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Technical Advisory Bulletin

To: GAF Commercial Sales, GAF Contractors, Field Services, Design Services, CARE
From: GAF Commercial
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Cool Weather Application Precautions For TPO & PVC Single-Ply Roofing Systems

Cool Weather Application

The application of single-ply roofing systems during cool weather presents considerations that need to be accommodated for during installation. By following proper procedures and exercising recommended precautions, cool weather applications can progress more efficiently and effectively, resulting in higher quality roof installations.

Follow the cool weather application instructions that are specific to the product or system you are installing when the temperature is below 40°F (4.4°C). 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, snow, sleet, etc.). These cool weather installation recommendations will help reduce the potential for:

- Membrane wrinkling
- Failures and blow-offs due to improper adhesion
- Poor/false welds
- Membrane blisters on adhered systems

Plan Carefully

Careful planning of work during cool weather can greatly improve the quality of the installation and can minimize problems associated with cool temperatures:

- There must be no ice or water on the roof substrate.
- Do not apply roofing materials during inclement or threatening weather.
- The roof substrate must be clean and dry.
- Protect all water-based products from freezing temperatures. Any water-based materials that have been frozen must be discarded.
- Protect all solvent-based products from freezing temperatures. Any solvent-based materials can be used once brought up to the correct dispensing temperature.

Complete each roof section daily. Application should be scheduled so that there are no partially completed portions of the roof left exposed.

Installation Practices

Membranes: Remove rolls from storage only as they are being installed. Install immediately after removal from storage.

Many factors will affect the welder settings, including overcast skies and lower air temperatures. These conditions will generally require a slower speed. The slower speed provides the additional heat energy to compensate for heat-draining conditions. Hand welding during colder temperatures also requires adjustment. The correct speed and temperature settings for automatic welders are determined by preparing test welds at various settings.

Installation Practices (Cont.)

- Do not use scrap material to create test welds. For additional information on test welds, refer to [TAB-C-39 Test Welding Thermoplastic Membranes](#).
- Perform daily quality control checks including probing and checking seams at the end of the day.

Field Seaming during cooler temperatures reinforces the always important need to perform field test welds:

- In the morning
- After any extended break such as lunch
- After any significant change in weather (e.g., air temperature, wind speed, cloud cover, etc.)

Adhesives, Sealants and Primers: Take longer to flash-off and dry during lower temperatures which may affect workable time.

- In order to minimize exposure to cooler temperatures, adhesives, sealants, and primers need to be stored at certain temperatures until they are ready to be used. Please refer to the appropriate product technical data sheet for specific information.
- All adhesive, sealant and primer products **must be brought** up to the appropriate temperature for dispensing (i.e., 70 - 90°F (21- 32°C). Please review the installation instructions or technical data sheet for the specific product for proper temperature. Use a heat blanket or hot box to warm and/or maintain the product to the recommended temperature.
- **Only apply the adhesive** when the adhesive, substrate, membrane and outside temperatures are at the recommended temperatures for the specific product. Not waiting the appropriate time it takes for the adhesive to set up (tack) will likely result in adhesion problems.
- **Do not** heat adhesive containers with torches or other high temperature devices.
- **Do not** attempt to thin these products.
- For Low Rise Foam, the ambient temperature should remain at 40°F (4.4°C) or above for a minimum of 24 hours after applying or the canister adhesive may not properly cure.

Application Guidelines For GAF Single-Ply Systems

Each single-ply application method has special considerations to follow in cooler weather which includes:

EverGuard® Induction-Welded and Mechanically Attached TPO/PVC Roofing Systems can be installed in temperatures below 40°F (4.4°C). In cooler weather applications membrane wrinkling may occur and will not impact the Guarantee eligibility as long as the wrinkle is not more than 1" (25.4 mm) in height. For more information refer to [TAB-C-45 Wrinkles on Mechanical or RhinoBond® Attached Roof Systems](#). Be sure to perform test welds at various points of the day to make sure the settings on the induction-welding tool are correct.

*Application
Guidelines For
GAF Single-Ply
Systems (Cont.)*

EverGuard® TPO/PVC Adhered Roofing Systems will have set-up (tack) times that vary for each specific adhesive product. For example, a water-based adhesive, such as EverGuard® WB181 Bonding Adhesive, will take longer compared to a solvent-based adhesive like EverGuard® #1121 Bonding Adhesive. Always check the specific adhesive for temperature usage and storage limits for that product, as well as any special application measures required for cold temperature application.

Only apply when the outside temperature is above 0°F (-17.7°C) and rising:

- TPO LRF Adhesive M Low Temp Cartridges
- TPO LRF Adhesive M LTA Cartridges

Only apply when the outside temperature is above 20°F (-6.7°C) and rising:

- EverGuard® TPO Quick Spray Adhesive & LV 50
- EverGuard® PVC Quick Spray Adhesive
- EverGuard® TPO Self-Adhered Roof Membrane
- OlyBond500® Insulation Adhesive - SpotShot (Winter Grade)

Only apply when the outside temperature is above 25°F (-3.9°C) and rising:

- OlyBond500® Insulation Adhesive (Winter Grade) - Bag in Box/Drum
- TPO LRF Adhesive M - All packaging types

Only apply when the outside temperature is above 32°F (0°C) and rising:

- LRF Adhesive XF - All packaging types

Only apply when the outside temperature is above 40°F (4.4°C) and rising:

- EverGuard® #1121 Bonding Adhesive (TPO)
- EverGuard® #2331 Bonding Adhesive (PVC)
- EverGuard® Low VOC TPO Bonding Adhesive
- EverGuard® PVC Quick-Lay Bonding Adhesive
- EverGuard® WB181 Bonding Adhesive (TPO/PVC)
- LRF Adhesive O - All packaging types
- OlyBond500® Canisters
- OlyBond500® Insulation Adhesive - All packaging types
- EverGuard® TPO 3 Square Low VOC Bonding Adhesive
- EverGuard® PVC Quick Spray Adhesive (and for KEE membranes)

Questions?

GAF Design Services Can Assist You with these and other questions you may have. Design Services can be contacted at 877-423-7663 or DesignServices@gaf.com. The GAF website is a great resource for just about any question you may have or for additional information you may require. Please visit www.gaf.com to find the latest information on our products and their installation.

Important: This document supersedes any prior GAF Technical Advisory Bulletins on this topic. Please always check www.gaf.com to make sure you have the most up to date information.