

Cold Weather Application Recommendations for Modified Bitumen Roofing

Revised April 2024

Introduction

The application of any roofing system during cold weather poses special challenges. Specific to modified bitumen materials, these challenges can include maintaining proper sheet material, adhesive, and asphalt temperatures at the point of application. Cold temperatures may stiffen sheet materials, reduce the curing or flash-off rate of adhesives, diminish the effective bonding of self-adhesive materials, and cause mopping asphalts to cool prematurely. By following proper procedures and exercising recommended precautions, cold weather application can progress more efficiently and effectively, yielding a high quality result.

Protect Materials Prior to Application

Protecting all roofing materials from the weather is important regardless of conditions, but extra precaution should be exercised in cold weather. Storage of roofing materials without adequate protection may affect the quality of the materials, and could also result in moisture being incorporated into the roof system. Therefore, it is essential to use proper techniques when storing and handling these roofing materials.

Modified bitumen roll goods, base sheets, and other materials become less flexible at lower temperatures. When roof systems are installed at ambient temperatures below 50°F (10°C), for best results it is recommended that all materials should be stored in a dry, heated area for a minimum of 24 hours prior to installation. This allows the modified bitumen to remain flexible during roll out.

All adhesives and primers should be stored in accordance with the manufacturer's guidelines until just prior to use. Water-based cements and/or coating materials must be protected to prevent freezing. Remove moisture, dirt, snow, and ice from roofing asphalts before they are heated; failure to do so can lead to dangerous frothing inside hot kettles.

Plan Carefully

Acceptable weather conditions are based not only on the actual ambient temperature, but also the total combination of nature's elements (e.g. wind, humidity, dew point temperature, sun, cloud cover, shade, snow, sleet, etc.). Careful planning of work during cold weather can greatly improve the quality of the installation. Laying out the roof area and placing materials where they will be needed just prior to application will minimize problems associated with cold weather application.

Surface Preparation

As with any climatic condition, all surfaces to which any roofing materials will be applied must be dry,

Asphalt. The Roofing Solution.®

2331 Rock Spring Road · Forest Hill, MD 21050 · www.asphaltroofing.org

A member service provided by the Asphalt Roofing Manufacturers Association

smooth, and free of dirt and loose material.

Application Recommendations

For all cold weather applications, follow the manufacturer's installation instructions as they pertain to cold weather application and temperature limitations. Never throw or drop rolls of material. Should wrinkling of roll goods occur during installation, unroll and cut the material, typically in lengths of halves or thirds, and allow the cut pieces to relax before application. The time needed to relax may vary depending on the ambient conditions, product type, and/or material thickness.

Use the Right Materials

If different grades of materials are available for cold weather application, refer to the manufacturer's written instructions for guidance on proper product selection.

Complete Each Roof Section Daily as Specified

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

Torch Application

During membrane application, follow the manufacturer's recommended torching practice, and industry torch application safety guidelines (e.g., Certified Roofing Torch Applicator – CERTA). Proper heating technique is required for proper adhesion of the membrane. The end and side lap areas should be given special attention, as these are the primary waterproofing junctures of the membrane.

Cold Adhesives

Cold adhesives may be utilized when installing modified bitumen systems in cold weather. Such adhesives can be utilized for all layers of modified bitumen roof membrane construction. They may contain asphalt modifiers and can be applied by squeegee, roller, brush, or spray equipment. All adhesives should be stored at a minimum temperature of 50°F (10°C), and for better results not less than 70°F (21°C). Follow the manufacturer's instructions for storage, use, and application. Cold adhesives become more viscous at lower temperatures, which may affect the application rates. If the coverage rate exceeds the manufacturer's installation instructions, reevaluate one of the following: the application method, the storage of the product, or the condition of the product.

Self-Adhesive Products

At the time of installation, the air, product, and substrate temperatures should be at or above the minimum application temperature specified by the manufacturer. While the typical minimum temperature range for application is 40-50°F (4-10°C), consult the specific manufacturer for recommendations for material storage and handling during colder weather application. Some manufacturers offer different grades of self-adhesive products, or unique primers, based on their minimum application temperature requirements.

Hot Asphalt Applied Products

At the point of contact with the modified bitumen sheet material, the mopping asphalt should be applied at its equiviscous temperature (“EVT”) or a minimum of 400°F (204°C), whichever is higher, or per manufacturer’s recommendations. A sufficiently high asphalt temperature is essential for adequate adhesion of SBS modified membranes. It is important for the applicator to be aware that liquid asphalt cools quickly once applied to a roofing substrate. Components of the roofing system must be installed swiftly and “close to the mop.” Be sure that all components are well embedded. Mop-leads (typically no more than five feet in front of the roll) should not exceed the manufacturer’s instructions. Failure to use proper application techniques has the potential to result in poor membrane adhesion and possible system failure.

Proper insulation of all asphalt handling equipment is required to keep asphalt hot in cold weather. Equipment insulation is also essential for fuel conservation and reducing make-ready time. Use of insulated tank trucks and rooftop equipment for transporting asphalt, such as hot luggers and mop buckets, is recommended. Asphalt lines from the kettle to the roof should also be insulated, particularly when asphalt is being piped over long distances.

DISCLAIMER OF LIABILITY: This document was prepared by the Asphalt Roofing Manufacturers Association and is disseminated for informational purposes only. Nothing contained herein is 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. **THE USER IS RESPONSIBLE FOR ASSURING COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.**

Nothing contained herein shall be interpreted as a warranty by ARMA, either express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose or non-infringement. **IN NO EVENT SHALL ARMA BE LIABLE FOR ANY DAMAGES WHATSOEVER,** including special, indirect, consequential or incidental damages or damages for loss of profits, revenue, use or data, whether claimed in contract, tort or otherwise. Where exclusion of implied warranties is not allowed, ARMA's liability shall be limited to the minimum scope and period permitted by law.