Origination Form

Specifications

Submittal Information			
Name:	James Greene	**Standard Specification Section:**	403
Email:	james.greene@dot.state.fl.us	**Special Provision:**	
Date:	2026-06-18T18:14:47Z	**Associated Specs:**	332, 333, and 974

Summary:

Transition from DEV Specs to the Standard Specifications.

Justification:

This was Developmental Specifications 403. It has been successfully implemented in statewide projects with good construction consistency. Having proven its reliability in the field, this specification is now ready for transition to the Standard Specifications.

Do the changes affect other types of specifications?

Developmental Specifications

List Specifications Affected:

DEV 403

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans		No
Florida Design Manual		No
Structures Manual		No
Basis of Estimates Manual		No
Approved Product List	Karen Byram	Yes
Construction Office		No

Maintenance Office		No
Materials Manual		No
Traffic Engineering Manual		No

Are changes in line with promoting and making progress on improving safety, enhancing mobility, inspiring innovation, and fostering talent; explain how?

Epoxy Concrete Overlays have significantly enhanced surface friction and bridge durability. This successful transition from Developmental Specification to Standard Specification demonstrates the effectiveness of adopting new materials and modern construction methods.

What financial impact does the change have; project costs, pay item structure, or consultant fees?

Pay items will need to be moved and clarified from Developmental Specification to Standard Specification.

What impact does the change have on production or construction schedules?

Transitioning to standard specifications will improve the efficiency of production and construction schedules. By doing so, projects can be implemented directly without requiring individual approval from a monitor for this specific item.

How does this change improve efficiency or quality?

Transitioning to standard specifications will improve the efficiency of production and construction schedules. By doing so, projects can be implemented directly without requiring individual approval from a monitor for this specific item.

Which FDOT offices does the change impact?

State Construction Office, State Design Office, State Materials Office

What is the impact to districts with this change?

Positive impact, Epoxy Concrete Overlay can be specified directly rather than gaining approval as a Developmental Specification.

Does the change shift risk and to who?

N/A

Provide summary and resolution of any outstanding comments from the districts or industry.

Comments and Responses are available on the Track the Status of Revisions hyperlink located on the Specifications landing page: https://www.fdot.gov/specifications/default.shtm

What is the communication plan?

Through the established specification revision process (e.g., Internal and Industry Review)

What is the schedule for implementation?

The Standard Specifications eBook and Workbook are effective July 1st every year.

EPOXY CONCRETE OVERLAY (BRIDGE DECK ONLY)
(REV 6-18-26)

The following new Section is added:

403-1 Description.

The epoxy concrete overlay includes a binder and aggregates used for preservation of concrete bridge decks. The aggregate is permanent and provides improved surface friction for vehicle traffic.

403-2 Materials.

Meet the following requirements:

Primer*.....Section 974
Epoxy Binder* .....Section 974
Aggregates* .....Section 974
*Use products listed on the Department's Approved Product List (APL)

403-3 Surface Preparation.

403-3.1 Nonstructural Crack Repairs: Repair all cracks within the areas to receive the overlay per Section 400.

403-3.2 Spall Repairs: Repair all spalls present on the bridge deck and within the areas to receive the overlay. Allow the spall repairs to be cured for a minimum of 24 hours for epoxy concretes and 28 days for cementitious concretes prior to placement of the overlay, unless otherwise recommended by the manufacturer.

403-3.3 Surface Preparation: Clean the deck surface before placement of the pre-treatment. Remove any potentially detrimental materials which may interfere with the bonding or curing of the pre-treatment or the overlay. Any contamination of the deck or intermediate courses after initial cleaning will be mechanically removed to sound concrete extending 2 feet in all directions from the contaminated area.

For magnesium phosphate cement concrete surface, do not place epoxy concrete overlay on surface directly. Remove and replace magnesium phosphate patches with polymer modified concrete prior to placement of the overlay system. Mask or apply a bond breaker to the expansion joints and scuppers prior to the application of the overlay. Solvents will not be allowed. Sound mortar which is securely bonded to the coarse aggregate must have open pores after cleaning to be considered adequate for bond. Otherwise, these shall be removed and replaced with suitable patching material.

403-4 Installation.

403-4.1 General: Do not place a epoxy concrete overlay on concrete that is less than 28 days of age. Apply both courses within 24 hours following the final cleaning and prior to opening the area to traffic. Do not use an open flame to remove applied epoxy or to dry the surface of the deck under any circumstances.

403-4.2 Moisture Test: At least 16 hours prior to application, conduct a moisture test in an area away from traffic as per ASTM D4263. At the time of application of the epoxy concrete overlay, verify that there is no visible moisture present on the surface of the concrete. Follow all manufacturer instructions for air temperature and weather conditions.

403-4.3 Curing Period: Use clean compressed air to dry the deck surface if necessary. Only use cleaning methods and procedures recommended by the manufacturer.

403-4.4 Primer: Mix and apply the primer according to the manufacturer's instructions. Spread to coat all deck surfaces prior to the application of the thin polymer overlay.

403-4.5 Mixing Epoxy Binder: Mix the epoxy resin components per the manufacturer's instructions. Thixotropic agents used to control viscosity will be permitted only when allowed by the manufacturer's instructions.

Thoroughly mix the contents of the separate packages containing all components immediately prior to use. Do not use solvents and thinners except to clean the equipment.

403-4.6 Placement: Place epoxy binder in accordance with manufacturer's instructions. Verify that concrete, resin, air, and equipment temperatures are within the manufacturer's specified limits.

Apply the epoxy concrete overlay ensuring that the original slopes of the bridge are maintained and the deck surface is uniform as to not to allow any accumulation of water. Apply the overlay in two separate courses in accordance with the application rates shown in the manufacturer's instructions. Place aggregate within the manufacturer's recommended time.

Inspect the entire overlay by tapping or chain drag and repair any section discovered to be debonded or otherwise deficient. Repair the test area using the localized application procedure.

403-4.7 Corrections: Remove and replace first course applications which receive insufficient or excessive aggregate or do not meet the manufacturer's recommended thickness prior to gelling of the epoxy. A second course with insufficient aggregate may be left in place but will require additional epoxy and aggregate applications before opening to traffic. The total thickness of the overlay shall not exceed 0.6 inch.

403-4.8 Curing and Opening to Traffic: Allow each course of epoxy concrete overlay to cure prior to vacuuming or brooming to avoid tearing or damaging the surface. Traffic or equipment will not be permitted on the overlay surface during the curing period. Remove all loose aggregate after the curing period has expired by vacuuming or brooming.

Inspect all longitudinal centerline joints or multiple longitudinal joints for correct placement prior to final opening to traffic. Reapply pavement marking materials or any surface applications as directed in the contract documents after the overlay system has been completed.

403-4.9 Documentation: Provide records for each batch of epoxy concrete overlay applied to the Engineer. Records shall include but not be limited to the following.

1. Batch numbers and sizes.
2. Location of batches as placed on deck, referenced by stations.
3. Batch mix time.
4. Batch gel and cure times (measured on 50 ml samples for each batch of localized application or application section using mobile equipment).
5. Temperature of the air, deck surface, epoxy components, including aggregates
6. Loose aggregate removal time.
7. Time of curing before opening to traffic.

403-4.10 Bridge Joints: Remove the overlay over each deck joint by removing the bond breakers, scoring the overlay prior to gelling, or saw cutting after cure within 12 hours of application and before opening to traffic. Feather the edges of the overlay at the expansion joints to provide a smooth transition.

403-4.11 Contamination: Remove and replace contamination areas found on the epoxy concrete overlay by saw-cutting in rectangular sections to the top of the concrete deck surface and removing and replacing the various courses per this Specification. Do not repair the areas by placing a third layer unless as directed by the Engineer.

403-5 Acceptance.

403-5.1 Friction Testing: Measure the friction values of the installed overlay within 28 days after completion of curing. Measure the friction characteristics of the overlay per AASHTO T 242. The minimum Friction Number (FN40R) shall be 55 for general polymer overlay systems and 65 for high friction polymer overlay systems.

403-5.2 Bond Testing: Test the tensile bond of the applied overlay after curing. Measure the bond strength of the overlay per ASTM C1583. Conduct a minimum of one bond test at every 1,500 ft^2. If the application area is smaller than 1,500 ft^2 the test frequency shall be as directed by the Engineer.

The minimum acceptable bond strength is 250 psi. Any installation that does not meet the bond strength or friction requirements shall be removed and replaced at no additional cost for the Department.

403-6 Method of Measurement.

The quantity to be paid will be the plan quantity area, in square yards, of Epoxy Concrete Overlay System, completed and accepted. No payment will be made for installations failing to meet bond strength or friction requirements or repair of surface defects.

403-7 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section, including, but not limited to, surface preparation, installation, placement, corrections, curing, open to traffic, bridge joints, and contamination. Epoxy concrete overlay failing to function as specified in the Contract Documents shall be removed and replaced at no additional cost to the Department.

Payment will be made under:

Item No. 403-1 Epoxy Concrete Overlay for Concrete Bridge Decks, SY