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## SECTION 411 – PAINTING AND REPAINTING STEEL STRUCTURES

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### 411.03 THICKNESS OF PAINT.

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Replace the fifth and sixth paragraphs, including the table between them, with the following:

The paints for the various coats of the Systems listed, conforming to Section 913, shall be applied to yield the following dry film thickness ranges.

System A	
Spot Prime	4.0 – 6.0 mils
Intermediate Coat	4.0 – 6.0 mils
Finish Coat	3.0 – 5.0 mils
Total DFT Range For System A*	11.0 – 17.0 mils
System B	
Primer	3.0 – 5.0 mils
Intermediate Coat	4.0 – 8.0 mils
Finish Coat	3.0 – 5.0 mils
Total DFT Range For System B*	10.0 – 18.0 mils
System C	
Primer	3.0 – 4.0 mils
Intermediate Coat	4.0 – 6.0 mils
Finish Coat	3.0 – 5.0 mils
Total DFT Range For System C*	10.0 – 15.0 mils

\* Individual coats shall not be less than specified minimum nor greater than specified maximum values to satisfy the Total DFT Ranges for each System.

### 411.04 GENERAL PRECAUTIONS.

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#### (A) POLLUTION CONTROL.

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Replace the second through seventh paragraphs, including the table following the fourth paragraph, with the following:

The Contractor is advised that the existing coating systems on previously painted structures, excluding weathering steel structures, designated in the contract may contain red lead and/or basic lead-silico chromate paints as components. All material removed, including, but not limited to, the blasting residue, spent blasting medium, rust, paint particles, and dust associated with the surface preparation operations and any other material contaminated in the cleaning process shall be designated and handled as hazardous waste. The handling, storage, and disposal of such waste products shall be in compliance with all requirements of the USEPA, NJDEP, OSHA, and other regulatory agencies with jurisdiction promulgating rules, regulations, standards, and guidelines in effect during execution of the work.

In the second paragraph, delete the first sentence and replace it with the following:

~~The Contractor is advised that the existing coating systems on previously painted bridges, except previously painted weathering steel bridges, designated in the contract contain red lead and/or basic lead-silico chromate paints as components.~~

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*In the ninth paragraph, delete the first sentence and replace it with the following:*

*The Contractor shall consider the waste generated by surface preparation, except for waste generated from painted or unpainted areas of weathering steel bridges, as Environmental Protection Agency Hazardous Waste Classification Toxic Lead, EPA classification D008.*

**(B) LEVEL OF CONTAINMENT.**

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*Re-designate the heading for Part 411.04(B)(4)(f) to the following Paragraph heading:*

**(C) TEMPORARY STORAGE AND DISPOSAL OF SURFACE PREPARATION WASTE.**

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**411.05 CLEANING AND PAINTING STEEL STRUCTURES.**

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**(A) GENERAL**

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*Replace the second paragraph with the following:*

*For the surfaces of all welds made both in the shop and in the field, and the metal immediately adjacent, the cleaning shall include thorough abrasive blasting or other approved methods which will insure complete removal of slag.*

**(C) SHOP CLEANING**

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*Replace the fourth paragraph with the following:*

*The inside of box members shall be abrasive blasted before assembly. After completion of fabrication and bolting or welding of the member, the inside surface shall be hand scraped as necessary to remove all rust, dirt, and other foreign substance which may have accumulated since the surfaces were abrasive blasted; the outside surfaces shall be abrasive blasted; all surfaces shall be swept and dusted so as to be free of loose particles and dust immediately before painting; and then the member shall be painted.*

**(F) FIELD CLEANING, PAINTING AND SPOT-PAINTING EXISTING STRUCTURAL STEEL.**

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**(2) Previously Painted Weathering Steel Bridges.**

*Replace the twentieth paragraph with the following:*

*Cleaning to bare metal shall be accomplished by abrasive blasting, wire brushing, scraping, chipping, sanding, grinding, either by hand tools or power tools, or by a combination of such methods. Abrasive blasting shall not be conducted when the temperature of the steel surface is less than 5°F above the dew point.*

*Replace the twenty-fifth paragraph with the following:*

*Since abrasive blasted steel surfaces are generally warmer than the surrounding air because of the heat generated by the abrasive blasting and are particularly susceptible to new corrosion and condensation, the Contractor shall schedule the priming of*

*abrasive blasted surfaces promptly after cleaning has been approved for a section of steelwork so as to prevent the formation of new corrosion or condensation prior to coating.*

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**411.06      CLEANING AND PAINTING OF NEW WEATHERING STEEL.**

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**(F) NUMBER OF COATS AND FILM THICKNESS.**

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*Replace the second through last paragraphs with the following:*

*The Dry Film Thickness of paint shall be within the ranges provided in Subsection 411.03.*

*The dry film thickness of the prime coat at the contact surfaces or bolted friction splices on main members, and the top of top flanges where stud shear connections are to be welded shall be within the range of 1 to 2.5 mils. All other contact surfaces and surfaces to be in contact with concrete shall be within the normal primer dry film thickness range provided in Subsection 411.03.*

*The dry film thickness for each coat will be determined by the use of a magnetic dry film thickness gage. The gage shall be calibrated and used in accordance with SSPCPA 2. A Tooke film thickness gage shall be used in accordance with ASTM D 4138 to verify the coating thickness when requested by the Engineer. If the Tooke gage shows that the primer coat is not within the specified thickness range, the total coating system will be rejected even if the total dry film thickness exceeds the minimum mil thickness for the three-coat system provided in Subsection 411.03.*

## SECTION 913 - PAINTS AND COATINGS

### 913.01 PAINT SYSTEM A.

Replace the Paint Systems table in its entirety with the following:

Manufacturer	Coat	Product
Carboline West Caldwell, NJ 201-415-4542 or 800-848-4645	Spot Primer:	Carboguard 60/690
	Intermediate Coat:	Carboguard 60
	Finish Coat:	Carbothane 133LH
International Paint, Inc. Union, NJ 973-220-5628 or 908-451-0253	Spot Primer:	Interseal 670HS
	Intermediate Coat:	Interseal 670HS
	Finish Coat:	Interthane 870 UHS
PPG Protective & Marine Coatings Pittsburgh, PA 800-661-4774	Spot Primer:	Amerlock 2 or 400
	Intermediate Coat:	Amerlock 2 or 400
	Finish Coat:	Amercoat 450H
Sherwin-Williams Co. Zelienople, PA 724-453-1042	Spot Primer:	Epoxy Mastic Aluminum II, B62 Series
	Intermediate Coat:	Epoxy Mastic Aluminum II, B62 Series
	Finish Coat:	Acrolon 218 HS

Replace Paragraph 913.01(B) with the following:

#### **(B) PAINT COLOR.**

The prime coat and intermediate coat shall be different colors. The finish coat shall match the color of the existing paint system, unless otherwise specified, and shall be subject to approval by the Engineer. The finish coats shall be as follows:

##### **New Jersey Turnpike**

Green: Federal Standard 595B, Color Chip No. 14159.

Brown: Federal Standard 595B, Color Chip No. 20062.

##### **Garden State Parkway**

Green (Exterior Surfaces/Fascias): Federal Standard 595B, Color Chip No. 14090.

Green (Interior Surfaces): Federal Standard 595B, Color Chip No. 14672.

Brown: Federal Standard 595B, Color Chip No. 20062.

### 913.02 COATING SYSTEM B.

Replace the Paint Systems table in its entirety with the following.

Manufacturer	Coat	Product
Carboline West Caldwell, NJ 201-415-4542 or 800-848-4645	Primer:	Carbozinc 859
	Intermediate Coat:	Carboguard 825
	Finish Coat:	Carbothane 133LH
International Paint, Inc. Union, NJ 973-220-5628 or 908-451-0253	Primer:	Interzinc 52
	Intermediate Coat:	Intergard 475 HS
	Finish Coat:	Interthane 870 UHS
PPG Protective & Marine Coatings Pittsburgh, PA	Primer:	Amercoat 68HS
	Intermediate Coat:	Amercoat 385

800-661-4774	Finish Coat:	Amercoat 450H
Sherwin-Williams Co. Zelienople, PA 724-453-1042	Primer:	Zinc Clad III HS Zinc-Rich Primer
	Intermediate Coat:	Macropoxy 646 FC Epoxy
	Finish Coat:	Acrolon 218 HS

Replace Paragraph 913.02(B) with the following:

**(B) PAINT COLOR.**

*The prime coat and intermediate coat shall be different colors. The finish cost shall match the color of the existing paint system, unless otherwise specified, and shall be subject to approval by the Engineer. The finish coats shall be as follows:*

**New Jersey Turnpike**

Green: Federal Standard 595B, Color Chip No. 14159.

Brown: Federal Standard 595B, Color Chip No. 20062.

**Garden State Parkway**

Green (Exterior Surfaces/Fascias): Federal Standard 595B, Color Chip No. 14090.

Green (Interior Surfaces): Federal Standard 595B, Color Chip No. 14672.

Brown: Federal Standard 595B, Color Chip No. 20062.

**913.03 COATING SYSTEM C.**

Replace the Paint Systems table in its entirety with the following:

<b>Manufacturer</b>	<b>Coat</b>	<b>Product</b>
Carboline West Caldwell, NJ 201-415-4542 or 800-848-4645	Primer:	Carbozinc 11HS
	Intermediate Coat:	Carboguard 893 or 888
	Finish Coat:	Carbothane 133LH
International Paint, Inc. Union, NJ 973-220-5628 or 908-451-0253	Primer:	Interzinc 22 HS
	Intermediate Coat:	Intergard 475 HS
	Finish Coat:	Interthane 870 UHS
PPG Protective & Marine Coatings Pittsburgh, PA 800-661-4774	Primer:	Dimetcote 9H
	Intermediate Coat:	Amercoat 385
	Finish Coat:	Amercoat 450H
Sherwin-Williams Co. Zelienople, PA 724-453-1042	Primer:	Zinc Clad II Plus
	Intermediate Coat:	Macropoxy 646 FC Epoxy
	Finish Coat:	Acrolon 218 HS

**(B) PAINT COLOR.**

Replace this Paragraph (B) in its entirety with the following:

*The prime coat and intermediate coat shall be different colors. The finish cost shall match the color of the existing paint system, unless otherwise specified, and shall be subject to approval by the Engineer. The finish coats shall be as follows:*

**New Jersey Turnpike**

Green: Federal Standard 595B, Color Chip No. 14159.

Brown: Federal Standard 595B, Color Chip No. 20062.

**Garden State Parkway**

Green (Exterior Surfaces/Fascias): Federal Standard 595B, Color Chip No. 14090.  
Green (Interior Surfaces): Federal Standard 595B, Color Chip No. 14672.  
Brown: Federal Standard 595B, Color Chip No. 20062.

#### 913.04 WATER TOWER PAINT.

Delete this Subsection in its entirety.

Include the following as necessary:-

#### 913.09 MOISTURE-CURE URETHANE COATING SYSTEM

Delete this Subsection in its entirety.

~~The complete coating system of zinc rich, single component, moisture cured polyurethane primer; micaceous iron oxide filled, single component, moisture cured polyurethane intermediate coat; micaceous iron oxide filled, single component, moisture cured, aliphatic polyurethane finish coat shall be as follows:~~

<u>Code #</u>	<u>Manufacturer</u>	<u>Primer</u>	<u>Intermediate</u>	<u>Finish</u>
MCU 2	Sherwin Williams	Corothane I Zinc Primer	Corothane I Iron Ox B	Corothane I Iron Ox A

~~Requests for an alternate paint system shall be done in accordance with Subsection 105.11.~~

~~Drying time between coats shall be as per the manufacturer's recommendations and the following minimums:~~

- ~~• Prime Coat 4 to 6 hours minimum, allow more time at humidities of 10% to 30% and temperatures of 20 degrees F to 40 degrees F.~~
- ~~• Intermediate 6 hours minimum, allow more time at humidities below 50% and temperatures below 40 degrees F.~~

~~All products for the complete system, including thinners and solvents, shall be from the same manufacturer.~~

~~The following information shall be submitted for the system selected at least 1 month before painting is anticipated:~~

- ~~1. A 1 gallon sample for each coat of paint in the system.~~
- ~~2. Infrared curves (2.5 To 15 microns) for the primer, intermediate, and finish coats to include curves for the dry film of the vehicle (binder) of each component and for the mixed paint.~~
- ~~3. Weight per gallon, at 77 degrees F, for the zinc primer, intermediate, and finish coats. Variance shall be within  $\pm 0.4$  pounds of the nominal weight per gallon of the sample that was approved and placed on the qualified paint list.~~
- ~~4. Viscosity in kreb units, at 77 degrees F, for the zinc primer vehicle and the intermediate and finish coat paints. Variance shall be within  $\pm 5$  kreb units, or~~

~~equivalent units of another viscometer, of the viscosity of the sample that was approved and placed on the qualified paint list.~~

- ~~5. — Percent of solids by weight of the zinc primer vehicle and the intermediate and finish coat paints.~~
- ~~6. — Percent of metallic zinc by weight in the dry film of the cured zinc primer coat. This percentage should be greater than or equal to that of the sample that was approved and placed on the qualified paint list.~~
- ~~7. — Percent of metallic zinc by weight in the zinc pigment component.~~
- ~~8. — Finish coat color chips for selection of color by the Engineer.~~
- ~~9. — Technical data sheets, safety data and specific application instructions for all coats. In the event of a conflict between the data/instruction sheets and these specifications, with the approval of the Engineer, the manufacturer's requirements shall govern. Work shall not be allowed to proceed until the information is received and approved.~~
- ~~10. — Mixing and thinning directions.~~
- ~~11. — Recommended spray nozzles and pressures.~~

~~Submit the manufacturer's recommended repair procedures to correct deficient or excessive coating thickness, removal of zinc salts and other contaminants that would be detrimental to succeeding coats, and procedures for surface preparation and painting of rust spots.~~

~~Provide the services of a paint or a painting technical representative from the paint manufacturer at the beginning of operations and whenever required during operations.~~

~~Each container of paint shall be labeled to show the name of the manufacturer, the trade name designation of the contents, the lot or batch number, the date of manufacture, and the volumetric contents in U. S. gallons or the weight of zinc powder in U.S. pounds. Each container shall be labeled in accordance with the code of federal regulations for flammables and shall contain all information necessary to comply with N.J.S.A. 34:5A-1 N.J. Worker and Community Right To Know Act.~~

## 913.10 WATER-BORNE ACRYLIC COATING SYSTEM

~~Delete this Subsection in its entirety.~~

~~The complete coating system of water borne acrylic, one part primer and finish coat shall be as follows:~~

<u>Code #</u>	<u>Manufacturer</u>	<u>Primer</u>	<u>Finish</u>
WBA-1	Mathys	Noxyde	Noxyde

~~Requests for an alternate paint system shall be done in accordance with Subsection 105.11.~~

~~Drying time between coats shall be 1 to 12 hours depending on temperature and humidity (test with wet finger and rub on surface, when the water does not milk out, the next coat can be applied).~~

~~All products for the complete system, including thinners and solvents, shall be from the same manufacturer.~~

~~The following information shall be submitted for the system selected at least 1 month before painting is anticipated:~~

- ~~1. A 20 Kg sample.~~
- ~~2. Infrared curves (2.5 To 15 microns) for the primer, intermediate, and finish coats to include curves for the dry film of the vehicle (binder) of each component and for the mixed paint.~~
- ~~3. Weight per 20 Kg unit, at 72 degrees F. Variance shall be within  $\pm 0.02$  Kg of the nominal weight per 20 Kg unit of the sample that was approved and placed on the qualified paint list.~~
- ~~4. Viscosity in kreb units, at 72 degrees F, for the zinc primer vehicle and the intermediate and finish coat paints. Variance shall be within  $\pm 5$  kreb units, or equivalent units of another viscometer, of the viscosity of the sample that was approved and placed on the qualified paint list.~~
- ~~5. Finish coat color chips for selection of color by the Engineer.~~
- ~~6. Technical data sheets, safety data and specific application instructions for all coats. In the event of a conflict between the data/instruction sheets and these specifications, with the approval of the Engineer, the manufacturer's requirements shall govern. Work shall not be allowed to proceed until the information is received and approved.~~
- ~~7. Mixing and thinning directions.~~
- ~~8. Recommended spray nozzles and pressures.~~

~~Submit the manufacturer's recommended repair procedures to correct deficient or excessive coating thickness, removal of zinc salts and other contaminants that would be detrimental to succeeding coats, and procedures for surface preparation and painting of rust spots.~~

~~Provide the services of a paint or a painting technical representative from the paint manufacturer at the beginning of operations and whenever required during operations.~~

~~Each container of paint shall be labeled to show the name of the manufacturer, the trade name designation of the contents, the lot or batch number, the date of manufacture, and the volumetric contents in Kg. Each container shall be labeled in accordance with the code of federal regulations for flammables and shall contain all information necessary to comply with N.J.S.A. 34:5A-1 N.J. Worker and Community Right To Know Act.~~