

SECTION 02870

FORT ROSECRANS COLUMBARIUMS

PART 1 - GENERAL

1.1 SUMMARY

- A. PRECAST CONCRETE NICHE UNITS, PILASTER CAP AND WALL CAP made with mix design with 80% recycled materials or post industrial waste content.

1.2 REFERENCES

- A. Architectural Precast Association (APA).
B. ASTM

1.3 SUBMITTALS

- A. Product Data: Submit product data for manufactured materials and products.
B. Shop Drawing
1. Show in-place location, fabrication details, plans, elevations, anchorages, reinforcement, connection details and methods, dimensions, finishes, relationships to adjacent materials, and erection and placement.
- C. Samples: Nominal size 6" sq. by appropriate thickness, of each type of unit and finished facing shown and specified for approval of quality, color, and texture of surface finish. Submit prior to fabrication.
- D. Mix Design(s): Propose concrete mix design for each type and color of concrete mix.
- E. Test Reports: Compressive Strength. Supply 12 test results from the last year showing the required results of 5000 PSI.

1.4 QUALITY ASSURANCE

- A. Fabricator's Qualifications: Firm shall have a minimum of ten (10) years experience in producing units similar to those required for this Project, with sufficient production capacity to produce and deliver required units without causing delay in Work. Firms must have three (3) years in producing a concrete mix design with 80% recycled materials or post industrial waste content
- I. Fabricating plant shall be acertified plant and member of the following: a)
Architectural Precast Association (APA).

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver units to the Project site in such quantities and at such times to ensure continuity of installation.

- B. Deliver on a truck owned by the manufacturer. Truck to have a crane or a forklift for placement. Driver to be trained to use applicable equipment. Placement where possible. Owner to place product not reachable by manufacturer's equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Approved Fabricators:

1. Quick Crete Products Corp. P.O. Box 639 Norco, CA 92860. (951)737-6240 (main office), (951) 737-7032 (fax) www.quickcrete.com
2. Fabricators not listed as approved shall request approval. Approval request must be sent to the owner 30 days before bid opening. Request must include drawings, color samples, mix design with 80% recycled materials or post industrial waste content and an actual product for review by owner. Approved Fabricators must have a local salesperson living in the within the county. A^Pproved Fabricator must be able to produce all units within an 8-10 week lead-time. Approved Fabricator must ship on company owned trucks equipped with a crane or forklift for off-loading product.

2.2 MATERIALS

A. Concrete Materials:

1. Portland Cement: ASTM C 150, Type III (gray) or White to achieve desired finish colors. Use only one brand, type, and color from the same mill. Minimum of 30% of cement to be replaced with a pozzolan made from a recycled material or post industrial waste.
2. Aggregates: ASTM C 33, gradation may differ to achieve desired finish characteristics. Select coarse and fine aggregate colors and screen sizes to match approved sample(s). Verify that adequate supply, from one pit or quarry, for each type of aggregate is available for the entire Project. If possible obtain entire aggregate supply prior to starting Work, or have aggregate supply held in reserve by aggregate supplier. Use new mined materials only when necessary as shown above. Minimum of 90% of aggregates to be reclaimed and gradated so suitable for concrete.
3. Water: Reclaimed and treated to be suitable for use in concrete.
4. Admixtures:
 - a) Air Entraining: ASTM C 260.
 - b) Water Reducing: ASTM C 494, Type A,B,C,F. or G.
 - c) Coloring Agent: ASTM C 979, compatible with other concrete materials.
 - d) Waterproofing agent for corrosion control and a reduction in water absorption rate.

B. Formwork:

1. Provide forms with acceptable form facing materials that are non-reactive with concrete or form release agents and will produce required finish surfaces.
2. Construct and maintain forms to produce precast concrete units of shapes, lines, and dimensions indicated, within specified tolerances.

B. Reinforcing Materials:

1. Reinforcing Bars: ASTM A 615, Grade 60

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C. Connection Materials:

1. Bolts, washers, nuts to be zinc plated.

2.3 MIXES

- A. Design mixes for each type of concrete specified may be prepared by an independent testing agency or by architectural precast manufacturing plant personnel at precast fabricator's option.
- B. Mix Design must be made of 80% recycled materials or materials deemed post industrial waste as determined by the U.S. Green Building Council. Manufacturer to provide certification of recycled material and post industrial waste content from an independent laboratory approved by owner during the production sequence of specified product.
- C. Proportion mixes by either testing agency trial batch or field test data methods in accordance with ACI 211.1, using materials to be used on the project, to provide normal weight concrete with properties as follows:
 1. Compressive Strength: 5,000 psi when tested in accordance with ASTM C 39.
 2. Maximum water cement ratio 0.42 at point of placement.
 3. Add air-entrainment admixture to result in air content at point of placement complying with ACI 533 requirements.

2.4 FABRICATION

- A. General:
 1. Fabricate precast concrete units with manufacturing and testing procedures, quality control recommendations, and dimensional tolerances as specified in ACI 533, unless more stringent requirements are shown or specified.
 2. Fabricate units straight, smooth and true to size and shape, with exposed edges and corners precise and square, unless otherwise indicated.
 3. Benches must be made without any visible lift points.
- B. Reinforcement: Comply with CRSI "Manual of Standard Practice" and ACI 318 recommendations. Reinforce architectural precast concrete units to resist handling, transportation stresses, and to comply with specified performance criteria.
- C. Comply with ACI-533 requirements for measuring, mixing, transporting, and placing concrete.
- D. Consolidate concrete using equipment and procedures complying with ACI 533.
- E. Discard units that are warped, cracked, broken, spalled, stained, or otherwise defective unless repairs are approved by the Owner and meet specified requirements.
- F. Fabrication Tolerances: Fabricate to tolerances listed in ACI-533. 2.5

FINISHES

- A. Owner to choose a concrete color from one of Quick Crete Products Corp. standard colors. Texture to be determined from Quick Crete Products Corp. standard textures. Sealer to be Quick Crete's Standard Gloss Sealer.

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1. Surface finish free from pockets, sand streaks, honeycomb, with uniform color and texture.
Bugholes larger than 1/4 inch in diameter are not acceptable and must be filled.
- B. Seam lines to be stoned neatly to minimize appearance. Products with wide or uneven seam lines could be subject to rejection.

2.6 SEALERS

- A. All surfaces to be sealed with three coats of water based acrylic sealer, which has graffiti-resistant qualities. Must be non-sacrificial so most graffiti can be cleaned with lacquer thinner and not require resealing.

2.7 SOURCE QUALITY CONTROL

- A. Inspect and test architectural precast concrete in accordance with ACI 533.
- B. Defective Work: Discard units that do not conform to requirements as shown or specified. Replace with units which meet requirements.

2.8 GUARANTEE

- A. Fabricator to provide a one-year guarantee against manufacture's defect