975 STRUCTURAL COATING MATERIALS.
(REV 7-19-05) (FA 8-18-05) (1-06)

SECTION 975 (Pages 918 and 919) is deleted and the following substituted:

SECTION 975
STRUCTURAL COATING MATERIALS

975-1 General Requirements.

975-1.1 General: Upon curing, all coatings and/or coating systems must produce an adherent coating that is visually uniform and capable of performing according to its designated purpose for an extended service life of greater than 20 years. The composition of the coating is left to the discretion of the manufacturer but the finished product must meet all requirements of this Section. All coatings must be designed for a marine, coastal environment and must be self-curing. Coatings that are multi-component must be prepackaged in required ratios for ease of mixing. Any coating not meeting these Specifications will be rejected by the Engineer.

975-1.2 Environmental Requirements: Coating materials and their waste projects must be characterized as non-hazardous as defined by Resource Conservation and Recovery Act (RCRA) Subarticle C rules, Table 1 of 40 CFR 261.24 Toxicity Characteristic.

Volatile Organic Compounds (VOC shall be less than 3.5 lb/gal [420 g/L] when tested in accordance with AASHTO R-31.

975-2 Materials.

975-2.1 Qualified Products List: All coating materials and coating systems must be listed on the Departments Qualified Products List (QPL). Submit an application in accordance with Section 6.

975-2.2 Packaging and Labeling: Ship materials in strong containers plainly marked with user information and lot or batch number, and QPL number. Each lot or batch manufactured must have a unique number. The name and address of the manufacturer also must be shown.

975-3 Product Testing and Certification.

975-3.1 General: The Contractor shall provide the Engineer a certification conforming to the requirements of Section 6 from the manufacturer of the coatings materials confirming that the requirements of this Section are met. Each certification shall cover only one batch of coating.

975-3.2 Information to Accompany Samples: Manufacturer's submitting QPL applications shall furnish product information according to AASHTO R-31, Section 6 and applicable section within this Specification. Use Federal Color Standard No. 595B, Table VIII, Shade No. 36622 for the finish coat color on test panels.

975-4 Galvanizing Compounds for Field Metallizing and Touch up Repair.

975-4.1 General: Galvanizing compound materials must produce an adherent coating capable of preventing corrosion and specifically intended for use over

mechanically-cleaned or blasted steel. All coatings must possess physical properties and handling characteristics that are compatible with the use and application requirements of Section 560 and 562. Furnish product testing information according to AASHTO R-31, Section 8; the coating should not blister, soften or loosen bond at the end of the test period; there will be no primer creep, blistering or loss of adhesion relative to a scribed line applied prior to testing exceeding 0.05 inch at any point at the scribe and no corrosion in the field per ASTM D 610.

975-4.2 Composition Requirements for Zinc Coatings: Zinc coatings must contain a minimum of 83% zinc dust pigment by weight in the primer. The zinc dust pigment used in the formulation must be Type II in accordance with ASTM D 520.

975-4.3 Composition Requirements for Aluminum Mastic Coatings: Aluminum mastic coatings must contain aluminum pigment and minimum 80% volume solids.

975-4.4 Field Qualification: Attain a numerical rating of not less than 9 in accordance with ASTM D 610 and ASTM D 1654 and 9F in accordance with ASTM D 714 when applied to KTA composite test panels prepared according to AASHTO R-31 and exposed at the Department's beach corrosion test site or applied at a test location. The coatings will be evaluated initially following an exposure period of 18 months. The coatings must continue to provide acceptable protection and performance for a period of 5 years. Application characteristics must be judged acceptable prior to beach testing.

975-5 Structural Steel Coatings.

975-5.1 General: Structural steel coatings and coating systems must produce an adherent coating capable of preventing corrosion and specifically intended for use over mechanically-cleaned steel. All coatings must possess physical properties and handling characteristics that are compatible with the application requirements of Section 560. Furnish product testing information according to AASHTO R-31, Section 8; the coating should not blister, soften or loosen bond at the end of the test period; there will be no primer creep, blistering or loss of adhesion relative to a scribed line applied prior to testing exceeding 0.05 inch at any point at the scribe and no corrosion in the field per ASTM D 610; color retention, $\Delta E \leq 3$, in accordance with ASTM D 2244; and 10% max gloss loss in accordance with ASTM D 523.

Additional Laboratory Performance and Tests		
Property	Test Method	Limits
Impact Resistance	ASTM D 2794, 30 inch/lbs	Pass
Elongation	ASTM D 522, 1/2 inch cylindrical mandrel	No cracking
Chemical Resistance	ASTM G 20, 180 days: 5% Ammonia, 5% Urea, and Diesel fuel	The Coating should not blister, soften or loosen at the end of the test period.

All coatings and coating systems that perform as finish coats must create a finished surface that is resistant to color and gloss degradation. The default finish coat must meet Federal Color Standard No. 595B, Table VIII, Shade No. 36622, unless otherwise specified by the Engineer.

975-5.2 Composition Requirements for Primer Coatings: Meet the requirements of 975-4 galvanizing compounds.

975-5.3 Composition Requirements for Intermediate Coatings (Tie Coat): An intermediate coating is optional for a coating system. Coatings must be suitable as an intermediate tie coat between the primer and finish coat. Intermediate coatings must contain a minimum of 40 percent solids by volume as per ASTM D 5201.

975-5.4 Composition Requirements for Finish Coatings: Finish coatings must provide the final coating containing color and gloss for the coating system. A finish coat may be comprised of a single pigmented coating or a pigmented coating with a clear coat.

975-5.5 Composition Requirements for Clear Coating: When used, the clear coating must be suitable as a final coating over a finish coat and the two coatings used together will constitute the finish coat.

The clear coat must contain a UV degradable color for inspection purposes. UV degradable color must dissipate in a reasonable time period to allow inspection but not detract from visual impact of the structure.

975-5.6 Joint Sealants: Manufacturer's of coating systems must identify joint sealants that are compatible with their coating system. Sealants must be self-curing. If not top coated, the caulking must match the color of the joint surface being caulked.

975-5.7 Field Qualification: Attain a numerical rating of not less than 9 in accordance with ASTM D 610 and ASTM D 1654 and 9F in accordance with ASTM D 714; the coating should not blister, soften or loosen bond at the end of the test period; there will be no corrosion in the field per ASTM D 610; color retention, $\Delta E \leq 3$, in accordance with ASTM D 2244; and 10% max gloss loss in accordance with ASTM D 523 when applied to KTA Composite test panels prepared according to AASHTO R-31 and exposed at the Department's beach corrosion test site or applied at a test location. The coatings will be evaluated initially following an exposure period of 18 months. The coatings must continue to provide acceptable protection and performance for a period of 5 years. Application characteristics must be judged acceptable prior to beach testing.

975-6 Class 5 Applied Finish Coatings for Concrete.

975-6.1 General: Use a commercial product designed specifically for this purpose, which upon curing is capable of accommodating the thermal and elastic expansion ranges of the substrate without cracking.

All coatings must possess physical properties and handling characteristics that are compatible with the application requirements of Section 400.

The default finish coat will meet Federal Color Standard No. 595B, Table VIII, Shade No. 36622 unless otherwise specified by the Engineer.

975-6.2 Material Tests: Meet the following requirements:

Laboratory Performance and Tests		
Property	Test Method	Limits
Resistance to Wind Driven Rain	ASTM D 6904	No visible water leaks, and if the rear face of the block is damp, the average gain in weight of the three 8 by 16 by 2 inch blocks must be less

Laboratory Performance and Tests		
Property	Test Method	Limits
		than 0.2 lb.
Freeze thaw resistance	AASHTO R-31	The coating should not blister, soften or loosen bond at the end of the test period.
Water Vapor Permeance	ASTM D 1653; Method B, Condition C	WVT≥10 perms
Abrasion Resistance	ASTM D 968, 3,000 liters of sand	No loss of coating thickness ASTM D 1005
Salt Spray (fog) resistance	ASTM B 117, 5,000 hours	The coating should not blister, soften or loosen bond at the end of the test period.
Impact Resistance	ASTM D 2794, 30 inch/lbs	Pass
Elongation	ASTM D 522, 1/2 inch cylindrical mandrel	No cracking
Chemical Resistance	ASTM G 20, 180 days: 5% Ammonia, 5% Urea, and Diesel fuel	The coating should not blister, soften or loosen bond at the end of the test period.
Accelerated Weathering	AASHTO R-31	The coating should not blister, soften or loosen bond at the end of the test period.
Fungal Resistance	ASTM D 3273	Rating of 10, ASTM D 3274
Dirt Pick-up	ASTM D 3719	Rating of 10, ASTM D 3274

975-6.3 Field Qualification: Attain a numerical rating of not less than 9F in accordance with ASTM D 714 when applied to concrete test panels prepared and exposed at the FDOT beach corrosion test site or applied at a test location. The coatings will be evaluated initially following an exposure period of 18 months. The coatings must continue to provide acceptable protection and performance for a period of 5 years. Application characteristics must be judged acceptable prior to beach testing.

975-7 Steel Strain Poles, Mast Arm and Monotube Assembly Coatings.

975-7.1 General: All coatings must possess physical properties and handling characteristics that are compatible with the application requirements of Section 649. All top coats must create a finished surface that is visually uniform and resistant to color and gloss degradation. Materials must be specifically intended for use over galvanized steel. Furnish product testing information according to AASHTO R-31, Section 8 and using galvanized KTA Flat test panels: the coating should not blister, soften or loosen bond at the end of the test period; there will be no primer creep, blistering or loss of adhesion relative to a scribed line applied prior to testing exceeding 0.05 inch at any point at the scribe and no corrosion in the field per ASTM D 610; color retention, $\Delta E \leq 3$, in accordance with ASTM D 2244; and 10% max gloss loss in accordance with ASTM D 523.

Additional Laboratory Performance and Tests

Property	Test Method	Limits
Impact Resistance	ASTM D 2794, 30 inch/lbs	Pass
Elongation	ASTM D 522, 1/2 inch cylindrical mandrel	No cracking
Chemical Resistance	ASTM G 20, 180 days: 5% Ammonia, 5% Urea, and Diesel fuel	The coating should not blister, soften or loosen bond at the end of the test period

The default finish coat must meet Federal Color Standard No. 595B, Table VIII, Shade No. 36622 unless otherwise specified by the Engineer.

975-7.2 Composition Requirements: Coating systems must meet the requirements of Section 649 and 975-5 intermediates and finish coats.

975-7.3 Field Qualification: Attain a numerical rating of not less than 9 in accordance with ASTM D 610 and ASTM D 1654 and 9F in accordance with ASTM D 714 when applied to galvanized KTA Flat test panels and exposed at the Department's beach corrosion test site or applied at a test location. The coatings will be evaluated initially following an exposure period of 18 months. The coatings must continue to provide acceptable protection and performance for a period of 5 years. Application Characteristics must be judged acceptable prior to beach testing.

975-8 Elastomeric Coatings.

975-8.1 General: Use an elastomeric coating system to provide a waterproof barrier over post-tensioning anchorages or other areas designated in the plans. The components of the coating system must be supplied by a single manufacturer and sold as a waterproof coating system. The surface preparation and application of the coating system must be applied in strict accordance with the manufacturer's specifications.

975-8.2 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 minimum thickness of the system must not be less than 30 mils. The cured coating system must meet the following requirements:

Property	Test Value	Test Method
Hardness, Shore A	Between 60 and 90	ASTM D 2240
Tensile Strength	≥750 psi [5.2 MPa]	ASTM D 412
Elongation	≥400%	ASTM D 412
Tear Strength	>70 pli [12.35 N/mm]	ASTM C 957
Abrasion Resistance H-18 wheels 1,000 gm/wheel	≤350 mg loss / 1,000 revs.	ASTM C 957
Crack Bridging 1,000 Cycles	System Passes	ASTM C 957
Elongation Recovery	≥94%	ASTM C 957

975-8.3 System Modifications for Use on Bride Substructure: Supply the elastomeric coating system with an aliphatic polyurethane top coating.

975-8.4 Field Qualification: Attain a numerical rating of not less than 9 in accordance with ASTM D 610 and ASTM D 1654 and 9F in accordance with ASTM D

714; the coating should not blister, soften or loosen bond at the end of the test period; there will be no corrosion in the field per ASTM D 610; color retention, $\Delta E \leq 3$, in accordance with ASTM D 2244; and 10% max gloss loss in accordance with ASTM D 523 when applied to test location and exposed at the Department's beach corrosion test site or applied at a test location. The coatings will be evaluated initially following an exposure period of 18 months. The coatings must continue to provide acceptable protection and performance for a period of 5 years. Application characteristics must be judged acceptable prior to beach testing.