

SECTION 09 9000 - PAINTING AND COATING

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 interior and exterior substrates.
- B. Related Requirements:
  - 1. **[Section 051200 "Structural Steel Framing"] [Section 051213 "Architecturally Exposed Structural Steel Framing"]** for shop priming structural steel.
  - 2. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
  - 3. Section 055113 "Metal Pan Stairs" for shop priming metal pan stairs.
  - 4. Section 055116 "Metal Floor Plate Stairs" for shop priming metal floor plate stairs.
  - 5. Section 055119 "Metal Grating Stairs" for shop priming metal grating stairs.
  - 6. Section 055213 "Pipe and Tube Railings" for shop priming pipe and tube railings.
  - 7. Section 099600 "High-Performance Coatings" for tile-like coatings.
  - 8. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.

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 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. 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.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. 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. Indicate VOC content.
- B. LEED Submittals:
  - 1. Product Data for Credit EQ 4.2: For paints and coatings, documentation including printed statement of VOC content.
- C. Samples for Initial Selection: For each type of topcoat product.
- D. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) 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.
- E. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.
- F. Schedule of Installed Coating: At the completion of the project, Contractor shall provide a complete listing of all coatings. Include manufacturer, product name, primer and top coats, number of coats, application methods and detailed diagram of colors by location.

#### 1.5 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 (7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.6 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Benjamin Moore & Co.
2. PPG Architectural Finishes, Inc.
3. Pratt & Lambert.
4. Sherwin-Williams Company (The).

- B. Products: Subject to compliance with requirements, provide one of the products listed in the Interior Painting Schedule for the paint category indicated.

## 2.2 PAINT, GENERAL

- A. 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.

- B. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

- C. Colors: As selected by Architect from manufacturer's full range.

1. **[Ten] [Twenty] [Thirty] <Insert number>** percent of surface area will be painted with deep tones.

## 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. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Fiber-Cement Board: 12 percent.
  - 3. Masonry (Clay and CMUs): 12 percent.
  - 4. Wood: 15 percent.
  - 5. Gypsum Board: 12 percent.
  - 6. Plaster: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.
- E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- G. 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 if any.
- 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.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 2.
  - 2. SSPC-SP 3.
- G. 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.
- H. 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.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  - 2. Sand surfaces that will be exposed to view, and dust off.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but 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 in equipment rooms:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.
    - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - i. **<Insert mechanical items to be painted>**.
  2. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - h. Other items as directed by Architect.
    - i. **<Insert mechanical items to be painted>**.
  3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

### 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.

### 3.5 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 PAINTING SCHEDULE

#### A. Interior Painting Schedule:

##### 1. Concrete Substrates, Nontraffic Surfaces:

###### a. Latex, low gloss:

- 1) Prime Coat: Benjamin Moore Super Spec Interior/Exterior Acrylic High Build Masonry Primer N068.
- 2) Intermediate Coat: Benjamin Moore Ultra Spec 500 Interior Low Sheen N537.
- 3) Topcoat: Benjamin Moore Ultra Spec 500 Interior Low Sheen N537.

###### b. Epoxy, low gloss:

- 1) Prime Coat: Benjamin Moore Super Spec Interior/Exterior Acrylic High Build Masonry Primer N068.
- 2) Intermediate Coat: Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342.
- 3) Topcoat: Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342.

##### 2. Concrete Substrates, Non-Vehicular Traffic Surfaces:

###### a. Latex, low gloss:

- 1) First Coat: Benjamin Moore Floor & Patio Latex Enamel Low Sheen N122.
- 2) Second Coat: Benjamin Moore Floor & Patio Latex Enamel Low Sheen N122.

###### b. 100-percent Solids Epoxy, High Gloss:

- 1) Single Coat Coverage: Corotech 100% Solids Epoxy Floor Coating V430.

##### 3. CMU Substrates:

###### a. Filled Finish: Latex, low gloss.

- 1) Prime Coat / Block Filler: Benjamin Moore Super Spec Masonry Interior/Exterior Hi-Build Block Filler 206.
- 2) Intermediate Coat: Benjamin Moore Ultra Spec 500 Interior Low Sheen N537.
- 3) Topcoat: Benjamin Moore Ultra Spec 500 Interior Low Sheen N537.

- b. Filled Finish: Epoxy, low gloss.
  - 1) Prime Coat / Block Filler: Corotech Acrylic Block Filler V114.
  - 2) Intermediate Coat: Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342.
  - 3) Topcoat: Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342.
  
- 4. Steel Substrates:
  - a. Latex System, gloss.
    - 1) Prime Coat: Corotech Acrylic Metal Primer V110.
    - 2) Intermediate Coat: Corotech Acrylic DTM Enamel Gloss V330.
    - 3) Topcoat: Corotech Acrylic DTM Enamel Gloss V330.
  
  - b. Alkyd System, gloss.
    - 1) Prime Coat: Benjamin Moore Super Spec HP Acrylic Metal Primer P04.
    - 2) Intermediate Coat: Benjamin Moore Advance Waterborne Interior Alkyd High Gloss N794.
    - 3) Topcoat: Benjamin Moore Advance Waterborne Interior Alkyd High Gloss N794.
  
  - c. Urethane System (Water Base), gloss.
    - 1) Prime Coat: Corotech Acrylic Metal Primer V110.
    - 2) Intermediate Coat: Corotech Waterborne Urethane Gloss V540.
    - 3) Topcoat: Corotech Waterborne Urethane Gloss V540.
  
- 5. METAL: Galvanized; Ceilings, Duct work.
  - a. Multi-Surface Acrylic Coating System.
    - 1) First Coat: Corotech Acrylic Metal Primer V110.
    - 2) Second Coat: Corotech Acrylic DTM Enamel Gloss V330.
  
  - b. Dryfall Waterborne Topcoats.
    - 1) First Coat: Coronado Super Kote 5000 Dry Fall Latex Flat N110.
    - 2) Second Coat: Coronado Super Kote 5000 Dry Fall Latex Flat N110.
  
- 6. Wood Substrates:
  - a. Latex, Satin:
    - 1) Prime Coat: Benjamin Moore Fresh Start Multi-Purpose Primer N023.
    - 2) Intermediate Coat: Benjamin Moore Ultra Spec 500 Interior Latex Flat N536.
    - 3) Topcoat: Benjamin Moore Ultra Spec 500 Interior Latex Flat N536.
  
  - b. Varnish, Satin
    - 1) Prime Coat: Lenmar Waterborne Interior Wiping Stain 1WB.1300.
    - 2) Intermediate Coat: Lenmar Waterborne Aqua-Plastic Urethane Satin, 1WB.1427.



- 3) Topcoat: Lenmar Waterborne Aqua-Plastic Urethane Satin, 1WB.1427.
- 7. Gypsum Board and Plaster Substrates:
  - a. On Walls: Latex, Eggshell:
    - 1) Prime Coat: Benjamin Moore Ultra Spec 500 Interior Latex Primer N534.
    - 2) Intermediate Coat: Benjamin Moore Ultra Spec 500 Latex Eggshell N538.
    - 3) Topcoat: Benjamin Moore Ultra Spec 500 Latex Eggshell N538.
  - b. On Ceiling: Latex, Flat.
    - 1) Prime Coat: Benjamin Moore Ultra Spec 500 Interior Latex Primer N534.
    - 2) Intermediate Coat: Benjamin Moore Ultra Spec 500 Interior Latex Flat N536.
    - 3) Topcoat: Benjamin Moore Ultra Spec 500 Interior Latex Flat N536.
- B. Exterior Painting Schedule:
  - 1. CMU Substrates:
    - a. Latex System - Filled Finish:
      - 1) Prime Coat: Coronado Super Kote 5000 Production Block Filler 958-11.
      - 2) Intermediate Coat: Coronado Cryli Cote 100% Acrylic Satin House & Trim Paint 410.
      - 3) Topcoat: Coronado Cryli Cote 100% Acrylic Satin House & Trim Paint 410.
  - 2. Steel and Iron Substrates:
    - a. Latex, Gloss.
      - 1) Prime Coat: Corotech Acrylic Metal Primer V110.
      - 2) Intermediate Coat: Benjamin Moore Ultra Spec EXT Gloss Finish N449.
      - 3) Topcoat: <Benjamin Moore Ultra Spec EXT Gloss Finish N449.
  - 3. Galvanized-Metal Substrates:
    - a. Latex System, Gloss
      - 1) First Coat: Benjamin Moore Ultra Spec EXT Gloss Finish N449.
      - 2) Second Coat: Benjamin Moore Ultra Spec EXT Gloss Finish N449.

**END OF SECTION 09 9000**

NORTHWESTERN UNIVERSITY  
PROJECT NAME \_\_\_\_\_  
JOB # \_\_\_\_\_

FOR: \_\_\_\_\_  
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