DEGREES OF CUSTOMIZATION

Improvements in the availability and economy of cast stone can often be achieved when the specifier balances the needs of a project with the degree of custom shapes desired for the installation project. The indirect labor costs of design, layout, supervision, coordination and mold making needed for a "full custom" project can greatly exceed the actual direct cost of just casting and delivering a basic or standard product to the jobsite. This causes wide variances in the price of cast stone and places a premium on the product, which is not always necessary. With this in mind, cast stone projects will generally fit into one of the following categories: Standard, Semi-Custom or Custom.

Standard cast stone are specified according to a manufacturer's catalog. They may be ready made items or readily made to order. The units are usually priced individually. The architect or contractor determines the quantities and location of each unit on the structure as well as the method of anchoring to the structure. The cast stone manufacturer provides no layout drawings and cutting of units in the field may be required.

Semi-custom cast stone items are specified according to unit shapes shown on contract documents or according to shop tickets specially prepared to define the scope of the work. They are usually made to order either from custom or inventoried molds. The units may be priced either individually or as a lump sum contract for the project. The cast stone manufacturer prepares shop tickets for approval, which show the quantities, cross section, reinforcement, finished faces, anchoring provisions and a schedule of lengths to be provided. The architect or contractor confirms the quantities, sizes and location of each unit on the structure as well as the method of anchoring to the structure. The cast stone manufacturer provides no layout drawings. Some cutting of units in the field may be required.

Custom cast stone items are specified strictly according to contract documents and according to shop drawings specially prepared to confirm the scope of the work. They are usually made to order from custom molds. The units are usually priced as a lump sum contract for the project, according to plans and specifications. The cast stone manufacturer prepares shop drawings for approval, which show the details of stones, arrangement of joints, quantities, cross section, reinforcement, finished faces, and the location of the units on the structure. Anchoring methods and anchor designs could be included on the shop drawings, depending on the agreement between the producer and customer. The architect and contractor approve the shop drawings to confirm the cast stone manufacturer's interpretation of the contract documents, quantities, sizes, location of each unit on the structure, method of anchoring to the structure and coordinate the interface of the cast stone with other trades. The cast stone manufacturer normally provides layout drawings. Cutting of units in the field is usually not required.

Many specifications today require layout drawings that call for the location of every joint on the building facade to be precisely located, while others desire standard products and consider custom products to be cost prohibitive. Methods are available for controlling joint locations when using semi-custom typical lengths and standard products as described herein and they should be used whenever possible.

Where jointing layouts are not clearly shown on contract documents or where shop drawing requirements are not clearly spelled out in the project specifications, misunderstandings and disappointment can develop between the architect and cast stone manufacturer, unless the parties first agree that the job will be fully custom in nature.

When the architect implements a standard or semi-custom design, which commits to a certain number of shapes and sizes, the approval process is significantly streamlined and delivery times are shortened. The masonry contractor may choose to receive a neat pallet of modular units, which can easily be cut to fit the exact as- built dimensions at the jobsite.

For most installations, typical lengths will be the common unit, with 4'-0" modules (3'-11 5/8") as the most popular size. Longer lengths are available but should generally not exceed 15 times the minimum cross section thickness. Control joint spacing should divide evenly by the size of the typical unit. Special corner and end units should be cast to suit the end-of-wall condition and intermediate units may be cut with a standard abrasive blade masonry saw. Cast stones with any exposed reinforcement, including cast stone that has been cut to expose rebar, should not be set without following the procedure set out below.

A typical fitting specification should include the following:

1. Follow architect's jointing pattern as shown on contract drawings.
2. If necessary, cut units to suit in-place wall dimensions.
3. All window and door surrounds shall consist of evenly sized units.
4. All exposed reinforcement is to be cut back to a minimum depth of 1 1/2".
5. Apply zinc primer or reinforcement protection or equivalent to all exposed reinforcement.
6. Fill recessed pocket containing coated reinforcement with repair material before setting the cast stone.

Window sills should be sized to fit the masonry opening or mullion spacing, with allowance for 3/8" joints. The height of all cast stone, which is built into masonry walls, should match the brick coursing. Profiles should be designed with the Cast Stone Institute® Value Engineering suggestions.

Standard cast stone jobs are best suited for designs that call for basic and popular items such as band courses and wall cap coping, pier caps, keystones, quoins and window sill units sized to replace brick. Semi-custom projects can include almost any application where the designer is willing to dimension the stone units on the contract documents.

Custom cast stone designs represent the majority of buildings under construction today. Layout drawings are needed for projects that have many different profiles running through changing wall sections or one-of-a-kind installations such as entrances, porticos and signs. Base courses of stone at changing grade elevations, radius walls and applications suspended from structural concrete or steel are other good applications for custom cast stone.