

SPECIFICATION OF CAST STONE PRODUCTION METHODS

Many articles have been written over the years concerning the process used for making cast stone and whether the method or apparatus should be specified by the purchaser or selected by the manufacturer. Most of these articles were written by producers promoting the method(s) used at a particular facility in an attempt to promote superiority over plants using another method.

Sometimes specifiers select one method over another, which can lead to disappointing results when their expertise may not be intrinsic to specialty concrete product manufacturing and its processes. Terminology most often used to describe a process in concrete is wet-cast, dry-cast, semi-dry, vibrant dry-tamped, vibratory dry-tamped, machine made, wet-poured, earth moist, etc. These methods can be subdivided into three basic groups according to CSI Specification 04 7200:

- “Vibrant dry tamp (dry cast) products, n—Cast Stone manufactured from earth moist, zero slump concrete densely compacted by apparatus.”
- “Wet cast products, n—Cast Stone manufactured from measurable slump concrete consolidated by apparatus.”
- “Machine casting method n—Cast Stone manufactured from earth moist, zero-slump concrete compacted by machinery using vibration and pressure against a mold until it becomes densely consolidated.”

Cast Stone units covered by a project specification should not include the manufacturing method, as ASTM C1364 – Standard Specification for Architectural Cast Stone - states that, “Slump, manufacturing method, and apparatus shall be selected by the manufacturer and not specified by the purchaser.” The project specification should cover the performance criteria (i.e. compressive strength, absorption, freeze-thaw durability) and referenced standards wherever possible, as opposed to prescriptive methods of achieving physical properties.

The designer should specify shape, color, finish and other technical and design attributes listed in the Cast Stone Institute Standard Specification. For most applications, the manufacturer should submit shop drawings showing details and sizes of stones, arrangements of joints, anchor details, etc., for approval, unless the units are a standardized shape.

The manufacturer selects the design mix proportions, water-cement ratio (including slump), mold construction, apparatus for consolidating the mix into the molds and other criteria used in the manufacturing process. Factors used in determining appropriate production method(s) to be used are usually size, weight, shape, finish, type of reinforcing, anchoring methods and application in the structure.

Specifying a Cast Stone Institute Certified Plant® that maintains rigorous quality control standards set forth by the Cast Stone Institute is your first step toward designing a successful project.

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.