

University of Houston Master Specification

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SECTION 09 9113 - EXTERIOR PAINTING

Maintain Section format, including the UH master spec designation and version date in bold in the center columns of the header and footer. Complete the header and footer with Project information.

Edit and finalize this Section, where prompted by Editor's notes, to suit Project specific requirements. Make selections for the Project at text identified in bold.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

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.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
 - 2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on exterior substrates.

1.3 DEFINITIONS

- A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

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1. "Substrate" means the surface to which paint is to be applied. In the case of previously painted existing surfaces, substrate means the surface to which the existing paint was applied.
- B. "Exterior Surfaces" means all building surfaces exposed to the exterior and includes surfaces of unconditioned interior areas that are exposed to untreated outside air.
- C. Standard coating terms defined in ASTM D 16 apply to this Section.
 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.
- D. MPI Gloss and Sheen Standards as follows when tested in accordance with ASTM D 523.
 1. Gloss Level 5: A traditional semi-gloss.
 - a. Gloss Measured at 60 degrees: 35 to 70 units.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

Retain paragraph B and associated subparagraphs below if Project is to be LEED v4 certified.

- B. LEED Action Submittals (Projects authorized for LEED certification only):
 1. Building Product Disclosure and Optimization:
 - a. Leadership Extraction Practices
 - 1) Extended Producer Responsibility (EPR): Submit documentation indicating that manufacturers have a take back or recycling program for the product purchased.
 - 2) Recycled Content: For products having recycled content, indicate percentages by weight of post-consumer and pre-consumer recycled content.
 - a) Include statement indicating costs for each product having recycled content.

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- b. Sourcing of Raw Materials: For products that are required to comply with requirements for regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material.
 - 1) Include statement indicating distance to Project, cost for each regional material and the fraction by weight that is considered regional.
 - 2) Product Certificates: For materials manufactured within 100 miles of Project, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each raw material.
- 2. Laboratory Test Reports: For installation adhesives indicating compliance with requirements for low-emitting materials.
- 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. Step coats on Samples 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: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 3. VOC content.
 - 4. Include all the above information in the project closeout Operations and Maintenance manuals.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type of paint, from manufacturer.

[Retain paragraph B and associated subparagraphs below if Project is to be LEED v4 certified.](#)

- B. Informational LEED Submittals:

- 1. Building Product Disclosure and Optimization - Sourcing of Raw Materials:
 - a. Raw Material Sources and Extraction Reporting: Submit Raw materials supplier corporate Sustainability Reports (CSRs); documenting responsible extraction; including extraction locations, long term ecologically responsible land use, commitment to reducing environmental harms from extraction and manufacturing processes, and a commitment to meeting applicable standards or programs that address responsible sourcing criteria

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- 1) Submit manufacturers' self-declared reports
 - 2) Submit third party verified corporate sustainability reports (CSR) using one of the following frameworks"
 - a) Global Reporting Initiative (GRI) Sustainability Report
 - b) Organization for Economic Co-operation and Development (OECD)
 - c) Guidelines for Multinational Enterprises
 - d) UN Global Compact
 - e) ISO 26000
 - f) USGBC approved program.
2. Building Product Disclosure and Optimization - Material Ingredients
- a. Material Ingredient Optimization: Submit manufacturer's Environmental Product Declaration (EPD) or at least one of the following:
 - 1) GreenScreen V1.2 Benchmark: Third party report prepared by a licensed GreenScreen List Translator, or a full GreenScreen Assessment.
 - 2) Cradle to Cradle: Manufacturer's published literature for the product bearing the Cradle to Cradle logo.
 - 3) International Alternative Compliance Path - REACH Optimization
 - 4) Declare: Manufacturer's completed Product Declaration Form
 - 5) Other programs approved by USGBC
 - b. Product Manufacturer Supply Chain Optimization: Submit documentation from manufacturers for products that go beyond material ingredient optimization as follows:
 - 1) Are sourced from product manufacturers who engage in validated and robust safety, health, hazard, and risk programs which at a minimum document at least 99 percent (by weight) of the ingredients used to make the building product or building material, and
 - 2) Are sourced from product manufacturers with independent third-party verification of their supply chain that at a minimum verifies:
 - a) Processes are in place to communicate and transparently prioritize chemical ingredients along the supply chain according to available hazard, exposure and use information to identify those that require more detailed evaluation
 - b) Processes are in place to identify, document, and communicate information on health, safety and environmental characteristics of chemical ingredients
 - c) Processes are in place to implement measures to manage the health, safety and environmental hazard and risk of chemical ingredients
 - d) Processes are in place to optimize health, safety and environmental impacts when designing and improving chemical ingredients

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- e) Processes are in place to communicate, receive and evaluate chemical ingredient safety and stewardship information along the supply chain
- f) Safety and stewardship information about the chemical ingredients is publicly available from all points along the supply chain.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft.
 - b. Small Areas and Items: Architect will designate items or areas required.
 - 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, Architect will use the room or surface to evaluate coating systems of a similar nature.
 - 3. Final approval of colors will be from benchmark samples.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 - 1. Product name.
 - 2. Manufacturer's stock number and date of manufacture.
 - 3. Contents by volume, for pigment and vehicle constituents.
 - 4. Color name and number.
 - 5. VOC content.
- B. 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.

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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, provide products by one of the following:
 1. Glidden Professional (formerly ICI Paints).
 2. Sherwin-Williams Company.
 3. Substitutions: See Section 01 2500 "Substitution Procedures."
- B. Products: Subject to compliance with requirements, provide products listed in other Part 2 articles for the paint category indicated.

2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Ready mixed, unless intended to be a field-catalyzed coating.
- C. Material Compatibility:
 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 3. Supply each coating material in quantity required to complete entire project's work from a single production run.

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- 4. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
 - 5. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- D. VOC Content: Provide materials that comply with the most stringent VOC limits specified in the following:
- 1. 40 CFR 50, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- E. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS/SEALERS

- A. General: Where the manufacturer offers options on primers for a particular substrate use primer categorized as "best" by the manufacturer.

2.4 WATER-BASED PAINTS

- A. Latex, Exterior Semi-Gloss (Gloss Level 5): MPI #11.
- B. Latex, Exterior Gloss (Gloss Level 6): MPI #119.
- C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5): MPI #163.
- D. Light Industrial Coating, Exterior, Water Based, Gloss (Gloss Level 6): MPI #164.

2.5 FLOOR COATINGS

- A. Sealer, Water Based, for Concrete Floors: MPI #99.

2.6 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.

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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. Masonry (Clay and CMU): 12 percent.
 3. Wood: 15 percent.
 4. Gypsum Board: 12 percent.
- C. Exterior Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. 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 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.

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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, "Hand Tool Cleaning."
 2. SSPC-SP 3, "Power Tool Cleaning."
 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and 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. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
 2. Sand surfaces that will be exposed to view and remove dust.
 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.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI 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.

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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. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. 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.
- D. 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. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.

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.

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- 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. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

- a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
- b. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.

B. CMU Substrates:

1. Latex System:

- a. Prime Coat: Block filler, latex, interior/exterior, MPI #4.
- b. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.

2. Latex over Alkali-Resistant Primer System:

- a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
- b. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.

C. Steel Substrates:

1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Shop primer specified in Section 05 1200 "Structural Steel Framing" where substrate is specified.
- b. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5), MPI #163.

D. Galvanized-Metal Substrates:

1. Latex System:

- a. Prime Coat: Primer, galvanized, water based, MPI #134.
- b. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.

2. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, galvanized, water based, MPI #134.

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- b. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5), MPI #163.

- E. Wood Substrates: Including wood trim doors.
 - 1. Latex System:
 - a. Prime Coat: Primer, latex for exterior wood, MPI #6.
 - b. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.

- F. Exterior Gypsum Board Substrates:
 - 1. Latex System:
 - a. Prime Coat: Latex, exterior, matching topcoat.
 - b. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.

END OF SECTION 09 9113