SECTION 03 45 00
ARCHITECTURAL PRECAST CONCRETE

PART 1 - GENERAL SUMMARY

1.01 GENERAL

This Section refers to architectural precast concrete units.

Architectural precast concrete includes the following:

Precast concrete units as defined in the architectural plans. Potentially includes wall caps, columns, balustrade, quoins, pavers, finials, moldings, sills, or any other decorative element designed to be cast out of concrete. These are non-structural, self-supporting units.

1.02 SUBMITTALS

A. Product data and instructions for manufactured materials and products.

B. Provide Shop drawings showing complete information concerning the precast concrete units. Indicate member dimensions and side view. Unless otherwise noted, anchors will be embedded in a standard configuration.

C. Samples - Submit samples of color options and texture options for selection process and approval by Architect.

1.03 QUALITY ASSURANCE

A. Fabricator Qualifications: Should have experience in fabrication of architectural precast concrete units. Fabricator has sufficient production capacity to produce, transport and deliver required units without causing delay in the project.

B. Design modifications will be made only as necessary to meet field conditions and to ensure proper fitting of the work and only as acceptable to the Architect or Project Manager. Maintain general design concept shown without increasing or decreasing sizes of members or altering profiles and alignment shown without architects' approval. Modifications may need to be considered in view of budget constraints.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver precast concrete units to project site in such quantities and at such times to assure continuity of installation. Schedules and priorities will be based on the information provided by the customer. Products to be packaged to protect the finish during transport. Precast may be a long lead time item and should be ordered accordingly.

PART 2 - PRODUCTS

2.01 REINFORCING MATERIALS

A. Rebar used in some product designs to insure safe handling.

B. Corrugated Wall Ties - Included in moldings as the mechanical fastener. 22-gauge mill galvanized steel - 7/8” x 7”.

C. Threaded Inserts - Plastic inserts are included in very large castings such as large moldings, columns and stackable column components. These are for mechanical ties and not for lifting purposes.

D. Adhesives - Latex - modified mortar or equivalent used on a stable substrate in conjunction with the mechanical fastener should be used. White cement can be used to adjust the greenish color created by using the latex mortar.

E. Premium grade construction adhesives which come in tubes should be used for bonding columns and on flat surfaces where latex mortar cannot be used.

2.02 CONCRETE MATERIALS

A. Portland Cement: Type 1 Portland Cement Gray or Lehigh White

B. Use only one brand, type and source of supply of cement throughout the project, unless otherwise acceptable to Architect.

C. Coarse/Fine Aggregate - Sand and Gravel: Hard, durable, selected and graded; free of material that causes staining or reacting with cement.

D. Pigments: Nonfading, resistant to lime and other alkalies.

E. Water: Drinkable, free from foreign materials in amounts harmful to concrete and embedded steel.

F. Air-Entraining Admixture: Utilize standard mix designs incorporating admixtures which facilitate the workability, curing and strength of the mix.

G. Compressive Strength: 3500-5000 psi minimum at 28 days.

2.03 FABRICATION

A. General: Fabricate precast concrete units complying with manufacturing and testing procedures, quality control recommendations, and following dimensional tolerances, unless otherwise indicated.

B. Molds: Accurately construct molds mortar-tight and of sufficient strength to withstand pressures due to concrete placing operations and temperature changes. Maintain mold work to provide completed precast concrete units of shapes, lines and dimensions indicated, within specified fabrication tolerances.

C. Dimensional Tolerances of Finished Units: Ornamental architectural precast concrete, being tapered by design, is measured for length, width and thickness at the surface from which the

mold is loaded maintaining plus or minus 1/16 of an inch tolerance. Overall height and width measured at face adjacent to mold at time of casting:

D. Surface Finish: Fabricate precast units and provide exposed surface finished as follows:
   a. Modern – Smooth, relatively void free texture
   b. Traditional – Randomly spaced air voids producing a travertine-like finish. Etched – Lightly etched texture producing a limestone-like finish.
   c. Sandblast – Heavily etched texture exposing more aggregate. Antique - Irregular, rusticated finish.
   d. Color: To be selected by Architect.

PART 3 - RECOMMENDED EXECUTION OF THE INSTALLATION

A. The successful installation requires experienced, knowledgeable installers in order to achieve a quality installation. Local building codes should be followed. Considerations for installation include:

   a. Install precast concrete members plumb, level and in alignment. Provide temporary supports and bracing as required to maintain position, stability and alignment as members are being permanently connected.

   b. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.

   c. Accessories: Install clips, hangers and other accessories required for erection of precast units to supporting members and backup materials.

   d. Anchor units in final position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges and spacers as soon as possible after anchoring and grouting are completed.

   e. Cleaning: Clean exposed facings to remove dirt and stains on units after erection and completion of joint treatments. Protect other work from damage due to cleaning operations. Do not use cleaning materials or processes that could change the character of exposed concrete finishes.

-END OF SECTION-