

**ITEM 91570.8611 M - FIELD CLEANING AND OVERCOATING LEAD-BASED PAINT (SSPC-SP11/MC-URETHANE)**

**ITEM 91570.8612 M - FIELD CLEANING AND OVERCOATING LEAD-BASED PAINT - SPRAY PROHIBITED (SSPC-SP11/MC-URETHANE)**

**DESCRIPTION**

This work shall consist of cleaning and touch-up priming, and then overcoating in-service structural steel surfaces with two (2) full coats of paint, where indicated by the Contract documents.

**MATERIALS**

1. Paint. All paint used on any one structure shall be produced by a single manufacturer. The following paint systems are approved for use:

- a. Xymax Coatings, Inc., Marietta, GA 30062  
Primer: Mono-Lock P.P. 2403-Red Oxide (Penetration Primer) (50 µm, DFT)  
Intermediate: Mono-Lock P.P. 2403-Red Oxide (Penetration Primer) (50 µm, DFT)  
Finish: Bridge Finish - 7000 Series (75 µm, DFT)

*Note - All Xymax paint supplied for this work shall be formulated with a minimum volume solids of 60.0% and a maximum VOC content of 2.8 lbs/gal. Recoat time for Xymax primer, intermediate, and finish paints shall be not less than four (4) hours nor more than fourteen (14) days. Shelf life will be a maximum of twelve (12) months from date of manufacture.*

- b. Wasser High-Tech Coatings, Kent, WA 98032  
Primer: Wasser MC-Aluminum (50 µm, DFT)  
Intermediate: Wasser MC-Ferromastic (75 µm, DFT)  
Finish: Wasser MC-Luster (50 µm, DFT)

*Note - All Wasser paint supplied for this work shall be formulated with a minimum volume solids of 61.0%, and a maximum VOC content of 335 g/L. Recoat time for Wasser primer, intermediate, and finish paints shall be not less than four (4) hours nor more than fourteen (14) days. Shelf life will be six (6) months from the date of shipment from the place of manufacture, or a maximum of twelve (12) months from the date of manufacture, whichever occurs first.*

- c. The Valspar Corporation, Baltimore, MD 21230  
Primer: 513-A-101 Bronzed Aluminum (75 µm, DFT)  
Intermediate: 541-D-101 Chestnut Brown (75 µm, DFT)  
Finish: 540 Series (50 µm, DFT)

*Note - Recoat time for Valspar primer, intermediate, and finish paints shall be not less than eight (8) hours nor more than fourteen (14) days. Shelf-life will be a maximum of twelve (12) months from date of manufacture.*

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Each single coat of paint shall be a color different from the others. The color of the primer and intermediate paint shall be at the Contractor's option, and shall provide contrast with the underlying substrate or previously applied paint.

The color of the finish paint shall be as specified in the Contract Documents.

2. **Basis of Acceptance.** All components of the system (primer, intermediate and finish coats) will be accepted on the basis of the manufacturer's written certification that each batch produced meets their product specification.

Only paint arriving at the work site in new, unopened containers shall be used.

Containers of paint shall be labeled with the manufacturer's name, product name, component part, batch number, date of manufacture and shelf life date. Paint in containers having expired shelf life dates shall be immediately removed from the work site.

**CONSTRUCTION DETAILS**

All structural steel members, railings, fascia, downspouts, and other miscellaneous steel items that have been previously painted shall be cleaned and touched-up with primer, and then painted two (2) full coats of paint, the intermediate coat and the finish coat.

1. **Equipment for Cleaning.** Equipment for this work shall be vacuum equipped needle guns or vacuum equipped rotary impact flap assemblies or vacuum blasters that are capable of producing a bare metal surface and of producing a surface profile as defined in SSPC-SP11, Power Tool Cleaning to Bare Metal. The vacuum assembly shall be capable of containing all visible dust and debris produced by the operation of the cleaning equipment. Air passing through the vacuum assembly shall be exhausted through a HEPA filter.
2. **Surface Preparation.** Surfaces to be cleaned shall be identified in the following manner:
  - a. **Surface Condition**
    - (1) **Category I:** A surface which has become visibly corroded or upon which the existing paint has peeled, flaked, blistered, or otherwise become deteriorated.
    - (2) **Category II:** A surface upon which the existing paint is tightly adhered, and otherwise in good condition. Adherence will be considered

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satisfactory if the paint cannot be removed by lifting with a dull putty knife.

b. Cleaning Requirements for Category I Surfaces

Surfaces meeting the condition of Category I shall be cleaned to bare metal in accordance with SSPC-SP11, Power Tool Cleaning To Bare Metal.

For the purpose of this specification, vacuum blast equipment shall be considered a power tool, and shall be used with needle guns and rotary impact flap assemblies to clean rusted and deteriorated surfaces.

The edges of intact paint shall be feathered back, and the adjoining paint must be tightly adhered. Ragged edges on adjoining paint will not be allowed. Adherence will only be considered satisfactory if the adjoining paint is smoothly feathered back, and cannot be removed by lifting with a dull putty knife.

Special attention shall be given to the edges of angles and plates, bearings, rivets, the heads of nuts and bolts, and similar surfaces that are marginally accessible and difficult to clean. These surfaces are often difficult to access, are labor-intensive, and hard to clean.

In general, heavy deposits of rust and rust scale should be removed using needle guns. Hand pounding, using a hammer to loosen heavy rust and scale prior to needle gun cleaning may be necessary. Rotary impact assemblies should be used to remove pinpoints and spots of rust, on the flat surfaces of webs and flanges, the edges of angles and plates, bearing, and lattice members, etc. With the proper attachments, vacuum blasters can be used to clean larger, flat and uncomplicated surfaces, edges of angles and plates, to remove mill scale, and to remove heavy deposits of rust. Normally a combination of these methods will be needed to provide the required degree of cleanliness.

After cleaning operations are completed, all residue generated by the cleaning work shall be removed by vacuuming using HEPA filtered vacuums. A HEPA filter shall be defined as a filter that is at least 99.97% efficient against particles that are 0.039  $\mu\text{m}$  in diameter.

Category I surfaces shall be accepted by visual comparison to a project-prepared standard(s) for each structure. The contractor shall prepare the

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project standard by power tool cleaning a representative area on the structure that is being prepared for painting. The prepared standard shall generally conform to SSPC-Vis 3, "Visual Standard For Power- and Hand-Tool Cleaned Steel," Pictorial Standard E SP11, F SP11, and G SP11, as applicable, and shall be approved by the Engineer before the start of general cleaning work. At least one (1) standard shall be prepared for each structure that is being specified for cleaning. More than one (1) standard may be necessary if the cleaned steel differs significantly from the photographic standards due to surface conditions or other factors. Each standard shall be at least 0.5 m x 0.5 m in size, and shall be located in an area of the structure that is accessible to, and approved by the Engineer. The contractor shall protect the project standard from corrosion and contamination throughout the duration of work by applying a clear coat of polyurethane. At the completion of cleaning work the project standard shall be recleaned and painted in accordance with this specification. If in the opinion of the Engineer the project standard becomes deteriorated, or otherwise ineffective, it shall be re-established in accordance with this specification, at no additional cost.

c. Cleaning Requirements for Category II Surfaces

Surfaces meeting the condition of Category II shall be cleaned in accordance with SSPC-SP1, Solvent Cleaning. All dirt, salt, animal droppings, grease, and other visible contamination shall be completely removed by wiping and scrubbing using fresh water and solvent, or by hand scraping, or other suitable procedures.

3. Painting:

- a. Manufacturer's Instructions. At least five (5) working days prior to the start of work the Contractor shall provide the Engineer with one (1) copy of the paint manufacturer's current Technical Data and Material Safety Data Sheets for the paint materials being furnished.
- b. Material Storage. Paint in storage shall be protected from damage and maintained between 4.5°C and 29.5°C. Paint not used before the shelf life expiration date shall be immediately removed from the project site.
- c. Specifications and Inspection Equipment. Prior to the start of and throughout the duration of work the Contractor shall supply the Engineer with the following:
- (1) One (1) bound copy each of the Steel Structures Painting Council surface preparation specifications, SSPC-SP1, Solvent Cleaning and

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SSPC-SP11, Power Tool Cleaning To Bare Metal.

- (2) One (1) bound copy of the Steel Structures Painting Council pictorial standard, SSPC-Vis 3, Visual Standard For Power- and Hand-Tool Cleaned Steel.
  - (3) One (1) bound copy of the Steel Structures Painting Council method SSPC-PA2, Paint Application Specification No. 2 - Measurement of Dry Film Thickness With Magnetic Gages.
  - (4) One (1) Air Thermometer, pocket type, -10°C to +100°C.
  - (5) One (1) Surface Thermometer, -10°C to +100°C.
  - (6) One (1) Magnetic Dry Film Thickness Gage, Type 2 (fixed probe).
- d. Atmospheric Conditions. No surface preparation (cleaning) or painting, shall be performed unless all the following conditions are met.
- (1) The receiving surface is dry.
  - (2) The receiving surface and ambient air temperature shall be as recommended by the paint manufacturer, except that in no case shall cleaning or painting work be performed when the surface and ambient temperatures are less than 2°C or greater than 38°C.
  - (3) With the paint materials specified in this specification, there will be no restriction for humidity or for dew point temperature differential. However the receiving surface must be dry.
- e. Mixing Paint. All paint shall be thoroughly mixed with mechanical mixers in accordance with the manufacturer's recommendations.
- f. Solvent Restrictions. No thinning of paint by use of solvents or other material shall be allowed, and painters shall not carry or in any other way have access to containers of solvent when painting. Unauthorized use of solvents shall result in recleaning and repainting of the surface in accordance with this specification, at the Contractor's expense.
- g. Paint Application. Paint coatings may be applied using brush, roller or spray methods, unless prohibited by the Contract Documents. When spray painting is prohibited paint shall be applied using brushes or rollers only.

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Stripe painting with primer will be required on surfaces cleaned to bare metal (Category I), and all surfaces with existing paint. All welds, rivets, bolts, nuts, and edges of plates, angles, lattice pieces or other shapes, and corners and crevices shall be "striped" with primer before the touch-up prime coat is applied. All stripe painting will be performed using a brush only. No other method of paint application will be allowed for stripe painting.

Complete protection against paint spatter, spillage, overspray, wind blown paint, or similar releases of paint shall be provided. Covers, tarps, mesh, and similar materials shall be placed around the work area to protect public and private property, pedestrian, vehicular, marine or other traffic, all portions of the bridge, highway appurtenances, waterways, and similar surrounding areas and property, upon, beneath, or adjacent to the structure.

- h. Number of Coats. Areas cleaned to bare metal shall be painted (touched-up) with one coat of primer. After the primer has dried, all surfaces shall be painted with two (2) full coats of paint, the intermediate and the finish coat.
- i. Film Thickness. Paint shall be applied in sufficient quantity to produce the minimum dry film thicknesses specified under Material, 1. Paint.
- j. Painting Schedule. Primer shall be applied within twelve (12) hours of the cleaning operation and before rusting occurs on the cleaned surface. Failure to apply primer to a cleaned surface within twelve (12) hours shall result in recleaning the surface in accordance with this specification at no additional cost to the State.

The intermediate paint shall be applied to the receiving surface within the manufacturer's recommended schedule for recoating (see Material, 1. Paint).

The finish paint shall be applied to the receiving surface within the manufacturer's recommended schedule for recoating (see Material, 1. Paint).

- k. Recoating and Overcoating. Areas failing to meet the specified minimum dry film thickness shall be overcoated with the same type of paint to produce at least the total dry film thickness required. Paint applied containing thinners, paint applied to contaminated surfaces, and paint applied contrary to this specification shall result in recleaning and repainting the surface. The work of recleaning, repainting, or overcoating, if required, shall be done by the Contractor to the satisfaction of the Engineer at no additional cost to the State.

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METHOD OF MEASUREMENT

Payment shall be made at the lump sum price bid.

BASIS OF PAYMENT

The lump sum price bid shall include the cost of all labor, materials and equipment necessary to complete the work. The cost of providing protection against damage during paint application shall be included in the price bid. Progress payments will be made based on the percentage of the structure cleaned and primed and painted two full coats of paint in accordance with this specification.

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Payment will be made under:

<u>Item No.</u>	<u>Item</u>	<u>Pay Unit</u>
91570.8611nn M	Field Cleaning and Overcoating Lead-Based Paint (SSPC-SP11/MC-Urethane)	Lump Sum (for each Structure)
91570.8612nn M	Field Cleaning and Overcoating Lead-Based Paint - Spray Prohibited (SSPC-SP11/MC-Urethane)	Lump Sum (for each Structure)

Note: nn denotes serialized pay item. See §101-53.

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