



technical bulletin

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Self-Adhesive (SA) Modified Bituminous Roofing Membranes

Self-adhesive membranes combine the performance of proven modified bituminous waterproofing compounds with a self-adhesive bituminous layer for ease of application. Modified bituminous roof membranes are a popular option for low-sloped roofs due to their proven long term performance. Historically these products have been torch-applied, mop-applied using hot asphalt (SBS only), or applied with solvent-based adhesives. All of these conventional application methods result in excellent finished roof systems. There are occasions, where codes and regulations, or customer preferences may influence installation methods and self-adhesive membranes provide a solution.

Self-adhesive membranes are constructed in a similar fashion to traditional modified bituminous materials. Self-adhesive compounds comprise asphalt, polymers and filler; additionally certain resins and oils may be added to improve adhesion characteristics. The membranes are reinforced with fiberglass, polyester, or a combination of the two. Products designed for exposure to the elements are typically surfaced with mineral granules or other opaque surfacing. The self-adhesive layer is protected with a release film or paper, which is removed during installation of the membrane. These membranes are manufactured either by using the same modified bituminous compound above and below the reinforcement, or by using an APP or SBS modified bituminous compound above the reinforcement and a bituminous self-adhesive compound below the reinforcement. Safe and fast application, environmental friendliness, and use of highly engineered polymer-modified asphalts, are among the numerous advantages of self-adhesive membranes.

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There is an ASTM International standard written specifically to address self-adhesive membranes installed beneath exposed roofing materials (widely used as ice dam protection at eaves). This standard is ASTM D1970, "Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection". Work is in progress to develop new standards to address APP and SBS based self-adhesive membranes used in both steep-slope and low-slope applications. Further, the International Code Council (ICC-ES) has taken steps to revise existing acceptance criteria for roof membranes (AC-75) to include self-adhesive materials.

Manufacturers' application recommendations must be consulted before specifying or installing a particular product, but some general considerations related to the application of self-adhesive membranes include the following:

- Self-adhesive membranes are generally packaged and stored in cardboard boxes or are protected with opaque wrapping. Unprotected self-adhesive products should not be stored in direct sunlight since exposure to ultraviolet (UV) rays may affect the adhesive properties, especially on the outer convolutions of the roll. Extreme storage time and conditions can alter the tack properties of the SA bitumen blend. Consult the membrane manufacturer if the SA bitumen is not tacky to the touch.
- Roof must have adequate slope and drainage.
- When used over decks with attic spaces, ensure that the installation of the self-adhesive membrane does not prevent or interfere with the ventilation of the existing construction. Typically these materials form a vapor retarder, and if applied over warm attic spaces, adequate and thorough ventilation is needed to prevent condensation.
- The following information varies significantly by manufacturer. Individual suppliers should be consulted for specific recommendations.
- At the time of installation, the air, product, and substrate temperatures should be at or above the minimum application temperature recommended by the manufacturer. While the typical minimum temperature range for application is 40-50°F, consult the specific manufacturer for recommendations for material storage and handling during colder weather application.
- The substrate must be free of any dust, dirt, oils, moisture or debris that could interfere with proper adhesion. Often the roof surface must be primed prior to membrane application - check with the manufacturer regarding requirements for primer type, application rate, and drying time as primer technology for SA sheets continues to evolve.
- Self adhesive membranes should only be applied to an acceptable substrate; consult the specific manufacturer for acceptable substrates.

Unlike other installation methods for modified bitumen membranes, there is no liquid bituminous layer to fill all the surface irregularities. Consequently, proper application is essential, especially at all overlaps and T-joints. End laps on the mineral-surfaced SA sheets may need to be heat welded or sealed with compatible roofing mastics as specified.
