

## **Custom Precast Concrete**

### **Section 03 04 00**

#### **Part 1 – General**

##### **1.01 SUMMARY**

- A. Perform all work required to furnish and complete the proper installation of precast concrete.
- B. Types of Precast Concrete work include:
  - 1. Precast Concrete Stairs
  - 2. Precast Concrete Caps
  - 3. Precast Concrete Benches
  - 4. Precast Concrete Copings
  - 5. Precast Concrete Veneer
  - 6. Precast Concrete Planters
  - 7. Precast Concrete \_\_\_\_\_
- C. Setting material, grouts, sealants and caulks
- D. Installation of precast concrete
- E. Related work not specified under this section
  - 1. Installation of steel units to receive precast concrete
  - 2. Installation of Concrete substrate to receive precast

##### **1.02 REFERENCES**

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM C-150
  - 2. ASTM C-128
  - 3. ASTM C-260
  - 4. ASTM C-31
  - 5. ASTM C-494
  - 6. ASTM C-39
- B. Precast Concrete Institute (PCI)

##### **1.03 SUBMITTALS**

- A. Shop Drawings
  - 1. Submit fabrication drawings of all precast concrete items showing detailed sections and profile for all precast items. Details shall show all reinforcing and cast in hardware.
- B. Samples
  - 1. Submit 1 sample for color and texture approval.
    - a. Color to be selected from manufacturer's standard offerings.
    - b. Match existing or architect's sample
    - c. Custom Sample Number \_\_\_\_\_
- C. Submit a copy of manufacturer's Quality Assurance and Procedure Manual
- D. Performance Requirements
  - 1. Compressive Strength 5,000 p.s.i. minimum
  - 2. Air Content 6-8%

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3. Water-Cement Ration .45
4. Deflection Max: L/720
- E. Test Results
  1. Manufacturer shall furnish test results attesting that materials meet specification requirements.

#### 1.04 QUALITY ASSURANCE

- A. Qualifications: Precast Concrete Manufacturer and Trade Contractor must have a minimum of 5 years of successful experience on projects of similar magnitude and complexity to the indicated project.
- B. Manufacturer and contractor to be prequalified by Architect prior to bidding and failure to do so will void bid.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Packaging and Shipping: precast concrete to be palletized, shrink wrapped and marked with legible manufacturer identification, including piece number and quantities.
- B. Storage and Protection precast concrete to be stored in secure area in original packaging.
- C. Protect from damage by other trades.
- D. Report all damage due to shipment immediately. Customer is required to sign the Bill of Lading slip detailing the damaged product. Picture proof is required.

#### 1.06 WARRANTY

- A. For a period of two (2) years from delivery of precast concrete, manufacturer warrants the precast concrete products against defects in workmanship and materials per industry standards. This warranty does not cover the above products for cracking and faulting caused by settling due to improper or faulty substrates or improper installation; nor does it cover damage caused by impact, vandalism or natural disaster.

## PART 2 – PRODUCTS

### 2.01 MANUFACTURERS

- A. Acceptable Manufacturer:
  1. Wausau Tile, Inc. | 1.800.388.8728 | info@wausautile.com | www.wausautile.com
- B. Clarification Note: Drawings and specifications are based on manufacturer's proprietary literature from Wausau Tile, Inc. Other manufacturers shall comply with minimum levels of material specifications and detailing indicated on the drawings of specified herein.

### 2.02 MATERIAL REQUIREMENTS

- A. Portland Cement: ASTM C-150 Specifications for Portland Cement.
- B. Aggregates: Aggregate shall be blended to meet individual project requirements.
- C. Coloring; Pigments used shall be inorganic, resistant to alkalinity and used per manufacturer's recommendations.
- D. Reinforcement and Hardware:
  1. Reinforce precast with deformed rods as recommended by precast concrete manufacturer.
- E. Abrasive Inserts: Shall consist of silica sand and epoxy.

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1. Abrasive Color: \_\_\_\_\_
  2. Specify one to three lines.
- F. Setting Materials, Caulks & Sealants
1. Color(s) to be selected by Architect.
  2. Sealer: Colorless, pure acrylic water repellent sealer. Sealer to maintain natural look of concrete surface with no glaze or gloss, darkening or color change.
  3. Precast manufacturer is not a reseller for any of the above products. Please contact the following supplier for information and recommendations on job specific installation materials:
    - a. Acceptable Supplier:  
Custom Building Products/Aqua Mix, 800-272-878  
E-mail: [info@cbpmail.net](mailto:info@cbpmail.net) Website: [www.custombuildingproducts.com](http://www.custombuildingproducts.com)

## 2.03 MANUFACTURED UNITS

- A. Sizing Tolerances
1. All units to conform to shop drawings with a (+/-) 1/8" tolerance in dimension.
- B. Precast Surfaces and Edges:
1. All exposed edges to have minimum of 1/8" radius to prevent chipping.
  2. All finished surfaces to match approved control sample.
  3. All precast concrete finished surfaces to be factory sealed.

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine substrates for the following:
1. Defects or cracks in existing work or substrate.
  2. Deviations beyond allowable tolerances for the substrate.
- B. Continue with installation of precast units only when all defects have been corrected.

### 3.02 Project Conditions

- A. Do not install products under environmental conditions outside setting material manufacturer's absolute limits.

### 3.3 INSTALLATION

- A. Precast Tread setting methods include
1. Thin Set Application
    - a. Substrate of concrete or steel (steel at interior application only). Must be within a tolerance of 1/8" in all dimensions.
    - b. Latex modified thin set mortar used over concrete substrate.
      1. Setting bed must be continuous under the entire length of the tread and behind the entire riser. Setting materials utilized per manufacture's recommended instruction.
    - c. Epoxy thin set is used over steel substrate.
      1. Setting bed must be continuous under the entire length of the tread and behind the entire riser. Setting materials utilized per manufacture's recommended instruction.

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- d. Set treads level and plumb to meet finished nosing layout.
2. Mortar Set Application
  - a. Substrate of concrete or steel (steel at interior application only). Must be within a tolerance of 1/8" in all dimensions.
  - b. The height of the mortar bed is established based on tread nosing layout marks and precast thickness. The mortar bed is then placed or screeded over primed substrate.
    1. Setting bed must be continuous under the entire length of the tread and behind the entire riser. Setting materials utilized per manufacture's recommended instruction.
  - c. Set treads level and plumb to meet finished nosing layout.
3. Tab Set Application
  - a. Substrate of concrete or steel (steel at interior application only) must be within a tolerance of 1/8" in all dimensions.
  - b. Tabs to be set at front and back of tread every 12" O.C. minimum.
  - c. Set treads level and plumb to established nosing layout.
- B. Joints
  1. Joints between adjacent precast should be a minimum of 1/8"-1/4".
- C. Caulking of Precast
  1. Clean all joints thoroughly, removing all debris.
  2. Wipe all joints with caulk manufacturer's recommended cleaner prior to application.
  3. Use urethane caulk. (Color match caulk to precast per architect selection.)
  4. Clean up after caulking as per caulk manufacturer's recommendations.
- D. Precast Concrete products setting or installation methods are to be reviewed by the manufacturer and setting materials supplier.
- E. Final Cleaning of Precast Concrete
  1. Check all surfaces and caulking, make repairs as necessary.
  2. Clean treads with a pH balanced soap.
- F. Protection:
  1. Upon completion, the work shall be ready for final inspection and acceptance by owner or owner's agent.
  2. General Contractor shall protect the finished work from the time the installing contractor completes the work.
- G. Finish:
  1. Overall match to approved sample and per industry standards.
  2. All products to be factory sealed.

## PART 4 – CARE AND MAINTENANCE

### 4.1

#### A. Cleaning

1. To preserve the appearance and extend the life of the Precast Concrete cleaning and maintenance processes must be in place. When using the following procedures, please follow the product manufacturer's instructions regarding the use of any equipment or cleaning materials described here.
  - a. Power sweep, then pressure wash precast surface. Spot clean any stained areas.

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- b. Spot clean any stained areas by using a neutral, non-aggressive cleaner. This may require effort to remove some of the tougher marks or stains.
    1. Example of off-the-shelf cleaners: Citrus cleaner, Simple Green
  - c. Always start with the most neutral cleaner and work your way toward the more aggressive cleaners.
  - d. In extreme cases, contact Wausau Tile to discuss options
  - e. Be sure to use plastic, rubber or nylon tip equipment; this will help prevent scratches on the concrete.
2. Precast Concrete is built to withstand aggressive cleaning; however, the more aggressive the cleaner, the more risk is involved. Strict adherence to all product warnings is suggested.
  3. In all cases after cleaning and/or patching, it is recommended that the Precast be sealed. This will help protect the product from environmental effects. Contact manufacturer to obtain sealer and stain information based on specific job.
- B. Maintenance
1. Annual maintenance is recommended; however, in cases of extreme use, the best time for application is when the appearance of the product is showing wear or is appearing dull.
  2. Check the precast for broken and chipped pieces. If damaged, contact manufacturer before repairing to order a patch kit and obtain patching procedures.
  3. De-icing salts can damage concrete, causing them to scale or break apart. If necessary, these chemicals should be used sparingly and with caution on our concrete products.
    - a. Salt based products are not recommended
  4. De-icers should be used only when necessary to help loosen snow and ice, and make removal easier. Never over-apply de-icing products. Mix the de-icers with sand to increase their effectiveness and reduce overall use.
    - a. Always read and follow label directions when applying de-icing materials.
    - b. Calcium magnesium acetate chloride tends to cause the least amount of damage to Precast Concrete
  5. Other manufacturer's products used in conjunction with the Precast Concrete may require additional maintenance. Including but not limited to: Wood, Metals, Plastics, etc. Contact product specific manufacturers for their maintenance requirements.

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