

**SECTION 32 14 17**  
**DETECTABLE WARNING PAVERS**

**PART 1 GENERAL****1.1 SUMMARY**

Furnish materials, labor, transportation, services, and equipment necessary to furnish and install Architectural Concrete Pavers as indicated on drawings and as specified herein.

**1.2 REFERENCES**

- A. American Society of Testing Materials (ASTM):
  - 1. ASTM C-150
  - 2. ASTM C-33
  - 3. ASTM C-140
  - 4. ASTM C-293
  - 5. ASTM C-1028
  - 6. ASTM C501, 50
  - 7. ASTM C241
- B. Performance Requirements
  - 1. Compressive Strength at the time of delivery to be not less than 5,000 psi; Averaging 7,000 psi when tested in accordance with ASTM C-140.
  - 2. Water Absorption shall not be greater than 5-1/2% to 6-1/2%, when tested in accordance with ASTM C-293.
  - 3. Flexural Strength shall not be less than 900psi average. 950psi when tested in accordance with ASTM C-293.
  - 4. Static Coefficient of Friction ASTM C-1028 conditionally slip resistant:
    - a. Wet: 0.50 - 0.60
    - b. Dry: 0.60 - 0.70

**1.3 QUALITY ASSURANCE**

- A. Manufacturer: Company specializing in the manufacture of pre-cast concrete pavers for a minimum of three (3) years.
- B. Installation shall be by a contractor and crew with at least (1) year of experience in placing concrete pavers on projects of similar nature or dollar cost.
- C. Installation Contractor shall conform to all local, state/provincial licensing and bonding requirements.

**1.4 SUBMITTALS**

- A. Submit installation instructions as recommended by manufacturer.

- B. Submit full size sample sets of concrete paving units to indicate color and shape selections. Color will be selected by Resident Engineer from manufacturer's available colors.
- C. Submit sieve analysis for grading of bedding and joint sand.
- D. Submit test results from an independent testing laboratory for compliance with performance requirements specified herein.
- E. Indicate layout, pattern, and relationship of paving joints to fixtures and project formed details.
- F. Submit two copies of written instructions for recommended maintenance.

#### **1.5 PROJECT CONDITIONS**

- A. Do not install sand or pavers during heavy rain or snowfall.
- B. Do not install sand and pavers over frozen base materials.
- C. Do not install frozen sand.

#### **1.6 PRODUCT DELIVERY, STORAGE AND HANDLING**

Packaging and Shipping: Precast pavers to be stretch wrapped in rows and banded on pallets, delivered in original unopened packaging with legible manufacturer identification, including size, quantity, manufacture date and inspector initials.

#### **1.7 WARRANTY**

Manufacturer/Installer shall warrant installed system for a period of 3 year from date of completion against failure of workmanship and materials.

#### **1.8 MAINTENANCE**

Extra Materials: Deliver supply of maintenance materials to the owner. Furnish maintenance materials from same lot as materials installed, and enclosed in protective packaging with appropriate identifying labels.

Furnish not less than 1 percent of total product installed maintenance stock for each type, color, pattern and size of paver product installed.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. *Portland Cement*: ASTM C-150 specifications for Portland Cement.
- B. *Aggregates*: All aggregates to meet ASTM C-33 specifications, cleaned and properly graded to size. Aggregate shall be blended to meet individual project requirements. Aggregates to meet ASTM C241 HA 10 minimum.

- C. *Coloring*: Pigments used shall be inorganic, resistant to alkalinity and used per manufacturer's recommendations.
- D. *Color Blending*: Factory-blend pre-cast paver that has a natural color range so products taken from one container will have the same range as products from a separate container.
- E. *Cleaner*: Liquid neutral chemical cleaner with pH factor between 7 and 8, of formulation recommended by sealer manufacturer for type of precast paver used.
- F. *Sealer*: Colorless, slip and stain resistant penetrating or acrylic sealer with pH factor between 7 and 8 that does not affect color or physical properties of precast paver surface.

### 2.3 MANUFACTURED UNITS

#### Precast Pavers

- 1. Sizes:
  - 11.875" x 11.875" (Actual)
  - 11.875" x 23.622" (Actual)
  - 15.75" x 15.75" (Actual)
  - 19.68" x 19.68" (Actual)
  - 15.75" x 15.75" Octagonal
- 2. Square face edges or beveled.
- 3. Finish: Rough ground and shot blast surface.
- 4. Color: Colors to be selected from manufacturer's standard stocking color chart.
- 5. Concrete pavers are not factory sealed.

### 2.4 MIXES

- A. *Aggregate*: natural, sound, crushed marble chips without excessive flats or flakes
- B. *Matrix Pigments*: Pure mineral or synthetic pigments, resistant to alkalis and non-fading. Mix pigments with matrix to provide required colors.
- C. *Face layer*: Minimum depth of 3/8" (nominal) and shall include 70% coverage of the Paver face with marble aggregate.

### 2.5 FABRICATION

- A. Mechanically vibrated in the molds.
- B. Hydraulically pressed by 600 tons of pressure.
- C. Moisture cured with 100% humidity for 24 hours.
- D. Factory finish: In-line grinding and shotblasting.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

Inspect areas to receive underbed for:

1. Defects in existing work that affect proper execution of Paver installation.
2. Variances beyond allowable tolerances.
3. Maximum variation in subfloor not to exceed 1/8" in 10'0" from required plane.

**3.2 INSTALLATION**

A. Thinset application

1. Apply latex cement mortar, conform with ANSI A118.4 utilizing a 3/8" x 1/4" square notch trowel.
2. Apply thin set for a minimum of 1/8" setting bed. Allow for thinset manufacturers' recommended setting time before grouting (if required).
3. Coat underside of each unit with latex cement mortar, firmly set, tamp into bedding to ensure minimum 95% surface contact with mortar bed.
4. All units to be installed level, square, parallel, except where otherwise indicated in a true plane with adjacent units and other floor finishes.
5. Maintain a maximum joint of 1/32" or less.

B. Control Joints

1. Over all structural expansion joints
2. All perimeter edges to have soft joints.

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