

DECORATIVE CONCRETE PAVING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section describes the requirements for providing the following type(s) of decorative concrete paving:
 - 1. Integrally colored concrete paving at driveway between the Hall of Justice and the Parking Structure.

1.02 SUBMITTALS

- A. Sample Panel: Minimum 48-inch x 48-inch sample panel of each type of decorative concrete. Resubmit until samples are accepted by the County's Representative. Approved samples shall be retained at the Project site for use as a standard of quality and appearance.

1.03 QUALITY ASSURANCE

- A. Codes and Standards: Comply with local governing regulations if more stringent than the requirements specified in this Section.
- B. Perform work in accordance with ACI 301 and 316.
- C. Obtain each material from same source and maintain high degree of consistency in workmanship throughout the Project.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Color Additives: Comply with manufacturer's instructions. Deliver color additives in original, unopened packaging. Store in dry conditions.

1.05 JOB CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities. Provide flagmen, barricades, warning signs and lights as required.
- B. Conform to ACI 305 during hot weather.
- C. Conform to ACI 306 during cold weather.
- D. Avoid placing concrete if rain is forecast within 24-hours. Protect fresh concrete from moisture and freezing.
- E. Schedule delivery of concrete to provide consistent mix times from batching until discharge.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain alignment until removal.
 - 1. Use straight forms, free of distortion and defects.
 - 2. Use flexible spring steel forms or laminated boards to form radius bends as required.
 - 3. Coat with a non-staining form release agent that will not discolor or deface concrete.
- B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A185.
- C. Reinforcing Bars: Deformed steel bars, ASTM A615, Grade 40.

- D. Portland Cement: ASTM C150, Type I, II, or V depending on soil conditions; white where required for selected color.
- E. Aggregates: ASTM C33.
- F. Water: Fresh, clean, potable.
- G. Admixtures:
 - 1. Air Entraining Admixture: ASTM C260.
 - 2. Water Reducing Admixture: ASTM C494.
 - 3. Do not use calcium chloride admixtures.
- H. Concrete Colorant: Davis Colors, L.M. Scofield or approved equal, color as selected by County's Representative. Color additives shall contain pure, concentrated mineral pigments specially processed for mixing into concrete, complying with ASTM C979.
- I. Curing Compound for Colored Concrete: ASTM C309, approved by color additive manufacturer for use with colored concrete.

2.02 CONCRETE MIX DESIGN AND TESTING

- A. Design mix to produce normal-weight concrete consisting of portland cement, aggregate, water-reducing or high-range water reducing admixture, air-entraining admixture and water to produce the following properties:
 - 1. Compressive Strength: 2500-psi, minimum at 28-days.
 - 2. Slump Range: 3- to 4-inches.
- B. Mix integrally colored concrete and textured in accordance with colorant manufacturers' instructions. Mix until color additives are uniformly dispersed throughout mixture and disintegrating bags, if used, have disintegrated. Do not retemper mix by adding water in field. Dosage rate of color additive shall not exceed 10-percent of weight of cementitious materials in mix.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Remove loose material from compacted subgrade immediately before placing concrete.
- B. Proof-roll prepared subgrade surface to check for unstable areas and required additional compaction.
- C. Do not begin paving work until unsatisfactory conditions have been corrected.

3.02 FORM CONSTRUCTION

- A. Set forms to required grades and lines, rigidly braced and secured.
 - 1. Install sufficient quantity to allow continuous progress of work and so that forms can remain in place at least 24-hours after concrete placement.
 - 2. Check completed formwork for grade and alignment to following tolerances:
 - a. Top of forms not more than 1/8-inch in 10-feet.
 - b. Vertical face on longitudinal axis, not more than 1/4-inch in 10-feet.
 - 3. Clean forms after each use, and coat with form release agent as required.

3.03 REINFORCEMENT

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice to "Placing Reinforcing Bars" for placing and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover.
- D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.04 CONCRETE PLACEMENT

- A. Do not place concrete until subgrade and forms have been checked for line and grade.
 - 1. Moisten subgrade if required to provide a uniform dampened condition at time concrete is placed.
 - 2. Do not place concrete around manholes or other structures until they are at required finish elevations and alignment.
- B. Place concrete using methods which prevent segregation of mix.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement and side forms.
 - 2. Use only square faced shovels for hand-spreading and consolidation. Carefully consolidate to avoid dislocating reinforcing, dowels and joints.
 - 3. Deposit and spread concrete in a continuous operation between transverse joints. If placement is interrupted for more than 1/2-hour, provide a construction joint.
 - 4. Use bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete.

3.05 JOINTS

- A. General: Construct expansion, weakened-plane, and construction joints true to line with face perpendicular to concrete surfaces.
 - 1. When joining existing structures, place transverse joints to align with previously placed joints.
- B. Weakened-Plane Joints: Provide joints sectioning concrete surfaces into areas. Construct for a depth equal to at least 1/4 concrete thickness, by either tooling or saw cutting.
- C. Construction Joints: Place at end of placements and where placement operations are stopped for a period of more than 1/2-hour, except where placements terminate at expansion joints.
- D. Expansion Joints: Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walls and other fixed objects.
 - 1. Extend joint fillers full width and depth of joint, and not less than 1/2-inch or more than 1-inch below finished surface where joint sealer is installed. If no joint sealer is installed, place top of filler flush with concrete surface.
 - 2. Provide joint fillers in one-piece lengths for full width being placed. If more than one length is required, lace or clip joint filler sections together.
 - 3. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove after concrete has been placed on both sides of joint.

3.06 INTEGRALLY COLORED CONCRETE FINISHING

- A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Adjust floating to compact surface and produce uniform texture.
- B. After floating, test surface for trueness with a 10-foot straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- C. Work edges of slabs and formed joints with an edging tool, and round to 1/2-inch radius. Eliminate tool marks.
- D. Broom Finish: After completion of floating and troweling, complete finishing by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to County's Representative.
- E. Do not remove forms for 24-hours after placement. After removal, clean ends of joints and point-up minor honey-combed areas. Remove and replace defective areas as directed by County's Representative.

3.07 REPAIRS AND PROTECTION

- A. Repair or replace broken or defective concrete, as directed by County's Representative.
- B. Protect concrete from damage until acceptance of work. Prohibit traffic for at least 14-days after placement.
 - 1. When construction traffic is permitted, remove surface stains and spillage of materials as they occur.
 - 2. Sweep concrete pavement and wash free of stains, discolorations, dirt and other foreign material prior to final inspection.

END OF SECTION