

DESIGN TIPS – TECHNICAL BULLETIN #43 SEALANTS

The decision on whether to use mortar with pointed joints or sealant joints between stones is a common one. For conventional masonry units, all head joints at coping stones and joints at column covers, cornices, platforms, soffits, window sills and in general, all stone sections with projecting profiles, exposed top joints or rigid suspension connections to the supporting structure should be "soft" sealant joints. When piece sizes are larger than conventional masonry units (1'6" tall by 2'6" in length for vertical applications) "soft" sealant joints are recommended, and a professional designer or engineer should be consulted for proper joint design and function.

Mortar joints are best suited for masonry-bound trim items such as belt courses, lintels, window surrounds, date stones, inscription blocks, quoins, keystones and similar applications. Rake and point mortar joints rather than full-bed setting and finishing in one operation. See Technical Bulletin #44 on Pointing.

Sealant joints allow for movement at the vertical joints. Leave head joints dry when setting. An allowance for compression and expansion is required for the system to be effective. After setting, prime the ends of the stones (if necessary), insert properly sized foam backup rod and gun in sealant. If a mortared appearance is desired, a sanded sealant may be used.

Since sealant systems are not intended to bear weight, use plastic setting pads or lead shims when setting the stones. The sealant is not intended to adhere to the foam backer rod. The sealant should adhere to the parallel surfaces only. The foam rod should be placed to a depth approximately equal to the width of the joint.

The most common types of sealants are one-part "moisture cure" or "air cure." Two part systems are also available which require the mixing of materials together to allow chemically induced curing.

The inherent properties of silicone products make them excellent sealant materials. Silicones provide superior weathering resistance and perform over a wide range of service temperatures. They are easy to apply, have low shrinkage rates, and can accommodate high movement. While organic materials tend to crack, dry up, and become brittle or even revert with age, silicones remain flexible and durable.

Two component, polyurethane sealants are tough and elastic, allowing for movement of up to 50% of the joint width. They are also durable, flexible and form a watertight bond with most building materials. According to the manufacturers, these formulations offer weather tight seals in caulking joints today for as long as 20 years under normal application conditions and ten years under severe conditions.

Allowance for thermal and other movement should be within 25% of the joint size. For instance, a normal 3/8" joint should be expected to compress to approximately 1/4" and expand to approximately 1/2" during elongation.

This Technical Bulletin is provided by the Cast Stone Institute®, and is intended for guidance only. Specific details should be obtained from the manufacturer or supplier of the Cast Stone units.