

## **SECTION 02510 - PORTLAND CEMENT CONCRETE PAVING**

### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES

- A. Concrete Curbs
- B. Concrete Sidewalks, pads & steps
- C. Concrete Paving, footings, foundations, slabs

#### 1.02 RELATED SECTIONS

- A. Refer to appropriate related sections as applicable

#### 1.03 REFERENCES

- A. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- B. ACI 305R - Hot Weather Concreting.
- C. ACI 306R - Cold Weather Concreting.
- D. ACI 308 - Standard Practice for Curing Concrete.
- E. ACI 318 - Building Code Requirements for Reinforced Concrete.
- F. ANSI/ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- G. ANSI/ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
- H. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- I. ASTM C33 - Concrete Aggregates.
- J. ASTM C94 - Ready-Mixed Concrete.
- K. ASTM C150 - Portland Cement.
- L. ASTM-C260 - Air Entraining Admixtures for Concrete.
- M. ASTM C494 - Chemicals Admixtures for Concrete.

#### 1.05 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Maintain one copy of each document on site.
- C. Acquire cement and aggregate from same source for all work.
- D. Conform to ACI 305R when concreting during hot weather.
- E. Conform to ACI 306R when concreting during cold weather.

### PART 2 - PRODUCTS

2.01 CONCRETE TYPES

- A. Class A and B Concrete.

2.02 MATERIAL

A.	CLASS A	CLASS B
Coarse Aggregate Size No.	56, 57, 67	56, 57, 67
Minimum Cement Factor (lbs / cu yd)	611	470
Maximum Water / Cement Ratio (lbs / cu yd)	0.490	0.660
Slump Acceptance Limits (in. lower - upper)	2 - 4	2 - 4
Entrained Air Acceptance Limits (% lower - upper)	2.5 - 6.0	0.0 - 6.0

- |   | CLASS A | CLASS B |
|---|---------|---------|
| Minimum Compressive Strength<br>28 Days (psi) | 3000    | 2500    |
- B. Refer to GA DOT standards and specifications.
  - C. Minimum compressive strength shall be as stated on plans.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal.
- B. Fine and Coarse Aggregate : ASTM C33.
- C. Water: Clean and not detrimental to concrete.

2.04 CONCRETE MIX

- A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94.
- B. Select proportions for normal weight concrete in accordance with ACI 301 Method 1.

- C. No mixing onsite will be allowed, no fly ash or other additives will be allowed, water shall not be added after initial mixing at plant. Concrete older than 90 minutes from initial mixing at plant shall not be used.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Verify all formwork is correctly installed and located.
- B. Verify requirements for concrete cover over reinforcement.

#### 3.02 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

#### 3.03 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304.
- B. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
- C. Install joint devices in accordance with manufacturer's instructions.
- D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- E. Place concrete continuously between predetermined expansion, control, and construction joints.

#### 3.04 RESERVED

#### 3.05 CONCRETE FINISHING

- A. Broom finish surfaces which are scheduled to be exposed or as directed by the Architect or shown on the plans. Verify required finish WITH Architect and Owner prior to construction.

#### 3.06 CURBING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

#### 3.07 FIELD QUALITY CONTROL

- A. Field testing will be performed in accordance with ACI 301.

### 3.08 PATCHING

- A. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Architect/Engineer upon discovery.

### 3.09 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect/Engineer.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

### 3.10 SIDEWALKS

- A. Walks shall be constructed of Class B concrete, and shall be minimum four (4") inches depth. All sidewalks shall have minimum 6X6 10 Gauge welded wire fabric reinforcement placed at 1.5 inches from bottom of concrete, with 6 inched graded aggregate base compacted to minimum 95 percent maximum dry density. Transverse contraction joints shall be formed with tool designed for forming groove one-third of the depth of the sidewalk, and located as shown on the architectural drawings, or at a minimum of twice the sidewalk width, or 10 feet maximum. All edges shall be rounded with a 1-1/4" edger. Full depth expansion joints shall be located on not more than 20'-0" centers and at all intersections. All sidewalk surfaces should be broom finished or as directed by Architect or as shown on plans. Verify finish prior to construction.

### 3.11 CURBS

- A. Curbs shall be constructed of Class A concrete and all curbing shall be placed in compacted subsoil meeting specifications. Curbing shall be as shown on plans. Transverse contraction joints shall be formed with tool designed for forming groove, and on no more than 6'-0" centers. Expansion joints shall be located on not more than 20'-0" centers and at all intersections.
- B. Gutter cross section slope shall be adjusted at low points and as required to meet design intent for drainage and flow direction. At upstream low point sections the gutter cross slope shall be sloped in the

direction of flow and blended smooth with adjacent curb and gutter. No ponding will be allowed in any gutter section.

### 3.12 CONCRETE PADS & STEPS

- A. Shall be constructed of Class A concrete. Concrete reinforcement according to construction details, minimum 6x6 10 gauge welded wire fabric. All concrete pads poured at entrance or exit doorways or access points shall be poured to the finish floor level at the interface with the building, and immediately sloping away from the building at a rate of 1/8 inch per foot or 1.0 percent minimum. Provide positive slope away from building or structure at all points, no ponding or depressed areas will be allowed.

END OF SECTION 02510