

## **Technical Bulletin # 65**

### **Joint Sealant Application at Temperatures below 40°F**

In the winter months it is called upon sealant manufacturers to give an opinion regarding the feasibility of joint sealant application at temperature below 40°F. Sealants can be applied at temperatures below 40°F with success provided the problems associated with cold temperature applications are recognized in advance and proper precautions are exercised. The most important aspects to consider are these:

- ❖ **Areas to receive sealant must be clean, dry and free of frost or any contaminating substances.** Aside from frost, all other requisites mentioned would apply at temperatures at or above freezing as well.
  - Do not install sealant when the temperature is at or below the dew point, which is the temperature at which the air is saturated with moisture vapor and liquid water (dew) or frost begins to form on the joint face.
- ❖ **Prior to the sealant installation, it is recommended that the product is stored at 50°F to 80°F.**
  - Most sealant has a tendency to become stiffer and more difficult to work with as temperature decreases; silicone based sealants are the least susceptible to increased viscosity due to low temperatures.
  - Two-part sealants must be mixed at reasonably warm temperatures to obtain uniform blending of the components (approximately 50°F to 80°F).
- ❖ **Cold temperatures retard both moisture cure and chemical cure reactions.** Most sealants cure either by solvent evaporation, chemical reaction, or combination of both.
  - The main advantage of a slowed or retarded cure is longer “wet” time, which usually results in better ultimate adhesion to the substrate. The main disadvantages of a slow or retarded cure are the increased possibility of dirt pick up due to prolonged tacky surface and the increased possibility of damage from physical contact during a soft or wet state.
  - *Under no circumstances should water emulsion (Latex) sealant be used at temperatures below freezing.*
- ❖ **The joints to be sealed will be open to their widest dimensions as temperature decreases.** The sealant should be tooled accordingly to compensate for compression of the sealant when the temperature rises; a concave (hourglass) sealant configuration is recommended.

The most difficult aspect to weigh properly is the comfort of the applicator. If the afore-mentioned items can be controlled properly, then the final criteria depend upon the ability of the individual to operate satisfactorily at the temperature encountered.

### **Minimum Application Temperatures by Sealant Chemistry**

| Sealant Chemistry      | Minimum Application Temperature |
|------------------------|---------------------------------|
| Architectural Silicone | -20°F (-29°C)                   |
| Polyurethane           | 20°F (-7°C)                     |
| Architectural Hybrid   | 20°F (-7°C)                     |
| Latex                  | 32°F (0°C)                      |
| Polysulfide            | 20°F (-7°C)                     |

Note: This bulletin applies to all Pecora Silicone (Architectural only), Urethane, Hybrid, Polysulfide and Latex based sealants.

