

SECTION 03450 - PRECAST CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Architectural precast caps.

1.2 SUBMITTALS

- A. Shop Drawings: Submit Shop Drawings showing sizes, layout, anchors, and finishes.
- B. Samples: Submit for approval, at least four weeks before production of the elements, one sample for each type of finish specified representing the actual casting in the quality of the concrete and finish.
- C. Provide Architect with copies of concrete cylinder break test results of precast work.
- D. Submit Shop Drawings and samples in accordance with Section 01300.

1.3 STANDARD REFERENCES

- A. Design and construction of precast shall conform to PCI Requirements. Architectural Precast Items shall conform to PCI MHL 117.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cement: Portland Cement, conforming to requirements of ASTM C-150, type I, II or III. Color as required to achieve match to existing.
- B. Coarse and fine aggregates shall conform to requirements of ASTM designation C-33, and shall be free of injurious amounts of deleterious substances. Coarse and fine aggregates shall be white marble for architectural precast items.
- C. Concrete shall have a minimum compressive strength of not less than 5000 psi at 28 days. Concrete shall be air entrained 6% + 1%.
- D. Mixing water shall be free of any injurious amounts of acid, alkali, oil or organic material that may interfere with the setting of the cement.
- E. Reinforcing: ASTM A615, Grade 60, deformed bars; ASTM A185 welded wire.
- F. Clip Angles, Bolts, Anchors and Fasteners: Stainless steel.

2.2 FABRICATION

- A. Water/cement ratio shall not exceed .40; slump shall not exceed three inches. Design mix shall include an air entraining agent such as Darex, or approved equal, and an integral water repellent admixture. Where deemed necessary by the manufacturer to insure workability and proper surface finish, a water reducing agent such as WRDA, or approved equal, may be used.
- B. Mixing of the concrete shall be done in the precast manufacturer's plant under the supervision of his personnel and ready-mix concrete shall not be used.

- C. Provide adequate reinforcing.
- D. Conveying, Placing, and Consolidation of Concrete: The concrete shall be handled in such a manner as to prevent segregation and shall be consolidated by high frequency vibration. Internal vibration may be used only to overcome the effects of "Dead Spots" caused by the complexity of the product's shape.
- E. Elements shall be cast in forms of rigid construction. Forms must be accurate in detail with precise corners and arises to assure excellence in the finished product. Forms shall be of steel, wood or reinforced fiberglass construction.
- F. Curing of the elements shall be done with utmost care as to avoid excessive shrinkage and loss of ultimate compressive strength. Curing methods will be at the discretion of the manufacturer, but as required, to attain maximum strength and minimum shrinkage.
- G. All precast elements shall be thoroughly cured and shall have attained specified strength before being delivered to the job site.
- H. Cast-in all anchors and weld plates as detailed on Plans and approved Shop Drawings.
- I. Precast steps shall have closed sides and sloped risers.

2.3 FINISH

- A. Provide a smooth form finish on all exposed surfaces. Provide non-slip finish on surfaces to receive pedestrian traffic.
- B. Architectural Precast Items: Manufacturer: MGA Cast Stone, color: white. Provide a smooth uniform finish on all exposed surfaces. Seams in formwork shall not be visible, or leave variation in plane of the abutting form liners. Verify existing surface before rubbing as follows.
 1. Lightly sandblast smooth form finished surface to open bug holes and cut sheen.
 2. Apply a grout mixture with hard rubber float, rubbed flush with surface on all exposed surfaces, filling voids. Grout mixture shall be 3 parts sand passing a 70 mesh, 1 part cement and water, blended 1:1 ratio with Silpro C-21 acrylic latex additive and colorant to match concrete.
 3. Rub surface with burlap to provide uniform texture, removing all excess from the precast surface.
 4. Allow rubbed surface to cure for at least 24 hours and then wash surface with Sure Klean VanaTrol solution.

2.4 WORKMANSHIP

- A. All precast units shall be controlled during manufacture and installation to obtain the following results: The completed installation shall show no distortion of individual units or groups of units on visual inspection.
- B. Sizes of all elements shall conform to those shown on the approved Shop Drawings with the following dimensional tolerances. Cross sectional tolerances for depth up to 3' + 1/4". Deviation from straight line in units shall not be greater than 1/8" per six feet (6') of length not a total of 1/4" when measured by a tight line stretched from end to end of unit.

PART 3 - EXECUTION

3.1 HANDLING AND ERECTION

- A. Each element shall be properly marked to correspond with designation of the Shop Drawings.
- B. Elements shall be supported during storage, handling and hauling in such a way as to prevent warping, cracking, chipping or staining.
- C. All units shall be set in proper relation in true planes, plumb and level and securely anchored.
- D. Lifting devices shall be concealed, properly protected to prevent rusting and staining of concrete.

END OF SECTION 03450