Reinforced Aluminum Foil | All-Glass Facer | Asphalt Saturated Fiber Glass |
| 6. Available as Tapered Material | NO | NO | YES | YES | YES | NO | NO | YES | NO |
| 7. Year First Used in Commercial Roofing Systems | 1983 | 1983 | 1982 | 1985 | 1982 | 1983 | 1982 | 1985 | 1982 |
| 8. Meets Applicable Standard Specifications | HHI1972/1,CL #1,ASTME-84 Class #1 | HHI1972/2 CL#1,ASTM E-84,Class #1 | HHI1972/Gen | HHI1972/2 | HHI1972/1,2 FM Class 1 | HHI530, HHI1972/1 | HHI1972/1, HHI530 | HHI530, HHI1972 | HHI530, HHI1972/2 |
| 9. Compressive Strength (per ASTM D-1621) or (Other); psi | 25 Minimum | 25 Minimum | 25 Minimum | 25 | 25 Minimum | 25 | 25 | 25 | 25 |
| 10. Water Absorption (per ASTM C-272) or (Other); % by volume | | | <1 | <1 | <1.0 | <1 | <1 | <1 | <1 |
| 11. Common Available Sizes (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 11.1 2′×4′ | | | X | | | | | X | X |
| 11.2 3′×4′ | | | X | X | X | | | | |
| 11.3 4′×4′ | X | X | X | X | X | X | X | X | X |
| 11.4 4′×8′ | X | X | | | | | | | |
| 11.5 Other | | | | | | | | | |
| 12. Common Available Thicknesses (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 12.1 Thickness; in inches | 1.0 | 1.0 | 1.0 | 1.0 | 1.4 | 1.0 | 1.2 | 1.0 | 1.2 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | |
| @ 75°F | .139 | .150 | .13 | .139 | .093 | .139 | .116 | .160 | .141 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | |
| @ 75°F | 7.14* | 6.67* | 7.69* | 7.2 | 10.75* | 7.2 | 8.6 | 6.25 | 7.2 |
| Weight; lbs/ft² | .21 | .20 | .21 | .479 | .27 | .23 | .25 | .23 | .25 |
| 12.2 Thickness; in inches | 1.2 | 1.25 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.5 | 1.6 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | |
| @ 75°F | .116 | .120 | .087 | .093 | .087 | .093 | .100 | .100 | .100 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | |
| @ 75°F | 8.62* | 8.33* | 11.49* | 10.8 | 11.49* | 10.8 | 10.00* | 10.0 | 10.00* |
| Weight; lbs/ft² | .25 | .24 | .29 | .56 | .29 | .31 | .28 | .31 | .31 |
| 12.3 Thickness; in inches | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | |
| @ 75°F | .093 | .100 | .065 | .069 | .065 | .069 | .069 | .070 | .080 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | |
| @ 75°F | 10.75* | 10.00* | 15.38* | 14.4 | 15.38* | 14.92* | 14.4 | 14.29 | 12.50* |
| Weight; lbs/ft² | .30 | .29 | .37 | .64 | .37 | .39 | .39 | .39 | .39 |
| 12.4 Thickness; in inches | 2.0 | 2.0 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.8 | 2.6 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | |
| @ 75°F | .069 | .075 | .052 | .055 | .052 | .056 | .055 | .050 | .060 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | |
| @ 75°F | 14.49* | 13.33* | 19.23* | 18.0 | 19.23* | 17.86* | 18.18* | 20.00 | 16.67* |
| Weight; lbs/ft² | .39 | .37 | .45 | .73 | .45 | .47 | .47 | .50 | .50 |
| 12.5 Thickness; in inches | 2.5 | 2.5 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.5 | 3.0 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | |
| @ 75°F | .056 | .060 | .043 | .046 | .043 | .046 | .046 | .040 | .050 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | |
| @ 75°F | 17.86* | 16.67* | 23.26* | 21.6 | 23.26* | 21.74* | 21.74* | 25.00 | 20.00* |
| Weight; lbs/ft² | .47 | .46 | .54 | .81 | .54 | .57 | .57 | .65 | .57 |
| 12.6 Thickness; in inches | 3.0 | 3.00 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.1 | 3.8 |
| Thermal Conductance (C) @ 40°F | | | | | | | | | |
| @ 75°F | .046 | .050 | .033 | .035 | .033 | .035 | .035 | .033 | .040 |
| Thermal Resistance (R) @ 40°F | | | | | | | | | |
| @ 75°F | 21.74* | 20.00* | 30.30* | 28.8 | 30.30* | 28.57* | 28.57* | 30.00 | 25.00* |
| Weight; lbs/ft² | .56 | .54 | .71 | .98 | .71 | .74 | .74 | .75 | .72 |
| 13. Estimated % of Thermal Value Retention @ 1 year | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| (Assuming a continuous mean temperature 5 years | 95 | 95 | 98 | 98 | 98 | 99 | 99 | 99 | 99 |
| differential & constant moisture content) 10 years | 95 | 95 | 96 | 96 | 96 | 99 | 99 | 99 | 99 |
| 14. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others) | | | ICBO 4100 | | ICBO 4100 | | | | |
| 15. Limitations and/or Restrictions | See Appendix | See Appendix | See Appendix | | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix |
| 16. See Appendix Page | · 119 | · 119 | · 121 | | · 121 | · 122 | · 122 | · 122 | · 122 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** (C) and/or (R) values supplied by manufacturer are in accordance with RIC/TIMA Roof Insulation Specimen Conditioning Procedure #281-1.

**Note 3:** NA = Not applicable.

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# Composite
## Roof Board Insulation

***Products listed by alphabetic company name.***



| 1. Company | ADVANCE FOAM PLASTICS | AMERICAN WESTERN MANUFACTURERS | ARCO CHEMICAL COMPANY | | | BIG SKY INSULATIONS UNLIMITED | | | BRANCH RIVER FOAM PLASTICS INC. |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | CO | AZ | PA | | | MT | | | RI |
| 3. Product Trade Name | AFM Perform 2 | CP-5005 R-Board | Arcor FM-1 | Arcor MB | Arcor SP | EPS-Perlite Composite | EPS-Gypsum Composite | EPS-Fiberbd Composite | BRFP-EPS |
| **4. Composite Components:** | | | | | | | | | |
| 4.1 Expanded Polystyrene | X | | X | X | X | X | X | X | X |
| 4.2 Extruded Polystyrene | | | | | | | | | X |
| 4.3 Polyurethane | | X | | | | | | | |
| 4.4 Polyisocyanurate | | X | | | | X | | | |
| 4.5 Perlite | | | | | | | X | | |
| 4.6 Gypsum Board | X | | | | | | | X | |
| 4.7 Fiber Board | | | | | | | | | |
| 4.8 Plywood | | | X | X | X | | | | |
| 4.9 Other | | | | | | | | | |
| 4.10 Other | | | | | | | | | |
| **5. Surface Treatment:** | | | | | | | | | |
| 5.1 Asphalt Roofing Felt | | | | | | | | | X |
| 5.2 Foil Facer | | | | | | | | | |
| 5.3 Kraft Facer | | X | | | | | | | X |
| 5.4 Other | | | | | | | | | X |
| 5.5 Other | | | | | | | | | |
| **6. Available as Tapered Material** | YES | NO | YES | YES | YES | YES | YES | YES | YES |
| **7. Year First Used in Commercial Roofing Systems** | 1971 | 1982 | 1983 | 1983 | 1983 | 1981 | 1981 | 1981 | 1979 |
| **8. Common Available Sizes** (Contact mfr. for other sizes and special orders) | | | | | | X | X | X | X |
| 8.1 2'x4' | | X | | | | | | | X |
| 8.2 3'x4' | X | X | X | X | X | X | X | X | X |
| 8.3 4'x4' | X | X | | | | | | | X |
| 8.4 4'x8' | | | | | | | | | X |
| 8.5 Other | | | | | | | | | X |
| 8.6 Other | | | | | | | | | |
| **9. Common Available Thicknesses** (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 9.1 Thickness; in inches | 1.5 | 1.5 | 3.1 | 2.9 | 2.9 | 1 3/4 | 1 1/2 | 1 1/2 | 1 |
| Thermal Conductance (C) @ 75°F | .19 | .113 | .10 | .10 | .10 | .169 | .233 | .193 | .26 |
| Thermal Resistance (R) @ 75°F | 5.24 | 8.85* | 10.00* | 10.00* | 10.00* | 5.91* | 4.29* | 5.18* | 3.85 |
| Weight; lbs/ft² | | .80 | 1.45 | .83 | .83 | .769 | 1.062 | .753 | .083 |
| 9.2 Thickness; in inches | 2 | 2.1 | 3.3 | 3.1 | 3.1 | 2 1/4 | 2 | 2 | 2 |
| Thermal Conductance (C) @ 75°F | .14 | .080 | .09 | .09 | .09 | .127 | .161 | .14 | .129 |
| Thermal Resistance (R) @ 75°F | 7.16 | 12.50* | 11.11* | 11.11* | 11.11* | 7.87* | 6.21* | 7.14* | 7.7 |
| Weight; lbs/ft² | | 1.12 | 1.47 | .85 | .85 | .811 | 1.104 | .795 | .166 |
| 9.3 Thickness; in inches | 2.5 | 2.75 | 3.7 | 3.5 | 3.5 | 2 3/4 | 2 1/2 | 2 1/2 | 3 |
| Thermal Conductance (C) @ 75°F | .11 | .062 | .08 | .08 | .08 | .102 | .123 | .11 | .0865 |
| Thermal Resistance (R) @ 75°F | 9.09 | 16.13* | 12.50* | 12.50* | 12.50* | 9.80* | 8.13* | 9.09* | 11.55 |
| Weight; lbs/ft² | | 1.21 | 1.52 | .88 | .88 | .853 | 1.146 | .837 | .249 |
| 9.4 Thickness; in inches | 3 | 3.1 | 4.2 | 3.9 | 3.9 | 3 1/4 | 3 | 3 | 4 |
| Thermal Conductance (C) @ 75°F | .091 | .055 | .07 | .07 | .07 | .085 | .099 | .091 | .0649 |
| Thermal Resistance (R) @ 75°F | 11 | 18.18* | 14.29* | 14.29* | 14.29* | 11.76* | 10.10* | 10.98* | 15.4 |
| Weight; lbs/ft² | | 1.36 | 1.54 | .92 | .92 | .845 | 1.187 | .878 | .332 |
| 9.5 Thickness; in inches | 3.5 | 3.25 | 4.8 | 4.6 | 4.6 | 3 3/4 | 3 1/2 | 3 1/2 | 5 |
| Thermal Conductance (C) @ 75°F | .077 | .052 | .06 | .06 | .06 | .073 | .083 | .077 | .0519 |
| Thermal Resistance (R) @ 75°F | 12.94 | 19.23* | 16.67* | 16.67* | 16.67* | 13.69* | 12.04* | 12.98* | 19.25 |
| Weight; lbs/ft² | | 1.42 | 1.59 | .97 | .97 | .936 | 1.229 | .92 | .415 |
| 9.6 Thickness; in inches | 4 | 3.50 | 5.7 | 5.5 | 5.5 | 4 1/4 | 4 | 4 | 6 |
| Thermal Conductance (C) @ 75°F | .067 | .048 | .05 | .05 | .05 | .064 | .072 | .067 | .04329 |
| Thermal Resistance (R) @ 75°F | 14.87 | 20.83* | 20.00* | 20.00* | 20.00* | 15.62* | 13.88* | 14.92* | 23.10 |
| Weight; lbs/ft² | | 1.53 | 1.66 | 1.04 | 1.04 | .978 | 1.271 | .96 | .498 |
| **10. Estimated % of Thermal Value Retention @ 1 year** (Assuming a continuous mean temperature differential & constant moisture content) **5 years** | | | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **10 years** | | | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | | | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **11. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others)** | | ICBO 3461 | ICBO 3530 BOCA 82-62 SBCCI 74200 | ICBO 3530 BOCA 82-62 SBCCI 74200 | ICBO 3530 BOCA 82-62 SBCCI 74200 | | | | IBCO 3530 BOCA 82-62 SBCCI 74200 |
| **12. Limitations and/or Restrictions** | | See Appendix | | | | | | | See Appendix |
| **13. See Appendix Page** | | 112 | | | | | | | |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Composite Roof Board Insulation

*Products listed by alphabetic company name.*

| 1. Company | BRANCH RIVER FOAM PLASTICS INC. | | | | | CARLISLE SYNTEC SYSTEMS | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | RI | | | | | PA | | | |
| 3. Product Trade Name | BRFP-EPS | BRFP-EPS | BRFP-EPS | BRFP-EPS | BRFP-EPS | Sure Seal EPS/Fibrbd | Carpenter EPS/Plywood | Carpenter EPS/Perlite | Carpenter EPS/Styrofoil |
| **4. Composite Components:** | | | | | | | | | |
| 4.1 Expanded Polystyrene | X | X | X | X | X | X | X | X | X |
| 4.2 Extruded Polystyrene | | | | | | | | | |
| 4.3 Polyurethane | | | | | | | | | |
| 4.4 Polyisocyanurate | | | | | | | | | |
| 4.5 Perlite | X | | | | | | | X | |
| 4.6 Gypsum Board | | X | | | | | | | |
| 4.7 Fiber Board | | | X | | | X | | | |
| 4.8 Plywood | | | | X | | | X | | |
| 4.9 Other | | | | | X | | | | X |
| 4.10 Other | | | | | | | | | |
| **5. Surface Treatment:** | | | | | | | | | |
| 5.1 Asphalt Roofing Felt | | | | | | | | | |
| 5.2 Foil Facer | X | X | X | X | X | | | | X |
| 5.3 Kraft Facer | | | | | | | | | |
| 5.4 Other | X | X | X | X | X | | | | |
| 5.5 Other | X | X | X | X | X | | | | |
| **6. Available as Tapered Material** | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| **7. Year First Used in Commercial Roofing Systems** | 1979 | 1979 | 1979 | 1979 | 1979 | 1981 | 1977 | 1977 | 1977 |
| **8. Common Available Sizes** (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 8.1 2′x4′ | X | X | X | X | X | | | X | |
| 8.2 3′x4′ | X | X | X | X | X | | | | |
| 8.3 4′x4′ | X | X | X | X | X | X | | X | X |
| 8.4 4′x8′ | X | X | X | X | X | | X | | X |
| 8.5 Other | X | X | X | X | X | | | | |
| 8.6 Other | X | X | X | X | X | | | | |
| **9. Common Available Thicknesses** (Contact mfr. for other thicknesses) (C) Values, (R) Values, Weight/ft² | | | | | | | | | |
| 9.1 Thickness; in inches | 1 | 1 | 1 | 1 | 1 | 1.5 | 1.5 | 1.75 | 1.0 |
| Thermal Conductance (C) @ 75° F | .26 | .26 | .26 | .26 | .26 | .196 | .22 | .168 | .259 |
| Thermal Resistance (R) @ 75° F | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 5.10* | 4.47 | 5.93 | 3.85 |
| Weight; lbs/ft² | .083 | .083 | .083 | .083 | .083 | .875 | 1.5 | .68 | .085 |
| 9.2 Thickness; in inches | 2 | 2 | 2 | 2 | 2 | 2.0 | 2.0 | 2.25 | 2.0 |
| Thermal Conductance (C) @ 75° F | .129 | .129 | .129 | .129 | .129 | .142 | .156 | .126 | .129 |
| Thermal Resistance (R) @ 75° F | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 | 7.04* | 6.4 | 7.9 | 7.7 |
| Weight; lbs/ft² | .166 | .166 | .166 | .166 | .166 | .916 | 1.53 | .73 | .17 |
| 9.3 Thickness; in inches | 3 | 3 | 3 | 3 | 3 | 2 1/2 | 2.5 | 2.75 | 2.5 |
| Thermal Conductance (C) @ 75° F | .0865 | .0865 | .0865 | .0865 | .0865 | .112 | .12 | .102 | .104 |
| Thermal Resistance (R) @ 75° F | 11.55 | 11.55 | 11.55 | 11.55 | 11.55 | 8.93* | 8.32 | 9.78 | 9.63 |
| Weight; lbs/ft² | .249 | .249 | .249 | .249 | .249 | .958 | 1.57 | .77 | .22 |
| 9.4 Thickness; in inches | 4 | 4 | 4 | 4 | 4 | 3.0 | 3.0 | 3.25 | 3.0 |
| Thermal Conductance (C) @ 75° F | .0649 | .0649 | .0649 | .0649 | .0649 | .092 | .097 | .085 | .086 |
| Thermal Resistance (R) @ 75° F | 15.4 | 15.4 | 15.4 | 15.4 | 15.4 | 10.87* | 10.25 | 11.7 | 11.55 |
| Weight; lbs/ft² | .332 | .332 | .332 | .332 | .332 | 1.0 | 1.61 | .81 | .255 |
| 9.5 Thickness; in inches | 5 | 5 | 5 | 5 | 5 | 3.5 | 3.5 | 3.75 | 3.5 |
| Thermal Conductance (C) @ 75° F | .0519 | .0519 | .0519 | .0519 | .0519 | .078 | .082 | .073 | .074 |
| Thermal Resistance (R) @ 75° F | 19.25 | 19.25 | 19.25 | 19.25 | 19.25 | 12.82* | 12.17 | 13.63 | 13.5 |
| Weight; lbs/ft² | .415 | .415 | .415 | .415 | .415 | 1.04 | 1.65 | .85 | .30 |
| 9.6 Thickness; in inches | 6 | 6 | 6 | 6 | 6 | 4.0 | 4.0 | 4.25 | 4.0 |
| Thermal Conductance (C) @ 75° F | .04329 | .04329 | .04329 | .04329 | .04329 | .068 | .07 | .064 | .065 |
| Thermal Resistance (R) @ 75° F | 23.10 | 23.10 | 23.10 | 23.10 | 23.10 | 14.71* | 14.0 | 15.6 | 15.4 |
| Weight; lbs/ft² | .498 | .498 | .498 | .498 | .498 | 1.08 | 1.7 | .90 | .34 |
| **10. Estimated % of Thermal Value Retention @ 1 year** | 100 | 100 | 100 | 100 | 100 | 80 | 100 | 100 | 100 |
| (Assuming a continuous mean temperature differential & constant moisture content) **5 years** | 100 | 100 | 100 | 100 | 100 | 80 | 100 | 100 | 100 |
| **10 years** | 100 | 100 | 100 | 100 | 100 | 80 | 100 | 100 | 100 |
| **11. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others)** | ICBO 3530 BOCA 82-62 SBCCI 74200 | ICBO 3530 BOCA 82-62 SBCCI 74200 | ICBO 3530 BOCA 82-62 SBCCI 74200 | ICBO 3530 BOCA 82-62 SBCCI 74200 | ICBO 3530 BOCA 82-62 SBCCI 74200 | | ICBO 3401 BOCA 82-62 P701,814 P801,815 P803 | ICBO 3401 BOCA 82-62 P701-814 P801-814 P803,P225 | ICBO 3401 BOCA 82-62 |
| **12. Limitations and/or Restrictions** | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | | See Appendix | See Appendix | See Appendix |
| **13. See Appendix Page** | . | . | . | . | . | | . 113 | . 113 | . 113 |

* = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Composite
# Roof Board Insulation

***Products listed by alphabetic company name.***



| CARPENTER INSULATION COMPANY | | | CELOTEX CORPORATION, THE | CORNELL CORPORATION | DOW CHEMICAL, USA | EPS MOLDING, INC. | | ENERGY INDUSTRIES, INC. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VA | | | FL | WI | OH | TX | | SD | | | |
| Carpenter EPS/Gypsum | Carpenter EPS/Waferbd | Carpenter EPS/Fiberbd | Thermax Hy-Tec Plus | Thermacal | Styrofoam LightGuard | EPS-Perl | EPS-Lite | Permafoam Composite | Permafoam Composite | Enercept Roof Panels | Permafoam Composite |
| X | X | X | | | X | X | X | X | X | X | X |
| | | | X | X | | | | | | | |
| X | | | | | | X | X | | X | X | |
| | | X | X | | | | | X | | | X |
| | X | | | Waferboard | Latex-Concrete | | | | | | |
| | | | | X | None | X | X | | | | |
| | | | | | | X | X | | | | |
| | | | | | | X | X | | | | |
| YES | YES | YES | | | NO | NO | YES | YES | YES | NO | YES |
| 1977 | 1977 | 1977 | 1983 | 1979 | 1976 | 1979 | 1978 | 1977 | 1977 | 1982 | 1977 |
| | | X | | | | | X | X | X | | X |
| X | X | X | | | | X | X | | | X | |
| | | | X | X | | | | | | 4x12 or 4x16 | |
| 1.5 | 1.5 | 1.5 | 1.5 | 1 1/2 | 2 | 1.5 | 2 | 2 | 2 | 8 | 2 |
| .23 | .22 | .19 | .15 | .13* | .10 | .24 | .147 | .10 | .10 | .033 | .10 |
| 4.3 | 4.47 | 5.17 | 6.66* | 7.2 | 10.00* | 4.16* | 6.80* | 10.00* | 10.00* | 30.30* | 10.00* |
| 2.18 | 1.5 | .83 | | 1.8 | 4.4 | 4.24 | 1.5 | | | | |
| 2.0 | 2.0 | 2.0 | 1.6 | 2 | 3 | 2 | 2.5 | 4 | 4 | 6 | 4 |
| .16 | .156 | .14 | .13 | .09* | .062 | .166 | .114 | .06 | .05 | .045 | .06 |
| 6.23 | 6.4 | 7.1 | 7.69* | 10.3 | 14.92* | 6.02* | 8.77* | 16.66* | 20.00* | 22.22* | 16.66* |
| 2.23 | 1.53 | .88 | | 1.9 | 4.6 | 4.28 | 1.58 | | | | |
| 2.5 | 2.5 | 2.5 | 1.8 | 2 1/2 | 3.5 | 2.5 | 3 | 6 | 6 | | 6 |
| .289 | .12 | .11 | .11 | .07* | .057 | .125 | .093 | .04 | .04 | | .04 |
| 3.46 | 8.32 | 9.0 | 9.09* | 13.4 | 17.54* | 8.00* | 10.75* | 25.00* | 25.00* | | 25.00* |
| 2.27 | 1.57 | .92 | | 2.0 | 4.7 | 4.32 | 1.7 | | | | |
| 3.0 | 3.0 | 3.0 | 2.0 | 3 | | | | 8 | 8 | | 8 |
| .099 | .097 | .091 | .10 | .06* | | | | .03 | .03 | | .03 |
| 10.1 | 10.25 | 10.95 | 10.00* | 16.6 | | | | 33.33* | 33.33* | | 33.33* |
| 2.31 | 1.61 | .96 | | 2.1 | | | | | | | |
| 3.5 | 3.5 | 3.5 | 2.3 | 3 1/2 | | | | | | | |
| .083 | .082 | .077 | .08 | .05* | | | | | | | |
| 12.0 | 12.17 | 12.87 | 12.50* | 19.7 | | | | | | | |
| 2.35 | 1.65 | .99 | | 2.2 | | | | | | | |
| 4.0 | 4.0 | 4.0 | 3.3 | 4 | | | | | | | |
| .072 | .07 | .0675 | .05 | .04* | | | | | | | |
| 13.9 | 14.0 | 14.8 | 20.00* | 22.8 | | | | | | | |
| 2.4 | 1.7 | 1.04 | | 2.3 | | | | | | | |
| 100 | 100 | 100 | | | 100 | | | 100 | 100 | 100 | 100 |
| 100 | 100 | 100 | | | 100 | | | 100 | 100 | 100 | 100 |
| 100 | 100 | 100 | | | 97 | | | 100 | 100 | 100 | 100 |
| ICBO 3401<br>BOCA 82-62<br>P701-814<br>P801-815<br>P803 | ICBO 3401<br>BOCA 82-62 | ICBO 3401<br>BOCA 82-62<br>SBCCI 74201<br>P701-814<br>D801-815<br>D803 | ICBO 1712<br>BOCA 1317.0<br>SBCCI 717 | | See Appendix | | | | | | |
| See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | See Appendix | | | | | | |
| · 113 | · 113 | · 113 | · 113 | · 114 | · 114 | | | | | | |

# Composite
## Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | HOMASOTE COMPANY | | INSULATION CORPORATION OF AMERICA | | | | INTERNATIONAL PERMALITE INC. | | |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | NJ | | PA | | | | CA | | |
| 3. Product Trade Name | NCFR Thermasote | Thermasote Nail Base | Insolite EPS/Fiberbd | Insolite EPS/Plywood | Insolite EPS/Gypsmbd | Insolite EPS/Perlite | Permalite Iso-Perl | Permalite PK Plus | Permalite PK |
| **4. Composite Components:** | | | | | | | | | |
| 4.1 Expanded Polystyrene | | | X | X | X | X | | | |
| 4.2 Extruded Polystyrene | | | | | | | | | |
| 4.3 Polyurethane | | | | | | | X | X | X |
| 4.4 Polyisocyanurate | X | X | | | | X | X | X | X |
| 4.5 Perlite | | | | | | | | | |
| 4.6 Gypsum Board | | | | | X | | | | |
| 4.7 Fiber Board | | X | X | | | | | | |
| 4.8 Plywood | | | | X | | | | | X |
| 4.9 Other | X | | | | | | | | |
| 4.10 Other | | | | | | | | | |
| **5. Surface Treatment:** | | | | | | | | | |
| 5.1 Asphalt Roofing Felt | X | X | | | | | | | |
| 5.2 Foil Facer | | | | X | | | | | |
| 5.3 Kraft Facer | | | | X | | | X | | X |
| 5.4 Other | | X | | | | | | | |
| 5.5 Other | | | | | | | | | |
| **6. Available as Tapered Material** | | | YES | YES | YES | YES | NO | NO | NO |
| **7. Year First Used in Commercial Roofing Systems** | 1983 | 1975 | 1979 | 1979 | 1979 | 1979 | 1982 | 1974 | 1972 |
| **8. Common Available Sizes** (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 8.1 2'x4' | | | X | X | X | X | | | |
| 8.2 3'x4' | | | X | X | X | X | X | X | X |
| 8.3 4'x4' | | | X | X | X | X | X | X | X |
| 8.4 4'x8' | X | X | X | X | X | X | | | |
| 8.5 Other | | | | | | | | | |
| 8.6 Other | | | | | | | | | |
| **9. Common Available Thicknesses** (Contact mfr. for other (C) Values, (R) Values, Weight/ft² thicknesses) | | | | | | | | | |
| 9.1 Thickness; in inches | 1.2 | 1.2 | 1 1/2 | 1 | 1 5/8 | 1 3/4 | 1.7 | 2.4 | 1.7 |
| Thermal Conductance (C) @ 75°F | .18 | .18 | .19 | .26 | .19 | .14 | .12 | .10 | .12 |
| Thermal Resistance (R) @ 75°F | 5.6 | 5.6 | 5.26* | 3.84* | 5.26* | 7.14* | 8.33 | 10.00* | 8.33 |
| Weight; lbs/ft² | 1.2 | 1.2 | 1/2 | 1/12 | 2 | 3/4 | .90 | 1.6 | .90 |
| 9.2 Thickness; in inches | 1.5 | 1.5 | 2.0 | 1 1/2 | 2 1/8 | 2 1/4 | 1.9 | 2.6 | 1.9 |
| Thermal Conductance (C) @ 75°F | .14 | .14 | .15 | .17 | .17 | .13 | .10 | .08 | .10 |
| Thermal Resistance (R) @ 75°F | 7.2 | 7.2 | 6.66* | 5.88* | 5.88* | 7.69* | 10.00 | 12.50* | 10.00 |
| Weight; lbs/ft² | 1.2 | 1.3 | 5/8 | 1/8 | 2 1/8 | 1 | .94 | 1.63 | .94 |
| 9.3 Thickness; in inches | 2.0 | 2.0 | 2 1/2 | 2 | 2 5/8 | 2 3/4 | 2.2 | 2.9 | 2.2 |
| Thermal Conductance (C) @ 75°F | .10 | .10 | .11 | .13 | .13 | .11 | .08 | .07 | .08 |
| Thermal Resistance (R) @ 75°F | 10.4 | 10.4 | 9.09* | 7.69* | 7.69* | 9.09* | 12.50 | 14.29 | 12.50 |
| Weight; lbs/ft² | 1.5 | 1.5 | 3/4 | 1/6 | 2 1/4 | 1 1/4 | 1.00 | 1.69 | 1.00 |
| 9.4 Thickness; in inches | 2.5 | 2.5 | | | | | 2.5 | 3.1 | 2.5 |
| Thermal Conductance (C) @ 75°F | .073 | .073 | | | | | .07 | .06 | .07 |
| Thermal Resistance (R) @ 75°F | 13.6 | 13.6 | | | | | 14.29 | 16.67 | 14.29 |
| Weight; lbs/ft² | 1.6 | 1.6 | | | | | 1.06 | 1.74 | 1.06 |
| 9.5 Thickness; in inches | 3.0 | 3.0 | | | | | 2.7 | 3.3 | 2.7 |
| Thermal Conductance (C) @ 75°F | .06 | .06 | | | | | .06 | .05 | .06 |
| Thermal Resistance (R) @ 75°F | 16.8 | 16.8 | | | | | 16.67 | 20.00* | 16.67 |
| Weight; lbs/ft² | 1.8 | 1.8 | | | | | 1.08 | 1.82 | 1.08 |
| 9.6 Thickness; in inches | 4.0 | 4.0 | | | | | 3.1 | | 3.1 |
| Thermal Conductance (C) @ 75°F | .042 | .042 | | | | | .05 | | .05 |
| Thermal Resistance (R) @ 75°F | 23.8 | 23.8 | | | | | 20.00* | | 20.00* |
| Weight; lbs/ft² | 2.1 | 2.1 | | | | | 1.17 | | 1.17 |
| **10. Estimated % of Thermal Value Retention** (Assuming a continuous mean temperature differential & constant moisture content) **1 year** | | | 100 | 100 | 100 | 100 | | | |
| **5 years** | | | 100 | 100 | 100 | 100 | | | |
| **10 years** | | | 100 | 100 | 100 | 100 | | | |
| **11. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others)** | | ICBO 1016<br>BOCA 84-65<br>SBCCI 8274 | P701-814<br>P801-815<br>P803 | P701-814<br>P801-815<br>P803 | P701-814<br>P801-815<br>P803 | P701-814<br>P801-815<br>P803 | P 225<br>P 252<br>ICBO 3549<br>BOCA 8336<br>SBCCI 8392<br>HHI 1972<br>ASTMC728 | P 225<br>P 252<br>ICBO 3549<br>BOCA 8336<br>SBCCI 8392<br>HHI 1972/GEN<br>HHI 1972/5 | P 225<br>P 252<br>ICBO 3549<br>BOCA 8336<br>SBCCI 8392<br>HHI 1972<br>ASTMC728 |
| **12. Limitations and/or Restrictions** | See Appendix | See Appendix | | | | | See Appendix | ASTMC728<br>See Appendix | See Appendix |
| **13. See Appendix Page** | · 116 | · 116 | | | | | · 116 | · 116 | · 116 |

★ = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Composite
## Roof Board Insulation

*Products listed by alphabetic company name.*



| LOW-TEMP ENG. INC. FOAM DIV. MA | MANVILLE BUILDING MATERIALS CORPORATION CO | | NRG BARRIERS, INC. ME | | NORTHWEST EPS, INC. OR | | | PACEMAKER PLASTICS INC. OH | PLASTIFOAM CORPORATION CT | | POLY FAB IND., INC. MN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low-Temp Foam EPS/Fibrbd | Fes-Core | Fesco-Foam | Barrier Board Plus | Nailboard | EPS-Perlite Composite | EPS-Fiberbd Composite | EPS-Gypsum Composite | Perform II | Plastifoam Aquaflo | Plastifoam Aquaflo | Lithane Comp X-tra |
| X | | | | | X | X | X | X | X | X | |
| | X | X | 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 | YES | NO |
| 1982 | 1982 | 1970 | 1980 | 1980 | 1981 | 1981 | 1981 | 1975 | 1956 | 1956 | 1982 |
| | | | | | 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'x 8') | (2'x 8') | |
| 1.5 | 1.9 | 1.3 | 1.5 | 1.5 | 1 3/4 | 1 1/2 | 1 1/2 | 1.5 | 2 3/4 | 3 1/4 | 1.5 |
| .196 | .12 | .15 | .145 | .14 | .169 | .193 | .233 | .193 | .10 | .08 | .116 |
| 5.10 | 8.33* | 6.66* | 6.89* | 7.1 | 5.91* | 5.18* | 4.29* | 5.17 | 10.4 | 11.8 | 8.62* |
| .875 | 1.2 | 0.8 | | 20.1 | .769 | .753 | 1.062 | .83 | | | .68 |
| 2.0 | 2.1 | 1.5 | 1.75 | 2.0 | 2 1/4 | 2 | 2 | 2.0 | 4 3/4 | | 1.8 |
| .142 | .10 | .13 | .120 | .090 | .127 | .14 | .161 | .1408 | .05 | | .096 |
| 7.04 | 10.00* | 7.69* | 8.33* | 11.11* | 7.87* | 7.14* | 6.21* | 7.10 | 18.7 | | 10.41* |
| .916 | 1.3 | 0.8 | | | .811 | .795 | 1.104 | .85 | | | .74 |
| 2.5 | 2.4 | 1.8 | 2.0 | 2.5 | 2 3/4 | 2 1/2 | 2 1/2 | 2.5 | | | 2 |
| .112 | .08 | .10 | .10 | .070 | .102 | .11 | .123 | .1109 | | | .082 |
| 8.93 | 12.50* | 10.00* | 10.10 | 14.28* | 9.80* | 9.09* | 8.13* | 9.02 | | | 12.19* |
| .958 | 1.3 | 0.9 | | | .853 | .837 | 1.146 | .88 | | | .78 |
| 3.0 | 3.1 | 2.1 | 2.25 | 3.0 | 3 1/4 | 3 | 3 | 3.0 | | | 2.3 |
| .092 | .07 | .08 | .08 | .055 | .085 | .091 | .099 | .0914 | | | .071 |
| 10.87 | 14.28* | 12.50* | 12.5 | 18.2 | 11.76* | 10.98* | 10.10* | 10.94 | | | 14.08* |
| 1.0 | 1.4 | 0.9 | | | .845 | .878 | 1.187 | .92 | | | .87 |
| 3.5 | 2.9 | 2.6 | 2.5 | 3.5 | 3 3/4 | 3 1/2 | 3 1/2 | 3.50 | | | 2.5 |
| .078 | .06 | .06 | .07 | .047 | .073 | .077 | .083 | .0777 | | | .063 |
| 12.82 | 16.66* | 14.28* | 14.29 | 21.0 | 13.69* | 12.98* | 12.04* | 12.87 | | | 15.87* |
| 1.04 | 1.4 | 1.0 | | | .936 | .92 | 1.229 | .964 | | | .87 |
| 4.0 | 3.2 | 3.0 | 2.75 | 4.0 | 4 1/4 | 4 | 4 | 4.0 | | | 2.8 |
| .068 | .05 | .05 | .06 | .040 | .064 | .067 | .072 | .0676 | | | .057 |
| 14.71 | 20.00* | 16.66* | 16.67 | 25.0 | 15.62* | 14.92* | 13.88* | 14.80 | | | 17.54* |
| 1.08 | 1.4 | 1.1 | | | .978 | .96 | 1.271 | 1.00 | | | .92 |
| 100 | | | | | 100 | 100 | 100 | 100 | 100 | 100 | 90 |
| 100 | | | | | 100 | 100 | 100 | 100 | 100 | 100 | |
| 100 | | | | | 100 | 100 | 100 | 100 | 100 | 100 | |
| | | ICBO 3292 | | | | | P 801<br>P 803<br>P 814<br>P 815 | | BOCA 1319<br>ICBO 1712<br>SBCC 718<br>HHI524C<br>MILP19644C | BOCA 1319<br>ICBO 1712<br>SBCC 718<br>HHI524C<br>MILP19644C | |
| | | See Appendix | | | | | | | | | See Appendix |
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# Composite Roof Board Insulation

***Products listed by alphabetic company name.***

| 1. Company | POLY FAB IND., INC. | RMAX, INC. | SEQUOYAH FOAM, INC. | THERMA FOAM INC. | | | | THERMAL FOAMS, INC. | THERMAL SYSTEMS, INC. |
|---|---|---|---|---|---|---|---|---|---|
| 2. State | MN | TX | OK | TX | | | | NY | UT |
| 3. Product Trade Name | Lithane Comp | Thermaroof Composite | | | | | | | Thermal Deck |
| **4. Composite Components:** | | | | | | | | | |
| 4.1 Expanded Polystyrene | | | X | X | X | X | X | X | |
| 4.2 Extruded Polystyrene | | | | | | | | | |
| 4.3 Polyurethane | X | X | | | | | | | |
| 4.4 Polyisocyanurate | X | X | | | | | | | X |
| 4.5 Perlite | | | | | | | X | | |
| 4.6 Gypsum Board | | | X | | X | | | | |
| 4.7 Fiber Board | | | | | | X | | X | |
| 4.8 Plywood | | | | X | | | | | X |
| 4.9 Other | | | | | | | | | |
| 4.10 Other | | | | | | | | | |
| **5. Surface Treatment:** | | | | | | | | | |
| 5.1 Asphalt Roofing Felt | | X | | | | | | | X |
| 5.2 Foil Facer | | | | | X | | X | | |
| 5.3 Kraft Facer | | | | | | | | | |
| 5.4 Other | X | | | | | | | | |
| 5.5 Other | | | | | | | | | |
| **6. Available as Tapered Material** | NO | NO | | YES | YES | YES | YES | NO | NO |
| **7. Year First Used in Commercial Roofing Systems** | 1981 | | 1981 | 1979 | 1979 | 1979 | 1979 | 1981 | 1980 |
| **8. Common Available Sizes** (Contact mfr. for other sizes and special orders) | | | | | | | | | |
| 8.1 2'x4' | | | X | | | | | X | |
| 8.2 3'x4' | X | | | | | | | | |
| 8.3 4'x4' | | X | | | | X | X | X | |
| 8.4 4'x8' | | | | X | X | X | X | X | X |
| 8.5 Other | | | | | | | | | |
| 8.6 Other | | | | | | | | | |
| **9. Common Available Thicknesses** (Contact mfr. for other thicknesses) (C) Values, (R)Values, Weight/ft² | | | | | | | | | |
| 9.1 Thickness; in inches | 1.5 | 1.4 | 2 1/2 | 3 | 3 1/8 | 3 1/2 | 3 3/4 | 1 1/2 | 1.5 |
| Thermal Conductance (C) @ 75°F | .135 | .14 | 1.0 | .097 | .097 | .08 | .072 | .193 | .125 |
| Thermal Resistance (R) @ 75°F | 7.40* | 7.1 | | 10.30* | 10.30* | 12.50* | 13.88* | 5.18* | 8.0 |
| Weight; lbs/ft² | .92 | .81 | .9 | 1.5 | 2.6 | .94 | .6 | .91 | |
| 9.2 Thickness; in inches | 1.6 | 1.9 | 4 1/2 | 4 | 4 1/8 | 4 1/2 | 4 3/4 | 2 | 2.0 |
| Thermal Conductance (C) @ 75°F | .121 | .10 | .06 | .070 | .070 | .06 | .056 | .141 | .083 |
| Thermal Resistance (R) @ 75°F | 8.26* | 10.0 | 16.66* | 14.28* | 14.28* | 16.66* | 17.85* | 7.09* | 12.0 |
| Weight; lbs/ft² | .93 | .69 | 1.1 | 1.5 | 2.6 | .94 | .6 | .95 | |
| 9.3 Thickness; in inches | 1.8 | 2.0 | 6 1/2 | 5 | 5 1/8 | 5 1/2 | 5 3/4 | 2 1/2 | 2.5 |
| Thermal Conductance (C) @ 75°F | .107 | .09 | .04 | .055 | .055 | .05 | .046 | .11 | .063 |
| Thermal Resistance (R) @ 75°F | 9.34* | 11.1 | 25.00* | 18.18* | 18.18* | 20.00* | 21.73* | 9.09* | 16.0 |
| Weight; lbs/ft² | .97 | .70 | 1.3 | 1.5 | 2.6 | .94 | .6 | .99 | |
| 9.4 Thickness; in inches | 2 | 2.4 | 8 1/2 | | | | | 3 | 3.0 |
| Thermal Conductance (C) @ 75°F | .09 | .07 | .03 | | | | | .091 | .05 |
| Thermal Resistance (R) @ 75°F | 11.11* | 14.3 | 33.33* | | | | | 10.98* | 20.0 |
| Weight; lbs/ft² | 1.01 | .78 | 1.4 | | | | | 1.03* | |
| 9.5 Thickness; in inches | 1.3 | 2.8 | | | | | | 3 1/2 | 3.5 |
| Thermal Conductance (C) @ 75°F | .078 | .06 | | | | | | .077 | .042 |
| Thermal Resistance (R) @ 75°F | 12.82* | 16.7 | | | | | | 12.98* | 24.0 |
| Weight; lbs/ft² | 1.06 | .82 | | | | | | 1.07 | |
| 9.6 Thickness; in inches | 2.5 | 3.2 | | | | | | 4 | 4.0 |
| Thermal Conductance (C) @ 75°F | .068 | .05 | | | | | | .067 | .036 |
| Thermal Resistance (R) @ 75°F | 14.70* | 20.0 | | | | | | 14.92* | 28.0 |
| Weight; lbs/ft² | 1.10 | .91 | | | | | | 1.11 | |
| **10. Estimated % of Thermal Value Retention** @ **1 year** (Assuming a continuous mean temperature **5 years** differential & constant moisture content) **10 years** | 90 | | 100<br>100<br>100 | 100<br>100<br>100 | 100<br>100<br>100 | 100<br>100<br>100 | 100<br>100<br>100 | 80<br>80<br>80 | 99<br>87<br>96 |
| **11. UL "P" Design Numbers; Building Code Agency Approval Numbers; ICBO, BOCA, SBCCI (Others)** | | | ICBO 3401 | | | | | ICBO 4169 | |
| **12. Limitations and/or Restrictions** | See Appendix | See Appendix | | | | | | See Appendix | |
| **13. See Appendix Page** | · 119 | · 119 | | | | | | · | |

★ = A calculated figure. (C) calculated from reported (R) or (R) calculated from reported (C).

**Note 1:** FM Windstorm and Fire Ratings are often important when considering the selection of a roofing insulation material. To determine the availability of a rating and approved attachment methods for various materials, refer to specific listings published in the FM Approval Guide.

**Note 2:** NA = Not applicable.

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# Composite
## Roof Board Insulation

*Products listed by alphabetic company name.*



| THERMAL SYSTEMS, INC. UT | WESTERN INSULFOAM CORPORATION AK | WESTERN INSULFOAM CORPORATION AZ | WESTERN INSULFOAM CORPORATION CA | WESTERN INSULFOAM CORPORATION WA | WIN TEC INC. IL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite Roof Insl | Tuffroof | Tuffroof | Tuffroof | Tuffroof | Ruk Board Super Plus | Ruk Board Plus | | | | |
| | X | X | X | X | | | | | | |
| | | | | | X | X | | | | |
| X | | | | | | | | | | |
| X | | | | | X | X | | | | |
| | X | X | X | X | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| X | | | | | X | X | | | | |
| | | | | | X | X | | | | |
| | | | | | | | | | | |
| NO | YES | YES | YES | YES | | | | | | |
| 1982 | | | | | 1984 | 1982 | | | | |
| | X | X | X | X | | | | | | |
| | | | | | X | X | | | | |
| X | X | X | X | X | | | | | | |
| X | | | | | X | X | | | | |
| | | | | | | | | | | |
| 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | | | | |
| .127 | .186 | .186 | .186 | .186 | .13 | .147 | | | | |
| 7.87* | 5.37 | 5.37 | 5.37 | 5.37 | 7.69* | 6.80* | | | | |
| .95 | .914 | .914 | .914 | .914 | .87 | .90 | | | | |
| 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.8 | 1.8 | | | | |
| .086 | .136 | .136 | .136 | .136 | .10 | .12 | | | | |
| 11.62* | 7.30 | 7.30 | 7.30 | 7.30 | 10.00* | 8.33* | | | | |
| 1.03 | .983 | .983 | .983 | .983 | .92 | .92 | | | | |
| 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.1 | 2.0 | | | | |
| .064 | .108 | .108 | .108 | .108 | .08 | .10 | | | | |
| 15.62* | 9.22 | 9.22 | 9.22 | 9.22 | 12.50* | 10.00* | | | | |
| 1.11 | 1.04 | 1.04 | 1.04 | 1.04 | .97 | .96 | | | | |
| 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 2.3 | 2.4 | | | | |
| .052 | .089 | .089 | .089 | .089 | .07 | .080 | | | | |
| 19.23* | 11.15 | 11.15 | 11.15 | 11.15 | 14.28* | 12.50* | | | | |
| 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.00 | 1.03 | | | | |
| 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.0 | 3.3 | | | | |
| .043 | .076 | .076 | .076 | .076 | .05 | .050 | | | | |
| 23.25* | 13.07 | 13.07 | 13.07 | 13.07 | 20.00* | 20.00* | | | | |
| 1.28 | 1.16 | 1.16 | 1.16 | 1.16 | 1.12 | 1.19 | | | | |
| 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| .037 | .066 | .066 | .066 | .066 | .037 | .040 | | | | |
| 27.02* | 15.0 | 15.0 | 15.0 | 15.0 | 27.02* | 25.00* | | | | |
| 1.36 | 1.2 | 1.2 | 1.2 | 1.2 | 1.28 | 1.32 | | | | |
| 99 | 100 | 100 | 100 | 100 | 99 | 99 | | | | |
| 87 | 100 | 100 | 100 | 100 | 99 | 99 | | | | |
| 96 | 100 | 100 | 100 | 100 | 99 | 99 | | | | |
| | | | | | | | | | | |
| See Appendix | | | | | See Appendix | See Appendix | | | | |
| · 121 | | | | | · 122 | · 122 | | | | |

# APPENDIX: Roof Board Insulation

## 1. AMERICAN WESTERN

**R-BOARD CP-5005 COMPOSITE**

Limitations: American Western supplies rigid isocyanurate insulation materials. It does not practice architecture nor engineering. Roofing incorporating R-Board insulation products, we believe, results in satisfactory systems when properly applied. Characteristic properties, or performances of materials or application specifications herein described are based on data obtained under controlled test conditions. American Western makes no warranties, expressed or implied, as to the characteristics, properties, or performance of its products under any variations from such conditions in actual construction. American Western assumes no responsibility for the effects of structural movement and makes no implied warranties whatsoever.
No agent, salesman, representative, nor employee is empowered to change, alter or amend this provision unless it is done in writing by a duly authorized officer or employee of American Western Manufacturing Co.

Temporary Roofing: If installation of a temporary roof is necessitated by various circumstances no roof insulation is to be applied. Prior to the installation of the roof insulation the temporary roofing is to be removed.

Warning: Rigid polyisocyanurate must not be left exposed! R-Board in interior applications must be protected with an approved thermal barrier or otherwise protected in accordance with local building code regulations.

## 2. APACHE BUILDING PRODUCTS COMPANY

**WHITE LINE PYROX AND PYROX-PLUS**
Building Codes: NYC Board of Standard and Appeals CAL No 915 66 SM; Metro Dade County, Florida #83, 0415.6; City and County of Denver #M-82-148-A White Line; #M-73-73 Millox, ICBO 3026.

Limitations and Restrictions: Cold Weather Application - Installation of built-up roofing at ambient temperatures below 40 F. requires special precautions to insure proper performance of the insulation and roofing system. REMOVE ALL MOISTURE (INCLUDING ICE AND SNOW) FROM THE DECK PRIOR TO APPLYING INSULATION. Where bitumen is used to attach insulation, do not overheat bitumen to offset rapid cooling and apply insulation and roofing close behind the mop.

New Roofing and Reroofing: APACHE'S White Line insulations are well suited for all new roofing and most reroofing applications. Reroofing with an APACHE insulation over an existing roof requires the removal of any and all surface irregularities. If insulation is attached with asphalt, a sufficient amount should be used to cover the top of any remaining aggregate to INSURE COMPLETE BOARD ADHERENCE.

Graveled and Smooth Surface Roofing: APACHE recommends that our insulations be used under gravel surfaced built-up roofing systems. APACHE must be consulted prior to application of our products in any smooth surfaced built-up roofing systems.

WARNING: These products will decompose and/or burn if exposed to sufficient heat or an ignition source of sufficient intensity. They should not be used in exposed or inadequately protected applications. They should be installed according to APACHE specifications.

Limitations: Characteristics, properties, performance of materials and application specifications herein described are based on data obtained under controlled conditions.

APACHE makes no warranties, expressed or implied, as to the characteristics, properties or performance of its product under any variations from such conditions. APACHE assumes no responsibility for the effects of structural movement and makes no implied warranties whatsoever. No agent, salesman, representative or employee is empowered to change, alter or amend this provision, unless it is done in writing by a duly authorized officer or employee of APACHE.

Moisture Protection: Apache insulation, like all insulations, must be kept dry in order to function properly. All phases of storage, transportation, handling and installation must be governed by this requirement. Apache insulation must be protected from weather and standing water at all times. Apply no more insulation in a day than can be covered by the membrane system. Temporary water cut-off shall be installed to protect applied insulation when suspending application. Remove cut offs before continuing application.

Insulation Stops and Nailers: Wood insulation stops shall be 6" wide by thickness of insulation, treated with preservative and securely fastened to the deck at all edges and eaves. On all decks with slopes over 1" per foot wood nailers shall be used. Nailers shall be preservative treated and equivalent in thickness to the insulation. They shall be securely fastened to the deck parallel to the low point of the roof. With slopes under 3" per foot, nailers shall be spaced 20 feet maximum. With slopes over 3" per foot, nailers shall be spaced 4 feet maximum.

Mechanical Fasteners: APACHE strongly recommends the use of FM approved fasteners in securing insulation boards to the deck. Fasteners are to be installed in accordance with the fastener

manufacturer's instructions and FM approved nailing patterns under built up roofing and single ply membrane systems. Factory Mutual typically requires one fastener for every three square feet of Apache insulation in built up roofing and one fastener for every two square feet of Apache insulation under fully adhered single ply membranes. Mechanically attached single ply systems. One fatener every four square feet minimum.
These products should not be used in torch applied systems directly beneath the membranes. Apply a base sheet on top of the insulation and torch apply the membrane to the base sheet.

3. **ASSOCIATED FOAM MANUFACTURERS**

**CONTOUR TAPER TILE X**
FOAMULAR INSULATION is practical for building roofs having normal roof temperature conditions but should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 degress F. It is not recommended for unballasted applications where sustained roof temperatures exceed 165 degress F. and intermittent temperatures exceed 180 degrees F.

FOAMULAR INSULATION is recommended essentially for flat roofs. Slope limitations are dependent upon details of the system to be used. Consult the system supplier/installer.

FOAMULAR INSULATION is not recommended directly over steel roof decks.

Plastic or oil-base roof cements, asphalt or coal tar pitch are not recommended with FOAMULAR INSULATION.

**CONTOUR TAPER TILE SYSTEM**
Please follow recommended installation guidelines contained in AFM CONTOUR TAPER TILE Spec-Data Form.

4. **CARLISLE SYNTEC SYSTEMS**

**SURE-SEAL EPS INSULATION**
SURE-SEAL EPS Foam must be protected from:
a. Temperatures > 160 F.
b. Oil, solvents, and other aliphatic or hydrocarbon substances which could degrade the Foam.
When used over coal tar roof membranes, the following procedures apply:
A. The coal tar 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 (joints taped securely) 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.

The Carlisle EPS Insulation is not to be installed in hot asphalt.

5. **CARPENTER INSULATION COMPANY**

**EXPANDED POLYSTYRENE**
Carpenter EPS is preferred for building roofs having normal roof temperature conditionns but should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 degrees F. It is not recommended for unballasted applications where sustained roof temperatures exceed 165 degrees F. and intermittent temperatures exceed 180 degrees F.

Consult the roofing department at Carpenter Insulation Company before using EPS with coal tar pitch.

6. **THE CELOTEX CORPORATION**

**THERMAX HY-TEC ROOF INSULATION**
Building Codes: ICBO 1712; BOCA 1317.0; SBCCI 717; CGSB provisional standard 51-GP-26M.

Limitations and/or Restrictions: This product should only be used in strict accordance with Celotex recommended uses and application instructions.

**CELO-THERM PERLITE ROOF INSULATION**
This product should only be used in strict accordance with Celotex recommended uses and application instructions.

**FIBERBOARD ROOF INSULATION**
This product should only be used in strict accordance with Celotex recommended uses and application instructions.

## 7. CORNELL CORPORATION

**THERMACEL**
THERMACAL is a nail base roof insulation consisting of urethane and waferboard. It is not designed as a roof deck and should be installed over a proper structural deck. It is often used over wood roof decks and forms a nailable surface for the attachment of shingles, shakes, and other fastener applied roofs. See Manufacturer's literature for additional information.

## 8. DOW CHEMICAL, USA

**STYROFOAM PD BRAND INSULATION**
UL Design Numbers: P708, P225, P226, P229, P235, P248, P404, P505, P507, P701, P801, P803, P805, P811, P813, P902, P904, P908, P909, P912, P915

Building Codes: ICBO 2257, SBCCI 8183

Limitations and/or Restrictions: STRYOFOAM PD BRAND INSULATION is intended for use above waterproofing membranes in plaza and parking deck construction and in other areas where high compressive strength insulation is required.

STYROFOAM BRAND INSULATION has poor resistance to aromatic hydrocarbons, chlorinated hydrocarbons, olefins, napthas, keytones, gasolines, fuel oil and oil-based paint.

MAXIMUM SERVICE TEMPERATURE: 165 F.

WARNING
STYROFOAM BRAND INSULATION is combustible and may constitute a fire hazard if improperly used or installed. It should be adequately protected. Use only as directed by the specific instructions for this product. It contains a flame retardant additive to inhibit accidental ignition from small fire sources. During shipping, storage, installation and use, this material should not be exposed to flame or other ignition sources.

SPECIAL INSTRUCTIONS
All roof deck systems incorporating STYROFOAM BRAND INSULATION should provide an adequate fire barrier. For proper protection of stored insulation, consult the National Fire Protection Association (NFPA) standards or the authority having jurisdiction.

LIGHT STABILITY: STYROFOAM BRAND INSULATION should be shielded from sunlight when stored outdoors for extended periods. Cover with a light-colored, opaque tarp for protection from solar radiation.

**STYROFOAM SM BRAND INSULATION**
Building Codes: ICBO 2257, BOCA 80-72, SBCCI 8183

Limitations and/or Restrictions: STYROFOAM SM is intended for use beneath loose-laid ballasted or mechanically attached sheet membranes.

MAXIMUM SERVICE TEMPERATURE: 165 F.

STYROFOAM SM has poor resistance to aromatic hydrocarbons, chlorinated hydrocarbons, olefins, napthas, ketones, gasolines, fuel oil, oil based paint, and plasticizers found in some sheet membranes.

WARNING
STYROFOAM BRAND INSULATION is combustible and may constitute a fire hazard if improperly used or installed. It should be adequately protected. Use only as directed by the specific instructions for this product. It contains a flame retardant additive to inhibit accidental ignition from small fire sources. During shipping, storage, installation and use, this material should not be exposed to flame or other ignition sources.

SPECIAL INSTRUCTIONS
All roof deck systems incorporating STYROFOAM BRAND INSULATION should provide an adequate fire barrier for XFS-43393.00. For proper protection of stored insulation, consult the National Fire Protection Association (NFPA) standards or the authority having jurisdiction.

LIGHT STABILITY: STYROFOAM BRAND INSULATION should be shielded from sunlight when stored outdoors for extended periods. Cover with a light-colored, opaque tarp for protection from solar radiation.

**STYROFOAM TG BRAND INSULATION**
Building Codes: ICBO 2257, BOCA 80-72, SBCCI 8183

Limitations and/or Restrictions: STYROFOAM TG is intended for use beneath loose-laid ballasted or mechanically attached sheet membranes.

MAXIMUM SERVICE TEMPERATURE: 165 F.

STYROFOAM TG has poor resistance to aromatic hydrocarbons, chlorinated hydrocarbons, olefins, napthas, ketones, gasolines, fuel oil, oil-based paint and plasticizers found in some sheet membranes.

WARNING
STYROFOAM BRAND INSULATION is combustible and may constitute a fire hazard if improperly used or installed. It should be adequately protected. Use only as directed by the specific instructions for this product. It contains a flame retardant additive to inhibit accidental ignition from small fire sources. During shipping, storage, installation and use, this material should not be exposed to flame or other ignition soruces.

SPECIAL INSTRUCTIONS
All roof deck systems incorporating STYROFOAM BRAND INSULATION should provide an adequate fire barrier. For proper protection of stored insulation, consult the National Fire Protection Association (NFPA) standards or the authority having jurisdiction.

LIGHT STABILITY: STYROFOAM BRAND INSULATION should be shielded from sunlight when stored outdoors for extended periods. Cover with a light-colored, opaque tarp for protection from solar radiation.

**STYROFOAM LIGHTGUARD BRAND INSULATION**
UL Design Numbers: P708, P225, P226, P229, P235, P248, P404, P505, P507, P701, P801, P803, P805, P811, P813, P902, P904, P908, P909, P912, P915

Limitations and/or Restrictions: STYROFOAM LIGHTGUARD BRAND INSULATION is intended for use above waterproofing membranes in Insulated Roof Membrane Assemblies (IRMA).

STYROFOAM BRAND INSULATION has poor resistance to aromatic hydrocarbons, chlorinated hydrocarbons, olefins, napthas, ketones, gasolines, fuel oil, and oil-based paint.

Maximum service temperature: 165 F.

WARNING
STYROFOAM BRAND INSULATION is combustible and may constitute a fire hazard if improperly used or installed. It should be adequately protected. Use only as directed by the specific instruction for this product. It contains flame retardant additive to inhibit accidental ignition from small fire sources. During shipping, storage, installation and use, this material should not be exposed to flame or other ignition sources.

SPECIAL INSTRUCTIONS
All roof deck systems incorporating STYROFOAM BRAND INSULATION should provide an adequate fire barrier. For proper protection of stored insulation, consult the National Fire Protection Association (NFPA) standards or the authority having jurisdiction.

LIGHT STABILITY: STYROFOAM BRAND INSULATION should be shielded from sunlight when stored outdoors for extended periods. Cover with a light-colored opaque tarp for protection from solar radiation.

Dow specifications require the roofing assembly be designed to prevent air penetration under the membrane. Any bellowing of the membrane voids the Dow warranty.

STYROFOAM LIGHTGUARD is designed as a roof insulation, not as a plaza deck. Although the concrete surface is suitable for most foot traffic (excluding hard wheeled carts) it is not a satisfactory surface for general pedestrian traffic or plaza use.

## 9. EPS MOLDING, INC.

**CONTOUR PROTECTED BOARD**
FOAMULAR 404 INSULATION is practical for building roofs having typical roof temperatures, but should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 degrees F.

To ensure adequate drainage, sufficient to drain roof completely within 48 hours after a rain, 1/4:12 minimum slope of roof membrane is recommended.

Roof decks over which FOAMULAR 404 INSULATION is installed should provide an adequate fire barrier as required by the building codes.

WARNING: Combustible FOAMULAR 404 POLYSTYRENE INSULATION 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. This product should be installed only above a thermal barrier system acceptable to the building codes. For example, 5/8" thick gypsum board or 1" thick perlite concrete beneath the insulation (on the roof-deck side), is often acceptable. During shipping and storage, installation and use, this product should not be exposed to open flames or ignition sources.

## 10. EPS MOLDING, INC.

**CONTOUR TAPER TILE X**
FOAMULAR INSULATION is practical for building roofs having normal roof temperature conditions but should not be used in contact with chimneys, heater vents, steam pipes, or other surfaces where temperatures exceed 150 degrees F. It is not recommended for unballasted applications where sustained roof temperatures exceed 165 degrees F. and intermittent temperatures exceed 180 degrees F.

FOAMULAR INSULATION is recommended essentially for flat roofs. Slope limitations are dependent upon details of the system to be used. Consult the system supplier/installer.

FOAMULAR INSULATION is not recommended directly over steel roof decks.

Plastic or oil-base roof cements, asphalt or coal tar pitch are not recommended with FOAMULAR INSULATION.

**LT. DECK BOARD**
Light wt. concrete deck applicator should specify size and number of key/vent holes.

## 11. GAF CORPORATION

**GAFTEMP ISOTHERM R**
GAFTEMP Isotherm R 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 urethane products are used.

GAFTEMP Isotherm is a non-composite insulation board made up of uncoated glass mat facers bonded to a core of isocyanurate foam.

**GAFTEMP PERLITE**
UL Design Numbers: P001, P004, P206, P210, P211, P221, P225, P230, P232, P233, P237, P238, P243, P502, P508, P510, P701, P708, P801, P803, P805, P810, P814, P904, P909, P912, P915

Limitations and/or Restrictions: GAFTEMP Perlite roof insulation should not be left exposed to the weather. No more insulation should be applied than can be completely covered with the finished roofing on the same day.

## 12. HOMASOTE COMPANY

**ULTRA/M-II ISO/GLAS & ULTRA/M**
Not to be used with torch system (modified bitumens) unless a separator sheet is mechanically applied over the ULTRA/M & ULTRA/M-II ISO/GIAS before the modified bitumens are applied.

**ULTRA/M ISO/GLAS**
Not compatible with hot bitumens, BUR, modified bitumens (see above).

**N.C.F.R. THERMASOTE**
Must be mechanically attached to roof deck.

## 13. HUEBERT FIBERBOARD, INC.

**HFB INSULATION BOARD**
Contact Huebert Fiberboard, Inc. for any information on limitations or restrictions.

## 14. INTERNATIONAL PERMALITE, INC.

**PERMALITE ISO-LITE**
Limitations and/or Restrictions: Permalite Iso-Lite insulation is a non-structural board. It should be stored dry and not be left exposed to the elements. No more insulation should be installed than can be covered the same day. Although isocyanurate has excellent fire resistive qualities, good fire safety precautions must be observed wherever it is used. Iso-Lite should be stored and used in a location free from any ignition hazard. Permalite Iso-Lite should not be subjected to the application of hot bitumen in excess of 450 degrees F.

**PERMALITE ISO-THANE**
Limitations and/or Restrictions: Permalite Iso-Thane is a non-structural board. It should be stored dry and not be left exposed to the elements. No more insulation should be applied than can be completely covered in the same day. Although isocyanurate has fire resistive qualities superior to urethane, good fire safety precautions must be observed wherever it is used. Iso-Thane should be stored and used in a location free from any ignition hazard. Iso-thane should not be subjected to application of hot bitumen in excess of 450 degrees F.

**PERMALITE SEALSKIN**
UL Design Numbers: P001, P004, P201, P202, P203, P204, P206, P210, P211, P221, P224, P225, P230, P232, P233, P237, P238, P252, P404, P502, P508, P510, P701, P703, P708, P710, P801, P803, P805, P810, P814, P815, P904, P905, P909, P912, P915

Building Codes: ICBO 3549, BOCA 83-36, SBCCI 8392, ASTM C728

Limitations and/or Restrictions: Permalite Sealskin roof insulation is not structural in nature. While highly moisture resistant, it should not be left exposed to the elements. No more insulation should be applied than can be completely covered the same day. Permalite Sealskin roof insulation is not designed for direct traffic unless appropriately protected. Permalite Sealskin insulation is not acceptable for applications where it shall be exposed to direct interface with continuous soaking temperatures in excess of 250 degrees F.

**PERMALITE ISO-PERL**
Limitations and/or Restrictions: Permalite Iso-Perl is not structural in nature. It should be stored dry and not left exposed to the elements. No more insulation should be installed than can be covered in the same day. Good fire safety precautions must be observed wherever this product is used. Isocyanurate has excellent fire resistive qualities. However, Permalite Iso-Perl should be stored and used in a location free from any ignition hazard.

**PERMALITE PK**
Limitations and/or Restrictions: Permalite Pk is not structural in nature. It should not be left exposed to the elements and should be stored dry. No more insulation should be applied that can be completely covered the same day. Although isocyanurate has excellent fire resistive qualities, good fire safety precautions must be observed wherever it is used. Pk should be stored and used in a location free from any ignition hazard. The top surface of Pk should not be subjected to the application of hot bitumen in excess of 450 degrees F.

**PERMALITE PK PLUS**
Limitations and/or Restrictions: Permalite Pk Plus is not structural in nature. Pk Plus should not be left exposed to the elements. It should be stored dry. No more insulation should be applied than can be completely covered the same day. Although Pk Plus has excellent fire resistive qualities, good fire safety precautions must be observed wherever it is used. Pk Plus should be stored and used in a location free from any ignition hazard.

15. **KOPPERS COMPANY, INC.**

**RX INSULATION**
UL Design Numbers: P120, P123

Building Codes: ICBO 4086, BOCA 82-95, SBCCI 8370, NYC MEA #(S) 35-78M thru 40-78M, VOL. II & 126 & 127-81-M WOL. II; State of Ohio; City of Los Angeles, California State Fire Marshall; City of San Francisco; Dade County; Florida; City of Cleveland; State of Wisconsin.

Limitations and/or Restrictions: See manufacturer application instructions on Fact Sheet #OM-556 April 1984.

16. **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. 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 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.

17. **MANVILLE**

**FESCO BOARD, FESCORE, FESCO-FOAM, ULTRAGARD GOLD AND 1/2" RETRO-FIT BOARD.**
Restrictions:

Temperature: Manville insulation products are not recommended for continuous use temperatures over 200 F (93 t).

Storage: All insulation boards must be maintained in a dry condition prior to installation. See the Manville Roofing Systems Manual for additional information on storage.

Cold Weather Application: For ambient temperatures below 40 degrees F. the use of hot bitumen application is not recommended due to the rapid cooling of the bitumen.

Direct Torching: Manville does not recommend that roof membranes be directly torched to FESCO-FOAM or ULTRAGARD GOLD insulation. A base sheet should be applied to the surface of the insulation and the torchable membrane torched to the base sheet.

Mechanical Fasteners:
Manville recommends the use of mechanical fasteners for the attachment of Manville roof insulation products to steel decks. The correct number and type, per the Factory Mutual Approval Guide should be used. Manville also recommends that the mechanical fasteners used should have a quality corrosion resistant coating, such as Olympic Fasteners CR-10 coating or the Construction Fasteners Sentri coating, to reduce the chance of fastener failure due to corrosion. Attachment of Manville Roof Insulation to other types of roof decks by the appropriate mechanical fastener is acceptable to Manville.

Adhesive Applciation:
All Manville Roof Insulation is compatible with hot bitumen. The facer used on ULTRAGARD GOLD is compatible with asphalt and many single-ply adhesives, check with Manville or Single Ply supplier for information compatibility of the particular adhesive being used. Manville Roof Insulation can be attached to decks, where appropriate, with hot bitumen.

Limitations:
The values listed herein typical nominal values obtained under laboratory conditions using industry standard test methods. These values are subject to change at any time without notice.

18. **NRG BARRIERS, INC.**

**ENERGY - 1**
NRG Insulations must be kept dry before, during, and after application. Proper protection from the elements is required at all times. Do not expose to open flame at any time. Do not use in exposed applications. Do not hot mop fiberglass facers over 425 F. Do not hot mop foil facers at all. Consult current NRG Barriers, Inc. literature for specifications and application instructions.

19. **OWENS-CORNING FIBERGLAS**

**OCFOAM ROOF INSULATION**
Owens-Corning supports the NRCA/TIMA recommendation to reduce potential blisters over urethane foam, either by an additional layer of Fiberglas roof insulation, or a venting base sheet be applied prior to applying the membrane.

Mopping asphalt should be 425 at point of application.

Gravel surface treatments, when used, should be within 30 days of installation.

**OWENS-CORNING WOOD FIBER ROOF INSULATION**
All wood fiber insulation may warp or buckle when exposed to moisture and sun. It must not be installed over a wet existing roof. Boards larger than 2' x 4' should be installed with a 1/16" - 1/8" gap at all joints.

A vapor retarder should be used between any roof insulation and deck where indoor temperature and humidity can create a condensation problem.

**FIBERGLAS ROOF INSULATION**
UL Design Numbers: P213, P214, P224, P225, P228, P233, P240, P242, P245, P247, P409, P501, P504, P506, P508, P510, P512, P708, P711, P810, P904, P909, P912, P915

Fiberglas roof insulation is not intended for use as a structural roof deck, for use under traffic deck surfaces 250 F. or over.

Per accepted good roofing practices, a vapor retarder should be used between any roof insulation and deck where indoor temperature and humidity can create a condensation problem.

The manufacturers of single ply and fluid roofing systems should be consulted for appropriate recommendations for use of their materials over FIBERGLAS ROOF INSULATION.

20. **POLY FAB INDUSTRIES, INC.**

**LITHANE X**
Applicable Standards: HHI1972/2 & 1, HHI530 A-B, ASTM D1621, C209, C355, C518, E-84.

Limitations and Restrictions: Mechanical fasteners are to be used in numbers and patterns approved by Factory Mutual for I-90 wind uplift.

**LITHANE M**
Applicable Standards: HHI 1972/1, HHI530 A-B, ASTM D1621, C209, C355, C518, E-84

Limitations and Restrictions: LITHANE M is not to be attached to the underlayment or deck using hot asphalt securement. Mechanical fasteners are to be used in numbers and patterns approved by Factory Mutual for I-90 wind uplift. Single layers below 1.4" have not been tested for I-60 or I-90 wind uplift.

**LITHANE BUR**
Applicable Standards: HHI 1972/2, HHI530 A-B, ASTM D1621, C209, C355, C518, E-84

Limitations and Restrictions: Mechanical fasteners are to be used in numbers and patterns approved by Factory Mutual for I-90 wind uplift.

21. **RMAX, INC.**

**THERMAROOF PLUS**
Uses: Designed for use under a mechanically fastened or ballasted single ply system over steel roof decks.

Attachment to deck: Use one FM-approved mechanical fastener every 4 square feet for mechanically fastened and ballasted systems.

Restrictions: Not for use under fully adhered or hot mop.

**THERMAROOF COMPOSITE**
Uses: Designed for use under a BUR over a steel deck with a perlite side either up or down.

Attachment to deck: Mechanically fasten to steel deck using 1 FM approved mechanical fastener every 3 to 4 square feet.

**THERMAROOF STANDARD**
Uses: Designed for use under a BUR over concrete roof decks or re-roofing over existing BURs.

Attachment to deck: Hot mop following FM procedures.

Restrictions: Approved for use over concrete or gypsum decks only.

**MAX-I**
Uses: Designed for use under a BUR over steel decks.

Attachment to deck: Use 1 FM-approved mechanical fastener every 3 to 4 square feet.

**MULTI-MAX**
Uses: Designed for use under either a single ply fully adhered or BUR system over steel decks.

Attachment to deck: For single ply systems, mechanically fasten to with 1 FM-approved fastener every 2 square feet. For BUR systems, mechanically fasten with 1 FM-approved fastener every 3 to 4 square feet.

22. **TEMPLE-EASTEX, INC.**

**TEMPRO BASIC**
Compatible for BUR and most types of single ply membranes, without the use of a slipsheet.

Can be attached to the deck by full hot mop; loose laid, ballasted; fully adhered; or mechanically attached systems. Consult the membrane manufacturer for the recommended adhesive or fastener type, and application rate.

Compatible with most deck types.

Storage: This product must be kept dry at all times, while in storage and during application of the roof.

Install only as much roof insulation in one day as can be covered by the completed membrane in the same day.

Warning: TEMPRO BASIC is an organic insulation, and will burn if exposed to an ignition source of sufficient heat and intensity. This product should not be installed in exposed applications.

Consult the TEMPLE-EASTEX, INC applications instructions for further details.

Note: R-Values are determined by using the ASTM C-518 test method conducted at 75 F. mean temperature on material that has been aged for at least 6 months. The thermal value of this product was determined in accordance with the TIMA conditioning procedure as outlined in RIC/TIMA Technical Bulletin 281-1.

**TEMPRO STANDARD**
FM approved over steel and concrete decks for certain single ply and BUR applications, as detailed in the FM Approval Guide and the FM reports.

Underwiters Laboratories, Inc., Class A Roof Component.

Compatible for BUR and most types of single ply membranes without the use of a slipsheet.

Can be attached to the deck by full hot mop; loose laid ballasted; fully adhered; or mechanically attached systems. Consult the membrane manufacturer for the recommended adhesive or fastener type and application rate. Consult the FM report for Factory Mutal requirements and applications.

Compatible with most deck types.

Storage: This product must be kept dry at all times, while in storage and during application of the roof.

Install only as much roof insulation in one day as can be covered by the completed membrane in the same day.

Warning: TEMPRO STANDARD is an organic insulation and will burn if exposed to an ignition source of sufficient heat and intensity. This product should not be installed in exposed applications.

Consult the TEMPLE-EASTEX, INC applications instructions for further details.

Note: R-Values are determined by using the ASTM C-518 test method conducted at 75 F. mean temperature on material that has been aged for a least 6 months. The thermal value of this product was determined in accordance with the TIMA conditioning procedure as outlined in RIC/TIMA Technical Bulletin 281-1.

**TEMPRO S.P.**
FM approved over steel deck for certain single-ply applications; as detailed in the FM approval guide and the FM report.

Underwriters Laboratories, Inc., Class A Roof Component.

Compatible for use with most types of single ply membranes without the use of a slipsheet. For BUR applications, use TEMPRO or TEMPRO STANDARD roof insulation.

Can be attached to the deck in loose laid ballasted, fully adhered, or mechanically attached systems. Consult the membrane manufacturer for the recommended adhesive or fastener type, and application rate. Consult the FM report for Factory Mutal requirements and applications.

Compatible with most deck types, except concrete.

Storage: This product must be kept dry at all times, while in storage and during application of the roof.

Install only as much roof insulation in one day as can be covered by the completed membrane in the same day.

Warning: TEMPRO S.P. is an organic insulation, and will burn if exposed to an ignition source of sufficient heat and intensity. This product should not be installed in exposed applications.

Note: R-Values are determined by using the ASTM C-518 test method conducted at 75 mean temperature on material that has been aged for at least 6 months. The thermal value of this product was determined in accordance with the TIMA conditioning procedure as outlined in RIC/TIMA Technical Bulletin 281-1.

23. **THERMAL SYSTEMS, INC.**

**STANDARD ROOF INSULATION**
Thermal Systems' 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 . 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 Thermal Systems 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.

**THERMALGLAS & PROTHERM**
Thermal Systems 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 . 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 Thermal Systems 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.

**COMPOSITE ROOF INSULATION**
Thermal System'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 a flame of sufficient heat and intensity.

Contact Thermal Systems 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.

24. **U.C. INDUSTRIES**

**FOAMULAR 250 UL CONST. 200, CLASS A**
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 over a membrane applied to a substrate having an adequate fire barrier as required by building codes, if over metal or combustible deck.

Separator sheet should be used where insulation may come in contact with PVC membrane.

Any material containing volitable or extrable solvents should not be used in contact with polystyrene insulations.

25. **U.C. INDUSTRIES**

**FOAMULAR 404**
UL Design Numbers: P225, P226, P229, P235, P248, P404, P505, P507, P701, P801, P803, P805, P811, P813, P902, P908, P909.

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 over a membrane applied to a substrate having an adequate fire barrier as required by building codes, if over metal or combustible deck.

Separator sheet should be used where insulation may come in contact with PVC membrane.

Any material containing volitable or extrable solvents should not be used in contact with polystyrene insulations.

**FOAMULAR 150**
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 over a membrane applied to a substrate having an adequate fire barrier as required by building codes, if over metal or combustible deck.

Separator sheet should be used where insulation may come in contact with PVC membrane.

Any material containing volitable or extrable solvents should not be used in contact with polystyrene insulations.

25. **WIN-TEC, INC.**

**R-U-K BOARD GL-100**
Roof insulation should be completely protected at all times while being delivered, stored, handled and installed to keep it dry and free from physical damage.

Installed insulation is not to be left exposed to the weather but covered and waterproofed as work progresses. Open ends of each day's work must be protected with temporary water cut-offs which shall be removed when work is resumed. Applied insulation must be protected against damage by roof traffic.

It is essential that insulation being applied is thoroughly dry. Do not apply this material if the deck is wet or the possibility of precipitation exists prior to covering of insulation.

Use thickness(es) of R-U-K BOARD GL-100 ROOF INSULATION indicated on drawings and conforming with flute spanability of deck being used. R-U-K BOARD GL-100 ROOF INSULATION shall be laid with the long joint continuous and at right angles to the direction of the ribs in the deck. All end joints shall be broken and shall occur over the flat deck between ribs. Bring boards into snug contact.

Install and secure the membrane to the roof deck in accordance with the approved procedures specified for the particular membrane in R-U-K BOARD MEMBRANE APPLICATION BULLETIN.

*Rigid Urethane must not be left exposed! Foam in interior applications must be protected with an approved thermal barrier or otherwise protected in accordance with local building code regulations.

**R-U-K BOARD KFL/ISO**
For use in loose-laid, ballasted single ply membrane systems over a steel roof deck.

Roof insulation should be completely protected at all times while being delivered, stored, handled and installed to keep it dry and free from physical damage. When stored outdoors, it should be stacked on pallets or dunnage at least four (4) inches above the ground level and covered with a suitable waterproof covering.

Installed insulation is not to be left exposed to the weather but covered and waterproofed as work progresses. Open ends of each day's work must be protected with temporary water cut-offs which shall be removed when work is resumed. Applied insulation must be protected against damage by roof traffic.

It is essential that insulation being applied is thoroughly dry. Do not apply this material when the deck is wet or the possibility of precipitation exists prior to covering of insulation.

Use thickness(es) of R-U-K BOARD KFL/ISO ROOF INSULATION indicated on drawings and conforming with flute spanability of deck being used. R-U-K BOARD KFL/ISO ROOF INSULATION shall be laid with the long joint continuous and at right angles to the direction of the ribs in the deck. All end joints shall be broken and shall occur over the flat deck between ribs. Bring boards into snug contact.

Install and secure the membrane to the roof deck in accordance with the approved procedures specified for the particular membrane in R-U-K BOARD MEMBRANE APPLICATION BULLETIN.

*Rigid Urethane must not be left exposed! Foam in interior applications must be protected with an approved thermal barrier or otherwise protected in accordance with local building code regulations.

# INFORMATION ABOUT ROOF BOARD INSULATION

## I. Roof Board Insulation

Rigid roof board insulation materials are manufactured from a variety of base materials or chemical compounds and are typically categorized as being of either "homogeneous" or "composite" construction.

For purposes of the listings contained in the Guide the following definitions and generic classes are used:

### A. Homogeneous Insulating Boards

Any prefabricated roof board insulation product which has 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, kraft paper, etc.

Generic Classes

A. Expanded polystyrene
B. Extruded Polystyrene
C. Glass Fiber/Mineral Fiber
D. Cellular Glass
E. Phenolic
F. Fiberboard
G. Perlite
H. Polyurethane
I. Polyisocyanurate
J. Other Homogeneous Materials

### B. Composite Insulating Boards

Any prefabricated roof board insulation product which consists of multiple (more than one) layers of insulation(s) and/or a variety of other board materials (typically perlite, fiberboard, plywood, gypsum board, etc.) to 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, kraft paper, etc.

## II. Selection Criteria

The selection of the appropriate roof insulation materials for a specific building application should consider the use of the insulation component within the specific roofing system. Some considerations are: compatibility with other roofing system components, substrate, desired thermal barrier objectives, durability, resistance to climatic conditions, stability, installed weight, method of attachment, fire and wind resistance, life cycle cost, need for additional slope (drainage), warranties and cost. In practice no single commercial product contains all ideal properties. Thus, the designer should choose materials whose properties are best suited to the specific project.

## III. Thermal Values

Roof board insulation materials are often rated and described in manufacturers' literature to show heat transfer or resistance to heat flow. These properties are stated in terms of Thermal Conductance(k), Thermal Conductivity (C), Thermal Resistance (R) or Overall Coefficient of Thermal Transmission (U) for a complete ceiling - substrate - roofing membrane construction. An explanation and use of these terms can be found in The NRCA Roofing and Waterproofing Manual and The NRCA Energy Manual. Both publications may be purchased from the National Roofing Contractors Association.

## IV. Material Standards

Several material standards have been developed for insulation board materials. These standards define a variety of physical properties which are not included in the Guide product listings. For current information on these standards, or other technical data, write the manufacturer, American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103 or the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402.

## V. Material (Product) Descriptions

### A. Expanded Polystyrene (EPS)

Expanded (molded) EPS board is formed from a plastic (polystyrene) polymer supplied by several companies to many regional converters. The process includes molding into blocks, processing into sheets and applying (optional) facer materials.

The converted materials generally conforms to material specifications published by the Society of Plastic Industries (SPI). Some of these specifications with other calculated data, are shown in the following EPS Material Data Sheet, and may be used in conjunction with the individual product listings shown in the EPS section.

The following "Usage Notes" for expanded EPS material is reprinted from the Society of the Plastics Industry (SPI) "Roofing Design Ideas" brochure:

"Flammability.
Like many construction materials, EPS is combustible. It should not be exposed to flame or other ignition sources. Current model building code requirements should be met for adequate protection or separation from occupied areas.

"Solvent attack.
EPS is subject to attack by petroleum-based solvents and coal tar products. Care should be taken to prevent contact between EPS, these materials and their vapors.

"Ultraviolet degradation.
Prolonged exposure to sunlight will cause a slight discoloration and surface dusting of EPS insulation. Though the insulating properties will not be significantly affected unless exposure is so excessive that thickness is lost. EPS should be covered to prevent ultraviolet degradation if it is to be stored in the open for extended periods.

"Installation exposure
Following each day of application, all exposed roof insulation should be covered and temporarily sealed from moisture in accordance with good roofing practices. Insulation exposed to moisture should be replaced or thoroughly dried prior to application of roofing.

"Application temperatures.
In roof construction requiring hot asphalt, temperatures should not exceed 250 degrees F. at the time of direct application to insulation. Avoid contact between EPS and high temperature equipment, such as asphalt kettles and flame sealers.

"Vapor retarders.
Each roofing application should be studied to determine the need for a vapor retarder to control internal condensation. Some of the factors to be considered are geographic location, occupancy, humidity conditions, type of deck and ceiling, venting, and environmental control systems."

B. Extruded Polystyrene

Extruded polystyrene board is formed from a plastic (polystyrene) polymer. Closed cells are integrally formed within the insulation materials during the expansion process. The continuous extrusion process 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 the manufacturing process.

C. 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 the built-up roof system may be applied.

Glass fiber roof insulation will vent moisture vapor through the insulation boards. In the event of damage to the built-up roof, moisture vapor can be vented and free water can be pumped out of the roof system, thereby eliminating the need to remove the insulation should it become wet. Once the roof insulation has dried, its original thermal value is restored.

D. 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 blocks that provide drainage slope for roof decks.

E. Phenolic

Phenolic foam insulation board is a closed cell, rigid, thermo setting phenolic foam core material manufactured in various thicknesses. The current most popular product is a phenolic foam core of approximately 3.0 lbs/cubic ft density and is laminated to a corrrugated kraft foil laminate on the top surface and a felt bottom surface.

F. Fiberboard

Fiberboard insulation is a preformed, rigid, fibrous-felted homogeneous panel, composed principally of wood or cane fibers integrally treated with waterproofing binders.

G. Perlite

Perlitic roof board insulation is a rigid insulating material manufactured from expanded volcanic minerals combined with organic fibers and waterproofing binders. The top surface of perlitic roof insulation is generally treated to minimize bitumen absorption and to provide an intimate bond with built-up roofing materials.

H. Polyurethane

Polyurethane foam board insulation is produced from a urethane chemical base. It is manufactured in the form of rigid boards or cut bun stock. The polyurethane material is often sandwiched between asphalt saturated organic or inorganic felt facer sheets.

I. Polyisocyanurate

Polyisocyanurate foam board insulation is produced from a polyisocyanurate based chemical. The polyisocyanurate material is usually sandwiched .pa between asphalt saturated organic or inorganic felt facers sheets. Glass fiber reinforcement used in some foam cores provides additional fire resistance and greater dimensional stability.

The trade name roof board insulations listed in the Guide typically show (C), (R) thermal values and weight per square foot for various thicknesses and densities.

A summary of (C), (R) thermal values and weight per sqaure foot information is shown below. This data was calculated by averaging the values shown for the individual materials.

Additional data on plywood and gypsum board is extracted from "ASHRAE Handbook, 1981 Fundamentals."

| | Density lbs/ Cu ft | Thickness in inches | Thermal Values C @40 | C @75 | R @40 | R @75 | Wts lbs/ sq ft |
|---|---|---|---|---|---|---|---|
| Extruded Polystyrene | 1.4 | 1 | .18 | .20 | 5.55 | 5.0 | .15 |
| | | 1.5 | .14 | .145 | 7.29 | 6.99 | .225 |
| | | 2 | .105 | .11 | 9.72 | 9.25 | .30 |
| | | 3 | .074 | .071 | 14.01 | 14.05 | .45 |
| Extruded Polystyrene | 1.8 - | 1 | .182 | .20 | 5.46 | 5.0 | .148 |
| | | 1.5 | .129 | .140 | 7.79 | 7.20 | .223 |
| | | 2.0 | .097 | .105 | 10.35 | 9.55 | .298 |
| | | 3 | .067 | .069 | 15.09 | 14.39 | .373 |
| Extruded Polystyrene | 2.4 | 1.5 | .146 | .132 | 8.17 | 7.55 | .287 |
| | | 2 | .092 | .100 | 10.85 | 10.00 | .383 |
| | | 3 | .061 | .066 | 16.21 | 15.0 | .575 |
| Glass Fiber/ Mineral Fiber | | 3/4 | | .36 | | 2.78 | .98 |
| | | 1 1/16 | | .24 | | 4.17 | 1.06 |
| | | 1 5/8 | | .15 | | 6.67 | 1.45 |
| | | 2 7/16 | | .10 | | 10.00 | 1.95 |
| | | 3.0 | | .08 | | 12.50 | 2.31 |
| Cellular | 8.5 | 1.5 | .216 | .233 | 4.63 | 4.29 | 1.1 |
| | | 2.0 | .162 | .175 | 6.17 | 5.71 | 1.4 |
| | | 2.5 | .130 | .140 | 7.69 | 7.14 | 1.75 |
| | | 3.0 | .108 | .117 | 9.26 | 8.55 | 2.1 |
| | | 4.0 | .081 | .088 | 12.35 | 11.36 | 2.8 |
| Phenolic | 2.5 | 1.2 | | .10 | | 10.00 | NR |
| | | 1.5 | | .080 | | 12.50 | NR |
| | | 2.0 | | .060 | | 16.67 | NR |
| | | 3.0 | | .040 | | 25.00 | NR |
| Fiberboard | | 1/2 | | .72 | | 1.39 | .63 |
| | | 3/4 | | .48 | | 2.08 | 1.01 |
| | | 1 | | .36 | | 2.78 | 1.32 |
| | | 1.5 | | .24 | | 4.17 | 2.12 |
| | | 2 | | .19 | | 5.26 | NR |
| Perlite | | 3/4 | .43 | .48 | 2.33 | 2.08 | NR |
| | | 1.0 | .32 | .36 | 3.13 | 2.78 | .90 |
| | | 1.5 | .22 | .24 | 4.55 | 4.17 | 1.35 |
| | | 2.0 | .16 | .18 | 6.25 | 5.56 | 1.80 |
| | | 3.0 | .11 | .12 | 9.09 | 8.33 | 2.55 |
| Polyurethane | 2.0 | 1.0 | | .142 | | 7.03 | .223 |
| | | 1.5 | | .095 | | 10.50 | .300 |
| | | 2.0 | | .069 | | 14.39 | .380 |
| | | 3.0 | | .047 | | 21.60 | .560 |
| Polyisocyanurate | 2.0 | 1 | .14 | .147 | 7.14 | 6.86 | .216 |
| | | 1.5 | | .093 | | 10.62 | .310 |
| | | 2.0 | .07 | .072 | 14.29 | 13.89 | .403 |
| | | 2.5 | .05 | .057 | 20.0 | 17.39 | .484 |
| | | 3.0 | .043 | .047 | 22.22 | 20.92 | .577 |
| Gypsum or Plaster Board | 50 | .375 | | 3.10 | | .32 | |
| | | .5 | | 2.22 | | .45 | |
| | | .625 | | 1.78 | | .56 | |
| Plywood | 34 | .25 | | 3.20 | | .31 | |
| | | .375 | | 2.13 | | .47 | |
| | | .5 | | 1.60 | | .62 | |
| | | .625 | | 1.29 | | .77 | |

NR=Not Reported

# INFORMATION ABOUT THE GUIDE

GENERAL

The Commercial, Industrial and Institutional Roofing Materials Guide is published as a service to the roofing industry. The Guide is a comprehensive report containing technical data and other pertinent information on roofing and waterproofing products and information on the manufacturers and suppliers of these products.

An objective of the Guide is to provide information on those product features which will prove helpful to the user in determining generic products which will meet his needs and the listing of other data which will assist the user in choosing specific products. This information is of particular value to those associated with the design, specification, application and use of commercial roofing systems.

The range of information included in the Guide is extensive and includes facts relating to product usage, warranties, company background, etc. plus technical data relating to material properties.

The Commercial, Industrial, and Institutional Roofing Materials Guide program is a voluntary program and all manufacturers and suppliers of membrane and insulation board materials may participate by submitting information on their company and on their products in accordance with the procedures developed for this purpose. For full details write: National Roofing Contractors Association, 8600 Bryn Mawr Avenue, Chicago IL 60631.

The information contained in the Guide is a recording of data presented by manufacturers and suppliers through report forms provided by NRCA for this purpose. Only information submitted in accordance with these forms has been included in the Guide.

NRCA has exercised due care in accurately recording the data as supplied by manufacturers and suppliers, but has not audited the test procedures used to secure the reported data and is not responsible for the accuracy or completeness of information as submitted.

NOTE: The listing (or non-listing) of a product (or manufacturer or supplier) in the Guide does not imply that NRCA approves the products nor recommends the use or non-use of any specific materials.

The fact that a material listed herein does or does not meet all of the values of the referenced standards, specifications, recommendations or criteria does not necessarily imply that it will or will not produce an acceptable roofing membrane.

NRCA does not develop standards but works toward and supports the improvement of existing standards and development of new standards by other consensus standards development organizations. As these new standards become available, the Commercial, Industrial and Institutional Roofing Materials Guide will be updated to keep abreast of these state-of-the-art roofing standards activities by including the new standards and, where appropriate, replacing old ones.

For listing purposes it is not mandatory that "test results" be provided for each of the test methods specified in a referenced standard, however, manufacturers and suppliers are encouraged to supply complete "test results" so that the users of the Guide may have access to this information. Succeeding issues of the Guide will permit the inclusion of additional test results as they are reported.

RESTRICTED REGIONS

When a "Restricted Region" is indicated, refer to manufacturer's printed literature to determine geographic region boundries.

WARRANTY

The manufacturer's printed literature should be referenced to determine the exact terms, limitations, conditions, exclusions and remedies offered under the material/installation warranty.

UL & FM

UL fire resistance and FM wind resistance ratings are awarded on the basis of test conducted on complete roofing assemblies, of which, the membrane is one component. UL Ratings and FM Approvals for specific membrane products, which have been tested in prescribed assemblies, may be determined by referencing of "UL Fire Resistance Directory" and the "FM Approval Guide."

Building codes often specify UL/FM performance ratings to which the roofing and waterproofing assemby must conform. Compliance of proposed assemblies of these specific ratings may be determined by referencing the documents referred to above.

Because of the limited space available in this publication it is impossible to list the specific roofing assembly components and attachment methods which have been utilized to secure UL or FM ratings. Therefore, all references as to whether a listed BUR specification or single-ply membrane has been awarded a UL or FM rating have been excluded from the Guide. This exclusion is to avoid the erroneous implication to the reader that such ratings are applicable for a material without regard to other components of the roofing assembly or the method of attachment. Refer to the "UL Fire Resistance Directory" and the "FM Approval Guide" to determine ratings which have been awarded for materials listed in the Guide.

MEMBRANES

For multi-ply bituminous membrane products, the referenced document is the National Bureau of Standards, Building Science Series #55 Preliminary Performace Criteria for Bituminous Membrane Roofing - and includes performance parameters for tensile strength, thermal movement and thermal shock.

The basis for "test-results" relating to single-ply membrane products are material specification related documents which are the only consensus standards available in North America which cover a majority of single-ply materials now being marketed in the United States. These documents are:

1. Canadian General Standards Board, 37-GP-56M for Modified Bituminous Membranes, July 1980.

2. The RMA Roofing Council, Minimum Requirements for Non-Reinforced Black EPDM Rubber Sheets for Use in Roofing Applications, IPR-1, 1985.

3. The RMA Roofing Council, Minimum Requirements for Fabric-Reinforced Black EPDM Rubber Sheets for Use in Roofing Applications, IPR-2, 1985.

4. The RMA Roofing Council, Minimum Requirements for Fabric-Reinforced Black Polychloroprene Rubber Sheets for Use in Roofing Applications, IPR-3, 1985.

To provide a basis for listing sheet applied single-ply products which are not described in the above documents, a list of 18 optional tests are offered as a basis for listing these types of materials.

ROOF BOARD INSULATION

Listings of roof board insulation manufacturers and converters and the brand name products they supply are organized as follows:

1. Homogeneous Insulating Boards

Any prefabricated roof insulation board product which has 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, kraft paper, etc.

Generic Classes

A. Expanded Polystyrene
B. Extruded Polystyrene
C. Glass Fiber
D. Cellular Glass
E. Phenolic
F. Fiberboard
G. Perlite
H. Polyurethane
I. Polyisocyanurate
J. Other Homogeneous Materials

2. Composite Insulating Boards

Any prefabricated roof board insulation product which consists of multiple (more than one) layers of insulation(s) and/or a variety of other board materials (typically perlite, fiberboard, plywood, gypsum board, etc) to 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, kraft paper, etc.

PUBLICATION SCHEDULE

The Guide publication schedule is as follows:

| Publication Month | Closing Date |
|---|---|
| February 1986 | December 10, 1985 |
| August 1986 | June 13, 1986 |

SUBSCRIPTION INFORMATION

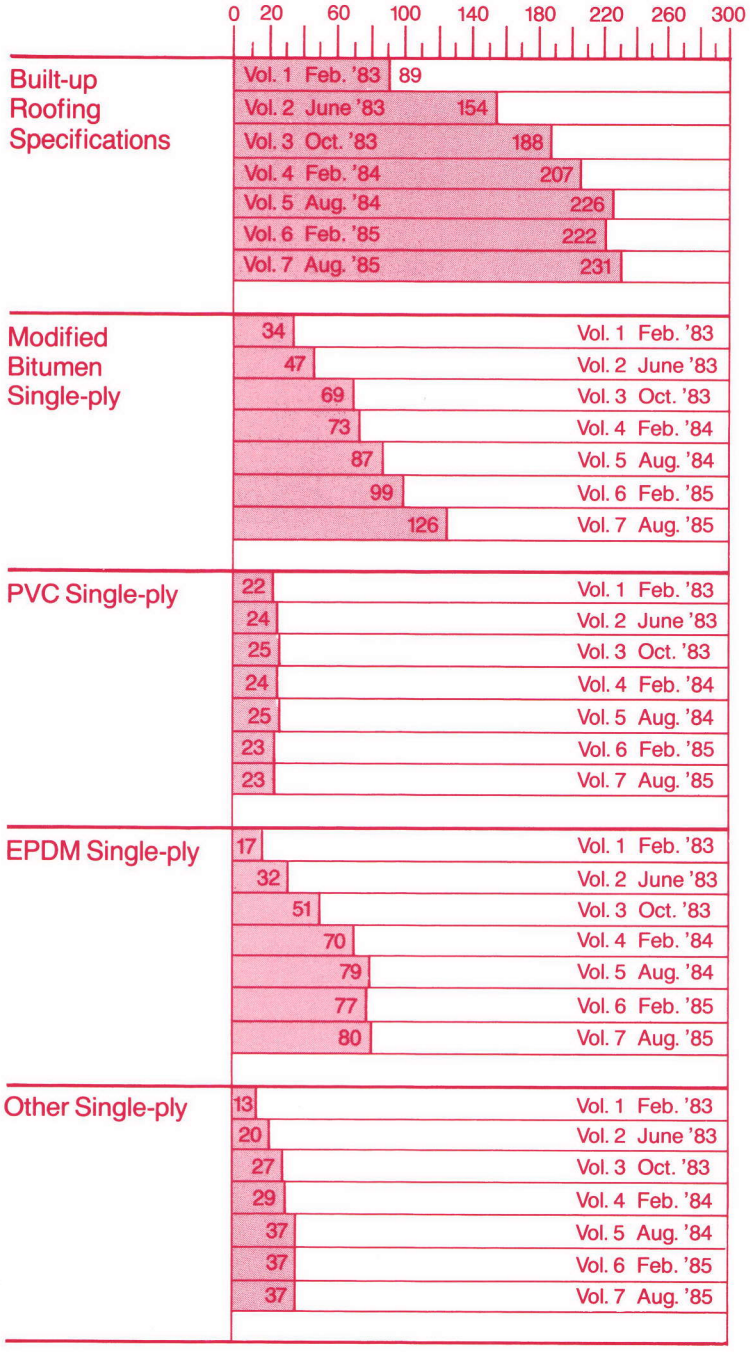
The Guide is sold on an annual subscription basis (2 issues) at the following rates: NRCA Members, $55.00 per year; Non-Members, $85.00 per year. Multiple subscription rates are available on request.

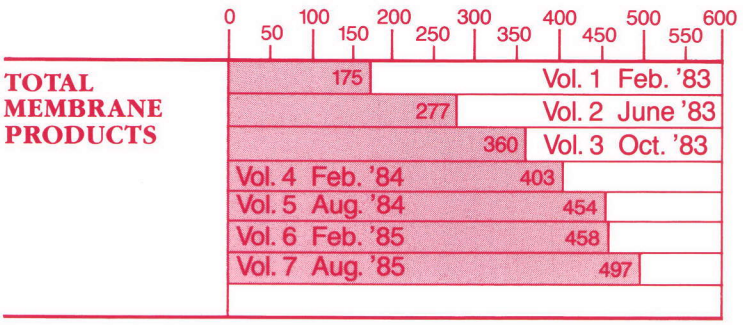
Mail all subscriptions and inquiries to National Roofing Contractors Association, 8600 Bryn Mawr Avenue, Chicago, Illinois 60631.

# BUILT-UP ROOFING SPECIFICATIONS, SINGLE-PLY ROOFING MEMBRANES AND ROOF BOARD INSULATION PRODUCTS MARKETED IN THE UNITED STATES

## as reported in the Commercial, Industrial and Institutional Roofing Materials GUIDE

### MEMBRANES




### ROOF BOARD INSULATION

| | Volume 5 Aug. '84 | Volume 6 Feb. '85 | Volume 7 Aug. '85 |
|---|---|---|---|
| Expanded Polystyrene | 38 | 38 | 53 |
| Extruded Polystyrene | 14 | 16 | 21 |
| Glass Fiber/ Mineral Fiber | 1 | 1 | 1 |
| Cellular Glass | 1 | 1 | 1 |
| Phenolic | 1 | 1 | 2 |
| Fiberboard | 3 | 3 | 4 |
| Perlite | 6 | 6 | 6 |
| Polyurethane | 7 | 4 | 1 |
| Polyisocyanurate | 27 | 32 | 35 |
| Composite | 52 | 53 | 67 |
| Total | 150 | 155 | 191 |

NATIONAL ROOFING CONTRACTORS ASSOCIATION