

SCOPE:

The CONTRACTOR shall furnish all labor, tools, materials, supervision and equipment necessary to do all the work specified herein and as required for a complete installation, including surface preparation priming and painting. All buildings, facilities, structures, and appurtenances, as indicated on the list of structures specified herein, shall be painted with not less than one shop coat and field coat(s), or one prime coat and finish coat(s) of the appropriate paint. Items to be painted include limited to exterior concrete, concrete pads, exterior pipe-fittings and all other work which is obviously required to be painted unless otherwise specified.

All paint for final coats shall be fume resistant, compounded with pigments suitable for exposure to gases, especially to hydrogen sulfide and to carbon dioxide. Pigments shall be materials which do not tend to darken, discolor, or fade due to the action of sewage gases. If a paint manufacturer proposes use of paint which is not designated "fume resistant" in its literature, it shall furnish full information concerning the pigments used in this paint.

The CONTRACTOR shall obtain all permits, licenses and inspections and shall comply with all laws, codes, ordinances, rules and regulations promulgated by authorities having jurisdiction which may bear on the work. This compliance will include Federal Public Law 91-596 more commonly known as the "Occupational Safety and Health Act of 1970".

MANUFACTURERS

All painting materials shall be as manufactured by Ameron, Carboline, Tnemec, Sherwin Williams, or equal.

SUBMITTALS

- A. The CONTRACTOR shall submit paint manufacturer's data sheets and samples of each finish and color to the OWNER for review, before any work is started in accordance with the section entitled "Submittals".
- B. Submitted samples of each finish and color shall be prepared so that areas of each sample indicate the appearance of the various coats. For example, where a three coat system is specified, the sample shall be divided into three areas indicating one coat only, two coats and all three coats. The OWNER will provide written authorization constituting a standard, as to color and finish only, for each coating system.
- C. The CONTRACTOR shall prepare a complete schedule of surfaces to be coated and shall identify the surface preparation and paint system it proposes to use. The paint schedule shall be in conformance with attached specification. The schedule shall contain the name of the paint manufacturer, and the name, address and telephone number of the manufacturer's representative that will inspect the work. The schedule shall be submitted to the OWNER for review as soon as possible following the Notice to Proceed so that the schedule may be used to identify colors and to specify shop painting systems on order for fabricated equipment.
- D. Submit product data and sample for OWNER's Review. Provide two samples 6 x 6 inch in size illustrating range of colors and textures available for each surface finishing product scheduled, including paint finish for selection by OWNER. Submit manufacturer's application instructions.
- E. Provide field sample panel, a 4 foot wide interior panel or 10' x 10' exterior panel, illustrating special coating color, texture, and finish. Locate where directed and accepted sample may remain as part of the Work.

SERVICES OF MANUFACTURERS REPRESENTATIVE

- A. The CONTRACTOR shall purchase paint from an acceptable manufacturer. The manufacturer shall assign a representative to inspect the application of their product both in the shop and field. Prior to and after coating application, the manufacturer's representative shall submit reports to the OWNER identifying the products used and verifying that said products were proper for the exposure and service intended and were properly applied, respectively.
- B. Services shall also include, but not be limited to, inspecting prior coatings of paint, determination of best means of surface preparation, inspection of completed work, and final inspection of painted work to be performed six months after the job is completed.

MANUFACTURERS' INSTRUCTIONS

- A. The manufacturers' published instructions for use as a guide in specifying and applying the manufacturers' proposed paint shall be submitted to the OWNER. Paint shall not be delivered to the job before acceptance of the manufacturers' instructions is given by the OWNER.
- B. A manufacturer's paint will not be considered for use unless that manufacturer's published instructions meet the following requirements.
- C. The instructions must have been written and published by the manufacturer for the purpose and with the intent of giving complete instruction for the use and application of the proposed paint in the locality and for the conditions for which the paint is specified or shown to be applied under this Contract.
- D. All limitations, precautions, and requirements that may adversely affect the paint; that may cause unsatisfactory results after the painting application; or that may cause the paint not to serve the purpose for which it was intended, that is, to protect the covered material from corrosion, shall be clearly and completely stated in the instructions. These limitations and requirements shall, if they exist, include, but not be limited to the following list:
 - 1. Methods of application
 - 2. Number of coats
 - 3. Thickness of each coat
 - 4. Total thickness
 - 5. Drying time of each coat, including primer
 - 6. Primer required to be used
 - 7. Primers not permitted
 - 8. Use of a primer
 - 9. Thinner and use of thinner
 - 10. Temperature and relative humidity limitations during application and after application
 - 11. Time allowed between coats

12. Protection from sun
13. Physical properties of paint including solids content and ingredient analysis
14. Surface preparation
15. Touch up requirements and limitations

QUALITY ASSURANCE

- A. The CONTRACTOR shall give the OWNER's REP a minimum of three days advance notice of the start of any field surface preparation work of coating application work.
- B. All such work shall be performed only in the presence of the OWNER's REP, unless the OWNER has specifically allowed the performance of such work in the OWNER REP's absence.
- C. Inspection by the OWNER's REP, or the waiver of inspection of any particular portion of the work, shall not relieve the CONTRACTOR of their responsibility to perform the work in accordance with these Specifications.
- D. Where protective coatings are to be performed by a subcontractor, said subcontractor must provide five references which show that the painting subcontractor has previous successful experience with the specified or comparable coating systems. Include the name, address, and the telephone number for the CITY of each installation for which the painting subcontractor provided the protective coating.

SAFETY AND HEALTH REQUIREMENTS

- A. In accordance with requirements of OSHA Safety and Health Standards for Construction (29CFR1926) and the applicable requirements of regulatory agencies having jurisdiction, as well as manufacturer's printed instructions, appropriate technical bulletins, manuals, and material safety data sheets, the CONTRACTOR shall provide and require use of personnel protective and safety equipment for persons working in or about the project site.
- B. Respirators shall be worn by persons engaged or assisting in spray painting. The CONTRACTOR shall provide ventilating equipment and all necessary safety equipment for the protection of the experienced workers and the work.
- C. All paint shall comply with all requirements of the Air Pollution Regulatory Acts concerning the application and formulation of paints and coatings for an area in which the paints are applied. Specifically, paints shall be reformulated as required to meet the local, State and Federal requirements.

SURFACES NOT TO BE COATED

- A. The following list of items shall not be coated unless otherwise noted.
 1. Encased piping or conduit.
 2. Stainless steel work.
 3. Galvanized checkered plate.

4. Aluminum handrails, grating and checkered plate.
5. Flexible couplings, lubricated bearing surfaces, and insulation.
6. Packing glands and other adjustable parts of mechanical equipment.
7. Finish hardware.
8. Steel encased in concrete or masonry.
9. Plastic switch plates and receptacle plates.
10. Signs, nameplates, serial numbers, and operating instruction labels.
11. Any code-requiring labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.
12. Any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts, unless otherwise indicated.
13. Sidewalks

QUALITY WORK PERFORMED

- A. The CONTRACTOR shall be responsible for the cleanliness of their painting operations and shall use covers and masking tape to protect the work whenever such covering is necessary, or if so requested by the CITY. Any unwanted paint shall be carefully removed without damage to any finished paint or surface. If damage does occur, the entire surface, adjacent to and including the damaged area, shall be repainted without visible lapmarks and without additional cost to the CITY.
- B. Painting found defective shall be scraped or sandblasted off and repainted as the CITY may direct. Before final acceptance of the work, damaged surfaces of paint shall be cleaned and repainted as directed by the CITY.
- C. Any pipe scheduled to be painted and having received a coating of a tar or asphalt compound shall be painted with two coats of "Inertol Tar Stop", "Tnemec Tar Bar" or equal before successive coats are applied in accordance with the paint schedule.

ADDITIONAL PAINT

- A. At the end of the project, the CONTRACTOR shall turn over to the CITY ten five- gallon can of each type and color of paint, primer, thinner or other coating used in the field painting. If the manufacturer packages the material concerned in gallon cans, then it shall be delivered in unopened labeled cans as it comes from the factory. If the manufacturer does not package the material in gallon cans, and in the case of special colors, the materials shall be delivered in new gallon containers, properly closed with typed labels indicating brand, type, color, etc. The manufacturer's literature describing the materials and giving directions for their use shall be furnished in three bound copies. A type-written inventory list shall be furnished at the time of delivery.

SHIPPING, HANDLING AND STORAGE

- A. All painting materials shall be brought to the job site in the original sealed labeled containers of the paint manufacturer and shall be subject to inspection by the OWNER. Packages shall not be opened until they are inspected by the OWNER and required for use. Where thinning is necessary, only the product of the manufacturer furnishing the paint shall be used. All such thinning shall be done strictly in accordance with the manufacturer's instructions, and with the full knowledge of the OWNER.
- B. Materials and their storage shall be in full compliance with the requirements of pertinent codes and fire regulations. All painting materials shall be stored in a clean, dry, well-ventilated place protected from sparks, flame, direct rays of the sun or from excessive heat. Receptacles shall be placed outside buildings for paint cans and containers. Paint waste shall not be disposed of in plumbing fixtures, process drains or other plant systems or process units.

INSPECTION OF SURFACES

- A. Before application of the prime coat and each succeeding coat, all surfaces to be painted shall be subject to inspection by the OWNER's REP and manufacturer representative. Any defects or deficiencies shall be corrected by the CONTRACTOR before application of any subsequent coating.
- B. Samples of surface preparation and of painting systems shall be furnished by the CONTRACTOR to be used as a standard throughout the job, unless omitted by the OWNER's REP.
- C. When any appreciable time has elapsed between coatings, previously coated areas shall be carefully inspected by the OWNER, and where, in the OWNER- REP's opinion, surfaces are damaged or contaminated, they shall be cleaned and recoated at the CONTRACTOR's expense. Recoating times of manufacturer's printed instructions shall be adhered to.
- D. Coating thickness shall be determined by the use of a properly calibrated "Nordson-Mikrotest" (or equal) dry mil thickness gauge.

EQUIPMENT

- A. Effective oil and water separators shall be used in all compressed air lines serving spray painting and sandblasting operations to remove oil or moisture from the air before it is used. Separators shall be placed as far as practicable from the compressor.
- B. All equipment for application of the paint and the completion of the work shall be furnished by the CONTRACTOR in first-class condition and shall comply with recommendations of the paint manufacturer.
- C. The CONTRACTOR shall provide free of charge to the OWNER's REP two "Nordson-Mikrotest" dry film gauges or equal to be used to inspect coating by OWNER and CONTRACTOR. Gauges may be used by CONTRACTOR and returned each day to the OWNER's REP. OWNER's REP will return gauges to CONTRACTOR at completion of job.

PREPARATION OF MATERIALS

- A. Mechanical mixers, capable of thoroughly mixing the pigment and vehicle together, shall mix the paint prior to use where required by manufacturer's instructions; thorough hand mixing will be allowed for small amounts up to five gallons.
- B. Pressure pots shall be equipped with mechanical mixers to keep the pigment in suspension, when

required by manufacturer's instructions. Otherwise, intermittent hand mixing shall be done to assure that no separation occurs. All mixing shall be done in accordance with SSPC Vol. 1, Chapter 4, "Practical Aspects, Use and Application of Paints" and/or with manufacturer's recommendations.

- C. Catalysts or thinners shall be as recommended by the manufacturer and shall be added or discarded strictly in accordance with the manufacturer's instruction.

SURFACE PREPARATION

A. General

1. Paint surface preparation shall be as specified in the following or recommended by the paint manufacturer's published application instructions, whichever imposes the most stringent requirements.
 2. Surfaces to be painted shall be clean and dry, and free of dust, rust, scale and all foreign matter. No solvent cleaning, power or hand tool cleaning shall be permitted unless approved by the OWNER's REP or specified herein.
 3. Except as otherwise provided, all preparation of metal surfaces shall be in accordance with Specifications SP-1 through SP-10 of the Steel Structures Painting Council (SSPC). Where Steel Structures Painting Specifications are referred to in these Contract Documents, the corresponding Pictorial Surface Preparation Standard shall be used to define the minimum final surface conditions to be supplied. Grease and oil shall be removed and the surface prepared by hand tool cleaning, power tool cleaning or blast cleaning in accordance with the appropriate Specification SP-1 through SP-10.
 4. Weld flux, weld spatter and excessive rust scale shall be removed by power tool cleaning as per SSPC-SP-3.
 5. Threaded portions of valve and gate stems, machined surfaces which are intended for sliding contact, surfaces which are to be assembled against gaskets, surfaces or shafting on which sprockets are to fit, or which are intended to fit into bearings, machined surfaces of bronze trim on slide gates and similar surfaces shall be masked off to protect them from the sandblasting of adjacent surfaces. Cadmium-plated or galvanized items shall not be sandblasted unless hereinafter specified, except that cadmium-plated, zinc-plated, or sherardized fasteners used in assembly of equipment to be sandblasted shall be sandblasted in the same manner as the unprotected metal. All installed equipment, mechanical drives, and adjacent painted equipment shall be protected from sandblasting. Protection shall prevent any sand or dust from entering the mechanical drive units or equipment where damage could be caused.
 6. Hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place prior to cleaning and painting, and not intended to be painted, shall be protected or removed during painting operations and repositioned upon completion of painting operations.
 7. Any abraded areas of shop or field applied coatings shall be touched up with the same type of shop or field applied coating, even to the extent of applying an entire coating, if necessary. Touch-up coatings and surface preparations shall be in addition to and not considered as the first field coat.
 8. Sand from sandblasting shall be thoroughly removed, using a vacuum cleaner if necessary. No surface, which has been sandblasted, shall be painted until inspected by the OWNER's REP.
- B. Exposed Pipe. Valves and Pumps: Bituminous coated pipe shall not be used in fully exposed locations.

Pipe, valves, and pumps which shall be fully exposed after project completion shall be primed in accordance with the requirements herein. Any bituminous coated ferrous pipe which is inadvertently installed in exposed locations shall be sandblasted to SSPC-SP-5 White Metal before priming and painting. After installation all exterior, exposed flanged joints shall have the gap between adjoining flanges sealed with a single component Thiokol caulking to prevent rust stains.

C. Ferrous Metal Surfaces:

1. All ferrous metal surfaces not required to be galvanized shall be cleaned of all oil, grease, dirt, rust and tight and loose mill scale by blasting in accordance with the following: SSPC-SP-10 Near White Metal Blast Cleaning with a 2 - 3 mil profile. Priming/Painting shall follow sandblasting before any evidence of corrosion occurs.
2. Field surface preparation of small, isolated areas such as field welds, repair of scratches, abrasions or other marks to the shop prime or finish shall be cleaned by power tools in accordance with SSPC-SP-3, or in difficult and otherwise inaccessible areas by hand cleaning in accordance with SSPC-SP-2 and spot primed.

D. Primed or Coated Surfaces and Non-Ferrous Surfaces: All coated surfaces shall be cleaned prior to application of successive coats. All nonferrous metals not to be coated shall be cleaned. This cleaning shall be done in accordance with SSPC-SP-1, Solvent Cleaning.

E. Shop Finished Surfaces: All shop-coated surfaces shall be protected from damage and corrosion before and after installation by treating damaged areas immediately upon detection. Abraded or corroded spots on shop-coated surfaces shall be prepared in accordance with SSPC-SP-2, Hand Tool Cleaning and then touched up with the same materials as the shop coat. All shop coated surfaces which are faded, discolored, or which require more than minor touch-up, in the opinion of the OWNER's REP, shall be repainted. Cut edges of galvanized sheets, electrical conduit, and metal pipe sleeves, not to be finish painted, shall be cleaned in accordance with SSPC-SP-1, Solvent Cleaning and primed with zinc dust-zinc oxide metal primer.

F. Concrete and Masonry Surfaces:

1. Concrete and masonry surfaces to be painted shall be prepared by removing efflorescence, chalk, dust, dirt, grease, oil, form coating, tar and by roughening to remove glaze. All surfaces shall be repaired prior to commencement of the coating operation. Concrete and masonry surfaces are to be cured for at least 28 days prior to coating them. Apply clear sealer prior to painting.
2. All rinse water shall be collected and properly disposed. The rinse water may only be discharged to the plant drains after being properly neutralized. Neutralization procedures must be approved in advance by the OWNER's REP
3. Submerged concrete surfaces that are to be painted shall be etched with 15 percent to 10 percent muriatic acid solution to produce the necessary "sandpaper texture" surface required for satisfactory adherence of the paint. Surfaces must be flushed and scrubbed with water to remove acid residue and particles loosened by it. Acid shall not be allowed to dry on surfaces.
4. Concrete surfaces specified by the paint manufacturer to be acid etched shall be etched in accordance with the manufacturer's instructions. The surface shall then be thoroughly scrubbed with clean water, rinsed, and allowed to dry. The surface shall be tested with a moisture meter to determine when dry before coating.

G. Existing Painted Surfaces: Existing painted surfaces requiring a finish coat of paint as shown on the

Drawings shall be prepared by applying a minimum 2,500 psi high pressure water blast to the existing painted surface to remove all loose paint, chalk, dust, dirt, grease, oil and other foreign materials. Cracks, chips or voids in existing concrete shall be repaired. Existing paint that is to remain shall have a seal coat, as manufactured by Seal-Krete Inc., or equal applied to it prior to repainting.

- H. PVC Pipe Surfaces: Prior to painting, all PVC pipe surfaces shall be cleaned per SSPC-SP-1, followed by a light sanding with medium weight sandpaper. The pipe shall be free of sanding dust prior to painting.

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