

SECTION 09 96 00

HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of high-performance coating systems on the following substrates:
 - 1. Exterior Substrates:
 - a. Building 1 and 3 canopy structural columns and beams.
- B. Related Requirements:
 - 1. Section 09 91 13 "Exterior Painting" for general field painting of exterior substrates.

1.3 DEFINITIONS

- A. Terms "Paint" or "Painting" shall in a general sense have reference to sealers, primers, oil, alkyd, latex, polyurethane, epoxy, and enamel type coatings and application of these materials.
- B. Dry Film Thickness (DFT): Thickness, measured in mils, of a coat of paint in cured state.
- C. Refer to ASTM D16 for interpretation of terms used in this Section.

1.4 COORDINATION

- A. Perform work in proper sequence with work of other trades to avoid damage to finished work. Where coatings are scheduled to be applied over shop applied coatings, coordinate work of such shop applied products to ensure compatibility with field applied coating systems.

1.5 ACTION SUBMITTALS

- A. Product Data: Submit manufacturer's literature describing products to be provided, giving manufacturer's name, product name, and product line number for each material. Submit technical data sheets for each coating, giving descriptive data, curing times, mixing, thinning, and application requirements. Provide material analysis, including vehicle type and percentage by weight and by volume of vehicle, resin, and pigment.
- B. Samples for Initial Selection: Submit color charts displaying manufacturer's full range of standard colors for initial selection by Architect.
 - 1. Sample Size: Not less than 6 inches by 6 inches.

- C. Product List: Submit a complete list of products proposed for use, including identifying product names and catalog numbers. Arrange in same format as Schedule of Paint Finishes are specified. Include applicable manufacturer's data and recommendations.

1.6 INFORMATIONAL SUBMITTALS

- A. Certificates: Coatings manufacturer shall certify that coating materials utilized are "non-lead" (less than 0.06 percent lead by weight in dried film) as defined in Part 1303 of Consumer Product Safety Act. Provide certification that specialized equipment as may be required by manufacturer for proper application of coating materials shall be utilized for work of this Section. Provide manufacturer's certification that products to be used comply with specified requirements and are suitable for intended application.
- B. Qualifications: Submit listing of not less than 5 of applicator's most recent applications representing similar scope and complexity to Project requirements. List shall include the following:
 - 1. Project name and address.
 - 2. Name of owner.
 - 3. Name of contractor.
 - 4. Name of Architect/Engineer.
 - 5. Date of completion.
- C. Manufacturer's Instructions: Submit manufacturer's installation procedures which shall be basis for accepting or rejecting actual installation procedures.

1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Company specializing in manufacture of high performance coatings with a minimum of 10 years experience. Materials shall be products of a single manufacturer or items standard with manufacturer of specified coating materials. Provide secondary materials which are produced or are specifically recommended by coating system manufacturer to ensure compatibility of system.
- B. Installer's Qualifications: Applicator shall be trained in application techniques and procedures of coating materials and shall demonstrate a minimum of 2 years successful experience in such application. Maintain, throughout duration of application, a crew of painters who are fully qualified to satisfy specified qualifications.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading: Deliver products in manufacturer's original unopened containers. Each container shall have manufacturer's label, intact and legible. Containers shall fully identify brand, type, grade, class, and other qualifying information used to describe contents. Include on label for each container:
 - 1. Manufacturer's name.
 - 2. Type of coating.
 - 3. Manufacturer's stock number.
 - 4. Color name and number.
 - 5. Instructions for thinning, where applicable.

- B. Store materials in a protected area, away from construction activities. Restrict storage area to paint materials and related equipment.
- C. Maintain temperature in area of storage between 40 degrees F and 110 degrees F.
- D. Comply with health and fire safety regulations.
- E. Remove damaged materials from Project site.

1.9 FIELD CONDITIONS

- A. Environmental Requirements: Apply coating materials under conditions required by manufacturer, however air temperature shall not be below 35 degrees F or above 110 degrees F; relative humidity shall be no higher than 85 percent; and for exterior spray application, wind velocity shall be less than 15 mph.
- B. Refer to specific product information sheets for minimum surface temperature requirements. Surface temperatures shall be at least 5 degrees F above dew point and in a rising mode.
- C. Verify atmosphere is relatively free of airborne dust.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in the Exterior High-Performance Coating Schedule for the coating category indicated.

2.2 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility:
 - 1. Materials for use within each coating system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a coating system, products shall be recommended in writing by topcoat manufacturers for use in coating system and on substrate indicated.
 - 3. Products shall be of same manufacturer for each coat in a coating system.
- B. Regulatory Requirements: Comply with applicable codes and ordinances for flame, fuel, smoke, and volatile organic compound (VOC) ratings requirements for finishes at time of application.
 - 1. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.
- C. Colors: Custom color to match Architect's samples.

2.3 ACCESSORIES

- A. Coating Application Accessories: Provide application accessories as indicated in coating manufacturer's application instructions, including but not limited to cleaning agents, etching

agents, cleaning cloths, sanding materials, and clean-up materials. Material not specifically identified, but needed for proper application, shall be of a quality not less than specified products.

2.4 MIXES

- A. Mix materials according to manufacturer's latest printed instructions paying particular attention to mixing times, thinning requirements and limitations and temperatures.

2.5 SHOP FINISHING

- A. Surface Preparation: Clean surfaces of loose scale, rust, oil, dirt, and other foreign matter, immediately prior to priming. Surfaces to be coated shall be clean, dry, smooth, and free from dust and foreign matter which will adversely affect adhesion or appearance. Prior to application of primer, structural steel shall be prepared to receive coating system in compliance with Steel Structures Painting Council SP-6.
- B. Shop Applied Coatings: Steel members shall be provided with one coat of shop primer. Application of first coat shall follow immediately after surface preparation and cleaning and within an eight hour working day. Cleaned areas not receiving first coat within an eight hour period shall be re-cleaned prior to application of first coat.
- C. Apply materials at film thicknesses specified by methods recommended by manufacturer in compliance with SSPC PA-1. Allow each coat of paint to dry thoroughly before applying succeeding coats. Make finish topcoats smooth, uniform in color, and free of laps, runs, dry spray, over-spray, and skipped or missed areas. Environmental conditions shall be in compliance with coating manufacturer's printed instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions under which application of coating systems shall be performed for conditions that will adversely affect execution, permanence, or quality of coating system application.
 - 1. Correct conditions detrimental to timely and proper execution of Work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions and responsibility for satisfactory performance.

3.2 PREPARATION

- A. Protection: Take precautionary measures to prevent fire hazards and spontaneous combustion. Remove empty containers from Project site. Place cotton waste, cloths and hazardous materials in containers, and remove from site daily. Provide drop cloths, shields, and other protective equipment. Protect elements surrounding work of this Section from damage or disfiguration. As Work proceeds, promptly remove spilled, splashed, or splattered materials from surfaces.

During application of coating materials, post Wet Paint signs. During application of solvent-based materials, post No Smoking signs.

B. Surface Preparation:

1. General Requirements: Prior to application of primer, surfaces shall be prepared to receive specified coating system in compliance with manufacturer's recommendations and specifications of Steel Structures Painting Council. Clean surfaces of residual deposits of grease, scale, rust, oil, dirt, and other foreign matter, immediately prior to priming. Surfaces to be coated shall be clean, dry, smooth and free from dust and foreign matter which will adversely affect adhesion or appearance.
2. Ferrous Metal Surfaces: Clean structural steel and metal joist in the shop or prior to erection in accordance with SSPC-SP6 Commercial Sand Blast Cleaning. Surfaces shall be free of residual deposits of grease, rust, scale, dirt, dust, and oil prior to blasting.
 - a. For shop primed surfaces, sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Field welds and touch-ups shall be prepared to conform to original surface preparation standards.
 - b. Shop applied prime coatings which are damaged during transportation, construction, or installation shall be thoroughly cleaned and touched up in field. Use repair procedures which insure complete protection of adjacent primer. Repair methods and equipment may include wire brushing, hand or power tool cleaning, or dry air blast cleaning. In order to prevent injury to surrounding painted areas, blast cleaning may necessitate use of lower air pressure, small nozzle and abrasive particle sizes, short blast nozzle distance from surface, shielding and masking. If damage is too extensive to touch-up, item shall be re-cleaned and coated or painted.
 - c. For surfaces not shop primed, surfaces shall be cleaned in compliance with specifications of Steel Structures Painting Council.

3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions and using application method best suited for obtaining full, uniform coverage of surfaces to be coated.
- B. Apply primer, intermediate, and finish coats to comply with wet and dry film thicknesses and spreading rates for each type of material as recommended by manufacturer. Application rates in excess of those recommended and fewer numbers of coats than specified shall not be accepted.
- C. Number of coats specified shall be minimum number acceptable. Apply additional coats as needed to provide a smooth, even application. Closely adhere to re-coat times recommended by manufacturer. Allow each coat to dry thoroughly before applying next coat. Provide adequate ventilation for tank interior to carry off solvents during drying phase.
- D. Employ only application equipment that is clean, properly adjusted, and in good working order, and of type recommended by coating manufacturer.
- E. After surface preparation, interior weld seams shall be brush applied.
- F. Make edges of paint adjoining other materials or colors sharp and clean, without overlapping.
- G. Piping and Conduit Exposed to View: Finish in compliance with requirements for unprimed ferrous metal items. Use colors specified in ANSI Z13.1 and Z535.1.

3.4 REPAIR / RESTORATION

- A. At completion of Work, touch-up and restore finishes where damaged.
- B. Defects in Finished Surfaces: When stain, dirt, or undercoats show through final coat, correct defects, and cover with additional coats until coating is of uniform finish, color, appearance, and coverage. Correct defects visible from a distance of 5 feet. Runs shall not be permitted.
- C. Touch-up of minor damage shall be acceptable where result is not visibly different from surrounding surfaces. Where result is visibly different, either in color, sheen, or texture, recoat entire surface.

3.5 MANUFACTURER'S FIELD SERVICE

- A. Coatings manufacturer shall be available to provide on-site inspections, technical assistance, and guidance for application of coating system as needed.

3.6 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. Clean paint spots and other soiling from prefinished surfaces and surfaces with integral finish. Use solvents which will not damage finished surface.
- C. Leave storage area clean and in same condition indicated for equivalent spaces in Project.
- D. Protect work against damage until fully cured. Provide signs identifying wet surfaces until surfaces are adequately cured.

3.7 WASTE MANAGEMENT

- A. Place materials defined as hazardous or toxic waste in designated containers.
- B. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- C. Do not dispose of paints or solvents by pouring on ground. Place in designated containers for proper disposal.
- D. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

3.8 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Steel Substrates:
 - 1. Prime Coat: Aromatic urethane, zinc-rich, two-component, moisture-cured primer.
 - a. Tnemec Company Incorporated; Tneme-Zinc Series 90-97 (2.5-3.5 mils DFT).

2. Intermediate Coat: Polyamide epoxy.
 - a. Tnemec Company Incorporated; Hi-Build Epoxoline II Series N69 (2.0-3.0 mils DFT).
3. Topcoat: Thermoset solution fluoropolymer.
 - a. Tnemec Company Incorporated; Fluoronar Series 1071 Semi-Gloss (6.5-9.5 mils DFT).

END OF SECTION 09 96 00