

Technical Bulletin #190 Sealant Application Temperature / Guidelines (Silicone, Urethane, STPU, and Latex Sealants)

Sealant manufacturers will always list an application temperature range for applying sealants. These ranges are typically listed as an “ambient” application temperature range. Ambient temperature can be defined as “the temperature of the surrounding environment”. These “ambient” temperature ranges do not consider the *substrate* temperature which can vary greatly depending on site conditions and exposure of the substrate. For example, an aluminum panel on a southern exposure may reach a substrate surface temperature of up to 180°F while the ambient temperature may only be 90°F. Therefore, when applying joint sealants in extreme conditions the ambient as well as the substrate temperatures must be considered. Substrate temperature can simply be defined as the temperature of the substrate surface at time of sealant application.

Generally, joint sealants should not be applied to substrates when the ambient and substrate temperatures exceed 120°F. When sealants are applied at temperatures greater than 120°F, bubbles may form at the substrate / sealant interface and this will have a detrimental effect on sealant adhesion & ultimate field performance. In order to prevent this occurrence, adjust the work schedule to permit sealant application in shaded areas first or perform work early or late in the day when the ambient / substrate temperatures are within the acceptable range.

Pecora’s acceptable sealant application temperature range is 20°F to 120°F for most types of joint sealants and applications. However, there are exceptions to the rule, particularly with silicone based joint sealants. Silicone based joint sealants have been successfully applied to substrates with a surface temperatures of <20 F and >120°F. When application temperatures exceed the standard range of 20F to 120F consult the Pecora Technical Services group.

Measurement of ambient and surface temperatures can be a useful exercise especially when solar radiant heat is a factor on dark construction surfaces. A convenient method of measuring surface temperature is the use of an infrared surface temperature probe.

