Standards for polymer-modified bitumen sheet products

by **Mark S. Graham**

Although polymer-modified bitumen membrane sheets have been used in the United States for more than 20 years, the development of industry-recognized standards for the testing and material specification of these products has been slow. Recently, however, several new, consensus-based material standards were published by the American Society for Testing and Materials (ASTM) that provide roofing professionals with recognized minimum physical properties for polymer-modified bitumen sheet products. These standards will assist roofing professionals in classifying and differentiating among these products.



Test methods

In 1991, ASTM published ASTM D 5147, "Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material." This standard includes test methods for material thickness, load-strain properties, tear strength, moisture content, water absorption, dimensional stability, low-temperature flexibility, heat condition, accelerated weathering, granule embedment, compound stability and coating thickness.

The various tests included in this standard are used to establish the physical properties that provide the bases for the newly published material standards.

SBS material standards

Three material standards now apply to SBS-modified bituminous sheets:

- ASTM D 6162, "Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements."
- ASTM D 6163, "Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements."
- ASTM D 6164, "Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements."

Within each of these standards, Type I and Type II classifications differentiate among products covered by the same standard. As they relate to these material standards, Type II products have higher net mass, maximum load, elongation and tear strength properties than Type I products.

Each standard further differentiates between mineral-granule-surfaced and smooth-surfaced sheet products. A mineral-granule-surfaced sheet is designated Grade G, and a smooth-surfaced sheet is designated Grade S.

APP material standards

Two material standard specifications now apply to APP-modified bituminous sheets:

- ASTM D 6222, "Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements."
- ASTM D 6223, "Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements."

Similar to the SBS material standards, the APP standards are differentiated further with Type I, Type II, Grade S and Grade G classifications.

Package labeling

In addition to complying with the minimum physical property requirements set forth, to comply with these new ASTM standards, material suppliers must provide specific labeling on their product packaging. Unless otherwise agreed upon by the material supplier and purchaser, each product's package should be marked with the supplier's (i.e., manufacturer's) name; product brand; ASTM designation, including type and grade; net coverage area; and, if not evident in the product's label name, bitumen type.

For example, if a particular polymer-modified bitumen sheet roofing product is labeled as complying with ASTM D 6164, Type II, Grade G, roofing professionals can determine that the product is a mineral-granule-surfaced, SBS-modified sheet with polyester reinforcement and has relatively high net mass, maximum load, elongation and tear strength properties.

Implementation

Polymer-modified bitumen sheet manufacturers are encouraged to make their manufacturing processes, package labeling, product literature and marketing efforts comply with these new ASTM material standards. Because a number of products currently on the market were used in the testing program to develop the new standards, several available products comply with the new material standard.

Roof designers and contractors are urged to seek out and use polymer-modified bitumen sheet products that comply with applicable ASTM material standards. If compliance cannot be determined from package labeling, roof designers and contractors should contact the product supplier for specific compliance information. PR

Editor's note: *Those interested in obtaining the ASTM standards referenced in this article should call ASTM at (610) 832-9585 or access its Web site at www.astm.org.*

Mark S. Graham is NRCA's associate executive director of technical services.