

ITEM 07573.0101 M - CLEANING AND PAINTING GALVANIZED RAILING

DESCRIPTION

The work shall consist of cleaning and painting previously unpainted galvanized railing in accordance with the plans, specifications, and the recommendations of the manufacturer, unless otherwise directed by the Engineer.

The Contractor shall enclose the work areas to contain spray from the washing operations and capture water and solid waste.

MATERIALS

Water shall be potable, meeting the requirements of §712-01, Water. Recycling of water shall not be allowed without treatment to remove chlorides and other salt contaminants.

After the railing is properly cleaned and repaired as necessary, it shall be painted using one of the following methods:

Primer: Devran 205, applied 2.0 - 3.0 mils DFT, 4.0 - 7.0 mils WFT
Finish: Devthane 379 uva, 2.0 - 3.0 mils DFT, 3.2 - 4.8 mils WFT

Primer: Recoatable Epoxy Primer B67 Series, 2.0 - 4.0 mils DFT, 3.0 6.0 mils WFT
Finish: Hi-solids Polyurethane B65-300 Series, 3.0 - 4.0 mils DFT, 4.5 - 6.0 mils WFT

Or equal, as approved by the Engineer.

The finish color shall be black.

Enclosures and ground covers shall consist of plastic sheeting, tarps, or similar water containing materials.

CONSTRUCTION DETAILS

All railing as indicated by the Contract Documents shall be cleaned and repaired as necessary, and then painted with three (3) full coats of paint. The first coat shall be a primer coat, followed by the application of a full finish intermediate coat, followed by a full finish top coat, to all surfaces designated for painting.

The galvanized railing shall be cleaned using a warm water power wash to remove contaminants such as salt, dirt, bird droppings, etc. The pressure used shall not exceed 102 kg/sq cm (1450 psi). Only clean, fresh water shall be used. Cleaners, detergents, or other additives will not be allowed unless ordered by the Engineer.

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Dirt, grease, or oils not removed by the power wash may be cleaned using one of the following methods:

Alkaline Cleaning

Oil, grease, and dirt may be removed by using an alkaline solution in the pH range of 11-12, but not greater than 13. The alkaline solution will be nominally between 2 and 5 percent sodium compounds with small additions of emulsifying or chelating agents. The solution may be applied through dipping, spraying, or brushing. Only soft bristle nylon brushes will be allowed. Copper or steel brushes will not be allowed. If spraying the alkaline solution, the temperature of the solution range shall be between 60 and 85 degrees Celsius (140 and 185 degrees Fahrenheit). After cleaning, the surfaces shall be thoroughly rinsed with hot water and allowed to completely dry.

Solvent Cleaning

Mineral spirits, turpentine, high-flash naphtha, or other cleaning solvents may be used provided they are applied with lint-free rags or soft bristle nylon brushes which are frequently changed in order to avoid respreading of contaminants. After cleaning, the surfaces shall be thoroughly rinsed with hot water and allowed to completely dry.

Water shall be potable, meeting the requirements of § 712-01. Recycling of water shall not be allowed without treatment to remove chlorides and other salt contaminants.

The prepared surface area shall be completely dry prior to the application of the primer coat.

Special attention shall be given to the edges of the railing, angles and plates, nuts and bolts, and similar surfaces that are marginally accessible and difficult to prepare.

Throughout surface preparation work, care shall be taken to protect newly painted surfaces from the surface preparation operations. Tarps, covers, or other devices approved by the Engineer shall be used to protect new paint from damage. Damaged new paint areas shall be thoroughly prepared again to the required condition and then repainted. Repairs to damaged paint surfaces shall be at the Contractor's expense and shall be subject to approval by the Engineer.

Painting

Paint application and mixing shall be in accordance with the Manufacturer's recommendations. The manufacturer's limitations on temperature, humidity, and dew-point differential shall be strictly adhered to. Thinning of the paint shall be in accordance with manufacturer's recommendations using the recommended thinner. The shelf life of all paint will be a maximum of one year from the date of manufacture. Paint that has met or exceeded that time period will be removed from the work site immediately. The finish coat of paint shall be applied within the re-coat window of the primer

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as per the paint manufacturer's recommendations.

The paint system selected shall be reported to the Materials Bureau for monitoring of long-term performance.

No paint shall be applied during the months of December, January, February, or March. No painting shall begin until prepared surfaces have been inspected and approved by the Engineer. The contractor shall provide safe stable, and direct access to the work area for the Engineer's inspection.

Paint may be applied using brushes or rollers. Spray painting is prohibited. All paint shall be applied so as to produce a uniform and even coating, free of runs, sags, drips, ridges, or other defects.

Complete protection against paint splatter, spillage, 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.

Paint shall be applied in such a quantity so as to produce the minimum specified dry film thickness (DFT) for the type of paint material being used, as per the recommendations of the manufacturer. Areas failing to meet the specified minimum dry film thickness shall be overcoated with the same type paint to produce at least the total dry film thickness required.

The dry film thickness shall be determined in accordance with SSPC-PA 2, Paint Application Specification No. 2 - Measurement of Dry Film Thickness with Magnetic Gages, using a Type 2 fixed probe magnetic gauge, equipped with a digital readout display. The required dry film thickness for the primer and for the entire paint system shall be established and verified using a calibrated dry film thickness gauge as per ASTM D 1186.

Adhesion Testing

A test patch shall be applied on a section of railing that has been properly cleaned as described above. The test patch should be applied in a manner such that after the patch is completed, a section of un-coated primer extends past the area top-coated. This will allow adhesion testing of both the primer and the two-coat system.

The test patch shall be allowed to remain in place for a period of no less than 7 days. At the end of the 7 days, the primer and the primer/topcoat system shall be tested for adhesion using pull off testing as per ASTM D 4541. The adhesion requirements set forth by the paint manufacturer should be met. At a minimum, the primer and the two-coat paint system shall show an adhesion rating of at least 42.2 kg/sq cm (600 psi).

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Paint shall be applied on the remaining railing only if the above requirements are met.

METHOD OF MEASUREMENT

Payment will be made at the lump sum price bid for this work.

BASIS OF PAYMENT

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

Payment will be made under:

Item No.	Item	Pay Unit
07573.01nn M	Cleaning and Painting Galvanized Railing	Lump Sum

Note: nn denotes serialized pay item. Refers to §101-02 Definitions of Terms under “Specifications”.