

ITEM 570.9275XX25 - HAND AND POWER TOOL CLEANING AND REPAINTING OF BRIDGE RAIL
(NON-GALVANIZED)

1. DESCRIPTION:

1.01 This work shall consist of power tool cleaning and applying a two coat paint system to in-service bridge rail.

1.02 **DEFINITIONS:**

- A. Painting shall include the surface preparation and application of coatings to metal surfaces.
- B. Hand Tool Cleaning shall mean the preparation of all surfaces to be repainted in accordance with standards and specifications for "Hand Tool Cleaning" as published by the SSPC.
- C. Power Tool Cleaning shall mean the preparation of all surfaces to be repainted in accordance with standards and specifications for "Power Tool Cleaning" as published by the SSPC.
- D. Paint shall be as specified in the contract documents.
- E. Surface preparation shall mean the cleaning and/or pretreating of surfaces to be painted as specified in the Contract documents and shall include the removal of all debris.
- F. Field painting shall mean the coating of metal surfaces at the construction site.
- G. SSPC - Surface Preparation (SP). Specifications referred to herein, may be obtained at: SSPC, 40 Twenty Fourth Street, Pittsburgh, Penn. 15222.
- H. Environmental Protection shall mean the containment, collection and removal of old paint chips, corrosion residues, spent abrasives and newly applied paint (herein after referred to as waste materials) that result from blasting and other cleaning and coating operations performed in the field.

2. MATERIALS:

- 2.01 All equipment used for cleaning and painting shall meet the requirements as specified in the contract documents.
- 2.02 All coatings shall be as specified in the Contract documents and shall be applied according to same, or the manufacturer's recommendations, whichever is more restrictive. Particular attention shall be paid to recoat requirements.
- 2.03 Material for prime coat shall be epoxy mastic conforming to the requirements of Special Material Specification 708.9301---25. The finish coat shall be aliphatic urethane, conforming to the requirements of Special Material Specification 708.9584---25. All material shall be delivered to the site in sealed, original, labeled containers and stored in accordance with the manufacturer's recommendations. At no time shall the shelf life of the coating material be exceeded.

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2. MATERIALS: (cont'd)

- 2.04 All material and equipment used for environmental protection shall be approved by the Engineer. Any material or equipment that is determined to be deficient or that becomes damaged to the extent that it no longer fulfills the requirements of this specification shall be replaced or repaired to the satisfaction of the Engineer, at the Contractor's expense, with the replacement material and/or equipment meeting the requirements of the contract documents.
- 2.05 The Contractor shall provide Material Safety Data Sheets to the Engineer for all materials used at the job site. The Contractor shall also supply the Engineer with the manufacturer's current technical data for the paint furnished.

3. CONSTRUCTION DETAILS:

- 3.01 At least five (5) working days prior to the start of work, the Contractor shall provide the Engineer with a painting schedule fully delineating a schedule of operations and one copy of the paint manufacturer's current technical data for the paint furnished. In addition, the Contractor shall provide the Engineer with a written statement from the paint supplier identifying recoat requirements. Instructions, suggestions, and pre-cautions contained in the data sheets shall be followed. If the manufacturer's technical data contradicts the provisions of these specifications, the Engineer will be notified by the Contractor, and the Engineer will issue a determination on the procedures to follow. The schedule shall be in accordance with these specifications and the manufacturer's applications and recoat recommendations.
- 3.02 All metal surfaces to be coated shall be steam cleaned. If any oil or grease remains after the steam cleaning, it shall be removed by solvent cleaning in accordance with SSPC-SP1. After steam/solvent cleaning, the metal surfaces shall receive hand and power tool cleaning as defined in SSPC-SP2 and SSPC-SP3.
- All cleaned steel surfaces shall be inspected by and approved by the Engineer or Inspector prior to the application of coatings. Surfaces which do not meet these specification requirements as determined by the Engineer or Inspector, shall be recleaned at the Contractor's expense until the surfaces meet the specification requirements.
- 3.03 Mixing Coatings. All coatings shall be thoroughly mixed prior to application. Mechanical mixers shall be used to thoroughly disperse any settled pigment or solids. Hand mixing or boxing shall not be allowed.
- 3.04 Solvent Restrictions. No reducing or thinning of coatings, by the use of solvents or other material shall be allowed unless all of the following are met:
- recommended by the manufacturers
 - done in strict compliance with the manufacturer's instructions
 - approved by the Engineer
 - mixed in the presence of the Engineer or Inspector.

Only the type and quantity of thinner/reducer recommended by the manufacturer shall be used. Painter shall not carry, or in any other way possess or have access to, containers of solvent when painting.

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3. CONSTRUCTION DETAILS: (cont'd)

3.04 Solvent Restrictions. (cont'd)

The quantity of solvent permitted on the job site shall be only the reasonable amount necessary for cleaning equipment, wiping dirt and grease from surfaces to be coated and for cleaning spatters.

All solvents used for cleaning operations shall conform to all applicable Federal, State and local laws regulations or codes. Special attention shall be paid to Volatile Organic Compound regulations.

Unauthorized use of solvents shall result in rejection and the coating shall be removed and the surfaced repainted in conformance with the specifications and to the satisfaction of the Engineer, at the Contractor's expense.

3.05 Coating Application Methods. All coatings shall be applied in a neat and workmanlike manner. Coatings shall be applied uniformly and shall be free of runs, sags, drips, ridges or other defects. Paint may be applied by brushes only, or as approved by the Engineer.

Hand Brushing. The coating, when applied with brushes shall be so manipulated by the brush as to produce a uniform, even coating. When applying a coating to a previously coated surface, strokes should be made perpendicular to those of the receiving surface to insure adequate anchorage. Brushes shall be of good quality and the length of the exposed bristle shall be equal to or greater than the width of the brush.

On those areas which are inaccessible to brushes, the coating shall be applied by the use of rollers, daubers or sheepskins, as approved by the Engineer.

3.06 Termination of Coating Operations. The Engineer is empowered to terminate coating operations, temporarily or permanently, if the Engineer determines that any of the following conditions exist:

- A. Satisfactory results are not being obtained.
- B. The measured dry film thickness is not within the required range.
- C. Areas not specifically designated to be coated are likely to be or are being affected by the application method.
- D. The application method is causing damage to public or private property.

If the Engineer permanently terminates coating operations, he may do so by verbal order but he shall notify the Contractor, in writing of his reasons for termination, within 48 hours of termination. The Engineer may temporarily terminate coating operations by verbal orders. Coating operations which are terminated due to damage to public or private property shall not be resumed until the Contractor takes appropriate measures to protect such property and demonstrates to the Engineer's satisfaction that such property damage will not reoccur. If a particular method of coating operation is permanently terminated, the Contractor may apply the coating in accordance with another approved method. No extra compensation will be paid for the substitution of another method of application.

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3. CONSTRUCTION DETAILS: (cont'd)

- 3.07 No coating shall begin until cleaned steel surfaces have been inspected and approved by the Engineer or Inspector.
- 3.08 The coating of metal surfaces shall include, but not be limited to the following:
- The proper preparation of all surfaces.
 - The application, protection and curing of the coatings.
 - The protection from spatter or spillage of pedestrian, vehicular, marine or other traffic upon, beneath or adjacent to the coated surfaces. Payment for this service will be made under the item Environmental Ground Protection and/or Environmental Waterway Protection.
 - The protection against disfigurement of all portions of bridges and other structures as well as highway appurtenances. Disfigurement may be caused by abrading, scoring, spattering, overspraying, splashing and smirching of coatings or cleaning materials.
 - The prevention of spillage of any pollutants into any waterway or body of water.
 - The supplying of all equipment, tools, tackle, scaffolding, labor and materials necessary to complete the entire work.
- 3.09 The application of subsequent coatings shall not begin until the receiving surfaces have been cleaned and primed. All receiving surfaces shall be clean and dry. If, after the original cleaning and priming, or application of a subsequent coat of paint receiving surfaces become dirty in any manner, they shall be cleaned again by a method allowed by the contract documents. The actual method to be used shall be approved by the Engineer.
- 3.10 Metal surfaces to which unauthorized coatings have been applied and those surfaces not coated in accordance with the contract documents shall be recleaned of those unauthorized coatings and recoated in accordance with these specifications and to the satisfaction of the Engineer.
- 3.11 On surfaces coated with primer, the subsequent coats shall be applied according to these specifications. Steel surfaces not so coated shall be recleaned and recoated at the Contractor's expense. Primer shall be applied to surfaces with existing paint and bare steel surfaces.
- 3.12 After the Engineer has approved the preparation in each area, all coatings shall be applied without runs, sags or other objectionable properties to that prepared steel surface.

The minimum total dry film thicknesses of all coating applications shall be as indicated below:

Epoxy Primer	5 mils dry
Urethane Second Coat (Sage Green)	3 mils dry

The film thickness specified above will be achieved prior to acceptance of the work, regardless of the number of applications required. Sage green pigmentation shall match Munsell Notation #7.5 GY5/4.

Application shall be by brush only.

Any epoxy mastic coating applied to an area where the preparation has not been approved shall be removed by Commercial Cleaning in accordance with SSPC-SP6 or power tool cleaning to bare metal in accordance with SSPC-SP11 and when the cleaning is accepted it shall be reapplied in accordance with the specification at no additional cost to the Authority.

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3. CONSTRUCTION DETAILS: (cont'd)

3.12 (cont'd)

The coatings shall not be applied when the air or steel temperature is below 50°F or expected to drop below 50°F. The epoxy mastic shall not be applied when the relative humidity is above 85%, or when the steel temperature is less than -5°F above the dew point. In addition, the epoxy mastic shall be applied only during the period April 15 to October 15. The finish coat shall be applied within 7 days of the last Epoxy Mastic Coat.

3.13 Schedule: Primer shall be applied before any flash rusting has occurred to the cleaned surface.

The subsequent coat of paint shall be applied to the receiving surface in conformance with the manufacturers recommended schedule for recoating, or 21 days, whichever is more restrictive. If these recoating recommendations are not complied with, solvent wipe, brush off blasting in accordance with SSPC-SP1 or SSPC-SP7 will be required.

3.14 Whenever a structure spans over a railroad, covers shall be placed and maintained in accordance with NYSDOT Standard Specification 105-09, Work Affecting Railroads.

4. METHOD OF MEASUREMENT:

4.01 Payment will be made at the lump sum price bid.

5. BASIS OF PAYMENT:

5.01 The lump sum price bid shall include the cost of all labor, materials and equipment necessary to complete the work. All work shall be done in a manner satisfactory to the Engineer.

5.02 For the purpose of progress payments, the lump sum price bid for the item shall be apportioned as noted below:

Payments will be made for each stage satisfactorily completed in accordance with this Specification as follows:

A. Stage 1, Cleaning and Priming. Fifty (50) percent of the lump sum price bid will be paid for satisfactorily cleaning and priming the bridge rail.

B. Stage 2, Second Coat. Fifty (50) percent of the lump sum price bid will be paid for satisfactorily applying the second coat to the bridge rail.

Progress payments may be made within each stage and shall be computed as the ratio of the length of bridge rail satisfactorily completed to the total length of bridge rail to be painted. Under no circumstances will the percentage payment for any stage exceed the payment percentages noted above.

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5. BASIS OF PAYMENT: (cont'd)

5.03 Basis of Acceptance:

The Contractor shall delineate each area to be cleaned and coated during each day's work. The Engineer shall approve the cleaning operations in this area prior to application of each coat. Any residue beyond that allowed by the pictorial standards shall be cause for rejection of the cleaning. Any areas cleaned outside the designated area shall be recleaned when the area is delineated for cleaning, regardless of elapsed time or surface condition. Once the appropriate protective coating is applied, the Engineer shall determine the dry film thickness, prior to acceptance of the area.

Dry film thickness determinations will be made by the Engineer or Inspector in accordance with SSPC-PA2, paint application Specification No. 2 measurement of dry paint thickness with magnetic gages. Where determined necessary by the Engineer or Inspector a Tooke, destructive test instrument may be used. If a Tooke Gage is used, the test area shall be recoated to the satisfaction of the Engineer. Any evidence of less than the specified thickness shall be cause for rejection in which case the Contractor shall recoat, including recleaning if necessary, at his own expense.