ITEM 23572.01 M - SHOP APPLIED STRUCTURAL STEEL PAINT SYSTEM

1. DESCRIPTION

A. Plans and Specifications

1. This work consists of furnishing all labor, material, plant and equipment, and performing all operations in connection with Shop Painting (prime coat, wash coat, and top coat applied in the fabricators plant or unless otherwise specified by the Railway). All painting shall be in accordance with AREMA Specifications, Chapter 15 – Section 3.4, and recommendations of the Steel Painting Council Specifications with the following specific requirements.

2. The paint thickness will be measured according to "SSPC-PA2" Method for Measurement of Dry Paint Thickness with magnetic Gages.

B. Surface Preparation

1. The surface preparation shall be in accordance with Steel Structures Painting Council Specifications SP10 (Near White Blast) latest revision and Visual Standard NACE No. 2. Average surface profile to be 50 μm.

2. Application – The paint shall be applied in accordance with SSPC Specifications for Paint Application – PA1.

3. The Prime Coat shall be applied in the shop promptly after blast cleaning, but in no case shall the prime coat be applied more than 8 hours after blast cleaning or after visible or detrimental rusting occurs.

4. Steel shall be cleaned by washing, or other mechanical means to remove all residue (loose zinc dust and foreign matter) prior to applying Wash and Top Coat.

5. Surfaces damaged during shipment and handling shall be repaired using the same paint system as applied in the shop except that the Prime Coat shall be repaired using an organic zinc primer when the Primer Coat is repaired in the field.

C. Welded Areas and Faying (Contact) Surfaces

1. No paint shall be applied to areas to be welded in the field. No Vinyl paint (wash or top coat) shall be applied to any faying surfaces.

2. MATERIALS

A. Paint System

1. The fabricator will be given the option of using one of the following paint systems (Prime Coat, Intermediate and Top Coats shall be applied in the fabricator's plant unless otherwise specified by the Railway). When the Intermediate Coat and Top Coat are applied in the field as touch up, the steel shall be solvent wiped to removed all grease and oil and a "high pressure power washing" with clean water (24 MPa minimum) shall be used to clean all mud and dirt off prior to applying the touch-up Primer or Intermediate and Top Coats. The fabricator shall supply sufficient quantities of Touch-Up Organic Zinc-Rich Primer, Intermediate Coat, Top Coat and Thinner. The Chief Engineer Bridges and Structures is to be notified of the fabricator's choice. Priming of the contact surfaces with Inorganic Zinc-Rich Primer is required.

2. If approved or further specified by the Railway, the Wash Coat and Top Coat shall be applied in the shop.

B. System #1 (DAVIS-FROST)

Prime Coat: P-139 LOW V.O.C. Inorganic Zinc Primer applied at 100-125 μm Dry Film Thickness.

Intermediate Coat: W-112 Water Guard Metal Primer (White) applied at 75 – 100 μm Dry Film thickness.

Finish (Top) Coat: W-195 Water-Tuff DTM Finish (Gray) applied at 75 – 100 μm Dry Film thickness.

Touch-Up Primer: P-281 (3 component) Epoxy Zinc-Rich primer applied at 100-125 μm Dry Film Thickness.

Suggested Supplier: Davis-Frost, Inc.
P O Box 11405
Lynchburg VA 24506
Telephone: (804) 846-5277

C. System #2 (ELITE)

Prime Coat: Elite 1312 Inorganic Zinc Rich Primer applied at 100-125 μm Dry Film thickness.

Intermediate Coat: Elite 156 Exterior Acrylic Latex (White) applied at 75-100 μm

Dry Film thickness.

Finish (Top) Coat: Elite 156 Exterior Acrylic Latex (Gray) applied at 75-100 μm Dry Film thickness.
Touch-Up Primer: Elite 305 Organic Zinc-Rich Primer applied at 100-125 μm Dry Film thickness.

Suggested Supplier: Elite Coatings Company, Inc.
P O Box 130
Gordon GA 31031
Telephone: (912) 628-2111

D. System #3 (DEVOE)

Prime Coat: Catha-Coat 302HA Reinforced Inorganic Zinc Rich Primer applied 50-100 μm Dry Film thickness.

Intermediate Coat: Tru-Glaze WB-4030 Waterborne Epoxy Primer (light gray) applied at 50-100 μm Dry Film thickness.

Finish Coat: DEVFLEX 4208 Waterborne Acrylic Gloss Enamel (Gray) applied at 37-50 μm Dry Film thickness.

Touch-Up Primer: Catha-Coat 302H Reinforced Inorganic Zinc-Rich Primer applied at 50-100 μm Dry Film thickness.

Suggested Supplier: Devoe Coatings Company
320 Westbrook Drive
Butler PA 16001
Telephone: (724) 283-1471
Attn: Gary M. Mato

E. System #4 (SHERWIN WILLIAMS)

Prime Coat: ZINC CLAD II HS – (B69VZ1 B69VZ3 B69D11) Inorganic Zinc-Rich Primer applied at 100-125 μm Dry Film thickness.

Intermediate Coat: B66 Series DTM ACRYLIC GLOSS (White) applied at 75-100 μm Dry Film thickness.

Finish (Top) Coat: B66 Series DTM ACRYLIC GLOSS (Gray) applied at 75-100 μm Dry Film thickness.

Touch-Up Primer: ZINC-CLAD IV – (B69 A8/B69 V8) applied at 100-125 μm Dry Film thickness.

Suggested Supplier: The Sherwin-Williams Company
765 North Avenue NE
Atlanta GA 30306
Telephone: (404) 873-6723

F. System #5 (VALSPAR)

Prime Coat: Valspar MZ-7 Inorganic Zinc-Rich Primer applied at 100-125 μm Dry Film thickness.

Intermediate Coat: #61 Series Water-Acrylic Lo Sheen (White) applied at 75-100 μm Dry Film thickness.

Finish (Top) Coat: #61 Series Water Acrylic Lo Sheen (Gray) applied at 75-100 μm Dry Film thickness.

Touch-Up Primer: MZ-4 Epoxy Zinc-Rich Primer (Green) applied at 100-125 μm Dry Film thickness.

Suggested Supplier: Corrosion Specialties Inc.
3897 Stephens Court
P O Box 146
Tucker GA 30085-0146
Telephone: (404) 938-7263
Attn: Andy Steinmann

G. System #6 (AMERON)

Prime Coat: Amercoat 21-5 Inorganic Zinc-Rich Primer applied at 100-125 μm Dry Film thickness.

Intermediate Coat: Amercoat 148 Waterborne Acrylic Primer applied at 75-100 μm Dry Film thickness.

Finish (Top) Coat: Amercoat 220 Waterborne Acrylic (Gray) applied at 75-100 μm Dry Film thickness.

Touch-Up Primer: Amercoat 68HS Zinc-Rich Primer applied at 75-100 μm Dry Film thickness.

Suggested Supplier: Ameron Protective Coatings Division
11605 Vimy Ridge Road
Little Rock AK 72209
Telephone: (800) 283-6627

H. Post Painting Requirements

1. Steel shall be cleaned by washing, or other mechanical means to remove all residue (loose zinc dust and foreign matter) prior to applying Wash and Top Coat. An "M.E.K. Rub Test" shall be used to assure proper cure of the inorganic zinc primer prior to applying the next coat.

2. The Intermediate Coat may have to be thinned to prevent gassing.

3. PAINTING MATERIALS REQUIREMENTS

A. Packaging and Shipping

1. All paint shall be received at the point of use in original containers and carefully stored. All paint to be used shall be freshly mixed and shall be ordered only a sufficient length of time in advance of its use to insure an adequate supply being on hand at all times so as not to delay the work.

2. Paint shipped to the job shall arrive in sealed containers clearly marked with the type of paint and specifications controlling its manufacture.

3. There shall be no modification of the paint except upon, and in accordance with, express written stipulation by an authorized representative of the paint manufacturer and with specific approval of the Engineer.

B. Storage

1. Paint in storage at the shop or in the field shall have the position of the containers reversed at least once a week to prevent settlement and separation of the pigment from the vehicle. There shall be suitable devices maintained at the point of storage and used for agitation and thorough mixing of the paint prior to its use on this work.

C. Sample Panel

1. If directed by the Engineer, a sample panel shall be made up. The panel shall be used as a basis of comparison of the work on this contract. The panel shall be of size designated by the Engineer and shall be prepared and painted in all respects in the same manner as the work will be done.

4. WORKMANSHIP

A. Weather Conditions

1. Paint shall not be applied when the temperature of the air is less than 4°C, when the surface of the metal is not dry, the relative humidity is above 85%, or when, in the opinion of the Engineer, conditions are otherwise unsatisfactory for such work. Paint shall not be applied upon damp, or frosted surfaces. Material painted under cover in damp or cold weather shall remain under cover until dry or until weather conditions permit its exposure in the open. Painting shall not be done when the metal is hot enough to cause the paint to blister and produce a porous paint film.

B. Application

1. Paint shall be applied in accordance with SSPC Specifications for Paint Application – PA1 and in accordance with manufacturer's recommendation.

2. All blast cleaned steel surfaces shall be primed before completion of the work day.

3. Steel shall be cleaned by washing, brushing or other mechanical means of all residue (loose foreign matter) prior to applying the finish coat (Top Coat).

C. Removal of Unsatisfactory paint

1. If the Prime Coat "mud-cracks", the Top Coat wrinkles or shows evidence of having been applied under unfavorable conditions or if the workmanship is poor, the Engineer may order it removed and the metal thoroughly cleaned and repainted. Any "Blushing" of the Vinyl Top Coat shall be corrected by solvent wiping and/or re-coating before final acceptance by the Company.

D. Thinning

1. No thinner shall be used if the paint can be applied in a neat workmanlike manner without thinning. If the paint is too thick to spray, only the manufacturer's specified thinner (in hot weather vinyl paint shall be thinned with M.I.B.K. to reduce the chances of "Blushing" occurring) may be added to the paint up to 25% by volume or as otherwise specified by the manufacturer. Thinning shall not relieve the Contractor from applying the specified coating D.F.T.

E. Paint Touch-Up

1. After erection, all damaged areas shall be cleaned of mud and dirt by high pressure power washing with clean water (24 MPa); grease, and oil by solvent wiping; and rusted areas shall be cleaned by sand blasting or power tool cleaning with non-woven abrasives prior to touch-up or Top Coating. The paint used for touch-up shall be the same system used in the shop. The Contractor and/or Fabricator shall be responsible for cleaning all damaged surfaces and applying all field touch-up coatings in accordance with all manufacturer's recommendations. The Zinc Primer shall be touched up with only organic zinc primer when applied in the field.

F. Warranty

1. The Fabricator and/or Contractor will be required to guarantee his work against defective workmanship or the use of defective materials for a period of one (1) year from the completion of the contract.

G. Handling Shop Primed Steel

2. Only nylon wed slings or padded lifting points shall be used to move shop primed steel to prevent damage to the coating.

5. ENVIRONMENTAL PROTECTION REQUIREMENTS

A. Air Quality Requirements

1. Abrasive blasting operations shall be conducted in full compliance with all current National primary and secondary ambient air quality standards 40 CFR 50. (for Particulate matter – 40 CFR 50.6; Lead – 40 CFR 50.12; and nuisance dust). Abrasive blasting operations shall also be compliant with any and all local and state air quality requirements.

6. ENVIRONMENTAL PROTECTION STATEMENT

A. "All collection, containment, disposal and transportation for disposal must be compliant with all applicable State, Federal and Local air pollution, water pollution, solid waste and hazardous waste regulations, ordinances or statutes."

7. METHOD OF MEASUREMENT

The unit measurement for this work is the square meter. The total payment quantity will be

the number of square meters of structural steel to be painted with the entire paint system as shown in the Estimate of Quantities. No field measurements will be taken.

8. BASIS OF PAYMENT

The unit price bid shall include the cost of all labor, materials and equipment necessary to complete the work.

Progress payments will be made in accordance with the following schedule:

A. Eighty percent (80%) of the lump sum price will be authorized for payment upon delivery and storage of properly painted structural steel to the project site. Shop painted steel will be considered properly painted only if accompanied shop inspector's written certification that the steel delivered as part of any single delivery was painted in accordance with the requirements of this item.

B. Ten percent (10%) of the lump sum price will be authorized for payment upon the completion of cleaning and painting all bolt heads, washers, nuts, and bolt thread extensions.

C. The remainder will be authorized for payment after all touch-up work is completed.