

THE BENEFITS OF SELF-ADHERED MODIFIED BITUMEN MEMBRANES

BY NATHANIEL MARTIN

Photo 1 — A redundant self-adhered SBS roofing system.

With increased pressure on the design community to tackle tough challenges while maintaining increasingly tighter budgets, self-adhered modified bitumen membranes continue to be a very robust option for many projects where there is a desire to use a redundant roofing system (Photo 1). Whether it be to limit the impact on building occupants, to quickly dry in an area, to roof in areas that have limited access, and/or to ease owners' concerns over the use of torches, self-adhering membranes can provide significant benefits. However, there are certain application challenges to these membranes that cannot be overlooked.

When self-adhered membranes first started to gain momentum earlier this decade, their main selling point was to accommodate owners who wanted a redundant modified bitumen system but were concerned with the odors released due to the use of hot asphalt. This remains a strong advantage today and is especially popular with hospitals and schools that require new roofs be installed while the building is occupied, with their primary concern being the well-being of the occupants. Self-adhered membranes not only meet the requirement of zero fume tolerance by removing the use of adhesives and hot asphalt but also help to limit construction noise by removing the need for heavy equipment

during installation. By meeting these requirements, self-adhered membranes have helped schools remove construction distractions and hospitals remove sources of concern for patient recovery.

In addition to limiting impacts on building occupants, self-adhered membranes can also offer designers a unique option for quickly making a roof watertight. The needs for this option are numerous and include construction delays caused by other trades, roof traffic during completion of the project, unexpected weather, and so forth (Photo 2). Because self-adhered membranes can be installed quickly and relatively inexpensively,

they offer an excellent solution for getting a project "in the dry" while providing a suitable substrate for applying the rest of the roofing system once these concerns have passed. This advantage can offer schedule flexibility to both designers and contractors.



Photo 3 — Self-adhered membranes can easily be used in tight spaces.

Photo 2 — Self-adhered membranes can be installed quickly to keep a building dry.



Photo 4 — Self-adhered base flashing for use under a heat-welded membrane.

Another advantage of self-adhered membranes is their ability to be used in areas that are inaccessible for other application methods (*Photo 3*). Without the need for hot asphalt kettles, cold-adhesive spray equipment, or an open flame, self-adhered membranes require very little equipment beyond a weighted roller and a good knife. This makes them ideal for projects with several small roof areas, for those with hard-to-access sections, or for projects that are sensitive to the use of torches but are several stories in elevation. This aspect adds flexibility for designers working with owners who want a modified bitumen roof system but have a roof with limited or restrictive access.


Finally, self-adhered membranes—specifically self-adhered base sheets—can help to ease owners' concerns about heat-welded membranes. Heat-welded membranes provide excellent immediate adhesion, but many owners worry about the use of an open flame on their buildings. By first installing a layer of a self-adhered base sheet over the substrate (insulation for example), a roofing contractor can prevent the flame from reaching the interior air spaces of the building (*Photo 4*). This application has become a popular route for many designers who prefer the bond of the heat-welded cap sheet but are hesitant to offer heat-welded specifications to owners because of the fire risk. This style of application can also ease some owners' concern with the adhesion of a self-adhered mem-

brane because the use of the heat-welded cap sheet provides additional heat to further bond the self-adhered membrane to the substrate. Combining these two application methods provides a roofing assembly that has the bond strength of a heat-welded assembly but the flexibility and quick dry-in characteristics of the self-adhered membrane.

Although the benefits described above can certainly improve the flexibility of many projects, it should be noted that these membranes *do* have two main drawbacks. The first limitation is application temperature. Self-adhered modified bitumen membranes require additional heat, typically in the form of UV radiation, to reach their full bond potential. The humidity and temperature conditions of

a jobsite can have an enormous impact on the capacity of the membrane to bond to the substrate. Most manufacturers recommend the temperature be at least 55°F and for the day to be somewhat sunny. The intent is for the roll temperature to be at least 55°F, so the substrate conditions must be considered as well as the external temperature. This limitation can effectively limit the installation of self-adhered modified membranes to between April and September in most climate zones.

Another potential limitation to self-adhered modified bitumen membranes is the skill of the contractor (*Photo 5*). Contractors who are unfamiliar with self-adhered membranes will often struggle with the products when encountering them for the first time. Application of these membranes can be unforgiving and can often lead to false positives when bonded. Manufacturer guidelines should be followed at all times, and it should be understood that the bond of self-adhered membranes will not be at full strength immediately but will take some time and heat to get to its full bond strength.

The advantages of self-adhered modified bitumen membranes go beyond their odor-free application. This family of membranes can add schedule and application flexibility for a designer and can help provide unique solutions to many roof design challenges while providing the redundant roofing systems that many long-term owners prefer. However, the external temperature at the time of application and prior experience of the installing contractor with self-adhered membranes are critical to a successful application. 

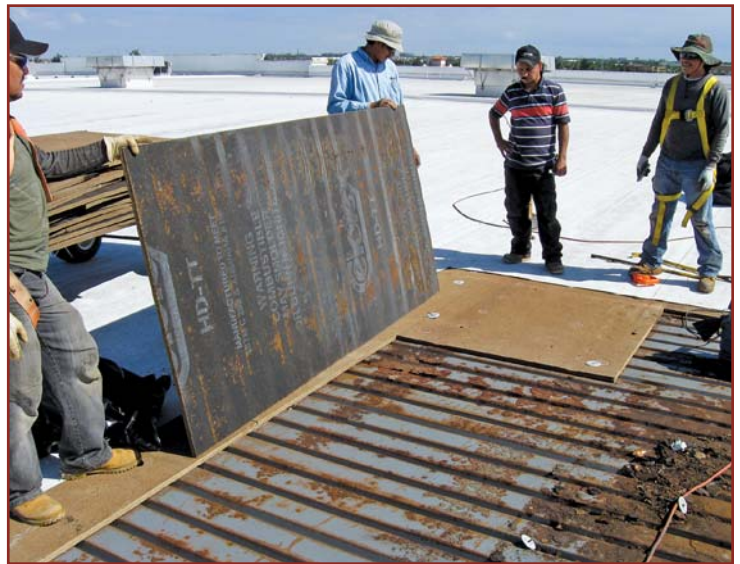


Photo 5 — The skill of the installing contractor is critical.

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