

## 619-B-321 BRIDGE PAINTING

(Revised 01-18-24)

The Standard Specifications are revised as follows:

SECTION 101, BEGIN LINE 544, INSERT AS FOLLOWS:

**101.76 Wastewater**

Water containing waste residue from paint, *coatings*, form release oils, curing compounds and other construction debris, as well as soaps, detergents or solvents used in vehicle, equipment and structure washing, or other material defined as illicit discharge in accordance with the Indiana Municipal Storm Sewer General Permit, MS4GP. This includes untreated sediment-laden stormwater and wastewater associated with liquid waste from concrete, grout, mortar, stucco, and other similar construction materials resulting from concrete washout, hydrodemolition, saw cutting, coring, or dewatering operations contaminated by concrete pours or similar activities.

SECTION 104, BEGIN LINE 383, INSERT AS FOLLOWS:

**104.06 Removal and Disposal of Regulated Materials**

The removal, testing, transportation, or disposal of regulated materials, except for paint *and coating* removal and disposal operations described in 619, shall be in accordance with the requirements included herein and the applicable Federal, State, and local laws, regulations, and rules. These include, but will not be limited to, the requirements of the Federal Toxic Substances Control Act, the Federal Resource Conservation Recovery Act, the Federal Comprehensive Environmental Response Compensation Liability Act, OSHA, IDEM, and State rules requiring certification of underground storage tank removal firms.

SECTION 202, BEGIN LINE 22, INSERT AS FOLLOWS:

Materials not designated by the Department as salvageable and removed from the construction site shall become the property of the Contractor and shall be disposed of in accordance with 203.08. Regulated materials shall be disposed of in accordance with 104.06. Bridge painting *and coating* debris shall be disposed of in accordance with 619.

SECTION 203, BEGIN LINE 65, INSERT AS FOLLOWS:

Disposal of material, other than regulated material and bridge painting debris, from within the right-of-way shall only be allowed at accepted locations. Disposal of regulated material shall be in accordance with 104.06. Disposal of bridge painting *and coating* debris shall be in accordance with 619.

SECTION 604, AFTER LINE 19, INSERT AS FOLLOWS:

*Structural Steel Coating System..... 909.03*

Hand railing shall be aluminum pipe in accordance with ASTM B221, alloy 6063, temper T52, or galvanized steel pipe in accordance with ASTM A53, grade B, all as specified. *Railing designated to be painted shall be coated with the structural steel coating system with the exception that the epoxy intermediate coat will not be required.*

SECTION 604, BEGIN LINE 251, DELETE AND INSERT AS FOLLOWS:

~~Steel pipe railing not designated to be painted shall be galvanized after fabrication and prior to installation. Railing designated to be painted shall receive one shop coat of paint after fabrication and two field coats after installation. The type and color of paint~~

~~shall be as specified on the plans. Cleaning and painting shall be in accordance with 619~~  
*The surface of galvanized steel railing designated on the plans to be painted with a coating shall be prepared using a light brush-off blast cleaning in accordance with SSPC-SP16. The resulting surface profile shall be 15 to 30 microns in accordance with ASTM D4417. Primer in accordance with 909.02(a)1 shall then be shop-applied prior to delivery to the jobsite. The polyurethane finish coat shall be in accordance with 909.02(c) and shall be applied after the railing installation. The color of the dry film of the finish coat shall be as shown on the plans. Applying coatings shall be in accordance with the applicable portions of 619.*

SECTION 604, BEGIN LINE 344, DELETE AND INSERT AS FOLLOWS:

The cost of aluminum impregnated caulking compound and the ~~painting~~ coating of steel hand railing shall be included in the cost of the handrail.

SECTION 619, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

### **SECTION 619 – ~~PAINTING~~ COATING BRIDGE STEEL**

#### **619.01 Description**

This work shall consist of preparing surfaces, disposing of waste, and applying a ~~paint or another~~ coating to steel bridges, steel piling, bearing assemblies, or other steel items in accordance with 105.03.

### ***MATERIALS***

#### **619.02 Materials**

Materials shall be in accordance with the following:

Epoxy Intermediate <del>Paint</del> Coat.....	909.02(b)
Finish Coat for Weathering Steel.....	909.02(e)
Multi-Component Inorganic Zinc Silicate Primer .....	909.02(a)1
Organic Zinc Primer.....	909.02(a)2
Polyurethane Finish Coat.....	909.02(c)
Structural Steel Coating Systems.....	909.03
Waterborne Finish <del>Paint</del> Coat.....	909.02(d)

Safety data sheets shall be provided in the QCP for all materials to be delivered to the project site.

Caulk used to form the drip bead on weathering steel shall be a clear, 100% silicone caulk.

Caulk used on joints of lapping members shall be compatible with either the structural steel ~~paint~~ coating system or the partial ~~paint~~ coating system, and in accordance with the ~~paint~~ coating manufacturer's recommendations.

SECTION 619, BEGIN LINE 39, DELETE AND INSERT AS FOLLOWS:

Cleaning and ~~painting~~ *applying a coating* shall be done by a Contractor certified as SSPC-QP 2 ~~for cleaning and painting existing bridge steel on steel structures shown in the contract documents as being built before 1995. Cleaning and painting~~ *applying a coating*

shall be ~~done~~*performed* by a Contractor that, at a minimum, is certified as SSPC-QP 1 ~~for cleaning and painting new bridge steel or for cleaning and painting existing bridge steel on~~ steel structures shown in the contract documents as being built after 1994.

SECTION 619, BEGIN LINE 80, DELETE AND INSERT AS FOLLOWS:

**(b) Acceptance Testing**

Acceptance testing ~~of painting~~*for the coating of* steel bridges ~~work~~ will be in accordance with ITM 803. The results of the acceptance testing will be compared to the specific requirements for that phase of work. The Contractor shall not proceed to the next phase of work until written approval has been received from the Engineer that the current phase is accepted.

**619.04 Prosecution of Work**

Prosecution of work shall be in accordance with the applicable requirements of 108.04. Once the cleaning and ~~painting~~*coating* operations have begun, it shall be performed on all work days without stoppage until all work has been completed. If the contract contains more than one bridge, a schedule shall be included in the QCP which provides the sequence of work on the bridges. Once work has begun on a bridge, it shall be performed until complete, including all cleanup. When cleaning and ~~painting~~*coating* beam ends for encasement in concrete is specified, that work may be performed as a separate operation.

SECTION 619, BEGIN LINE 113, DELETE AND INSERT AS FOLLOWS:

**619.06 Maintaining Traffic**

~~The~~*Traffic* lanes may be restricted when surface preparation or ~~painting~~*coating* phases are being performed on a portion of the bridge over the traveled roadway, or as directed, when the need exists.

SECTION 619, BEGIN LINE 130, DELETE AND INSERT AS FOLLOWS:

**619.07 Safety and Environmental Requirements**

Safety requirements, pollution control, and disposal of existing ~~paint~~*coating* waste and debris shall be in accordance with the following requirements.

SECTION 619, BEGIN LINE 170, DELETE AND INSERT AS FOLLOWS:

**a. Containment for Structures Built Before 1995**

For structures shown in the contract documents as being built before 1995, the Contractor shall provide a containment system in order to contain all blasting materials, scrapings, wire brushings, and ~~paint~~*coating* particles in accordance with SSPC-Guide 6, Class 2A or greater with method A, level 1 emission control capability. The Contractor shall take samples and monitor the work environment in accordance with IOSHA requirements and shall provide personal protective equipment appropriate to the conditions present within the work environment.

**b. Containment for Structures Built After 1994**

For structures shown in the contract documents as being built after 1994, the Contractor shall provide a containment system in order to contain all blasting materials, scrapings, wire brushings, and ~~paint~~*coating* particles in accordance with SSPC-Guide 6, Class 2A or greater with method A, level 3 emission control capability. The Contractor shall take samples and monitor the work environment in accordance with IOSHA requirements and shall provide personal protective equipment appropriate to the conditions present within

the work environment.

Regardless of the level of containment as listed above, if a spill, as defined in IDEM Regulation 327 IAC 2-6.1 does occur, all work shall stop and immediate action shall be taken to clean up the site. Spills of material, that enter or threaten to enter the water, shall be handled in accordance with IDEM Regulation 327 IAC 2-6.1. The IDEM Emergency Response Branch, the local health department, and all water intake users within 500 ft of the bridge shall be immediately contacted and advised of the spill. Written documentation of all such contacts and actions shall be kept. All applicable Federal, State, and local rules and regulations described in 619.07(b)2b(1) shall be observed.

SECTION 619, BEGIN LINE 240, DELETE AND INSERT AS FOLLOWS:

#### **b. Waste Disposal**

Regardless of the waste characterization obtained from the waste stream sample, disposal of existing ~~paintcoating~~ and debris shall be in accordance with SSPC-Guide 7 and the following requirements.

##### **(1) Laws to be Observed**

Federal and State laws and regulations regulate the disposal of bridge ~~painting~~~~coating~~ debris. Bridge ~~paint~~~~coating~~ debris shall be manifested or certified and shall be disposed of at an appropriate disposal facility.

SECTION 619, BEGIN LINE 275, DELETE AND INSERT AS FOLLOWS:

##### **(3) Marking of Spent Material Containers**

Spent material containers shall be marked with the date that waste is first placed in the container. Until laboratory results described in 619.07(b)2a are received concerning the category of the waste stream, the containers shall be labeled “LEAD ~~PAINT~~COATING WASTE DEBRIS” or “ZINC ~~PAINT~~COATING WASTE DEBRIS”, as appropriate. The labeling shall include the contract number, bridge number, sample number, and sample date. Labeling of containers as hazardous waste will not be required until the appropriate laboratory analysis determines the waste stream to be hazardous in accordance with the current RCRA hazardous waste definitions. Immediately upon notice that the waste is hazardous, the containers shall be marked in accordance with 49 CFR 172, Subpart D.

##### **(4) Instruction for Disposal of ~~Paint~~Coating Waste**

If the waste stream is found to be hazardous, the Engineer will obtain an EPA identification number from IDEM. This number will be provided to the Contractor within 30 days of the start of waste generation for bridges having hazardous waste ~~paint~~coating debris. The waste from different bridges shall not be commingled. The Contractor shall be responsible for:

SECTION 619, BEGIN LINE 325, DELETE AND INSERT AS FOLLOWS:

##### **(5) Instructions for Disposal of Other Project Generated Waste**

Other wastes that may be generated on the project include, but are not limited to, spent solvents from cleaning of equipment and empty or partially empty containers of ~~paint~~coating, paint thinners, spent abrasives, and solvents. The Contractor shall recycle or dispose of all project generated waste materials.

SECTION 619, BEGIN LINE 349, DELETE AND INSERT AS FOLLOWS:

- (2) sections of beams or other structural members less than 180 sq ft of total area to be ~~painted~~*coated* for the contract where heat-straightening or similar repairs have taken place.

Surfaces to be ~~painted~~*coated* shall be cleaned in accordance with the SSPC classification, unless otherwise specified. Compressed air shall pass through an oil and water extractor before entering another apparatus.

Solvent cleaning in accordance with 619.08(a) shall be performed to remove all oils, soluble salts, visible grease, and any other surface contaminants before all other cleaning methods are started.

Field cleaned steel surfaces shall ~~be primed~~*receive a coat of primer* the same day as cleaned, except for areas requiring a second abrasive blast cleaning. Those areas shall ~~be primed~~*receive a coat of primer* the same day as the second cleaning. If rust forms after cleaning, the surface shall be cleaned again before ~~painting~~*coating*. Work shall be stopped when there is disagreement about whether a surface has been adequately cleaned. Written notification shall be provided specifically identifying the problem.

Cleaning shall be scheduled so that dust or other contaminants do not fall on wet, newly ~~painted~~*coated* surfaces.

A dust collector suitable for the containment type and size shall be used during all blast cleaning operations in preparation for all structural steel ~~paint~~*coating* systems and as directed for a partial ~~paint~~*coating* system.

On existing bridges when abrasive blast cleaning is used, clean dry media in accordance with SSPC-AB 1 or SSPC-AB 3 shall be used. The media shall produce a profile that is free of oil, soluble salts, greases, and other similar substances which can contaminate the blasted surface. If ferrous metallic media is chosen and the Contractor elects to recycle the media by running the media through recycling equipment, the recycling equipment shall be capable of separating the blasting media from the ~~paint~~*coating* debris and the cleanliness of the recycled ferrous metallic media shall be in accordance with SSPC-AB 2.

SECTION 619, BEGIN LINE 436, DELETE AND INSERT AS FOLLOWS:

#### **619.09 ~~Paint~~Coating Systems**

~~Paint systems~~*Every component of a coating system shall be from the same manufacturer and shall be compatible with each other. Coatings shall be applied in accordance with the manufacturer's recommendations. The dry film thickness of a ~~paint~~ coating will be measured with a calibrated film thickness gauge in accordance with SSPC PA 2. All ~~paint~~-coatings shall have a dry film thickness not less than 80% of the required dry film thickness.*

##### **(a) Structural Steel ~~Paint~~Coating System**

The coating system shall consist of an inorganic zinc primer with a dry film thickness of 3 mil, an epoxy intermediate coat with a dry film thickness of 4 mil, and a polyurethane finish coat with a dry film thickness of 3 mil for the ~~painting~~*coating* of steel bridges and other structural steel.

### **(b) Partial ~~Paint~~Coating System**

The coating system shall consist of *an* organic zinc primer with a dry film thickness of 3 mil and a *finish coat with a dry film thickness of 3 mil. The finish coat shall be either a waterborne finish coat with a dry film thickness of 3 mil or a polyurethane finish coat for partial painting* coating of steel bridges and other structural steel *within the limits shown on the plans.*

### **619.10 ~~Painting~~Coating**

~~Painting~~The application of all coatings shall be performed by a SSPC certified contractor, except as noted in 619.08.

Concrete at all junction points of concrete and steel shall be adequately shielded or otherwise protected so the application of ~~paint~~the coating on steel is full and complete, and that ~~spraying~~overspray or spatter onto ~~the~~nearby concrete or other surfaces is minimized.

If a blasted or ~~painted~~coated surface is unsatisfactory, removal of the ~~paint~~coating, a thorough cleaning of the surface, and ~~repainting~~recoating or other correction will be required as directed. Where defects or damages occur in a film of any coating, all defective areas shall be removed to soundly bonded ~~paint~~coating or bare steel and ~~painted~~recoated to the specified thickness.

No lettering shall be ~~painted~~marked on bare or ~~painted~~coated steel surfaces, except marks required for erection and project information stenciled in accordance with 619.10(g).

Joints of all lapping members shall be caulked after either the application of the epoxy intermediate coat of the structural steel ~~paint~~coating system or the application of the organic zinc primer of the partial ~~paint~~coating system. The intermediate *coat* or primer ~~coat~~ shall be cured to the manufacturer's recommended coating cure time prior to caulking.

SECTION 619, BEGIN LINE 486, DELETE AND INSERT AS FOLLOWS:

### **(a) Weather Limitations**

Field ~~painting~~~~will~~coating shall not be ~~allowed~~performed between November 15 and the following April 1 unless ~~different date ranges are requested in the QCP and approved in writing~~the Contractor requests to work during this period, provides an amended QCP, and written approval is received from the Engineer.

~~Painting~~Coating application shall begin only when the 24 h ambient temperature is to remain above 50°F after ~~paint~~ application, and the steel surface temperature is between 50°F and 100°F unless different temperature ranges are requested in the QCP and approved in writing. Coating, ~~painting~~, and curing shall be done only when the relative humidity is to remain between 30% and 80%. The pot life and induction time shall be in accordance with the manufacturer's recommendations for the existing temperature and humidity.

~~Paint~~A coating shall not be applied when the air is misty, or when conditions are otherwise unsuitable. The surface temperature of the steel to be ~~painted~~coated shall not be within 5°F of the dew point. When ~~painting~~coating in a protected area to eliminate the above conditions, the steel shall remain under cover until the ~~paint~~coating is dry. All wet ~~paint~~or uncured coating which has been exposed to excessive humidity, rain, snow, or

condensation shall be allowed to dry *or cure*. Damaged ~~paint~~ *coating* shall then be removed. The surface shall be re-cleaned and ~~repainted~~ *recoated* as directed. The Engineer will be the sole authority to decide when work may begin or shall stop due to weather conditions.

### **(b) Storage**

~~Paint~~ *All coatings* shall be stored in accordance with the manufacturer's recommendations. If ~~paint~~ *coating* is allowed to remain in storage, the containers shall be turned end for end at least once per week. The ~~paint~~ *coating* shall be used within the manufacturer's recommended shelf life.

### **(c) Mixing**

~~Paint~~ *All coatings* shall be thoroughly mixed so that the pigment is completely in suspension and the consistency is uniform. Mechanical mixers shall be used in accordance with the manufacturer's instructions. The ~~paint~~ *coating* shall remain in this condition during application to the steel surface. After initial mixing and before application, *inorganic and organic* zinc primer shall be strained through a metal screen not coarser than the No. 30 (600 µm) sieve.

Partially empty containers of ~~paint~~ *coating* shall not be used. Partial mixing of containers ~~will~~ *shall* not be ~~allowed~~ *done*. All ~~paint~~ *containers of a coating* shall remain closed until needed for mixing.

### **(d) Thinning**

When required for proper application, the ~~thinning of field paint~~ *addition of a thinner to a coating* will be allowed. Only thinners recommended by the manufacturer and as approved shall be used. Thinners shall be added to ~~paint~~ *coating* in accordance with the manufacturer's recommendations. The maximum quantity added shall not exceed the manufacturer's recommendations. The thinned ~~paint~~ *coating* shall not exceed IDEM regulations for volatile organic compounds.

The Contractor shall contact IDEM and the local air pollution control board for information about any volatile organic compound regulations or restrictions.

### **(e) Application of ~~Paint~~ Coatings**

All ~~paint~~ *coatings* shall be of colors to produce a distinct contrast with adjacent coatings, including the color of a clean steel surface.

~~Paint~~ *Coatings* shall be applied by either an airless or conventional spray method which has been recommended by the ~~paint~~ *coating* manufacturer. ~~The~~ *Compressed air* used for ~~painting~~ *the application of a coating* shall pass through an oil and water extractor before ~~entering the paint~~ *meeting the coating in the pot*. However, areas to be ~~paint~~ *coated* which are inaccessible to spray application or areas requiring touchup may be ~~paint~~ *coated* with brush or daubers. Epoxy intermediate *coatings* and polyurethane finish ~~paints~~ *coatings* may also be applied by brushes or rollers provided the coating cures to a smooth and uniform finish. Spray shall be adjusted to produce a uniform coating.

## **1. Stripe Coat**

If using the structural steel ~~paint~~ *coating* system in accordance with 619.09(a), a

stripe coat in accordance with SSPC-PA Guide 11 shall be applied. All sharp edges, welds, outside corners, bolt heads, nuts, threads, crevices, plate seams, back-to-back angle seams, pitted steel, rivet heads, and other sharp discontinuities shall be striped on the second and third coats, and then ~~repainted~~*recoated* with the remaining steel surfaces. Striping shall extend at least 1 in. from edges. If specified, the stripe coat shall be allowed to dry to the manufacturer's recommended recoat dry time prior to ~~painting~~*applying* the second and third coats on the remaining steel surfaces.

If using the partial ~~paint~~*coating* system in accordance with 619.09(b), a stripe coat in accordance with SSPC-PA Guide 11 shall be applied. All sharp edges, welds, outside corners, bolt heads, nuts, threads, crevices, plate seams, back-to-back angle seams, pitted steel, rivet heads, and other sharp discontinuities shall be striped on each of the *two* coats, and then ~~repainted~~*recoated* with the remaining steel surfaces. Striping shall extend at least 1 in. from edges. If specified, the stripe coat shall be allowed to dry to the manufacturer's recommended recoat dry time prior to ~~painting~~*coating* the remaining steel surfaces. ~~Painting~~*Coating application* techniques shall minimize ~~dry~~ overspray or spatter. Dry overspray and spatter shall be removed prior to application of other coatings and after application of the finish coat.

For both ~~paint~~*coating* systems, the stripe coat may be applied with either a brush or a sprayer. If the Contractor-chosen method of applying the stripe coat is not producing results acceptable to the Engineer, the Engineer will require the stripe coat application method to be changed.

SECTION 619, BEGIN LINE 582, DELETE AS FOLLOWS:

The curing time of all other ~~paint systems or~~ coatings shall be in accordance with the manufacturer's recommendations.

SECTION 619, BEGIN LINE 597, DELETE AND INSERT AS FOLLOWS:

#### **619.11 Shop-Application of a Coat of Primer ~~Coating for New Steel~~**

The shop performing the cleaning and the application of the ~~prime~~*coat of primer* for *new* structural steel shall have a valid AISC-420-10/SSPC-QP 3 certification. Abrasive used for cleaning steel in the shop shall be an abrasive that produces a surface profile in accordance with 619.08. *The Contractor shall coordinate with the steel fabrication shop and the Contractor applying the remaining coatings after steel erection to ensure the shop-applied primer and the remaining field-applied coats of the coating system are all from the same manufacturer. Mixing primer and coating products from different manufacturers will not be allowed.* ~~The~~ *Inorganic zinc primer coat* shall be applied to all structural steel in the shop. The remaining two coats *of the structural steel coating system* shall be applied in the field after final erection. A structural steel ~~paint~~*coating* system in accordance with 619.09(a) shall be used. When shear connectors have been specified, the top of the top flange shall not be primed. Erection marks may be painted on ~~zinc-painted~~*zinc-coated* surfaces. Machine finished surfaces for sliding contact shall be coated with heavy grease as soon as practicable after being accepted, but before removal from the shop.

SECTION 619, BEGIN LINE 615, DELETE AND INSERT AS FOLLOWS:

All structural steel shall receive an inorganic zinc primer, including faying surfaces of high strength bolted connections and areas in contact with concrete. Surfaces, other than the contact surfaces described above, which are inaccessible after erection shall be



~~paint~~~~ed~~coated in the shop with the full ~~paint~~coating system required on the completed bridge.

### **(b) Weathering Steel**

All structural steel shall be left ~~unpainted~~~~uncoated~~, except as shown on the plans. All diaphragms, stiffeners, and other appurtenances located within the limits shown on the plans shall be included in the ~~painting~~~~area to be coated~~. Surfaces to be ~~paint~~~~ed~~coated shall be cleaned in accordance with 619.08(e). Surfaces shall be ~~paint~~~~ed~~coated in accordance with 619.09(a), except the finish coat shall be in accordance with 909.02(e). *The field-applied finish coat for weathering steel will be allowed to be furnished from a different manufacturer than the manufacturer that furnished the primer and epoxy intermediate coat.*

### **619.12 Field ~~Painting~~Coating New Steel Bridge**

All structural steel surfaces which are accessible after final erection shall be ~~paint~~~~ed~~coated with the remaining coatings specified for *the* structural steel ~~paint~~coating system in accordance with 619.09(a) in the field after final erection.

Portions of new structural steel, including cross frames, diaphragms, stiffeners, and all other appurtenances located within the limits of concrete end bent encasement as shown on the plans, will only require the inorganic zinc primer-~~coat~~.

Surface areas where the inorganic zinc primer was damaged during shipping, handling, and erection shall be cleaned in accordance with 619.08(a) and either 619.08(d) or 619.08(i). Likewise, all bolt and field connections shall be cleaned in the same manner. All the damaged areas, and bolt and field connections shall then be ~~paint~~~~ed~~coated with the *same manufacturer's* inorganic zinc primer *that was* applied in the shop. This requirement will not apply to temporary steel bridges.

Where steel surfaces have been ~~paint~~~~ed~~coated with the ~~full-paint~~~~structural steel coating~~ system and the ~~paint~~coatings have been damaged, the affected steel surface areas shall be cleaned in accordance with 619.08(i). ~~S~~*The structural steel ~~paint~~coating system shall then be re-applied.*

For weathering steel girders, caulk shall be applied to act as a drip bead as shown on the plans.

### **619.13 ~~Painting~~Coating Existing Steel Bridges**

The surfaces to be cleaned and ~~paint~~~~ed~~coated shall include the surfaces of all steel members of the superstructure, substructure, floor beams, stringers, plates, castings, bearing assemblies, ornamental handrails, lattice work, and other steel appurtenances. When shear connectors have been specified, the top of the top flange shall not be ~~paint~~~~ed~~coated.

If the contract specifies clean steel bridge, the bridge steel shall be cleaned in accordance with 619.08(a) and either 619.08(e) or 619.08(i). The structural steel ~~paint~~coating system in accordance with 619.09(a) shall be used for ~~painting~~coating.

If the contract specifies clean steel bridge, partial, the bridge steel shall be cleaned in accordance with 619.08(a) and either 619.08(e), or 619.08(h). The partial ~~paint~~coating system in accordance with 619.09(b) shall be then used for ~~painting~~coating.

When the plans show encasing the ends of existing structural steel members in concrete, all beams and girders, cross frames, diaphragms, stiffeners, and all other appurtenances located within the limits of the partial ~~painting~~coating zone as shown on the plans shall be cleaned in accordance with 619.08(a) and either 619.08(e) or 619.08(h) and shall receive the partial ~~paint~~coating system in accordance with 619.09(b). If the contract also includes pay items for clean steel bridge and ~~paint~~coat steel bridge, all exposed structural steel shall be cleaned in accordance with 619.08(a) and either 619.08(e) or 619.08(i), and ~~painted~~coated in accordance with 619.09(a), from the face of concrete encasement to opposite face of concrete encasement.

SECTION 619, BEGIN LINE 692, DELETE AND INSERT AS FOLLOWS:

The roadway drain castings shall be ~~painted~~coated with a black *polyurethane* finish coat in accordance with 909.02(c).

If a roadway drain casting extension pipe is damaged or missing, it shall be replaced. The extension pipe shall be in accordance with 715.

### **619.16 Clean and ~~Paint~~Coat Bearing Assemblies and Steel Piling**

#### **(a) Bearing Assemblies**

When shown on the plans or a pay item is included in the schedule of pay items, all bearing assemblies including top and bottom plates of each assembly shall be cleaned in accordance with 619.08(a) and 619.08(d). Pollution control shall be in accordance with 619.07.

If the pay item clean and ~~paint~~coat bearing assemblies is listed in the schedule of pay items for a particular structure, the entire bearing assembly shall be ~~painted~~coated with the structural steel ~~paint~~coating system in accordance with 619.09(a).

If the pay item, ~~paint~~coat steel bridge, or ~~paint~~coat steel bridge, partial, is listed in the schedule of pay items for a particular structure, the entire bearing assembly shall be ~~painted~~coated with the structural steel ~~paint~~coating system that is being used on the rest of the bridge.

#### **~~619.16.1(b) Clean and Paint~~ Steel Piling**

All exposed steel piling shall be cleaned in accordance with 619.08(a) and either 619.08(e) or 619.08(i). The structural steel ~~paint~~coating system in accordance with 619.09(a) shall be applied. The color of the ~~top~~finish coat shall be SAE-AMS-STD-595, color No. 13711.

### **619.17 Responsibility for Damage**

Unless otherwise specified by the Engineer in writing, full containment shall be provided when performing the surface preparation operation and when applying all ~~coats of paintcoatings~~, except primer-coats, with spray equipment. All persons and property shall be protected from damage or injury from the surface preparation operations and

~~painting~~coating operations by providing containment as described in the QCP. Persons and property shall include, but not be limited to, pedestrians, vehicles, and other traffic upon or underneath a bridge, all portions of the bridge superstructure and substructure, and all adjacent property. *When applying a primer or coating using means other than spray equipment, all persons and property shall be protected from damage or injury. The means and extent of the protection shall be as described in the QCP.* The Contractor shall be responsible for damages in accordance with 107.17.

SECTION 619, BEGIN LINE 746, DELETE AND INSERT AS FOLLOWS:

#### **619.19 Method of Measurement**

Cleaning and ~~painting~~coating of steel structural members, cleaning the top of the top flange of steel structural members, cleaning and ~~painting~~coating of bearing assemblies, and cleaning and ~~painting~~coating of steel piling will not be measured for payment. Cleaning areas around bridge joints and other areas with visible corrosion pitting a second time will not be measured for payment. Disposal of the waste generated by the cleaning operation will not be measured for payment.

SECTION 619, BEGIN LINE 761, DELETE AND INSERT AS FOLLOWS:

If a structure is shown in the contract documents as being built before 1995, no measurement will be made of the area covered by mill scale. Otherwise, the area of structural steel covered by mill scale will be measured for payment after a proper cleaning of the entire containment area or an agreed large portion thereof and removing all other existing materials, including all paint, *coatings* and rust. The percentage of the area of structural steel covered by existing mill scale will be representative of this entire area. The pre-established remedies for this changed condition apply in accordance with 104.02(d) and 619.20.

SECTION 619, BEGIN LINE 777, DELETE AND INSERT AS FOLLOWS:

#### **619.20 Basis of Payment**

Existing steel bridges to be cleaned, or partially cleaned, whichever is specified, will be paid for at the contract lump sum price for clean steel bridge or clean steel bridge, partial, at the bridge number specified. Cleaning the top of the top flange of existing steel bridges will be paid for at the contract lump sum price for clean steel bridge, top flanges, at the bridge number specified. Existing steel bridges to be ~~paint~~coated, or partially ~~paint~~coated, whichever is specified, will be paid for at the contract lump sum price for ~~paint~~coat steel bridge or ~~paint~~coat steel bridge, partial, at the bridge number specified.

When specified as a separate pay item in the contract, cleaning and ~~painting~~coating bearing assemblies will be paid for at the contract lump sum price for clean and ~~paint~~coat bearing assemblies, at the bridge number specified.

When specified as a separate pay item in the contract, cleaning and ~~painting~~coating steel piling will be paid for at the contract lump sum price for clean and ~~paint~~coat steel piling, at the bridge number specified.

SECTION 619, BEGIN LINE 834, DELETE AND INSERT AS FOLLOWS:

1. 70% of the sum of the clean steel bridge item and ~~paint~~coat steel bridge item for that bridge; or

SECTION 619, BEGIN LINE 841, INSERT AS FOLLOWS:

For steel that will become the property of the Contractor, payment for cleaning existing steel, removal of mill scale, testing, disposal of the waste, containment, and all other costs involved *in* this work will be in accordance with 202.14.

SECTION 619, BEGIN LINE 854, DELETE AND INSERT AS FOLLOWS:

Clean and ~~Paint~~Coat Bearing Assemblies, Br. No. \_\_\_\_ .....LS

Clean and ~~Paint~~Coat Steel Piling, Br. No. \_\_\_\_ .....LS

SECTION 619, BEGIN LINE 861, DELETE AND INSERT AS FOLLOWS:

~~Paint~~Coat Steel Bridge, Br. No. \_\_\_\_ .....LS

~~Paint~~Coat Steel Bridge, Partial, Br. No. \_\_\_\_ .....LS

SECTION 619, BEGIN LINE 868, DELETE AND INSERT AS FOLLOWS:

If a structure is shown in the contract documents as being built before 1995, no additional payment will be made for the removal of mill scale. The cost of the removal of mill scale shall be included in the cost of clean steel bridge, clean steel bridge, partial, clean and ~~paint~~coat bearing assemblies, clean and ~~paint~~coat steel piling, or clean steel bridge, top flanges.

SECTION 619, BEGIN LINE 881, DELETE AND INSERT AS FOLLOWS:

The cost of furnishing all materials, equipment, and labor required for solvent cleaning, scraping, steel brushing, or other acceptable methods for removing ~~paint~~coatings in the locations directed shall be included in the cost of clean steel bridge, clean steel bridge, partial, clean and ~~paint~~coat bearing assemblies, clean and ~~paint~~coat steel piling, or clean steel bridge, top flanges. The cost of cleaning roadway drain castings shall be included in the cost of clean steel bridge or clean steel bridge, partial.

The cost of providing containment in accordance with 619.07 and 619.17 and personal protective equipment shall be included in the cost of the pay items of this section.

The cost of furnishing all materials, equipment, and labor required to perform the quality control tasks outlined in 619.03 shall be included in the cost of clean steel bridge or clean steel bridge, partial, clean and ~~paint~~coat bearing assemblies, clean and ~~paint~~coat steel piling, or clean steel bridge, top flanges.

The cost of furnishing all materials including caulk, equipment, and labor to perform caulking and ~~painting~~coating, including the stripe coats, with the structural steel ~~paint~~coating system or the partial ~~paint~~coating system shall be included in the cost of ~~paint~~coat steel bridge or ~~paint~~coat steel bridge, partial. The cost of switching stripe coat application methods shall be included in the cost of ~~paint~~coat steel bridge or ~~paint~~coat steel bridge, partial. The cost of furnishing all materials, equipment, and labor to perform ~~painting~~coating of the roadway drain castings shall be included in the cost of ~~paint~~coat steel bridge or ~~paint~~coat steel bridge, partial.

The cost of all equipment, material, labor, testing, use of special cleaning methods, and shipping of waste stream samples shall be included in the cost of the clean steel bridge or clean steel bridge, partial, clean and ~~paint~~coat bearing assemblies, clean and ~~paint~~coat steel piling, or clean steel bridge, top flanges, pay items.

The cost of dust removal, wetting, and within the cross-sectional area measuring 5 ft longitudinally on both sides of a bridge deck joint as well as all areas of visible corrosion pitting, a second time shall be included in the clean steel bridge, clean steel bridge, partial, clean and ~~paint~~coat bearing assemblies, or clean steel bridge, top flanges, pay items.

When a pay item is included in the schedule of pay items for clean and ~~paint~~coat bearing assemblies, all costs associated with cleaning and ~~painting~~coating bearing assemblies, except disposal of cleaning waste, shall be included in the cost of the pay item. If clean steel bridge, clean steel bridge, partial, ~~paint~~coat steel bridge, or ~~paint~~coat steel bridge, partial, are included as pay items in the schedule of pay items, no separate payment will be made for cleaning and ~~painting~~coating bearing assemblies on that bridge number. The cost of cleaning and ~~painting~~coating bearing assemblies shall be included in the cost of the respective clean steel bridge, clean steel bridge, partial, ~~paint~~coat steel bridge, or ~~paint~~coat steel bridge, partial, pay items for that bridge number.

When a pay item is included in the schedule of pay items for clean and ~~paint~~coat steel piling, all costs associated with cleaning and ~~painting~~coating steel piling, except disposal of cleaning waste, shall be included in the cost of the pay item.

When encasing the ends of existing structural steel members in concrete is shown on the plans, all costs associated with cleaning and ~~painting~~coating all structural steel within the limits of the partial ~~painting~~coating zone, including but not limited to, equipment, material, labor, testing, use of special cleaning methods, and shipping of waste stream samples, shall be included in the cost of clean steel bridge, partial, and ~~paint~~coat steel bridge, partial, pay items. If the contract also includes pay items for clean steel bridge and ~~paint~~coat steel bridge, all costs associated with cleaning and ~~painting~~coating all exposed structural steel, including but not limited to, equipment, material, labor, testing, use of special cleaning methods, and shipping of waste stream samples, shall be included in the cost of clean steel bridge and ~~paint~~coat steel bridge pay items.

SECTION 711, BEGIN LINE 440, DELETE AND INSERT AS FOLLOWS:

**711.31 Peening Welds by Means of Ultrasonic Impact Treatment, UIT**

This work shall consist of removing existing paint *and coatings*, repairing existing cracked welds, peening existing and repaired welds, and ~~painting~~coating in accordance with 105.03.

SECTION 711, BEGIN LINE 460, DELETE AND INSERT AS FOLLOWS:

Paint *and coating* removal shall be in accordance with 619.08(a) and 619.08(i). ~~Painting~~Coating shall be in accordance with 619.09 and 619.10.

SECTION 711, BEGIN LINE 770, DELETE AND INSERT AS FOLLOWS:

**711.47 Shop Cleaning and ~~Painting~~Coating**

Shop cleaning and ~~painting~~coating shall be in accordance with applicable requirements of 619.

SECTION 711, BEGIN LINE 1142, DELETE AND INSERT AS FOLLOWS:

**711.71 ~~Painting~~Coating**

After erection is complete, the structure shall be ~~painted~~coated unless otherwise

provided. ~~Painting~~*Coating* shall be in accordance with the applicable requirements of 619.

SECTION 711, BEGIN LINE 1269, DELETE AND INSERT AS FOLLOWS:

The cost of paint *and coating* removal, ~~painting~~*coating*, non-destructive testing, equipment, labor, materials, access, permits, and necessary incidentals shall be included in the cost of peening weld, UIT.

SECTION 712, BEGIN LINE 20, DELETE AND INSERT AS FOLLOWS:

Waterborne Finish ~~Paint~~*Coat*.....909.02(d)

SECTION 712, BEGIN LINE 136, DELETE AND INSERT AS FOLLOWS:

#### **712.08 ~~Painting~~*Coating***

~~Paint~~*A coating* shall be applied to untreated lumber and timber as shown on the plans or as otherwise specified. Lumber or timber treated with preservative shall not be ~~paint~~*coated*, unless otherwise specified. The color shall be as specified.

SECTION 712, BEGIN LINE 146, DELETE AND INSERT AS FOLLOWS:

The surfaces shall be ~~paint~~*coated* with one coat of waterborne finish ~~paint~~*coating*. The ~~paint~~*coating* shall be applied by brush or roller only and at the rate recommended by the manufacturer. All finishes shall be uniform in texture and color. If a ~~paint~~*coated* surface is unsatisfactory, the ~~paint~~*coating* shall be removed and the surface shall be cleaned and ~~repaint~~*recoated* or corrected as may be directed.

At the end of each work day, ~~paint~~-stains and splatters shall be removed from all surfaces not intended to receive the ~~paint~~*coating* applied for that day.

SECTION 729, BEGIN LINE 21, DELETE AND INSERT AS FOLLOWS:

Partial ~~Paint~~*Coating* System.....619.09(b)

SECTION 729, BEGIN LINE 26, DELETE AND INSERT AS FOLLOWS:

#### **729.04 Pre-Heat Straightening Inspection**

Steel members shall be inspected by the Engineer and Contractor for impact damage such as but not limited to gouges, sharp dents, cracks, or other damage prior to any other work related to heat straightening commencing. All areas identified as having impact damage shall have the paint *and coating* removed by abrasive blasting, hand tool cleaning, power tool cleaning, or water blasting. The existing coating shall not be removed by flame or heat. The steel members in the areas identified as having damage resulting from an impact shall be checked for fine cracks using liquid penetrant testing in accordance with ASTM E165 or magnetic particle testing in accordance with ASTM E709.

#### **(a) NDT Testing and Reporting Requirements**

The testing shall be performed on surfaces that are clean, dry, and free of contaminants such as oil, grease, rust, weld flux, spatter, paint, *coatings*, and any other contaminant detrimental to NDT testing. A minimum visible light having an intensity of 200 ft-candles and 2,150 lux shall be provided.

SECTION 729, BEGIN LINE 121, INSERT AS FOLLOWS:

#### **729.07 Surface Preparation of Area to be Heated**

Before cutting or heating any steel member, *all paint and coating* shall be removed from inside the limits of the heat straightening area. Surface preparation shall be in accordance with 619.08(a) and either 619.08(d) or 619.08(h).

SECTION 729, BEGIN LINE 238, DELETE AND INSERT AS FOLLOWS:

#### **729.15 ~~Painting~~Coating**

Upon completion and acceptance of the heat straightened steel members, the Contractor shall clean, prime, and ~~paint~~*coat* the steel members. Surface preparation shall be in accordance with 729.07. The ~~paint~~*coating* system shall be in accordance with 619.09(b). ~~Painting~~*Coating* shall be in accordance with 619.10. All exposed surfaces on heat-straightened steel members shall be fully ~~paint~~*coated* from the edge of the nearest splice plate or steel member end outside the heat straightened area to the nearest splice plate or steel member end on the other side of the heat straightened area. The color of the top coat shall be a similar color to match the color of the existing bridge.

SECTION 801, BEGIN LINE 19, DELETE AND INSERT AS FOLLOWS:

Field ~~Paint~~*Coatings for Wood or Metal* ..... 909.04

SECTION 802, BEGIN LINE 206, DELETE AND INSERT AS FOLLOWS:

#### **4. Bridge Brackets**

The location of the sign bracket may be shifted to avoid joints or stiffeners on the bridge. Before placing aluminum in contact with concrete, both the concrete and aluminum surfaces shall be coated with an aluminum-impregnated caulking compound. Where aluminum surfaces are to be placed in contact with steel, the steel surface shall be given one coat of zinc chromate ~~paint~~ and the aluminum surfaces shall be coated with an aluminum-impregnated caulking compound before placement. After the bolts have been tightened, the excess caulking compound shall be removed. All openings around the flanges shall be fully ~~paint~~*coated* and shall be flush with the caulking compound.

SECTION 802, BEGIN LINE 447, DELETE AND INSERT AS FOLLOWS:

The cost of furnishing and applying aluminum-impregnated caulking compound and zinc chromate ~~paint~~*coating* as required in 802.07, shall be included in the cost of the pay items in this section.

SECTION 805, BEGIN LINE 84, DELETE AND INSERT AS FOLLOWS:

All existing painted metallic signal equipment to be reused, such as pedestals, bases, controller cabinets, signal weatherheads, pipe arms, shall be cleaned and ~~paint~~*coated* with two coats of ~~highway-yellow enamel~~ in accordance with 909.02(c). Existing metallic signal heads to be reused shall be ~~paint~~*coated* with two coats of black or ~~highway-yellow enamel~~ as directed by the Engineer and in accordance with 909.02(c). Aluminum poles and signal support structures shall not be painted.

SECTION 805, BEGIN LINE 156, DELETE AND INSERT AS FOLLOWS:

#### **805.04 Pole Installation**

Working drawings for strain poles or cantilever structures shall be provided in accordance with 105.02. Metal poles shall be erected on concrete foundations and shall be reasonably plumb after installation of signal heads. The handhole side of the pole shall be at right angles to the direction of the signal cantilever arm or span, catenary, and tether. Signal cables shall be brought up inside the poles. Any steel pole, signal cantilever arm, or hardware not galvanized shall be ~~paint~~*coated* with *the* structural steel coating system in

accordance with 619.09(a). The surface shall be prepared in accordance with 619.08(a) and 619.08(d). ~~Paint~~Coatings shall be applied in accordance with 619. All rust, scale, and dirt shall be cleaned from the metal surface so that ~~paint~~the coating adheres to the surface.

SECTION 807, AFTER LINE 16, INSERT AS FOLLOWS:

*Coatings, Paints, and Liquid Epoxy*..... 909

SECTION 807, BEGIN LINE 21, DELETE AS FOLLOWS:

~~Paint~~..... 909

SECTION 807, BEGIN LINE 546, DELETE AND INSERT AS FOLLOWS:

## **2. Sign Luminaires**

Connections in which plain and galvanized steel are in contact shall be protected such that aluminum surfaces shall receive one coat of zinc chromate primer. Steel surfaces shall be prepared in accordance with 619.08(a), and 619.08(d), and ~~painted~~coated with the structural steel ~~paint~~coating system in accordance with 619.09(a). All ~~paint~~coatings shall be allowed to cure before assembly. Conduit fittings, if required, shall be watertight. Required conduit shall be either rigid or flexible as necessary. Conduit shall not be clamped to a sign panel.

SECTION 909, BEGIN LINE 1, INSERT AS FOLLOWS:

## **SECTION 909 – COATINGS, PAINTS, AND LIQUID EPOXY**

SECTION 909, BEGIN LINE 9, DELETE AND INSERT AS FOLLOWS:

~~Paints and e~~Coatings and paints shall be furnished ready for use without modification and shall not settle, cake, curdle, liver, gel, or develop excessive change in viscosity between time of manufacture and time of use. It shall remain capable of being readily dispersed with a paddle, or other approved methods, to a consistency appropriate for the intended use. ~~Paints and e~~Coatings and paints may be sampled and tested at any time prior to use. ~~Paints and coatings that are part of a steel coating system listed on the QPL of Structural Steel Coating Systems shall be submitted in an unopened, full, and complete kit for testing.~~

~~Individual~~Coatings that are part of a coating system listed on the QPL of Structural Steel Coating Systems and individual batches of organic zinc primer and waterborne finish ~~paint~~coatings listed on the QPL of Coating Formulations shall be submitted in an unopened, full, and complete kits for testing.

If, for any reason, re-sampling and re-testing following initial or prior acceptance is indicated, the latest test results shall prevail over all previous tests for material that has not been used. Previously accepted ~~paint or~~ coatings or paints that are stored for future use may be re-sampled and re-tested.

~~Paints and e~~Coatings and paints shall be delivered in new containers of such strength, durability, design, fabrication, and material that the ~~paint~~material shall be suitably protected in transit and in storage against any change in characteristics which would cause rejection based on laboratory or field evaluation. Each container shall bear a label which shows the name and address of the manufacturer, kind of ~~paint or~~ coating or paint, formula identification, date of manufacture, and lot or batch number. The container shall be filled



so the net weight of the material in the container equals the product of the weight per gallon at 77°F and the stated number of gallons in the container.

All containers shall be labeled in accordance with the OSHA requirements for labeling of hazardous chemicals as described in the Hazardous Communications Standard.

*All coatings and paints shall comply with current IDEM VOC regulations, and the cured film of the coatings and paints shall not contain toxic heavy metals above IDEM regulatory levels that would require classification as a hazardous waste.*

### **909.02 Coatings For Metal**

~~Paints~~Coatings for metal surfaces shall be in accordance with the requirements shown below.

SECTION 909, BEGIN LINE 61, DELETE AND INSERT AS FOLLOWS:

#### **2. Organic Zinc Primer**

Organic zinc primer shall be a self-curing primer. It shall be in accordance with SSPC Paint Specification No. 20, Type II. The organic zinc primer shall be compatible with inorganic zinc and finish coats *or* paints already on the bridge. The color shall ~~be able to~~ produce a distinct contrast with blast cleaned metal surface and the finish coat. The cured organic zinc film shall be compatible with a ~~top coating of~~ waterborne finish coat ~~paint~~.

The organic zinc primer shall also be in accordance with the following requirements:

Viscosity, ASTM D562, Krebs Units .....	70 – 100
Viscosity variation from the initially approved formulation, ASTM D562, Krebs Units, max. ....	±10
<del>Volatile organic compounds, ASTM D3960, max. ....</del>	<del>419 g/L</del>
Weight/volume, ASTM D1475, 25°C, min. ....	2.040 kg/L
Weight/volume variation from the initially approved formulation, max. ....	±0.048 kg/L
<del>Dry time, ASTM D1640, 6 mils wet film thickness on a tin coated steel panel, max.:</del>	
Set to touch .....	1 h
Dry hard.....	24 h

SECTION 909, BEGIN LINE 107, DELETE AND INSERT AS FOLLOWS:

The infrared spectrum of the vehicle *component* when extracted from the organic zinc primer, in accordance with ASTM D3168, shall match the infrared spectrum of the vehicle *component* of the sample submitted for formulation approval.

The cured film shall not contain any toxic heavy metals above the limits of the regulatory levels of 40 CFR 261.24, Table 1. The cured ~~paint~~coating shall not contain any other material which will require characterization as a hazardous waste for the disposal of the dried film.

#### **3. Furnishing and Use**

*Inorganic zinc primers shall be part of a structural steel coating system. Only*

*inorganic zinc primers listed on the QPL of Structural Steel Coating Systems shall be used.*

*When organic zinc primers are specified, Only organic zinc primers from the QPL of Coating Formulations shall be used. Organic Zinc primers will be placed and maintained on the QPL of Coating Formulations in accordance with ITM 606.*

### **(b) Epoxy Intermediate ~~Paint~~Coat**

Epoxy intermediate ~~paint~~coating shall be a two-component ~~coating~~ consisting of an epoxy resin and a curing agent, together with prime and filler pigments, colorants, gellant, leveling agents, and solvents. When mixed, this coating shall be suitable for application over inorganic and organic zinc primers and shall be compatible with a polyurethane finish coat. The color of this coating shall contrast significantly from the other coatings within the coating system.

The mixed ~~paint~~coating shall be in accordance with the following requirements:

<del>Volatile organic compounds, ASTM D3960, max.</del>	<del>336 g/L</del>
Volume solids, ASTM D2697, min.	60%
<del>Set to touch, ASTM D1640, 6 mils wet film thickness, max.</del>	<del>4 h</del>
Weight/volume variation from the initially approved formulation, ASTM D1475, 25°C, max.	0.060 kg/L
Total solids variation from the initially approved formulation, ASTM D2369, max.	3.0%

The coating shall be applied within the pot life recommended by the ~~paint~~coating manufacturer with no evidence of gelation. The coating shall be in a free-flowing condition and easily sprayed.

The infrared spectrum of each component and of the mixed coating shall match the spectrums of the initially approved batch.

### **(c) Polyurethane Finish Coat**

Polyurethane finish coat shall be a two-component polyester or acrylic aliphatic polyurethane suitable for use as a finish coat over *an* epoxy intermediate ~~paint~~coating.

The mixed ~~paint~~coating shall be in accordance with the following requirements:

<del>Volatile organic compounds, ASTM D3960, max.</del>	<del>336 g/L</del>
Volume solids, ASTM D2697, min.	60%
<del>Set to touch, ASTM D1640, 5 mils wet film thickness, min.</del>	<del>30 minutes</del>
Total solids ASTM D2369, min.	70%
Specular gloss, 60°, 10 ±0.5 mils wet film thickness on a tin coated steel panel, dried 48 h, ASTM D523, min.	75
Viscosity, ASTM D562, Krebs Units, max.	10030
Contrast ratio, ASTM D2805, 5 ±0.5 mils wet film thickness, dried 24 h on opacity chart 2A or 2C, min.	0.957
<del>Dry hard, ASTM D1640, 5 mils wet film thickness, max.</del>	<del>24 h</del>

The infrared spectrum of each component and of the mixed coating shall match the spectrum of the initially approved batch.

The color of the dried ~~paint~~ film shall match the color number of SAE-AMS-STD-595 as follows:

SECTION 909, BEGIN LINE 170, DELETE AND INSERT AS FOLLOWS:

**(d) Waterborne Finish ~~Paint~~Coat**

The waterborne finish coating shall be a single package, high build acrylic emulsion for use as a finish coat over inorganic and organic zinc primers. It shall be compatible with and adhere to the cured zinc primers.

SECTION 909, BEGIN LINE 185, DELETE AND INSERT AS FOLLOWS:

**3. Mixed ~~Paint~~Coating Properties**

The mixed ~~paint~~coating shall be in accordance with the following requirements:

Viscosity, ASTM D562, Krebs Units .....	80 – 110
Weight/volume, ASTM D1475, variation from the initially approved formulation, 25°C, max. ....	0.024 kg/L
Pigment grind, ASTM D1210, Hegman, min. ....	5
Total solids, % by weight, ASTM D2369, min. ....	48
<del>Dry time, ASTM D1640, 3 mils wet film thickness</del> <del>on a tin coated steel panel, max.:</del>	
<del>Set to touch .....</del>	<del>1 h</del>
<del>Dry hard .....</del>	<del>24 h</del>
Contrast ratio, ASTM D2805, 5 ±0.5 mils wet film thickness dried 24 h on opacity chart 2A or 2C, min. ....	0.97
Specular gloss, 60°, 10 ±0.5 mils wet film thickness on a tin coated steel panel, dried 48 h, ASTM D523, max. ....	30
pH, ASTM E70.....	7.0 — 9.5
<del>Volatile organic compounds, ASTM D3960, max. ....</del>	<del>180 g/L</del>

The infrared spectrum of the vehicle *component* when extracted from the mixed ~~paint~~coating in accordance with ASTM D3168 shall match the infrared spectrum of the *vehicle component of the* sample submitted for formulation approval.

The mixed ~~paint~~coating shall be in accordance with the requirements of Sections 5.4 through 5.17 of SSPC Paint Specification No. 24.

The cured waterborne finish ~~paint~~coat shall not contain any toxic heavy metals above the limits of the regulatory levels of 40 CFR 261.24, Table 1. The cured ~~paint~~coating shall not contain any other material which will require characterization as a hazardous waste for the disposal of the dried film.

**4. Color**

The color of the dried ~~paint~~ film shall match the color number of SAE-AMS-STD-595 as follows:

SECTION 909, BEGIN LINE 521, DELETE AND INSERT AS FOLLOWS:

## 5. Furnishing and Use

Only waterborne finish ~~paint~~coatings from the QPL of Coating Formulations shall be used. Waterborne finish ~~paint~~coating formulations will be placed and maintained on the QPL of Coating Formulations in accordance with ITM 606.

### (e) Finish Coat for Weathering Steel

The finish coat shall be an aliphatic polyurethane or a waterborne acrylic ~~paint~~coating, and the *color of the* dried ~~paint~~ film shall match color No. 20045 of SAE-AMS-STD-595. It shall be suitable for use as a finish coat over *an* epoxy intermediate ~~paint~~coating. The mixed ~~paint~~coating shall be in accordance with the following requirements.

For *an* aliphatic polyurethane ~~paint~~coating:

Weight/volume, ASTM D1475, 25°C, min. ....	1.200 kg/L
Total solids, % by weight, ASTM D2369, min. ....	60
<del>Volatile Organic Compounds, ASTM D3960, max. ....</del>	<del>336 g/L</del>
Specular gloss, 60°, 10 ±0.5 mils wet film thickness on a tin coated steel panel, dried 48 h, ASTM D523, max. ....	30

For *a* waterborne acrylic ~~paint~~coating:

Weight/volume, ASTM D1475, 25°C, min. ....	1.200 kg/L
Total solids, % by weight, ASTM D2369, min. ....	48
<del>Volatile Organic Compounds, ASTM D3960, max. ....</del>	<del>180 g/L</del>
Specular gloss, 60°, 10 ±0.5 mils wet film thickness on a tin coated steel panel, dried 48 h, ASTM D523, max. ....	30

### 909.03 Structural Steel Coating System

This coating system shall consist of an inorganic zinc primer, an epoxy intermediate ~~paint~~coat, and a polyurethane finish coat for the ~~painting~~coating of steel bridges and other structural steel. All coatings within any coating system shall be manufactured by the same manufacturer and shall be compatible with one another. All coatings shall be in accordance with 909.02.

SECTION 909, BEGIN LINE 277, DELETE AND INSERT AS FOLLOWS:

### 909.04 Field ~~Paint~~Coatings for Wood or Metal

The primers for field ~~paint~~coatings shall be formulated for minimal surface preparation, provide adhesion to the substrate and be compatible with the finish coat. The primers shall not contain lead, chromium, or other heavy metals which would require classification as a hazardous waste upon removal. The primers shall comply with the current IDEM VOC regulations and shall be used as follows:

SECTION 909, BEGIN LINE 290, DELETE AND INSERT AS FOLLOWS:

The ~~field paint~~ finish coat shall be an exterior type coating. It shall be chalk resistant, gloss retentive, and suitable for application by brush, roller, or spray. This coating shall comply with the current IDEM VOC regulations and shall not contain lead, chromium, or other heavy metals which would require classification as a hazardous waste upon removal. The color of this coating shall be as specified.

