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Technical Advisory Bulletin

To: GAF Commercial Sales, GAF Contractors, Field Services, AIS, CARE

From: Technical Services Department

No: TAB-C-30

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, cold weather applications can progress more efficiently and effectively, resulting in higher quality roof installations.

Always follow any cool weather application instructions that may be specific to the product or system you are installing when the temperature is below 45°F (7.2°C) as special care may be required. 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 installation recommendations should 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, dew or water on the roof substrate.
- Do not apply roofing materials during inclement or threatening weather.
- The roof substrate must be clean and dry.
- All membrane rolls, adhesives and coatings must be stored for at least overnight at a minimum temperature of 55°F (12.8°C) prior to their application. All water-based products must always be protected from freezing temperatures. Any water-based materials that have been frozen must be discarded.
- Lay out the roof area and place materials where they will be needed prior to starting your application.
- 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... rolls are to be removed from the heated storage only as they are being installed. Install membrane rolls immediately after removal from storage to avoid membrane cooling.

Field Seaming... during cooler temperatures it is even more critical to perform test welds in the morning, after any extended break such as lunch, or after significant change in weather

*Installation
Practices
(cont'd)*

(e.g., air temperature, wind speed, cloud cover, etc.). Many factors will affect the settings, including overcast skies and lower air temperatures. This will generally require a slower speed. The slower speed provides the additional heat energy to compensate for heat-draining conditions.

- The correct speed and temperature settings for automatic welders are determined by preparing test welds at various settings.
- Hand welding during colder temperatures also needs to be adjusted
 - Perform test welds on membrane you will be using that day o Do not use scrap material to create test welds
 - For additional information on test welds, please see TAB-C-39, Test Welding Thermoplastic Membranes
 - A daily quality control including probing and checking seams at the end of the day

Adhesives, Sealants and Primers... will take longer to flash-off and dry during lower temperatures.

- Adhesives, sealants, and primers should be kept in a warmer environment until just prior to usage in order to minimize exposure to cooler temperatures.
- At low temperatures, non-solvent based adhesives, coatings, sealants and caulks can be difficult to apply properly and may not adhere or cure as they do in more temperate weather.
- **Only apply the water and solvent based adhesives...** when the adhesive, substrate, membrane and outside temperatures are all above 40°F (4.4°C) and rising. Not waiting the appropriate time it takes for the adhesive to set up (tack) will most likely result in adhesion problems.
- Low-rise foam (LRF) and certain other adhesives that come in a **“winter grade”** or have an application temperature lower than 40°F (4.4°C) may be utilized. For more details, please see specific product application guidelines.
- **Temperatures above 50°F (10°C)** are recommended to allow easier adhesive application.
- Do not heat adhesive containers with torches or other high temperature devices.
- Do not attempt to thin these products.

*Application
Guidelines For
GAF Single-Ply
Systems*

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

Drill-Tec™ Rhinobond® Attachment Systems... can be installed in temperatures below 40°F (4.4°C), however, storing rolls in a conditioned environment will minimize membrane wrinkling. Be sure to perform test welds at various points of the day to make sure the settings on the Rhinobond® Induction Tool are correct.



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EverGuard® TPO/PVC Mechanically Attached Roofing Systems... are the least likely to be impacted by cooler weather. Storing rolls in a conditioned environment will minimize membrane wrinkling and be sure to perform test welds at various points of the day to make sure the settings on the robotic welding tool are correct.

Application Guidelines For GAF Single-Ply Systems (cont'd)

EverGuard® TPO/PVC Adhered Roofing Systems... set-up (tack) time for each adhesive varies by product. For example, a water-based adhesive, such as EverGuard® WB 181 Bonding Adhesive, will take longer compared to a solvent-based adhesive like EverGuard® #1121 Bonding Adhesive. Check the specific adhesive for the temperature usage and storage limits on that product.

- **EverGuard® # 1121 Bonding Adhesive (TPO)...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **EverGuard® # 2331 Bonding Adhesive (PVC)...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **EverGuard® Low VOC TPO Bonding Adhesive...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **EverGuard® WB181 Bonding Adhesive (TPO)...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **LRF Adhesive M...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **LRF Adhesive M Low Temp...** only apply when the outside temperature is between 25°F (3.9°C) and 60°F (15°C).
- **LRF Adhesive O...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **LRF XF Adhesive...** only apply when the outside temperature is above 32°F (0°C) and rising.
- **Olybond®500 Equipment Free Canister System...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **Olybond®500 Bag n Box - Winter Grade...** only apply when the outside temperature is between 25°F (3.9°C) and 65°F (18.3°C).
- **Olybond®500 Spot Shot Cartridges - Winter Grade...** only apply when the outside temperature is between 25°F (3.9°C) and 65°F (18.3°C).
- **EverGuard® 3 Square Low VOC Bonding Adhesive...** only apply when the outside temperature is above 40°F (4.4°C) and rising.
- **EverGuard® TPO Quick Spray Adhesive and EverGuard® TPO Quick Spray Adhesive LV50...** only apply when the outside temperature is above 20°F (-6.6°C) and rising.
- **Freedom® Self-Adhered Roofing Systems...** should only be installed in temperatures of 50°F (10°C) and rising to allow easier adhesive application.

Questions?

GAF Technical Services Can Assist You... with these and other questions you may have regarding your new roof installation. Technical Support Services can be contacted at 800-766-3411. 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.