



**SPECIAL PROVISIONS
FOR
BRIDGE APPROACH PAVEMENT, COLORED PCC**

**Polk County
EDP-8260(653)--7Y-77**

**Effective Date
February 21, 2023**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

151181.01 DESCRIPTION.

A. Scope.

This work consists of construction and finishing colored concrete approach pavement in the north plaza vicinity near the north river abutment. Includes layout, forming, reinforcing, integrally colored concrete, curing and sealing agents, joint material, labor, and materials to construct per plan. Includes mockups and submittals for review. See R series drawings for sign details and V series drawings for anchors and concrete details.

B. References.

The publications listed below form a part of this specification to the extent referenced. The publications are referred to by basic designation only.

1. ASTM C 309 Guide for Measuring, Mixing, Transporting, and Placing Concrete.
2. ASTM C 494 Standard Specification for Chemical Admixtures for Concrete.
3. ASTM C 979 Standard Specification for Pigments for Integrally Colored Concrete.
4. ACI 301 Specification for Structural Concrete for Buildings". SSPC-SP2 – Hand Tool Cleaning.
5. ACI 302 1R Guide to Concrete Floor and Slab Construction.
6. ACI 303R Guide to Cast-In-Place Architectural Concrete Practice
7. ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete.
8. ACI 305R Guide to Hot Weather Concreting.
9. ACI 306R Guide to Cold Weather Concreting.
10. AASHTO M194 Chemical Admixtures.

C. Submittals.

1. Product Data: Submit manufacturer technical data sheets for the following:
 - a. Integral colored concrete mix design.
 - b. Curing and sealing compound for integral colored concrete.
2. Samples for initial selection: Manufacturer color charts showing selection that complies with specified color.
3. Qualification Data: or firms indicated in "Quality Assurance" Article, including list of completed projects.

D. Quality Assurance.

1. Manufacturer Qualifications. Manufacturer with 10 years' experience in production of specified products.
2. Installer Qualifications. An installer with 5 years of experience with work of similar scope and quality.
3. Comply with the requirements of ACI 301.
4. Obtain specified material from same source. Maintain consistency in workmanship throughout the project.
5. Notification of manufacturer's authorized representative shall be given at least 1 week before start of work.

E. Colored Concrete Mockups.

1. At least 60 calendar days prior to production work and at location on project selected by the Engineer, place and finish one 10 feet by 10 feet area simulating the location indicated in the plans to demonstrate colored concrete and joints with end color result.
2. Construct mockup using processes, details and techniques intended for use on permanent work, including two-stage pour with contrasting colors, finishing, and curing procedures. The mockup shall represent the full thickness of the slab. Include samples of control, construction, and expansion joints in sample panels. Mockup shall be produced by the individual workers who will perform the work for the project.
3. If mockup is rejected, construct another mockup at the direction of the Engineer.
4. Accepted mockup shall provide visual and slip-resistance standard for production concrete work.
5. Mockups shall remain through completion of the work for use as a quality standard for finished work.
6. Upon completion of the associated work and at the direction of the Engineer, the mockup(s) shall be removed from the site.

F. Delivery, Storage and Handling.

1. Deliver products in original factory unopened, undamaged packaging with identification of product, manufacturer, batch number, and expiration date.
2. Store product in a location protected from damage from construction and weather in accordance with manufacturer recommendations.

G. Field Conditions.

1. Schedule placement to minimize exposure to wind and high temperature sunny conditions.
2. Avoid placing concrete if rain, snow, or frost is forecast within 24 hours of placement. Protect

recently placed concrete from rain and freezing temperatures.

3. Comply with professional practices described in ACI 305R and ACI 306R.
4. Schedule delivery of integral colored concrete to provide consistent mix times for batching until discharge. Mix times shall meet manufacturer's written recommendations.

H. Pre-Construction Meeting

Before placing concrete, hold a meeting with Contracting Authority, Contractor, Engineer, and Manufacturer's Representative to discuss project and application methods.

151181.02 MATERIALS.

A. Acceptable Manufacturers.

The manufactures below or an approved equal shall be used for colored admixture for integrally colored concrete.

1. Sika USA, <https://usa.sika.com/en/construction/concrete/decorative-concrete.html>
2. Brickform, <https://www.solomoncolors.com/brickform.php>
3. Butterfield Color, <https://www.butterfieldcolor.com/>

B. Materials.

1. Colored Admixture for integrally colored concrete.

- a. Two contrasting colors for concrete pavement will shall be selected by the Engineer after award from the manufacturer's standard color palette.
 - b. Admixture shall be a colored, water-reducing, admixture containing no calcium chloride with coloring agents that are lime proof and UV resistant.
 - c. Colored admixture shall conform to the requirements of ACI 303R, ASTM C 979, ASTM C 494, and AASHTO M194.
 - d. Carbon black is not allowed.
2. Liquid release agents shall be of the same manufacturer as the integrally colored concrete products.
 3. Curing and sealing products shall comply with ASTM C 309 and shall be of the same manufacturer as the integrally colored concrete products.

C. Concrete Mix Design

1. Comply with requirements of Article 2301.02, B of the Standard Specifications.
2. Do not add calcium chloride to mix as it causes mottling and surface discoloration.
3. Supplemental admixtures shall not be used unless approved by manufacturer.
4. Do not add water to the mix in the field.
5. Add colored admixture to the mix according to manufacturer's written instructions in premeasured bags, not by weight or cement content.

151181.03 CONSTRUCTION.

A. Installation.

1. Examine subgrade and sub-base for compliance. Notify Engineer if conditions are noncompliant.
2. Steel reinforcement: Install in locations shown on the plans.

3. Concrete shall be struck to specified level with wood or magnesium straight edge or mechanical vibrating screed.
4. Concrete surface shall be further leveled and consolidated with highway magnesium straight edge and/or magnesium bull float.
5. Mechanically float concrete surfaces as soon as concrete surface has taken its initial set and will support weight of a power float machine equipped with float shoes or combination blades and operator.

B. Integrally Colored Concrete Paving

1. Apply color release agent in accordance with manufacturer's recommendations.
2. Minor variations in appearance of colored concrete, which are like natural variations in color and appearance of uncolored concrete, are acceptable.

C. Curing and Sealing.

1. Protect concrete from prematurely drying and from excessive cold or hot temperatures that would alter normal curing process.
2. Integral Colored Concrete Paving:
 - a. Apply clear curing and sealing compound for integrally colored concrete according to manufacturer's instructions using manufacturer's recommended application techniques.
 - b. Apply curing and sealing compound at consistent time for each pour to maintain close color consistency.
3. Take precautions in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in NRMCA CIP 5.
4. Do not cover concrete with plastic sheeting.
5. There shall be no free water on surface at time of application.

D. Protection of Finished Work.

1. Keep foot and vehicle traffic off bridge until concrete has achieved 75% of specified 28 day compressive strength or as directed by the integrally colored concrete manufacturer (whichever is longer.)
2. Keep paving surface free from damage until acceptance by the Engineer.
3. Repair damaged concrete in accordance with integrally colored concrete supplier's recommendations.

151181.04 METHOD OF MEASUREMENT

The method of measurement for Bridge Approach Pavement, Colored PCC Per Plan shall be square yards.

151181.05 BASIS OF PAYMENT

Payment includes construction of north plaza vicinity concrete adjacent to north river abutment. Includes mockups, forming, concrete, integral concrete color, reinforcing, labor and materials to construct per plan.