



technical bulletin

**Asphalt Roofing
Manufacturers Association**

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Cold Weather Application Recommendations for Modified Bitumen Roofing



Introduction

The application of all roofing systems during cold weather poses special concerns. These concerns may include: maintaining proper bitumen temperatures at the point of application, the ability of adhesives to cure effectively, and the stiffening of materials. By following proper cold weather procedures and exercising the recommended precautions, application can progress more efficiently, and a higher quality result will be obtained.

Recognizing the difficulties associated with cold weather modified bitumen roofing application, the Modified Bitumen Committee of the Asphalt Roofing Manufacturers Association (ARMA) has prepared this technical bulletin.

Storage and Handling Recommendations

Keep All Materials Dry and Clean:

Materials must be delivered dry and stored in a manner that assures they remain dry for proper application. Wet or damp roofing materials should never be used in the construction of a roof assembly. It is recommended that, whenever possible, roofing materials be delivered to the job-site just prior to roof installation .

Roof insulation materials shall be kept dry and handled with care. When materials are stored outside, they shall be placed on pallets that are raised off the ground or roof deck, and they shall be covered with breathable waterproof coverings (such as canvas) that have been properly secured over the roofing material. Some insulation materials are extremely light and must be weighted in storage to prevent wind damage.

All roll materials shall be stored on end to prevent their becoming deformed or damaged. Roll material should never be double stacked.

Storage of materials in high piles on the roof should be avoided. High stockpiles can cause deck deflection, and thereby allow for snow build-up to occur. Snow build-up will add to the live load on the deck, and will make it difficult to keep materials dry and ready for use.

Roofing asphalts should be protected from the weather. Moisture, dirt, snow, and ice must be removed from roofing asphalts before they are heated.

Storage without adequate protection against the elements can result in moisture being built into the roofing system. Eventually, this could lead to roof defects or roof failures. All surfaces, to which the roof membrane is to be applied, must be dry, firm, smooth, and free of dirt and loose material.

Note: These recommendations were prepared by and have the approval of the Asphalt Roofing Manufacturers Association for informational purposes only. They are not intended to revoke or change the requirements or specifications of the individual roofing material manufacturers or local, state and federal building officials that have jurisdiction in your area. Any question, or inquiry, as to the requirements, or specifications of a manufacturer, should be directed to the roofing manufacturer concerned.

Protect Materials From Cold Temperatures:

Modified bitumen rolls, base sheets and asphalts become less flexible at low temperatures. Therefore, in cold weather, it is essential to use the proper technique when handling these roofing materials. Unsound procedures can lead to material damage and other problems.

When roof systems are installed in temperatures below 50°F, material should be stored in a dry, heated area. All rolls should be maintained at a minimum temperature of 50°F prior to application. This will allow the modified asphalt to remain flexible and will help prevent cracking during roll out. Cold-weather wrinkling will be avoided as well.

Acceptable weather conditions are based not only on the actual ambient temperature, but also on the total combination of nature's elements (e.g., wind chill factor, humidity, etc.). Careful planning of work during cold weather can greatly improve the quality of the installation. Devoting the time to lay out the roof area and to place materials where they will be needed, prior to the application, will minimize the problems associated with cold weather application.

During cold weather:

- Store rolls on end in a warm and dry location prior to, and up until the point of application.
- Unroll and cut the roll materials to a maximum of 18' lengths to allow for relaxation before application.
- Cut out and remove any damaged areas prior to application.
- Never throw or drop rolls of material.
- Water based cements and/or coating materials should be protected to prevent freezing.

These application procedures will minimize the occurrence of wrinkles and buckles.

Application Recommendations

Use The Right Materials

Where different grades of materials are specified for summer or winter use, the grade specified for cold (or winter) weather should be used.

Complete Each Roof Section Daily

Application should be scheduled so that there are no partially completed portions of the roof left exposed. As the work progresses on a day-to-day basis, it is essential that each section of the roof be completed as specified. Additionally, water cutoffs should be provided at exposed edges at the close of each day. Water cutoffs shall be removed prior to resuming construction of the roof assembly.

Torch Applied Products

During membrane application, the substrate should also be heated with the torch. By warming the substrate before the molten bitumen is rolled into place, the adhesion of the membrane to the substrate is enhanced. This is especially important for the lap area, which should be given special attention.

Hot Asphalt Applied Products

At the point of application of the modified bitumen, the mopping asphalt should be applied at its equiviscous temperature (EVT) or a minimum of 400°F — whichever is higher. High asphalt temperatures are essential for adequate adhesion of SBS modified membranes. It is important for the applicator to be aware of the extremely fast cooling rate of the liquid asphalt that has been applied to a roofing substrate. Components of the roofing system must be installed rapidly and close to the mop. Be sure that these components are well embedded. Mop strokes should not exceed the manufacturer's recommended instructions. Failure to follow proper application techniques will result in poor membrane adhesion. (*Refer to NBS 167 for Guidelines on the Cooling of Hot Asphalt.)

Warning: To compensate for the rapid cooling caused by cold weather, it is important to keep bitumen in its EVT range specified by its rating or a minimum of 400°F, but in no case should its maximum temperature limit exceed the bitumen's flash point!!

Proper insulation of all bitumen handling equipment is required to keep bitumen hot in cold weather. Insulation of the equipment is equally vital for fuel conservation and savings in make-ready time. The use of insulated tank trucks and rooftop equipment for transporting bitumen, such as hot luggers and mop buckets, is recommended. Bitumen lines from the kettle to the roof should also be insulated. This is especially important when bitumen is being transported over long distances.
