**SECTION 09 91 16**

**PAINTING FOR UTILITIES**

**BASED ON MASTER SPECIFICATIONS DATED 3/23/2017**

***This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.***

**P A R T 1 - G E N E R A L**

# SCOPE

The extent of painting work is shown on the drawings, and as herein specified. This painting is for steam pits, tunnels and box conduits.

Work includes the painting, finishing, surface preparation, priming and coats of paint specified. Painting is in addition to shop priming and surface treatment specified under other sections.

The “paint” as used herein means all coating systems materials, which includes primers, emulsions, enamels, sealers and fillers, and other applied materials whether used as prime intermediate for finish coats.

 Included are the following topics:

PART 1 - GENERAL

Scope

Reference

Reference Standard

Related Work

Shop Drawings

Site Conditions

Delivery and Storage

Protection

Clean-up

Colors and Finishes

Paint Coordination

Environmental Conditions

PART 2 - PRODUCTS

Quality

Manufacturer

Primer and Paint for New Structural Steel for the Support, Guiding and Anchoring of Steam, Condensate, and Compressed Air Piping

Primer and Paint for Existing Structural Steel for the Support, Guiding and Anchoring of Steam, Condensate, and Compressed Air Piping

PART 3 - EXECUTION

General

Surface Preparation and Painting for New Structural Steel for the Support, Guiding and Anchoring Steam, Condensate, and Compressed Air Piping

Surface Preparation and Painting of Existing Structural Steel for the Support, Guiding and Anchoring Steam, Condensate, and Compressed Air Piping

Surface Preparation and Painting Schedule

## REFERENCE

Applicable provisions of Division 1 shall govern the work specified in this section.

**REFERNCE STANDARD**

NFPA – National Fire Protection Agency

SSPC-SP Steel Structures Painting Council system of Surface Preparation

### RELATED WORK

Unless otherwise specified, shop priming of ferrous metal items is included under the various sections.

**SHOP DRAWINGS**

Refer to division 1, General Conditions, Submittals.

Submit material data sheets for each primer and finished coat specified.

#### SITE CONDITIONS

The applicator shall examine all surface parts of the structure and piping to which the painting is to be applied and notify the Contractor in writing, of any conditions detrimental to the performance of this work. Do not proceed with this work until unsatisfactory conditions have been corrected and are acceptable to the Applicator.

Starting of painting work will be construed as the Applicator's acceptance of the surfaces within any particular area.

Do not paint over dirt, rust, scale, weld slag, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.

##### DELIVERY AND STORAGE

Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label, and application instructions thereon.

Store materials where designated by the DSF Project Representative. Cleaning and other solvents shall be stored in safety cans. Every precaution shall be taken to avoid any danger of fire. Proper fire extinguishing equipment shall be available in work and storage areas in accordance with NFPA -10.

###### PROTECTION

Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as directed by the DSF Project Representative.

Provide "wet paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

CLEAN-UP

During the progress of the work, remove from the project all waste or discarded paint materials, rubbish, cans and rags daily.

COLORS AND FINISHES

Colors as selected by owner’s representative.

PAINT COORDINATION

Provide finish coats which are compatible with the prime paints used.

**ENVIRONMENTAL CONDITIONS**

Maintain continuous ventilation for areas being painted.

Maintain surface and ambient temperatures as required by the paint manufacture prior to applying paint and while paint is curing.

**P A R T 2 - P R O D U C T S**

**QUALITY**

Provide the best quality grade of the various types of coatings as regularly manufactured by approved paint materials manufacturers. Materials not displaying the manufacturer’s identification as a standard, best grade product will not be acceptable.

Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only to recommended limits.

**MANUFACTURER**

Except where other manufacturer's products are specifically specified, Contractor may use products of equal quality from, Tnemec, Devoe, Sherwin-Williams, and Carboline.

If any of the above manufacturer's products are selected, a list comparing these products with TNEMEC products specified shall be submitted. Paints used must be from manufacturer's top grade lines and contractor must submit manufacturer's certification that has been previously specified.

**PRIMER AND PAINT FOR NEW STRUCTURAL STEEL FOR THE SUPPORT, GUIDING AND ANCHORING OF STEAM, CONDENSATE, AND COMPRESSED AIR PIPING**

Primer: One coat of Sherwin Williams Epo-Phen FF Or approved Equal. Primer shall be suitable for temperature of at least 425° F Continuous, 450°F Intermittent. 7 DMils thickness. Shop applied.

Finish Coat: Additional two coats of Sherwin Williams KEM HI TEMP Heat Flex II 450. Finish Coat shall be suitable for continuous temperature to at least 450° F.

**PRIMER AND PAINT FOR EXISTING STRUCTURAL STEEL FOR THE SUPPORT OF STEAM, CONDENSATE, AND COMPRESSED AIR PIPING**

Primer: One coat of Sherwin Williams Epo-Phen FF Or approved Equal. Primer shall be suitable for temperature of at least 425° F Continuous, 450°F Intermittent. 7 DMils thickness. Shop applied.

Finish Coat: Additional two coats of Sherwin Williams KEM HI TEMP Heat Flex II 450. Finish Coat shall be suitable for continuous temperature to at least 450° F. 3 DMils thickness.

***For low odor or sensitive areas use the following top coat:***

Finish coat: Low odor, high solids, water-based epoxy coating equal to TNEMEC Typoxy Series 27WB 250 °F continuous service. Color Gray.

**PIPE WELDS**

Primer: 450°F minimum continuous temperature rated corrosion resistant primer. Rustoleum High Heat Primer, V2100 or equal. 3 DMils thickness.

Finish coat: 450°F minimum continuous temperature rated corrosion resistant primer or paint. Rustoleum V2100 or equal. 3 DMils thickness.

**P A R T 3 - E X E C U T I O N**

**GENERAL**

Mix and prepare painting materials in strict accordance with the manufacturer's directions.

Where surface is pre-primed by other sections primer may be omitted, touch-up scratches, rust spots, etc.

Provide forced ventilation of utility tunnels, steam pits and box conduits while field painting to keep paint odors from entering buildings attached to the steam tunnels, vaults and pits.

Maintain surface and ambient temperatures as required by the paint manufacture prior to applying paint and while paint is curing.

**SURFACE PREPARATION AND PAINTING FOR NEW STRUCTURAL STEEL FOR THE SUPPORT OF STEAM, CONDENSATE, AND COMPRESSED AIR PIPING:**

Steel used for anchor plates, embedment’s, anchors, stanchions, guides, supports and pipe saddles shall have surface preparation, one prime coat and one finish coat work done in the shop. Touch up coating shall be done in the field.

Shop Surface Preparation shall be SSPC-SP10 Commercial Blast Cleaning to bare metal.

Tape all areas that are to be field welded.

Field Surface Preparation of field welds shall be SSPC-SP11, Power Tool clean to bare metal

Priming: One coat shop applied to manufacturer’s suggested coverage rate and thickness.

Finish Painting: One coat shop applied to manufacturer’s suggested coverage rate and thickness.

**SURFACE PREPARATION AND PAINTING FOR EXISTING STRUCTURAL STEEL FOR THE SUPPORT OF STEAM, CONDENSATE, AND COMPRESSED AIR PIPING:**

Existing structural steel used for anchors, guides, and support of piping and conduits shall have surface preparation, prime coat and finish coats done in the field.

Field Surface Preparation for existing steel shall be SSPC-SP11, Power tool clean to bare metal.

Priming: One coat field applied to manufacturer’s suggested coverage rate and thickness. Provide series 44-710 accelerator when applying below 60° F.

Finish Painting: One coat field applied to manufacturer’s suggested coverage rate and thickness. Surface Temperature shall be above 40° F before painting and while curing.

**SURFACE PREPARATION AND PAINTING SCHEDULE**

Provide surface preparation and painting for the following:

All structural steel supports, guides, anchors and pipe support hangers for steam, condensate, and compressed air piping.

All surfaces of new support steel (guides, anchors, supports, excreta) shall be prepped and coated. Including but not limited to: front, back, sides, bolt holes, top, bottom and recesses.

All accessible surfaces of existing steel (guides, anchors, supports, excreta) shall be prepped and coated. Including but not limited to: front, back, sides, bolt holes, top, bottom and recesses.

Contractor shall provide temporary enclosures and heat for the field applied paint when surface temperatures are below paint manufacturers recommended temperatures of 50° F and at least 5° F above the dew point temperature.

Provide field painting at all field welds to include preparation in accordance with the manufactures recommendations.

END OF SECTION