

SECTION 099113 - EXTERIOR PAINTING

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 paint systems on exterior substrates.
 - 1. Steel and iron.
 - 2. Galvanized metal.
 - 3. Aluminum (not anodized or otherwise coated).
- B. Related Requirements:
 - 1. Section 051200 "Structural Steel Framing" for shop priming of metal substrates.
 - 2. **Section 051213 "Architecturally Exposed Structural Steel for thermal and finish coatings."**
 - 3. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
 - 4. Section 055213 "Pipe and Tube Railings" for shop priming pipe and tube railings.
 - 5. Section 099600 "High-Performance Coatings" for tile-like coatings.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.

2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. compliance with require
 1. Behr Process Corporation.
 2. Benjamin Moore & Co.
 3. Glidden Professional.
 4. PPG Architectural Finishes, Inc.
 5. Sherwin-Williams Company (The).
 6. **Tnemec Corporation**
- C. Products: Subject to compliance with requirements, provide product listed in the Exterior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 1. Materials for use within each paint 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 paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: For field applications, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:
 1. Nonflat Paints and Coatings: 50 g/L.
 2. Primers, Sealers, and Undercoaters: 100 g/L.
 3. Rust-Preventive Coatings: 100 g/L.
 4. Zinc-Rich Industrial Maintenance Primers: 100 g/L.

5. Pretreatment Wash Primers: 420 g/L.

D. Colors: Match Architect's samples As indicated in a color schedule.

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

2. **Specific to AESS steel, removal of existing AESS primer (interior or exterior) may be required if contractor uses Tnemec Aerolon thermal coating system. Contractor shall predetermine preference as part of Bid value. Removal shall be a minimum of 24" vertical surface area of exposed steel at roof canopy structure.**
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer
 1. SSPC-SP 2.
 2. SSPC-SP 3.
 3. SSPC-SP 7/NACE No. 4.
 4. SSPC-SP 11.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- G. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 4. Paint entire exposed surface of window frames and sashes.
 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:
 - a. Equipment, including panelboards and switch gear.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Tanks that do not have factory-applied final finishes.
 - g. .

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.
 3. **Should contractor elect to use a non-Tnemec Aerolon coating at exterior AESS steel, contractor must provide equivalent thermal barrier of a complete Tnemec Aerolon system.**

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

- A. **Steel and Iron Substrates:**
 1. **Thermal Coating System; MPI Gloss Level 1, according to ASTM D 523.**
 - a. **Approved products; Tnemec Aerolon Series 971 or Sherwin-Williams Heat Flex 3500.**
 - b. **Minimum Thermal Conductance Requirement; ASTM C518 at 77 degrees fahrenheit: 0.0356 W/m-K or 0.2468 BTU-in/ft²-hr-F.**

2. Alkyd System MPI EXT 5.1D MPI EXT 5.1Q:
 - a. Prime Coat: Primer, alkyd, anticorrosive, for metal, MPI #79.
 - 1) Sherwin-Williams or Equivalent, suitable for Intermediate and Top Coats.
 - b. ~~Prime Coat: Shop primer specified in Section where substrate is specified.~~
 - c. Prime Coat: Primer, metal, surface tolerant, MPI #23.
 - 1) .
 - d. Intermediate Coat: Sherwin-Williams Macropoxy 646-100 Epoxy.
 - e. ~~Topcoat: Alkyd, exterior, flat (MPI Gloss Level 1), MPI #8.~~
 - 1) .
 - f. ~~Topcoat: Alkyd, exterior, semi-gloss (MPI Gloss Level 5), MPI #94.~~
 - 1) .
 - g. Topcoat at Non-Thermal AESS Steel: Alkyd, exterior, gloss (MPI Gloss Level 5 or 6).
 - 1) Two-Coats Sherwin-Williams Flourkem HS;
 - a) Color at Roof Canopy Structure: match PPG Duranar XL Pewter.
 - b) Color at Entry Canopy Structure: match PPG Duranar XL Champagne Gold.
3. Aluminum Paint System MPI EXT 5.1K:
 - a. Prime Coat: Primer, alkyd, anti-corrosive, for metal, MPI #79.
 - 1) Insert manufacturer's name; product name or designation.
 - b. Prime Coat: Shop primer specified in Section where substrate is specified.
 - c. Intermediate Coat: Aluminum paint, matching topcoat.
 - d. Topcoat: Aluminum paint, MPI #1.
 - 1) .

B. Galvanized-Metal Substrates:

1. Latex System MPI EXT 5.3A MPI EXT 5.3H:
 - a. Prime Coat: Primer, galvanized, cementitious, MPI #26.
 - 1) .
 - b. Prime Coat: Primer, galvanized, water based, MPI #134.
 - 1) .
 - c. Intermediate Coat: Latex, exterior, matching topcoat.
 - d. Topcoat: Latex, exterior, flat (MPI Gloss Level 1), MPI #10.
 - 1) .
 - e. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
 - 1) .
 - f. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.
 - 1) .
 - g. Topcoat: Latex, exterior, gloss (MPI Gloss Level 6), MPI #119.
 - 1) .
2. Water-Based Light Industrial Coating System :
 - a. Prime Coat: Primer, galvanized, cementitious, MPI #26.
 - 1) .
 - b. Prime Coat: Primer, galvanized, water based, MPI #134.
 - 1) .
 - c. Prime Coat: Primer, epoxy, anti-corrosive, MPI #101.
 - 1) .

- d. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - e. Topcoat: Light industrial coating, exterior, water based (MPI Gloss Level 3), MPI #161.
1) .
 - f. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5), MPI #163.
1) .
 - g. Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.
1) .
3. Alkyd System MPI EXT 5.3B:
- a. Prime Coat: Primer, galvanized, cementitious, MPI #26.
1) .
 - b. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.
 - c. Topcoat: Alkyd, exterior, flat (MPI Gloss Level 5), MPI #8.
1) .
 - d. Topcoat: Alkyd, exterior, semi-gloss (MPI Gloss Level 5), MPI #94.
1) .
 - e. Topcoat: Alkyd, exterior, gloss (MPI Gloss Level 6), MPI #9.
1) .

C. Aluminum Substrates:

1. Latex System MPI EXT 5.4H:
- a. Prime Coat: Primer, quick dry, for aluminum, MPI #95.
1) .
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, flat (MPI Gloss Level 1), MPI #10.
1) .
 - d. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
1) .
 - e. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.
1) .
 - f. Topcoat: Latex, exterior, gloss (MPI Gloss Level 6), MPI #119.
1) .
2. Alkyd System MPI EXT 5.4A MPI EXT 5.4F:
- a. Pretreatment Prime Coat: Vinyl wash primer, MPI #80.
1) .
 - b. Prime Coat: Primer, quick dry, for aluminum, MPI #95.
1) .
 - c. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.
 - d. Topcoat: Alkyd, exterior, flat (MPI Gloss Level 5), MPI #8.
1) .
 - e. Topcoat: Alkyd, exterior, semi-gloss (MPI Gloss Level 5), MPI #94.
1) .
 - f. Topcoat: Alkyd, exterior, gloss (MPI Gloss Level 6)[, **MPI #9**].
1) .

END OF SECTION 099113