SECTION 09 9713

STEEL COATINGS
(HIGH PERFORAMCE PAINT)

PART 1 - GENERAL

1.1 WORK INCLUDED:

A. Products provided and supplied under this Section are special coating materials requiring applicable expertise in surface preparation, application, and safety procedures.

B. Materials, tools, equipment, and scaffolding required for surface preparation and application of special coatings in locations scheduled.

C. High Performance paint shall be applied to all exterior exposed PEMB components.

1.2 REFERENCES:

A. Applicable Standards: Conform to the following Standards:

ASTM B 117: Method of Salt Spray (Fog) Testing

ASTM D 522: Test Method for Elongation of Attached Organic Coatings with Conical Mandrel Apparatus

ASTM D 1653: Method B, Wet Cup, Moisture Vapor Transmission

ASTM D 2246: Method of Testing Finishes of Primed Metallic Substrates for Humidity-Thermal Cycle Cracking

ASTM D 4060: Practice for Testing Abrasion Resistance of Coatings by Taber Abrasion

ASTM D 3273: Fungal Resistance

ASTM D 3359: Method for Measuring Adhesion by Tape Test

ASTM D 4141: Method C (EMMAQUA) Solar Concentrating Exposures of Coatings

ASTM D 4541: Method for Pull-off Strength of Coatings Using Portable Adhesion-Testers

ASTM D 4585: Practice for Testing the Water Resistance of Coatings Using Controlled Condensation

ASTM D 4587: Fluorescent UV-Condensation Exposures of Paint and Coatings

ASTM D 6386: Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting

ASTM G 53: QUV Exposure

Fed. Std. No. 141 Method 6192: Test Method for Abrasion Resistance of Coatings by the Taber Abraser

FS TT-C-550c: Coating System Glaze, High Performance for Interior Surfaces

NFPA 101: Life Safety Code

SSPC - SP1: Solvent Cleaning

SSPC - SP2: Hand Tool Cleaning

SSPC - SP3: Power Tool Cleaning

SSPC - SP6: Commercial Blast Cleaning

SSPC - SP7: Brush-off Blast Cleaning

SSPC - SP10: Near white Metal Blast Cleaning

SSPC - SP11: Power Tool Cleaning to Bare Metal

SSPC - SP13: Surface Preparation of Concrete

1.3 SUBMITTALS:

A. Product Data:
1. Submit manufacturer's descriptive literature fully describing each product and solids by volume contents.
2. Include manufacturer's recommendations for mixing, thinning, application and curing.
3. Submit manufacturer's product data sheets.
4. Submit special coating schedule indicating locations and applications by manufacturer's name and product number.

B. Samples:
1. Submit manufacturer's standard colors for selection by Architect.
2. Submit two (2) 12" x 12" samples of each coating system in selected colors on substrate sample to be finished.
3. Indicate finish texture and color.

C. Test Samples:
1. When requested by Architect, obtain test samples from material stored at project site of source of supply.
2. Retain all paint cans and lids on site until authorized to discard by Architect.

D. Certificates: Manufacturer's certified test report from acceptable independent testing laboratory indicating coatings comply with performance requirements.

1.4 QUALITY ASSURANCE:

A. Applicator Qualifications:
1. Applicator shall have minimum five years experience applying special coating materials.
2. Applicator shall be suggested or pre-approved by manufacturer for this application.
3. Applicator shall employ skilled mechanics to ensure highest quality workmanship. Materials to be applied by craftsman experienced in use of specified products.
4. Submit documentation of following minimum applicator qualifications:
a. Minimum five years commercial experience applying specified manufacturer's industrial grade coatings.
b. Minimum five successful projects of similar scope and complexity.
c. List of references for completed projects.

B. Pre-application Conference: Prior to making field samples and placing order for materials, the installer shall schedule a meeting with the Architect, Owner, General Contractor and manufacturer's representative to agree on methods and schedule for application.

C. Regulatory Requirements: Comply with applicable codes, regulations, ordinances, and laws regarding use and application of coating systems that contain volatile organic compounds (VOC).

D. Field Quality Control:
   1. Installer shall request acceptance by Owner's Representative of each coat before applying succeeding coats.
   2. Furnish and maintain at Project site following fully calibrated testing and inspection devices:
      a. Wet Mil Gauge
      b. Dry Film Gauge with Calibration Shims.
      c. Holiday Detector.
      d. Tooke Destructive Mil Gauge.
      e. Sling Psychrometer.
   3. Initiate and maintain for duration of Project field quality control program using certified calibration and testing devices and to ensure conformance with application requirements.
   4. Thickness of coatings and paint shall be measured checked according to the procedures outlined in SSPC-PA 2 “Measurement of Dry Film Thickness with Magnetic Gages”. Areas that fail to meet these criteria shall be corrected at no expense to the Owner. Use of an instrument such as a Tooke Gauge, precision groove grinder, etc. is permitted if a destructive test is deemed necessary by the Engineer and the total DFT is less than 50 mils.

E. Tests: Where there is any question of dryness of surfaces, test surfaces, test in the presence of the Architect with a reliable electronic moisture meter.

1.5 MOCK-UP:

A. Apply each coating on minimum 100 square feet of area for each type of coating material.

B. Mock-up will be used to judge quality and finish of completed work.

C. Leave approved mock-up in place as part of completed work if mock-up can be incorporated into work in acceptable manner.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver materials to Project site in original, factory sealed, unopened, new containers bearing manufacturer's name and label intact and legible, with the following information:
   1. Name or title of material.
   2. Federal Specification number, if applicable.
   3. Manufacturer's stock number and date of manufacturer.
   4. Contents by volume for major pigment and vehicle constituents.
   5. Thinning instructions.
   6. Application instructions.
   7. Color name and number.

B. Store materials in protected and well ventilated area at temperatures between 40° and 90° degrees F., unless otherwise required by manufacturer.

1.7 ENVIRONMENTAL REQUIREMENTS:

A. Apply coating materials only under following prevailing conditions, unless otherwise noted on manufacturer's product data:
   1. Air and surface temperatures shall not exceed minimum or maximum requirements for product to be applied.
   2. Do not apply coatings to damp or wet surfaces.
   3. Relative humidity is not above 85% and surface temperature is at least 5 degrees F above dew point.
   4. Wind velocity must be below 20 mph for exterior applications.

PART 2 - MATERIALS

2.1 MANUFACTURERS:

A. Materials specified are those that have been evaluated for the specific service. Products of the Tnemec Company, Inc. are listed to establish a standard of quality and provide the longest lasting, most sustainable solution. Equivalent materials of other manufacturer's may be submitted on written approval of the Architect. As part of the proof of equality, the Architect will require at the cost of the Contractor, certified test reports from a nationally known, reputable and independent testing laboratory conducting comparative tests as directed by the Engineer between the product specified and the requested substitution.

B. Requests for substitution shall include manufacturer's literature for each product giving name, product number, generic type, descriptive information, solids by volume, recommended dry film thickness and certified lab test reports showing results to equal the performance criteria of the products specified herein. In addition, a list of five projects shall be submitted in which each product has been used and rendered satisfactory service.

C. All requests for product substitution shall be made at least 14 days prior to the bid date.

D. Any other approved coating manufacturer’s system, if provided, will be shown in the Bid Schedule as Additive Bid Item as an ADD or DEDUCT to overall Base Bid. The Owner will decide which to accept.

E. Manufacturer's color charts shall be submitted to the Engineer at least 30 days prior to coating and/or paint application. The General Contractor and Painting Contractor shall coordinate work so as to allow sufficient time (normally seven to ten days) for coatings to be delivered to the job site.

2.2 SHOP-PRIMER

Surface Preparation: Prepare all welds as per NACE SP0178, Designation D. Abrasive blast all surfaces as per SSPC-SP6 Commercial Blast Cleaning. A minimum angular profile of 1.5 mils as per ASTM D 4417, Method C or NACE Standard RP0287 is required.

Primer: Tnemec Series 94-H20 Hydro-Zinc applied at 2.5 to 3.5 dry mils. Thin only with approved thinner, Tnemec 41-3 or 41-49 Thinner.

2.3 EXTERIOR SYSTEMS SCHEDULE:

A. Exterior Exposed Structural Steel

Surface Preparation Prior to Abrasive Blast Cleaning: Weld flux and spatter shall be removed by power tool cleaning. Sharp projections shall be ground to a smooth contour. All welds shall be ground to a smooth contour as per NACE Standard SP0178, Designation D

Surface Preparation: All surfaces must be clean, dry, and free of contaminants. Clean all bare metal, welded areas, and damaged shop primer as per SSPC-SP6 Commercial Blast Cleaning or SSPC-SP11 Power Tool Cleaning to Bare Metal. Feather all edges smooth. An angular anchor profile of 2.0 mils as per ASTM D 4417, Method C or NACE Standard RP0287 is required.

Coating System:

Spot Primer: Tnemec Series 94-H20 Hydro-Zinc applied at 2.5 to 3.5 dry mils. Thin only with approved thinner, Tnemec 41-3 or 41-49 Thinner.

2nd Coat: Tnemec Series 73 Endura-Shield applied at 2.0 to 3.0 dry mils. Thin only with approved thinner, Tnemec 41-39 or 41-42 Thinner.

3rd Coat: Tnemec Series 1070 Fluoronar (gloss), 1071 Fluoronar (semi-gloss) or 1072 Fluoronar (Satin) applied at 2.0 to 3.0 dry mils. Thin only with approved thinner, Tnemec 41-63 Thinner.

Total dry film thickness shall be a minimum of 6.5 mils.

2.4 MIXING & THINNING:

A. Mix and thin materials in strict accordance with manufacturer's latest printed instructions.

B. Do not use material beyond manufacturer's recommended pot life.

C. Project site tinting will not be allowed.

D. Do not split kits of multi-component products.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Verify surfaces to be coated are dry, clean and ready to accept base coat in accordance with manufacturer's recommendations.

B. Notify Owner's Representative in writing of unacceptable conditions prior to commencing application.

C. Do not begin work until unsatisfactory conditions have been corrected.

3.2 GENERAL PREPARATION:

A. General: Perform preparation and cleaning procedures in strict accordance with coating manufacturer's instructions and as herein specified, for each particular substrate condition.

B. Protect surrounding and adjacent surface in the manner recommended by coating manufacturer.

C. Scrape or grind protrusions flush with surface.

D. Dislodge dirt, mortar and other dry materials by scraping or brushing. Remove dust and loose material by brushing, sweeping, vacuuming and blowing with high-pressure air.

E. Remove oil, wax and grease by scraping off heavy deposits and cleaning with solvent in accordance with SSPC-SP1.

F. Remove sealers and any contaminant that may interfere with penetration of sealer and hardener.

3.3 APPLICATION:

A. Apply in strict accordance with manufacturer's latest printed and published instructions for each product specified.

B. Do not apply initial coating until moisture content of surface is within limitations recommended by paint manufacturer. Test with moisture meter, if applicable.

C. Apply additional coats when undercoats, stains or other conditions show through final coat, until coating film is of uniform finish, color and appearance.

D. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

E. Comply with recommendations of product manufactured for drying time between succeeding coats.

F. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags or other surface imperfections will not be acceptable.

G. Make edges of coatings adjoining other materials clean and sharp with no overlapping. Work material into surface voids and hairline cracks.

H. Provide "Wet Paint" signs as required to protect newly coated finishes. Remove temporary protective wrappings provided by other for protection of their work, after completion of painting operations.

3.4 CLEANING:

A. Clean, prepare and touch-up coating system where damaged as per manufacturer’s instructions.

B. Remove spilled, splashed or splattered finish material from all surfaces.

C. Do not mar surface finish or item being cleaned.

D. Leave storage space clean and in condition required for equivalent spaces in project.

E. During progress of work, remove from project daily all discarded materials, rubbish, cans and rags.

3.5 REPAINTING:

A. Refinish all work which has become damaged or defaced during the course of construction and leave all finishing in clean, neat and perfect condition, acceptable to the Owner's Representative. Replace all broken glass and damaged material directly attributable to work under this Section.

3.6 ACCEPTANCE:

Final acceptance of coatings shall be based upon inspection by the Owner's Representative. Coatings falling below specified and/or scheduled finish and shade shall be redone as required without expense to the Owner.

END OF SECTION