
TECHNICAL BULLETIN

October 10, 2007

To: GenFlex Authorized Distributors
GenFlex Licensed Contractors
GenFlex Territory Sales Managers

Subject: Cold Weather Application Tips

Cold weather applications present unique challenges during the construction of any roofing system. For most single ply systems, the challenges range from handling and installation of membranes to the proper storage of adhesives and sealants. This bulletin is intended to provide you with some helpful tips on how to install GenFlex roofing products during cold weather.

EPDM Membrane Systems

Cold weather applications of large panel EPDM membranes require special consideration. Most EPDM panels that are wider than 16' are folded prior to being rolled up on a 10' long core. The number of factory folds depends on the width of the panel. For example, 20' wide sheets are folded once; 30' wide sheets are folded twice, etc. The crease formed by the factory folds tend to lay flat relatively quickly during warm weather applications. As the temperature drops, however, it takes longer for the crease to flatten out. This condition is related to the inherent characteristic of EPDM in cold weather and should be considered normal. Extra care when laying out and seaming large panels together can ensure a successful installation. To mitigate the effect these creases have on the installation, allow the membrane to relax for a longer period of time, and follow the application tips below.

EPDM Ballasted Systems

Because Ballasted EPDM systems utilize large EPDM membrane panels and are covered with ballast, issues with folds or creases are limited to the seam areas of the system. The need for additional T-Joint covers may be required to help waterproof the seam area where creases intersect with the seam. The need for T-Joint covers must be determined on a case by case basis by the installing contractor.

EPDM Mechanically Attached "Bar-In-Seam" Systems

Bar-In-Seam systems tend to utilize small EPDM panels that are 10' wide or narrower. These narrow panels are not folded and, therefore, are free from folds or creases, which greatly helps the seaming process.

EPDM Bar Cover Systems

Cover Tape Systems utilize larger EPDM panels that may contain folds or creases in the panel. Due to the number of splices between the Cover Tape and membrane, it is recommended that the following installation tips be considered:

- ▾ Whenever possible, lay out the long axis of the roofing panel with the intended anchor bar orientation. This measure reduces the number of times the anchor bars will intersect with the membrane folds, thus reducing the potential need for T-Joint covers.
- ▾ If you cannot position the sheet to allow for the anchor bars to be run parallel to the folds, stop 2" from the fold when running the battens, and resume 2" on the other side of the fold. This will eliminate potential wrinkles at the folds and avoid having to patch these intersections, should voids or "fish mouths" occur in the seams.

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EPDM Fully Adhered Systems

In cold weather conditions, it is recommended that GenFlex 10' wide or 16'8" wide "No-Fold" EPDM panels be used for all Fully Adhered applications. In addition to using smaller width membrane panels, allow the membrane to relax as long as possible after it has been unrolled. This will allow the membrane to absorb any available heat from the sun, which helps the membrane to normalize, or flatten out, back to its original condition.

Any fold wrinkles within the membrane seaming area must be addressed so as not to create "fish mouths" in the completed seam area. This applies to all types of seams, including splices, laps, and cover strips. The need for T-Joint covers or patches must be determined on a case by case basis by the installing contractor and is based on the quality of the field seam through the fold area.

Adhesives & Sealants

Solvent-based adhesives and sealants should be stored in a heated or warm storage area between 60 °F and 80 °F (15.5 °C and 26.6 °C) for 24 hours prior to use. As the materials begin to cool, it is recommended that the adhesive container(s) be resealed and placed back in the heated storage area, while being replaced with warmed material in a continuous cycle in order to maintain correct application temperatures. ***Please note that GenFlex water-based bonding adhesives should never be stored in temperatures below 32 °F (0 °C) or allowed to freeze. Water-based adhesives that have frozen should not be used and must be disposed of in a proper manner.***

Longer drying times should also be expected for low temperature or high humidity conditions when solvent-based products are used. In addition to extended drying times, be aware of the possibility of "blushing," or condensation, on the surface of the adhesives or primers. When condensation is present, the application should be discontinued, since proper adhesion between mating surfaces cannot be achieved once the prepared surface is contaminated with moisture. If the applied product is contaminated with moisture, wait until conditions improve, and then allow the adhesive to dry completely prior to the application of an additional fresh coat of adhesive or primer when conditions no longer cause condensation on the surface of the adhesive or primer.

In addition to blushing, solvent-based adhesive products have a tendency to surface-flash in cold conditions, forming a skin on the surface. To determine if the applied adhesive has surface-flashed, conduct a "push test" with your finger. If your finger penetrates or slides the film, exposing un-flashed adhesive, then additional time is needed for the adhesive to flash-off. When this occurs, it is imperative that the adhesive is allowed to flash-off properly to the correct application condition.

Under no circumstances should laying of membrane, application of adhesive, primers or caulks take place during periods of precipitation in any form.

Application temperatures for water-based adhesives should be at least 40 °F (4.4 °C) and rising. Please refer to current GenFlex Technical Specifications or individual Product Data Sheets for additional information.

Peel & Stick™ TPO Systems

All approved substrates, vertical and horizontal, to which the GenFlex Peel & Stick™ TPO membrane will be adhered must be primed with GenFlex Clear Primer. When adhering the membrane to GenFlex Polyiso, however, priming is not required unless the ambient temperature is 50 °F (10 °C) or below, or the roof slope is 3/12 or greater. All Peel & Stick™ TPO membrane must be rolled with a weighted roller, weighing 75 to 150 lb, which produces 5 pounds per linear inch of surface pressure to ensure positive contact with the membrane substrate.

GenFlex Peel & Stick™ TPO membranes and accessories should be stored in a heated or warm storage area between 60 °F and 80 °F (15.5 °C and 26.6 °C) for 24 hours prior to use. As the materials begin to cool, it is recommended that the adhesive container(s) be resealed and placed back in the heated storage

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area, while being replaced with warmed material in a continuous cycle in order to maintain correct application temperatures.

Hot Air Welding (Automatic Welders)

Automatic or hot air welding machines used to seam TPO membrane are usually set for temperature and speed before the nozzle is placed between the two sheets and welding begins. The set up of the machine must be verified by destructive testing of practice or seam samples created on the roof. After verifying the seam quality, no changes are necessary to the machine unless conditions on the roof change.

In cold weather conditions, it is recommended that the welding equipment be set up with slightly higher temperatures and slower speeds. As before, it is recommended that practice welds or seam samples be created in order to verify seam quality. Should "cold welds" be the result, try lowering the speed of the machine while keeping the temperature constant. Adjusting the speed should increase the heat in the seam area, thus increasing the weld quality. If this condition does not result in a proper weld, try lowering the speed once again. It is recommended that either the speed or temperature remain constant as you attempt to find the correct settings for rooftop conditions. If you continue to experience difficulty in achieving quality welds, please call your local GenFlex Technical Representative, and he will be able to walk you through the adjustment process.

The above statements are intended to assist in the application of GenFlex single ply systems and accessories. Please consult GenFlex current technical specifications for additional information, or contact the GenFlex Technical Department at 1-800-443-4272.

Sincerely,



Ken J. Crocker
Technical Manager