

## POINTING OF JOINTS

Not all joints between stones or between stone and other material should be filled with mortar. 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 generally recommended, and a professional designer or engineer should be consulted for proper joint design and function. See [Technical Bulletin #43](#) on Sealants.

Pointing is required for piece sizes larger than conventional masonry units because mortar shrinks and settles as it cures. Since mortar beds harden from the face in, stresses can be applied to the edge of the stone which can cause spalling later. Shrinkage also can create cracks at the joints; a condition which causes leaking. 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.

It should be noted that in many cases (and specifically when setting small veneer pieces) it is not practical to rake out and point all joints. In these instances, full bed setting and finishing in one operation can be used. Particular attention must be paid to the waterproofing systems behind and incorporated into the veneer.

Regardless of whether the mortar or sealant is selected as the face joint material, the mortar must be raked out of the joint to a minimum depth of 3/4". If sealant is to be used at the head joints, then mortar is normally not used there at all.

Pointing is usually done in 1 or 2 stages to allow maximum sealing of shrinkage cracking in the mortar. It should not be done in areas exposed to hot sunshine and it is suggested that pointing be accomplished after touch and repair of Cast Stone and before final wash-down.

Apply pointing mortar using proper tools to compress the material against the edges of the stone. A concave joint is recommended for the best protection against leakage although other joint types are often available in the stone setting trade.

Pointing mortar should be softer than the stone so that thermal stress will not cause spalling at the edges of the joints. It is usually slightly drier than normal setting mortar consistency to prevent shrinkage and is usually composed of the following:

- 1 part Portland cement, ASTM C150
- 1 part hydrated lime, ASTM C207
- 6 parts masonry sand, ASTM C144

Coloring may be added to achieve almost any hue, however pointing mortar which sharply contrast the color of the stone may cause staining. Excess pointing material must be sponged away from the face of the stone immediately. Colors added must be natural or synthetic mineral oxides which meet the requirements of ASTM C979 (sun-fast, lime-proof, alkali-resistant) and the dosage must not exceed 10% of the weight of the cement used. Carbon black or ultramarine blue pigments should not be used. In general, pigmentation types and amounts used in the manufacture of Cast Stone can also be used as a starting point when custom blending the pointing mortar to match or complement the color of the Cast Stone.

Always specify a mockup wall when approving final colors and be sure that it has been properly cleaned because cleaning will usually affect the color of pigmented masonry materials.

This Technical Bulletin addresses generally accepted practices, methods and general details for the use of Architectural Cast Stone. This document is designed **only as a guide** and is **not** intended for any specific application or project. It is the responsibility of design and construction professionals to determine the applicability and appropriate application of any detail to a specific project based on professional judgment, specific project conditions, manufacturer's recommendations and solid understanding of product characteristics. The Cast Stone Institute makes no express or implied warranty or guarantee of the techniques or construction methods identified herein. Technical references shall be made to the edition of the International Building Codes for the location of the structure, the latest edition of the TMS 402/406 Masonry Standards document and TMS 404, 504, 604 Standards for Design, Fabrication and Installation of Architectural Cast Stone.

The Cast Stone Institute (CSI) is a not-for-profit organization created to advance the design, manufacture and use of Architectural Cast Stone. To further this goal, the CSI continually disseminates information to targeted construction industry audiences through presentations, programs and technical publications.