Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

August 11, 2026

Daniel Holt, PE, PTOE
Director, Project Delivery
Director, Technical Services
FHWA
400 West Washington Street, Suite 4200
Orlando, FL 32801

Re: State Specifications Office
Section: 975
Proposed Specification: **9750200 Structural Coating Materials**
Associated Revisions: **5620200 Repair of Galvanized Surfaces**

Dear Mr. Holt:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Oliver Chung to remove prescriptive chemical requirements for coating materials.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/am
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

STRUCTURAL COATING MATERIALS
(REV 4-23-26)

ARTICLE 975-2 is deleted and the following substituted:

975-2 Structural Steel Coating Systems.

975-2.1 General: Structural steel coatings shall meet the application requirements of Section 560. Prepare and coat sixteen flat and four composite test panels in accordance with AASHTO R-31 (~~in color White, Grey, or Green~~Federal Standard No. 595 Color Chip No. X6134 – Gray) for each coating system proposed for approval and submit to the State Materials Office (SMO). Samples will be subject to verification testing by the Department, as identified in 975-2.2. In addition, submit a 1-quart wet sample of each component of each coating system, one container of compatible caulk to the SMO.

975-2.2 Performance Requirements: Each coating system will be subject to the testing identified in 975-2.2.1 and 975-2.2.2. All coatings, regardless of color, shall meet the requirements in Table 975-1.

975-2.2.1 ~~Random~~ Department Laboratory ~~Verification~~ Testing: Prepare and coat twelve flat test panels for ~~random~~ laboratory ~~verification~~ testing by the Department.

975-2.2.2 Outdoor Exposure Testing: Prepare and coat eight test panels (four flat and four composite) for exposure at the Department's outdoor test site. Panels will be tested in accordance with ASTM G7.

Table 975-~~1~~2
Structural Steel Coating System Performance Requirements

Laboratory Testing		
Property	Test Method	Acceptance Criteria
Slip Coefficient	AASHTO R 31 Test No. 1	Min. Class B (primer only)
Salt Fog Resistance	AASHTO R 31 Test No. 2 ASTM D610	Blister Value = 10 Average Rust Creep at the Scribe ≤ 3/32" Rust grade ≥ 9S, 9G, 9P after 8,760 hours
Salt Fog Resistance Unscribed		Blister Value = 10 Rust grade ≥ 9S, 9G, 9P after 8,760 hours
Cyclic Weathering Resistance	AASHTO R 31 Test No. 3	Blister Value = 10 Average Rust Creep at the Scribe ≤ 6/32", Color Retention $\Delta E^*_{ab} \leq 8.0$, Gloss loss≤ 33% after 15 cycles – 336 hours each cycle
Abrasion Resistance	AASHTO R 31 Test No. 4	Wear Index ≤ 2.7 mg/cycle
Adhesion	ASTM D4060 1,000 Cycles, CS-17 Wheel, 1 kg. Weight	Avg. system tensile strength ≥ 800 psi

Table 975-~~1~~2 Structural Steel Coating System Performance Requirements		
Laboratory Testing		
Property	Test Method	Acceptance Criteria
2-Year Outdoor Testing		
Property	Test Method	Acceptance Criteria
Rusting	ASTM D610 ASTM D1654 a (scribed) ASTM D1654 (un-scribed)	Rust Grade ≥ 9S, 9G, 9P Rating of Failure at Scribe ≥ 9 After 2-Years
Blistering	ASTM D714	Blister Value = 10 After 2-Years
Adhesion	ASTM D4541; annex A4	Avg. Tensile Strength ≥ 800 psi (un-scribed area) After 2-Years
Color Retention	ASTM D2244	Avg. $\Delta E^*_{ab} \leq 8.0$ After 2-Years
Gloss	ASTM D523	Avg. ≤ 33% loss of gloss After 2-Years

~~**975-2.3 Structural Steel Coating Systems for New Structures:** Systems must meet the general composition requirements of Table 975-2 and this section.~~

~~Table 975-2~~ ~~Structural Steel Coating System General Composition Requirements~~			
~~Primer~~	~~Intermediate~~	~~Finish~~	~~Clear (Optional)~~
~~Inorganic Zinc-Rich Ethyl Silicate~~	~~None~~	~~Inorganic Ethyl Silicate~~	~~Manufacturers Recommendation~~
~~Inorganic Zinc-Rich Ethyl Silicate~~	~~Cycloaliphatic Amine Epoxy Or Polyamide Epoxy~~	~~Polyurethane~~	
		~~Polysiloxane~~	
		~~Acrylic~~	
		~~Fluoropolymer~~	
~~Inorganic Zinc-Rich Ethyl Silicate~~	~~Polyurethane (Epoxy Stripe)~~	~~Fluoropolymer~~	

~~**975-2.3.1 High Performance Coating Systems (Color Pigmented):**~~

~~**975-2.3.1.1 Prime Coat:** Provide inorganic zinc-rich primers consisting of zinc dust, functional additives, and an inorganic binder, with appropriate solvents. The composition of the primer shall consist of an inorganic self-curing vehicle, that contains solvent-reducible silicates, titanates, and polymeric versions of the silicates. Zinc dust pigment shall contain a minimum of 77% zinc dust by weight and a maximum lead level of 0.01% in accordance with ASTM D520. The manufacturer shall identify the amount of zinc dust on the product label. The performance requirements for gloss and color retention are not applicable.~~

975-2.3.1.2 Intermediate Coat: Intermediate coatings must meet Table 975-2. Epoxies must be a cycloaliphatic amine or polyamide.

975-2.3.1.3 Finish Coat: The finish coat shall provide the color and gloss required for the completed coating system. A finish coat may be comprised of a single pigmented coat or a pigmented coat with a clear coat that meets Table 975-2.

975-2.3.1.4 Clear Coat: The clear coat may contain a dissipating colorant. The dissipating colorant shall be visible for a minimum of 12 hours after application and shall completely dissipate within 96 hours after application.

975-2.3.2 Interior Box Girder Coating: The interior coat shall be one coat of white epoxy paint meeting 975-2.3.1.2 and listed on the Department's APL. Faying surfaces and areas to be stud welded are to be masked off and coated with a zinc-rich primer from the APL. The performance requirements for gloss and color retention are not applicable.

975-2.4 Structural Steel Coating Systems for Existing Structures: Systems must meet the general composition requirements of Table 975-3 and this section.

Table 975-3
Structural Steel Coating System General Composition Requirements

Primer	Intermediate	Finish	Clear (Optional)
Organic Zinc-Rich Epoxy Or Inorganic Zinc-Rich Ethyl Silicate	None	Inorganic Ethyl Silicate	Manufacturers Recommendation
Organic Zinc-Rich Epoxy Or Inorganic Zinc-Rich Ethyl Silicate	Cycloaliphatic Amine Epoxy Or Polyamide Epoxy	Polyurethane	
		Polysiloxane	
		Acrylic	
		Fluoropolymer	

975-2.4.1 Prime Coat: Provide inorganic or organic zinc-rich primers consisting of zinc dust, functional additives, and an organic binder with appropriate solvents. The composition of the primer shall consist of an organic vehicle that may chemically cure or may dry by solvent evaporation. Zinc dust pigment shall contain a minimum of 77% zinc dust by weight and a maximum lead level of 0.01% accordance with ASTM D520.

Organic zinc-rich primers shall be used as galvanizing repair compounds for areas greater than 100 square inches.

975-2.4.2 Intermediate Coat: Intermediate coatings must meet Table 975-3 E. Epoxies must be a cycloaliphatic amine or polyamide.

975-2.4.3 Finish Coat: Finish coating shall provide the color and gloss required for the completed coating system. A finish coat may be comprised of a single pigmented coating or a pigmented coating with a clear coat.

975-2.4.4. Clear Coat: The clear coat may contain a dissipating colorant. The dissipating colorant shall be visible for a minimum of 12 hours after application and shall completely dissipate within 96 hours after application.

ARTICLE 975-3 is deleted and the following substituted:

975-3 Galvanized Steel Coating System.

975-3.1 Hot-Dip Galvanizing: ~~Coatings applied over galvanized steel shall meet the requirements of Table 975-2 with the exception that t~~Test panels of coatings applied over galvanized steel shall be galvanized in accordance with ASTM A123 prior to application of subsequent coatings.

Coatings applied over galvanized steel strain poles, mast arms, and monotube assemblies shall meet the requirements of Section 649 and 975-4.

975-3.2 Cold-Galvanization: Cold-galvanization touch-up products shall contain at least 92% zinc dust in the dry film.

SUBARTICLE 975-5.2 is deleted and the following substituted:

975-5.2 Physical Properties: The use of an epoxy prime coat is dependent upon the requirements of the manufacturer's waterproofing system. The polyurethane chemistry may be either waterborne aromatic (moisture-curing) or aromatic (moisture-sensitive). The elastomeric coating shall meet the requirements in Table 975-~~4~~3.

Table 975-~~4~~3
Elastomeric Coatings Performance Requirements

Property	Test Method	Acceptance Criteria
Hardness, Shore A	ASTM D2240	Between 60 and 90
Tensile Strength	ASTM D412	≥750 psi
Elongation	ASTM D412	≥400%
Tear Strength	ASTM C957	>70 psi
Abrasion Resistance H-18 wheels 1,000 gm/wheel	ASTM C957	≤350 mg loss / 1,000 revs.
Crack Bridging 1,000 Cycles	ASTM C957	System Passes
Elongation Recovery	ASTM C957	≥94%

SUBARTICLE 975-6.2 is deleted and the following substituted:

975-6.2 Coating Requirements: Prepare four, 4 inch by 8 inch (except as required below) fiber cement test panels with a mass of 7 to 9 pounds per square foot of surface area to perform the laboratory tests. Apply the finish coating to each test panel at a rate of 50 square feet per gallon, plus or minus 10 square feet per gallon. Seal the corners of all test panels with a high build epoxy or equivalent to prevent moisture ingress at corners and cut edges. Submit the samples to an independent laboratory for testing. Coating performance shall meet the requirements in Table 975-~~5~~4. Upon request, submit a one quart wet sample of each component of each coating system to the SMO.

Table 975-~~5~~4 Class 5 Applied Finish Coatings Performance Requirements		
Laboratory Testing		
Property	Test Method	Acceptance Criteria
Resistance to Wind Driven Rain	ASTM D6904	No visible water leaks, and if the rear face of the block is damp, the average gain in weight of the three 8”x16”x2” blocks must be less than 0.2 lb.
Freeze thaw resistance	AASHTO R 31	No disbondment
Water Vapor Transmission	ASTM D1653; Method B, Condition C	WVT≥10 perms
Abrasion Resistance	ASTM D968, 3,000 liters of sand	No loss of coating thickness ASTM D6132
Salt Spray (fog) resistance	ASTM B117, 2,000 hours	No disbondment
Fluorescent UV-Condensation Exposure	ASTM D4587, 2000 hours, 4 hours UV, 4 hours condensation	No blistering (ASTM D714), cracking (visual), or delamination (visual). chalking (ASTM D4214Method D) rating no less than 8.
Fungal Resistance	ASTM D3273	Rating of 10, ASTM D3274

SUBARTICLE 975-7.2 is deleted and the following substituted:

975-7.2 Performance Requirements: For laboratory testing, use flat test panels prepared in accordance with AASHTO R 31.

Outdoor exposure testing will be performed by the Department, if applicable. Submit seven, 4 inch by 8 inch fiber cement test panels to the SMO. Panels will be exposed at the Department’s outdoor test site in accordance with ASTM G7. Coating performance shall meet the requirements in Table 975-~~6~~5.

Upon request, submit a one quart wet sample of each component of each coating system to the SMO.

Table 975-~~6~~5 Anti-Graffiti Coatings Performance Requirements		
Outdoor Exposure Testing – Non-Sacrificial		
Property	Test Method	Acceptance Criteria
Graffiti Resistance (water cleanable)	FM 5-580: 6 months exposure at FDOT test site (2500 psi using pressure washer)	Complete removal of solvent based acrylic, and alkyd based spray paint. No delamination or visual defects.
Laboratory Testing - Sacrificial		
Property	Test Method	Acceptance Criteria

Table 975-~~6~~5 Anti-Graffiti Coatings Performance Requirements		
Cyclic Weather Testing	AASHTO R 31: no salt fog, 95°F, 0%- 90% Relative Humidity, 500 hours, alternating RH every 100 hours	No melting or disbondment
Outdoor Exposure Testing - Sacrificial		
Property	Test Method	Acceptance Criteria
Sacrificial Coating removability	FM 5-580: 6 months exposure at FDOT test site (2500 psi using pressure washer)	Complete removal of solvent based acrylic, and alkyd based spray paint from substrate

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975-2.2 Performance Requirements: Each coating system will be subject to the testing identified in 975-2.2.1 and 975-2.2.2. All coatings, regardless of color, shall meet the requirements in Table 975-1.

975-2.2.1 Department Laboratory Testing: Prepare and coat twelve flat test panels for laboratory testing by the Department.

975-2.2.2 Outdoor Exposure Testing: Prepare and coat eight test panels (four flat and four composite) for exposure at the Department's outdoor test site. Panels will be tested in accordance with ASTM G7.

Table 975-2
Structural Steel Coating System Performance Requirements

Laboratory Testing		
Property	Test Method	Acceptance Criteria
Slip Coefficient	AASHTO R 31 Test No. 1	Min. Class B (primer only)
Salt Fog Resistance	AASHTO R 31 Test No. 2 ASTM D610	Blister Value = 10 Average Rust Creep at the Scribe ≤ 3/32" Rust grade ≥ 9S, 9G, 9P after 8,760 hours
Salt Fog Resistance Unscribed		Blister Value = 10 Rust grade ≥ 9S, 9G, 9P after 8,760 hours
Cyclic Weathering Resistance	AASHTO R 31 Test No. 3	Blister Value = 10 Average Rust Creep at the Scribe ≤ 6/32", Color Retention $\Delta E^*_{ab} \leq 8.0$, Gloss loss≤ 33% after 15 cycles – 336 hours each cycle
Abrasion Resistance	AASHTO R 31 Test No. 4	Wear Index ≤ 2.7 mg/cycle
Adhesion	ASTM D4060 1,000 Cycles, CS-17 Wheel, 1 kg. Weight	Avg. system tensile strength ≥ 800 psi
2-Year Outdoor Testing		

Table 975-2 Structural Steel Coating System Performance Requirements		
Laboratory Testing		
Property	Test Method	Acceptance Criteria
Property	Test Method	Acceptance Criteria
Rusting	ASTM D610 ASTM D1654 a (scribed) ASTM D1654 (un-scribed)	Rust Grade ≥ 9S, 9G, 9P Rating of Failure at Scribe ≥ 9 After 2-Years
Blistering	ASTM D714	Blister Value = 10 After 2-Years
Adhesion	ASTM D4541; annex A4	Avg. Tensile Strength ≥ 800 psi (un-scribed area) After 2-Years
Color Retention	ASTM D2244	Avg. $\Delta E^*_{ab} \leq 8.0$ After 2-Years
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Coatings applied over galvanized steel strain poles, mast arms, and monotube assemblies shall meet the requirements of Section 649 and 975-4.

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Table 975-3 Elastomeric Coatings Performance Requirements		
Property	Test Method	Acceptance Criteria
Hardness, Shore A	ASTM D2240	Between 60 and 90

Table 975-3 Elastomeric Coatings Performance Requirements		
Property	Test Method	Acceptance Criteria
Tensile Strength	ASTM D412	≥750 psi
Elongation	ASTM D412	≥400%
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Abrasion Resistance H-18 wheels 1,000 gm/wheel	ASTM C957	≤350 mg loss / 1,000 revs.
Crack Bridging 1,000 Cycles	ASTM C957	System Passes
Elongation Recovery	ASTM C957	≥94%

SUBARTICLE 975-6.2 is deleted and the following substituted:

975-6.2 Coating Requirements: Prepare four, 4 inch by 8 inch (except as required below) fiber cement test panels with a mass of 7 to 9 pounds per square foot of surface area to perform the laboratory tests. Apply the finish coating to each test panel at a rate of 50 square feet per gallon, plus or minus 10 square feet per gallon. Seal the corners of all test panels with a high build epoxy or equivalent to prevent moisture ingress at corners and cut edges. Submit the samples to an independent laboratory for testing. Coating performance shall meet the requirements in Table 975-4. Upon request, submit a one quart wet sample of each component of each coating system to the SMO.

Table 975-4 Class 5 Applied Finish Coatings Performance Requirements		
Laboratory Testing		
Property	Test Method	Acceptance Criteria
Resistance to Wind Driven Rain	ASTM D6904	No visible water leaks, and if the rear face of the block is damp, the average gain in weight of the three 8”x16”x2” blocks must be less than 0.2 lb.
Freeze thaw resistance	AASHTO R 31	No disbondment
Water Vapor Transmission	ASTM D1653; Method B, Condition C	WVT≥10 perms
Abrasion Resistance	ASTM D968, 3,000 liters of sand	No loss of coating thickness ASTM D6132
Salt Spray (fog) resistance	ASTM B117, 2,000 hours	No disbondment
Fluorescent UV-Condensation Exposure	ASTM D4587, 2000 hours, 4 hours UV, 4 hours condensation	No blistering (ASTM D714), cracking (visual), or delamination (visual). chalking (ASTM D4214Method D) rating no less than 8.
Fungal Resistance	ASTM D3273	Rating of 10, ASTM D3274

SUBARTICLE 975-7.2 is deleted and the following substituted:

975-7.2 Performance Requirements: For laboratory testing, use flat test panels prepared in accordance with AASHTO R 31.

Outdoor exposure testing will be performed by the Department, if applicable. Submit seven, 4 inch by 8 inch fiber cement test panels to the SMO. Panels will be exposed at the Department's outdoor test site in accordance with ASTM G7. Coating performance shall meet the requirements in Table 975-5.

Upon request, submit a one quart wet sample of each component of each coating system to the SMO.

Table 975-5 Anti-Graffiti Coatings Performance Requirements		
Outdoor Exposure Testing – Non-Sacrificial		
Property	Test Method	Acceptance Criteria
Graffiti Resistance (water cleanable)	FM 5-580: 6 months exposure at FDOT test site (2500 psi using pressure washer)	Complete removal of solvent based acrylic, and alkyd based spray paint. No delamination or visual defects.
Laboratory Testing - Sacrificial		
Property	Test Method	Acceptance Criteria
Cyclic Weather Testing	AASHTO R 31: no salt fog, 95°F, 0%- 90% Relative Humidity, 500 hours, alternating RH every 100 hours	No melting or disbondment
Outdoor Exposure Testing - Sacrificial		
Property	Test Method	Acceptance Criteria
Sacrificial Coating removability	FM 5-580: 6 months exposure at FDOT test site (2500 psi using pressure washer)	Complete removal of solvent based acrylic, and alkyd based spray paint from substrate