

SECTION 00593 - POWDER COATING METAL STRUCTURES

(Follow all instructions and make all edits with "Track Changes" turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

~~(Use the following lead-in paragraph when none of the following subsections are included in the project.)~~

~~Comply with Section 00593 of the Standard Specifications.~~

~~(Use the following lead-in paragraph when any of the following subsections are included in the project.)~~

Comply with Section 00593 of the Standard Specifications modified as follows:

00593.01(b) Definitions - Replace the paragraph that begins "Substrate ..." with the following paragraph:

Substrate - A surface where a Coating is to be applied. This may be the prepared surface of the metal Structure or a previous Coating.

00593.03 Required Submittals - Replace the title of this subsection with "**Submittals**"

00593.03(a) Powder Coating Plan - Replace the bullet that begins "A letter from the firm ..." with the following bullet:

- A letter from the firm performing galvanizing, if other than the Contractor, certifying that neither water quenching nor a chromate conversion coating is used on the surfaces that are to be powder coated.

00593.10(a)(1) Steel Substrates - Replace the paragraph that begins "Provide a two-coat system ..." with the following paragraph:

Provide a two-coat system for steel substrates consisting of a zinc-rich epoxy primer and a polyester topcoat, according to the following:

00593.10(a)(2) Galvanized and Other Non-Steel Metallic Substrates - Replace the paragraph that begins "Provide a two-coat system ..." with the following paragraph:

Provide a two-coat system for galvanized and non-steel metallic substrates consisting of an epoxy primer and polyester topcoat, according to the following:

(Use the following subsection .10(b) to list topcoat colors that aren't identified in the Standard Specifications. Fill in the blanks as instructed and obtain information from the Designer. Copy and repeat the paragraph as needed. For color number, only use numbers 14159 to 28915 from the SAE AMS-STD-595 color index.

Example:

For the combination rail on Bridge No. 12345A, provide a topcoat color of High Gloss Black that conforms to SAE AMS-STD-595 color # 17038.)

00593.10(b) Color - Replace the paragraph that begins "Unless otherwise specified ..." with the following paragraph:

Unless otherwise specified, furnish top-coat color according to the following:

Add the following to the end of this subsection:

For (Structure number or item description), provide a topcoat color of (Color Name) that matches SAE AMS-STD-595 color # (Color Number).

00593.10(c) Slip-Critical Connections - Replace this subsection, except for the subsection number and title, with the following:

Furnish a primer coat on steel-to-steel contact surfaces at all slip-critical bolted joints using high strength bolts that conforms to Class B (slip coefficient of 0.5) Coating requirements in Test Method to Determine the Slip Coefficient for Coatings Used in Bolted Joints, as adopted by the Research Council on Structural Connections.

00593.11 Blasting Abrasives - Replace this subsection, except for the subsection number and title, with the following:

Furnish abrasives that have no corrosion products, water, oil, or any other material detrimental to the application and adherence of the Coatings. Furnish abrasives that conform to SSPC-AB 1. When directed, test cleanliness according to ASTM D7393 and ASTM D4940. Do not exceed 100 microsiemens per centimeter conductivity results from ASTM D4940.

00593.12 Caulking - Replace the paragraph that begins "Furnish structural steel ..." with the following paragraph:

Furnish structural steel caulking from the QPL and approved for use by the Coating manufacturer. Unless the caulking is to be over coated, furnish a clear caulking color or the approximate the color of the top Coating.

00593.42(a) Steel Structures - Replace this subsection, except for the subsection number and title, with the following:

Clean new steel Structure surfaces to be coated according to SSPC-SP 10 / NACE No. 2 Near White Metal Blast Cleaning, except as modified by the Specifications. Closely approximate the appearance of the final blast-cleaned surface to Pictorial Standard SP 10 of SSPC-Vis 1 and have a 1.0 to 2.5 mil profile finish.

00593.42(b)(2) Aluminum, Stainless Steels, and Non-Ferrous Metals - Replace the bullet that begins "Solvent clean surfaces ..." with the following bullet:

- Solvent clean surfaces to be coated according to SSPC-SP 1, followed by a light brush blast according to SSPC-SP 16 *Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals* with a maximum nozzle pressure of 75 psi. Ensure the prepared surface has a 1.0 to 2.5 mil profile finish.

00593.42(c)(1) Cleaning Methods - Replace the paragraph that begins "Surfaces shall be ..." with the following paragraph:

Dry surfaces before Cleaning. Use methods specified in SSPC-SP 1, *Solvent Cleaning*, SSPC-SP 2, *Hand Tool Cleaning*, SSPC-SP 3, *Power Tool Cleaning*, and SSPC-SP 15 *Commercial Grade Power Tool Clean*, as necessary to augment blast-cleaning.

00593.42(c)(2) Abrasives - Replace the paragraph that begins "Perform blast-cleaning ..." with the following paragraph:

Perform blast-cleaning using an abrasive of a size that will continually produce an angular Surface Profile of at least 1 mil, but not more than 4 mils, as measured according to ASTM D4417 using replica tape on the prepared surface. Perform blast-cleaning that results in a roughened steel surface comparable to a Keane-Tator Surface Profile Comparator for sand or grit using ASTM D4417.

Replace the paragraph that begins "Use abrasives conforming..." with the following paragraph:

Use abrasives meeting 00593.11. Wet abrasives are allowed if wet sandblasting methods are used.

00593.43(c)(2) Coating Thickness and Coverage Requirements - Replace this subsection, except for the subsection number and title, with the following:

Each Coat consists of as many applications as necessary to cover the Work and achieve the minimum thickness specified. Apply each Coat in sufficient thickness to achieve uniform and complete coverage and appearance. If all thickness measurements are not within the specified minimum dry film thickness, or if the visual inspection does not satisfy the Engineer, make additional applications, as necessary, to meet the thickness and coverage required. Film thickness is measured above the peaks of the profile of the anchor pattern in the substrate.

The dry film thickness is measured for acceptance using a Type 2 gauge according to SSPC-PA 2. If a question arises about an individual Coat thickness or coverage, it will be verified using a Tooke gauge, according to ASTM D4138. If the Tooke gauge shows a prime Coat to be less than the specified minimum thickness the total Coating System is rejected even if the thickness of the total system equals or exceeds the total specified thickness.

00593.44 Inspecting - Replace the paragraph that begins "Provide documentation of the QA/QC ..." with the following paragraph:

Provide documentation of the QA/QC testing to the Engineer. Assemblies failing these tests are rejected. Repair and recoat the rejected assemblies as directed.

00593.45(c) Handling, Shipping, or Surface Damage - Replace the paragraph that begins "After erection, repair ..." with the following paragraph:

After erection, repair marred and damaged coated surfaces due to the Contractor's shipping, storage, handling, and erection operations according to 00593.60 at no additional cost to the Agency.

00593.90(b) Existing Metal Structures - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.