

## Potential Winter Construction Challenges

*Precautions are needed on the construction sites to avoid potential challenges associated with cold and sunny winter weather conditions. Neglecting caution during cold and sunny winter weather can contribute to avoidable problems in roofing installations. Membrane, peel and stick, and sealant bond failure, as well as delayed shrinkage in materials are more likely to happen in the winter installations. Winter installation concerns noted are likely not to be visible until after the spring thaw, which will likely be too late or costly and time consuming to correct.*

*Understanding the concerns and taking the following precautions in the winter, is usually far less costly and time consuming than coming back in six months to repair the results.*

**Safety Note—Frost and snow will make membranes very slick.**

**Stay on schedule and follow these guidelines.**

- Cold weather precautions start with temperature falling below 40°F. Always review Manufacturer winter instructions for products and installation.
- Substrate must be clean, dry, and frost free —always wipe surfaces to remove unseen frost. Review minimum substrate temperatures for installation.
- Be careful applying warm material on cold surfaces, because a thin layer of condensation will develop on the substrate, which will inhibit proper bond of the material to the substrate. Borderline winter installs will become an issue that could be prevented—talk to the Quality Department.
- Protect all materials (sealants, peel & stick membrane, liquid membrane, etc.) from freezing. Do not store materials outside or in an unheated truck (on-site or off-site). Most products need to be stored above 60-80°F. If products become less than 60°F, immediately restore and remix—and evaluate material.
- Building a heated shanty on the roof might be needed to keep material warm and close by the installation. Make sure the heating source is safe and monitored 100% of the time.
- Do not mix material that could create a spark, which could ignite flammable material.
- Remove ice and snow from the deck (and metal deck flutes 100%) before starting to roof. **Do not use a torch or salt.**
- Bonding adhesives take longer to flash off in the colder temperatures. Review manufacturer product technical bulletins and installation instructions. Do not install if freezing temperatures are within 24 hours of installation for water-based, or 12 hours for solvent-free products.
- Roofing material will need to be opened and relaxed for at least 30 to 60 minutes. The use of no fold panels are best in cold weather. Before relaxing the membrane, remove wrapping and allow the sun to heat the surface—if there is no sun, installation might not work.
- Fully adhered membranes are difficult to install in colder temperatures and generally, do not look good when the temperature rises (wrinkles appear). Review the visual exposure and evaluate installation esthetic goals with the Owner and Architect.
- Do not thin material or ever heat material individually with a torch.
- Expect roofing installation to take more time—do not rush the installation or any steps in the manufacturer winter installation instructions.
- If temporary heat is being used on the interior of the building, make sure it is **INDIRECT** heat. **(SEE AECOM TEMPORARY HEAT BULLETIN FOR MORE INFORMATION)**
- Review the elevation that the installation is to be installed. South and west elevations might cause problems due to sun load, which creates bubbles in liquid applied roofing materials. Review minimum ambient and material temperature for at least 24 hours.
- When installing APP, SBS, and BUR in the winter, material to be at least 50°F & ambient temperature is 40°F and rising. Installing these type of products in colder temperatures will result in delamination or blistering during the next heating cycles.
- Never overheat asphalt to compensate for cold weather conditions and never heat asphalt above its EVT or its flash point. Always remain within the asphalt manufacturer's approved application range, but never below 420°F.
- Mechanically attached roof might be an option, however, make sure that thermal and sound considerations are discussed with the Owner.
- Self adhered or Velcro® type roof might be a good option for winter installation. Review with roof manufacturer and installer.
- There are new products coming out from many manufacturers that help address cold weather—contact the manufacturer representative early in the design if winter installation will be likely.**

