



**SPECIAL PROVISIONS
FOR
DECORATIVE CONCRETE PAVING**

**Linn County
NHSN-000-S(778)--2R-57**

**Effective Date
May 19, 2015**

THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

120304.01 DESCRIPTION.

A. Summary.

This Section includes Integral / Colored Concrete Paving for Splash Block.

B. Submittals.

1. Submit samples as required showing colors, finishes and sealer.
2. Color Chart.
3. Product Data: For each type of product indicated.
4. Qualification Data: For Installer: showing experience of similar finishes of equal or greater size as indicated by Quality Assurance below.

120304.02 MATERIALS.

A. Concrete.

1. Mix Design.

- a. Concrete shall have a minimum design strength of 4000 psi.
- b. Portland Cement shall conform to ASTM C150, C595 or C1157 depending on soil conditions.
- c. Aggregate shall conform to ASTM C33.
- d. Air entrainment shall conform to ASTM C260.

2. Coloring, Texture and Sealing Materials.

- a. Locate types of pavement per drawings.

- Splash Block – 4 inches Thick / Davis Omaha Tan Color
- b. Light broom finish will be used for all surface texturing.
- c. Slabs shall be sealed in accordance with the manufacture's recommendations.

B. Forms.

1. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces. Use flexible or curved form materials for curves of a radius 100 feet or less.
2. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

C. Concrete Materials.

Use materials, of the same type, brand, and source, throughout the Project. Maximum Aggregate Size: 3/4 inch nominal.

D. Fiber Reinforcement.

1. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in decorative cement concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches long.
2. Available Products:
 - a. Axim Concrete Technologies; Fibrasol IIP.
 - b. Euclid Chemical Company (The); Fiberstrand 100.
 - c. FORTA Corporation; Forta Mono.
 - d. Grace Construction Products, W. R. Grace & Co.; Grace MicroFiber.
 - e. Fibermesh 150/Stealth Fiber

E. Related Materials.

Expansion Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or approved foam expansion for radial joints

F. Concrete Mixtures.

1. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate.
2. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

120304.03 CONSTRUCTION.

A. Examination.

1. Examine exposed sub-grades and sub-base surfaces for compliance with tolerances for dimensional, grading, and elevation tolerances.
2. Proof-roll prepared sub-base surface with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.
 - a. Completely proof-roll sub-base in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - b. Sub-base with areas exhibiting pumping or rutting exceeding depth of 1/2 inch require core out and re-grading with modified subbase.

3. Proceed with decorative cement concrete pavement operations only after nonconforming conditions have been corrected and sub-grade is ready to receive pavement.

B. Preparation.

1. Remove loose material from compacted sub-base surface immediately before placing concrete.
2. Protect adjacent construction from discoloration and spillage during application of color hardeners, release agents, stains, curing compounds, and sealers.

C. Edge Forms and Screed Construction.

1. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
2. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

D. Joints.

1. General: Construct construction, expansion, and score joints and tool edgings true per drawings. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
2. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than 1/2 hour, unless pavement terminates at isolation joints.
3. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1 1/2 inches into concrete.
4. Expansion Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 - a. Locate expansion joints where indicated on drawings. Where not indicated, use intervals of 50 feet.
 - b. Extend joint fillers full width and depth of joint.
 - c. Terminate joint filler less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - d. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated. Joint filler color to match adjacent concrete.
 - e. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - f. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
5. Score Joints: Place as indicated on drawings. Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness. Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8 inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

6. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4 inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

E. Concrete Placement.

1. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
2. Remove snow, ice, or frost from sub-base surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
3. Moisten sub-base to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
4. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
5. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
6. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
7. Screed pavement surfaces with a straightedge and strike off.
8. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
9. When adjoining pavement is placed in separate pours, do not operate equipment on concrete until pavement has attained 85% of its 28 day compressive strength.
10. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - a. When air temperature has fallen to or is expected to fall below 40°F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F and not more than 80°F at point of placement.
 - b. Do not use frozen materials or materials containing ice or snow.
 - c. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
11. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - a. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

- b. Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
- c. Fog spray forms, reinforcement steel, and sub-grade just before placing concrete. Keep sub-grade moisture uniform without standing water, soft spots, or dry areas.

F. Concrete Protection and Curing.

1. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
2. Comply with ACI 306.1 for cold-weather protection.
3. Begin curing after finishing concrete but not before free water has disappeared from surface.
4. Curing and Sealing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

G. Pavement Tolerances.

Comply with tolerances of ACI 117 and as follows:

- Elevation: 1/4 inch.
- Thickness: Plus 3/8 inch, minus 1/4 inch.
- Surface: Gap below 10 foot long, unlevelled straightedge not to exceed 1/4 inch.
- Lateral Alignment and Spacing of Dowels: 1 inch.
- Vertical Alignment of Dowels: 1/4 inch.
- Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
- Joint Spacing: 3 inches.
- Contraction Joint Depth: Plus 1/4 inch, no minus.
- Joint Width: Plus 1/8 inch, no minus.

H. Field Quality Control.

Engineer will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports. Testing shall comply with the requirements of Section 2301 of the Standard Specifications.

I. Repairs and Protection.

1. Remove and replace decorative cement concrete pavement that is broken, damaged, or does not comply with requirements in this Section in complete sections from joint to joint, unless otherwise approved by Engineer.
2. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
3. Maintain decorative cement concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep decorative concrete pavement not more than 2 days before date scheduled for Substantial Completion inspections.

120304.04 METHOD OF MEASUREMENT.

The Engineer will measure the Splash Block in square yards.

120304.05 BASIS OF PAYMENT.

Contractor will be paid for the finished area of Splash Block installed in place. Payment for Splash Block, As Per Plan, will be full compensation for supplying and installing the concrete, base, forms, finish, color and all labor, equipment and materials necessary to complete the Splash Block in place, per the plans and specifications.