Sealants & Adhesives Review

Purpose

The purpose of sealants and caulks (note: higher performing caulks are called "sealants") is to seal joints or cracks from the intrusion of water, air (either hot or cold), dust, pollution, insects and noise.

Sealant can also serve the aesthetic purpose of dressing up or finishing off a rough-appearing joint.

To properly serve these purposes, the sealant must stay in place, without cracking, for an extended period of time. It can only do so if it maintains good adhesion to both sides of the joint and can easily flex with whatever movement occurs in the joint being sealed.

When using a sealant or adhesive during installation, it is required that a high quality polyurethane sealant or polyurethane adhesive or equivalent product be applied to provide a counter action for expansion and moisture penetration.

An **adhesive** BONDS two surfaces together; a **sealant** FILLS a space. The sealant is used for expansion and contraction control, NOT for moisture resistance. Silicone DOES NOT adhere well to fiber cement. Nichiha recommends a sealant depth of 75% to 80%.

The following describes the basics of how to use and apply sealants and adhesives.

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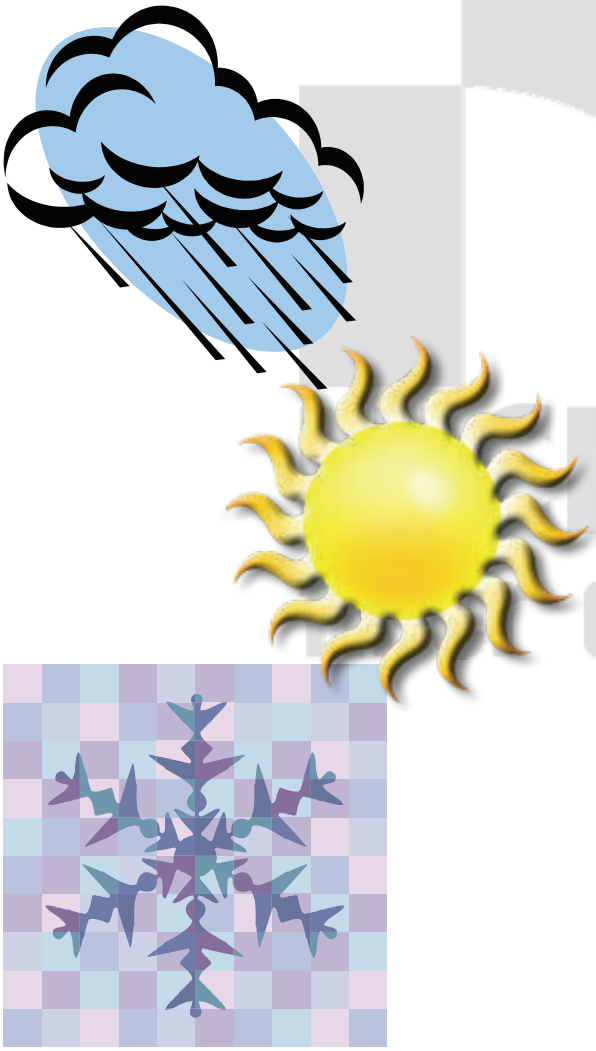
The Keys To Successful Sealant Application

Watch the Weather

- Weather can affect the joint size and surface.
- Best sealing temperature; 50ºF - 90ºF.
- Below 50ºF – the surface will contract and the joints will expand – a frosty surface means poor adhesion.
- Above 90ºF – joint will contract – a hot surface can cause blistering.



Weather Affects Performance

Weather can affect:

- The size of the joint at the time of sealing.
- The contaminants on the surfaces of the joint.
- The ability of the sealant to "wet" the surfaces of the joint for good adhesion.
- The ability of the sealant to properly cure and develop its ideal physical properties.

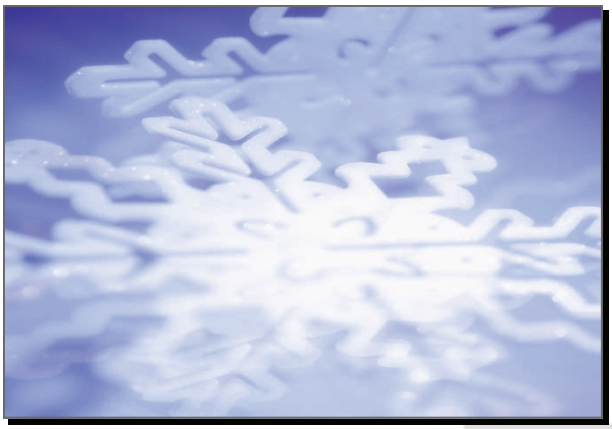
Weather Extremes

It is never good practice to apply sealant in very cold or very hot weather.

- If a sealant is applied at either extreme [cold or hot], the size of the joint being sealed will be at either its widest (when cold contracts the substrates) or at it narrowest (when heat expands the substrates).

- When sealant is applied at either temperature (joint-width) extreme, it will then undergo the greatest possible **stress** over time as the temperature travels to the opposite extreme. By applying sealant to a joint in the middle of the typical temperature range expected for your area you will minimize the overall stress applied to the sealant as a result of thermal changes.

- Do not apply sealant if it's raining. Put a spacer on the spot until it is dry.



- In extremely cold weather there is always a chance that micro-crystals of ice may be present on the surfaces of the joint and this difficult to detect frost could lead to poor adhesion and failure - even for solvent based sealants and reactive sealants (i.e., silicone).

- In high heat (especially in intense, direct sunlight), there is an increased risk that whatever solvents (or volatile liquids) are a part of the sealant's formula could evaporate too rapidly and cause blistering or bubbling of the sealant even at the bond line, which could impair adhesion.

Ideal Weather Conditions

- Plan your sealing efforts for the most ideal weather possible - which is between 50ºF (and rising) and 90ºF (and falling), and when precipitation is not a potential problem.

Note: If wet weather has immediately preceded a period of ideal weather, it may be necessary to let 1-3 days of the ideal weather pass to allow the surfaces to be sealed to dry out or warm up adequately. Similarly, avoid applying sealants - even in ideal weather - if the weather is expected to turn bad shortly after application.

Sealant Manufacturer Color Guides

Nichiha provides sealant manufacturer color information that corresponds with Nichiha products. Visit nichiha.com for latest information.

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