SECTION 09 90 00 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide the work of this Section in accordance with requirements of the Contract Documents.

B. This Section includes but is not limited to:

1. Surface preparation, priming, and field finish painting of exposed surfaces on the following substrates:

   a. Concrete.
   b. Concrete masonry units CMU.
   c. Steel.
   d. Cast iron.
   e. Galvanized metal.
   f. Gypsum board.
   g. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

2. Scope: Except for prefinished items, labels and operating parts, and items indicated on the Finish Schedule with a surface material to remain natural, paint all exposed surfaces, and primed metal surfaces.

   a. If an item or surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedule indicates colors.
   b. If the schedule does not indicate color or finish, the Architect will select from standard colors and finishes available.
   c. Where indicated or required by code, field paint exposed bare and covered pipes and ducts, hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
   d. Painting includes identifying fire rated wall assemblies with stenciled lettering above ceilings according to building code.

3. Provide color banding for insulated and uninsulated piping shall be provided in accordance with ANSI A13.1, “Scheme for the Identification of Piping Systems”, the Owner’s specific requirements and specific requirements in Divisions 21, 22, 23, 26 and 27 for identification of items.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Prefinished items include the following factory-finished components:

   a. Architectural woodwork and casework.
   b. Acoustical ceiling and wall panels.
   c. Toilet partitions
   d. Elevator entrance doors and frames.
   e. Elevator equipment.
   f. Factory finished mechanical and electrical equipment.
   g. Light fixtures.

2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:

    a. Furred areas.
    b. Ceiling plenums.
    c. Pipe spaces.
    d. Duct shafts
    e. Elevator shafts

3. Finished metal surfaces include the following:

    a. Anodized aluminum.
    b. Stainless steel.
    c. Chromium plate
    d. Coil coated wall and roof panels.

4. Operating parts include moving parts of operating equipment and the following:

    a. Valve and damper operators.
    b. Linkages
    c. Sensing devices.
    d. Motor and fan shafts.

5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual Global (FMG), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Related Work:

1. Division 04, Section 04 20 00 "Unit Masonry " for preparation of CMU
2. Division 05, Section 05 12 00 "Structural Steel Framing" for priming of structural steel.
3. Division 05, Section 05 50 00 "Miscellaneous Metal Fabrications" for shop priming ferrous metal.
4. Division 05, Section 05 51 13 "Metal Pan Stairs" for shop priming metal pan stairs.
5. Division 06, Section 06 40 00 "Architectural Woodwork" for shop priming interior architectural woodwork, and for finish painting of shop painted wood including conversion varnish for panels, doors and frames.
6. Division 08, Section 08 11 13 "Hollow Doors and Frames" for shop priming steel doors and frames
7. Division 09, Sections 09 21 00 "Gypsum Board Assemblies", for surface preparation of gypsum board.
8. Mechanical, Electrical, Plumbing and Fire Protection Sections for priming of equipment to be painted; including Division 21, Section "Identification for Fire Suppression Piping and Equipment", Division 22, Section 22 05 53 "Identification for Plumbing Piping and Equipment", Division 23, Section 23 05 53 "Identification for HVAC Piping and Equipment", Division 26, Section 26 05 53 "Identification for Electrical Systems", and Division 27, Section 27 05 53 "Identification for Communications Systems".

1.2 DEFINITIONS

A. Gloss Levels: The following gloss designations as determined in accordance with ASTM D523 apply to paint products specified in this Section:

1. Gloss Level 1: A traditional matte finish – flat.

    a. Gloss Measured at 60 degrees: Maximum 5 units.
    b. Sheen Measured at 85 degrees: Maximum 10 units.

2. Gloss Level 2: A high side sheen flat – velvet.

a. Gloss Measured at 60 degrees: Maximum 10 units.
b. Sheen Measured at 85 degrees: 10 to 35 units.

3. Gloss Level 3: A traditional egg-shell finish.

a. Gloss Measured at 60 degrees: 10 to 25 units.
b. Sheen Measured at 85 degrees: 10 to 35 units.

4. Gloss Level 4: A satin finish.

a. Gloss Measured at 60 degrees: 20 to 35 units.
b. Sheen Measured at 85 degrees: Minimum 35 units.

5. Gloss Level 5: A traditional semi-gloss.

a. Gloss Measured at 60 degrees: 35 to 70 units.

6. Gloss Level 6: A traditional gloss.

a. Gloss Measured at 60 degrees: 70 to 85 units.

7. Gloss Level 7: A high gloss.

a. Gloss Measured at 60 degrees: More than 85 units.

B. Areas Subject to Moisture: These spaces are those that have permanent plumbing connections and appliances. These include, but are not limited to, toilet rooms, janitor’s closets, locker rooms, shower rooms, training rooms, first aid rooms, commissaries, kitchens, and laundries.

1.3 ACTION SUBMITTALS

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

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference Finish Legend and Schedule with specific coating, finish system, color designation, sheen, and application methods. Identify each material by manufacturer's catalog number and general classification.
2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
3. VOC Compliance: Provide manufacturer’s certified documentation that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

B. Sustainable Design Submittals:

1. Indoor Environmental Quality, Low Emitting Materials: Building Products must be tested and compliant with the California Department of Public-Health (CDPH) Standard Method v1.2 2017, using the applicable exposure scenario.

a. For paints, and coatings, wet applied, include printed statement of VOC content, showing compliance with the applicable VOC limits of the California Air Resources Board (CARB) 2007, Suggested Control Measure for Architectural Coatings or the South Coast Air Quality Management District (SCAQMD) Rule 1113-2011.

C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish coat material indicated. After color selection, the Architect will furnish color chips for surfaces to be coated.

D. Samples for Verification: Submit two samples of each color and material to be applied, with texture, and gloss to simulate actual conditions, on representative

1. Submit Samples of the actual substrate, 8 inch 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 as to manufacturer, color name and number, location and application.

E. Product List: For each product indicated. Use same designations indicated on Drawings and in the Exterior and Interior Painting Schedules to cross-reference paint systems specified in this Section. Include color designations.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Applicator, along with training records for blasters and painters.

B. Quality Control Program: submit a copy of the applicator's quality control program.

C. Daily inspection reports.

D. Sustainable Design Submittals:

1. Building Product Disclosure and Optimization - Environmental Product Declarations
    a. Submit product specific type III EPDs or Industry wide (generic) EPDs, USGBC approved program declaration or products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope.
2. Building Product Disclosure and Optimization - Material Ingredients
    a. Material Ingredient Reporting: Submit documentation confirming chemical inventory of products to at least 0.1 % (1000pm) with at least one of the following:
        1) Submit published manufacturer inventory of ingredients identified by name and Chemical Abstract Service Registration Number (CASRN)
        2) Submit documentation that product has been certified as Cradle-to-Cradle v3 at the Bronze Level or better
        3) Submit Declare product label indicating that all ingredients have been disclosed down to 1000 ppm or designated as Red List Free or Declared
        4) Living Product Challenge
        5) Product Lens Certification
        6) USGBC approved program.
    b. Material Ingredient Optimization: Submit documentation confirming chemical inventory of products to at least 0.01 % (100pm) and/or that has a compliant material ingredient optimization report with at least one of the following:
        1) Submit GreenScreen V1.2 Benchmark: Third party report prepared by a licensed GreenScreen List Translator, or a full GreenScreen Assessment.
        2) Submit third-party verified documentation that product has been certified as Cradle-to-Cradle v3 at the Bronze Level or better
        3) Submit third-party verified Cradle to Cradle v3 Material Health certificate at the Bronze Level or better
        4) Submit third-party verified Declare product label indicating that all ingredients have been disclosed down to 100 ppm

5) Submit third-party verified documentation that product is Living Product Challenge certified with a Red List Free or LBC Red List Free Declare label.
6) Submit documentation that product has a manufacturer prepared action plan with material inventory to at least 1000 ppm.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

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.

1. Painting of Structural Steel: A firm approved by the manufacturer for application of paint systems, with supervisors and workers trained in surface preparation and application of paint systems specified. Firm shall have a written quality control program and inspection system to assure that work is performed in accordance with reference standards and manufacturer's written application instructions.

B. 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 specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
3. 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.

4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
5. 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. 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 or title of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.

5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. 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.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.8 COORDINATION

A. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

1.9 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 when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Do not apply exterior paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers Names: The following acceptable paint manufacturers are referred to in the paint schedules by use of shortened versions of their names, which are shown in parentheses:

1. Interior Paint Manufacturers:

a. Basis of Design: Unless otherwise specifically indicated, provide Ultra-Spec 500 of Zero VOC paints for interiors including primer sealers from Benjamin Moore. Equivalent products from the following will be considered subject to compliance with requirements:

1) AkzoNobel.
2) Cloverdale Paint.
3) Dulux Paints Inc.
4) Duron.
5) Glidden.
6) ICI Paints

7) PPG
8) Pratt & Lambert
9) Sherwin Williams
10) Wolf-Gordon

2. Exterior Paint Manufacturers:

a. Manufacturers: Provide complete system by one of the following manufacturers:

1) Carboline
2) International Paints
3) PPG
4) Sherwin Williams
5) Tnemec

B. Source Limitations:

1. Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
2. Obtain each paint product from single source from single manufacturer.

2.2 PAINT, GENERAL

A. 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. 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.

B. Low-Emitting Materials:

1. Adhesives and sealants wet applied inside the weather-proofing system must meet the VOC general emission testin criteria fo CDPH Standard Method v1.2.
2. All adhesives and sealants wet applied inside the weather-proofing system must have VOC content in compliance with the applicable VOC limit (g/L) found in tables in Division 01, Section 01 81 13.14 “Sustainable Design requirements – LEED v4 BD+C”.

C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop.

D. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

E. Exterior Paint Colors:

1. Hollow Metal Doors and Frames:

a. **PT-41**:

1) Custom color as selected by Architect. *{Revised by Revision 1}*
2) Semi-gloss.

b. **PT-42**:

1) Custom color as selected by Architect. *{Revised by Revision 1}*
2) Semi-gloss.

F. Interior Paint Colors:

1. **PT-01**:

a. Sherwin Williams Snowbound SW7004.
b. Flat.

2. **PT-02**:

a. Sherwin Williams Agreeable Gray SW7029.
b. Semi-gloss.

3. **PT-03**:

a. Sherwin Williams custom color to be selected by Architect.
b. Gloss to be selected by Architect.

4. **PT-04**:

a. Sherwin Williams Anew Gray SW7030.
b. Semi-gloss.

5. **PT-05**:

a. Sherwin Williams Poinsettia SW6594.
b. Semi-gloss.

6. **PT-06**:

a. Sherwin Williams Danube SW6803.
b. Semi-gloss.

7. **PT-07**:

a. Sherwin Williams Pewter Cast SW7673.
b. Semi-gloss.

8. **PT-08**:

a. Sherwin Williams Tricorn Black SW6258.
b. Flat.

9. **PT-09**:

a. Custom color to match **PP-03** specified in Section 06 40 00 “Architectural Woodwork”.
b. Semi-gloss.

10. **PT-10**:

a. Custom color to match **PP-04** specified in Section 06 40 00 “Architectural Woodwork”.
b. Semi-gloss.

11. **PT-13**:

a. Custom color to match **PP-01** specified in Section 06 40 00 “Architectural Woodwork.”
b. Semi-gloss.

12. **PT-14**:

a. Benjamin Moore Maratime White #OC-5
b. Flat.

13. **PT-15**:

a. Sherwin Williams Conversative Gray SW 6183
b. Low luster acrylic opaque stain.

14. **PT-16**:

a. Benjamin Moore Snowfall White OC-118
b. Semi-gloss.

15. **PT-17**:

a. Sherwin Williams Zuich White SW7626
b. Satin

G. Sheen: In general, provide flat sheen on ceilings, eggshell on walls, satin on metal and trim, semi-gloss on metal adjoining exterior walls; and epoxy with eggshell finish on walls and ceilings of toilets, equipment storage, housekeeping, electrical, tele/comm, and mechanical rooms; and provide epoxy with semi-gloss finish for metal trim in these rooms. Confirm gloss levels as related to each substrates and installation area.

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.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry: 12 percent.
3. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Verify that paint to be mixed has not exceeded its shelf life.

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 applicable to substrates and paint systems indicated.

B. Remove hardware, hardware accessories, covers, plates, machined surfaces, lighting fixtures 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. Ensure that sprinkler heads and other mechanical and electrical items not to be painted are protected from paint overspray.
2. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
3. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

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. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.

E. Cementitious Substrates: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

1. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
2. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
3. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.

F. Ferrous Metal Substrates: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations and AWS guidelines.

1. Remove oil and similar contaminants from steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC-SP 1 "Solvent Cleaning" prior to any additional surface preparation specified.

    a. Remove rust and mill scale in accordance with SSPC SP-3 "Power Tool Cleaning".
    b. Where solder flux has been used, lean surface with a solvent. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    c. Immediately after surface preparation apply primer in accordance with manufacturer's instructions.

d. Use painting methods which will result in full coverage and dry film thickness specified. After erection is completed, touch-up heads of bolts, welded surfaces and other field connections with specified primer.

2. Shop Primed Ferrous Metal Surfaces: Remove grease and oil with a cleaner recommended for the purpose. Exercise care to prevent damage to shop coat. Touch-up abraded or marred shop coats with paint used for priming.

a. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.

3. Surface Profile: Provide steel surface profile of 2-3 mils. Measure the surface profile of each girder, beam or diaphragm at three locations. Pay special attention to areas that may have been shielded during blasting. Measure surface profile using Testex Replica Tape in accordance with ASTM D4417. File the impressed tapes with the Quality Control inspection records.
4. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods, to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

G. Gypsum Drywall: Repair minor cracks and holes with finishing compound, and sand smooth after drying.

H. Pipe Covering and Insulation: Clean surfaces of pipe, duct and equipment insulation (such as canvas jackets and troweled-on insulation), of loose, foreign and objectionable material prior to priming or sealing.

I. Identification: Provide 3-inch-high stenciled block letters in red to identify each rated wall assembly.

3.3 APPLICATION

A. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.
4. Apply paints according to manufacturer's written instructions.

B. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques best suited for substrate and type of material being applied.
2. Paint surfaces behind movable items the same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
3. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
4. Paint both sides and edges of exterior doors and entire expose surfaces of exterior door frames.

5. Paint front and backsides of access panels, and removable or hinged covers to match exposed surfaces.
6. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
7. Where shown on the Contract Drawings, prime and paint the following to match adjacent surface: exposed bare pipes, ducts, conduits, boxes, hangers, brackets and supports, except where items are covered with a prefinished coating.
8. Color code equipment, piping conduit and exposed ductwork as shown on the Contract Drawings.

C. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

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.

1. Paint primed surfaces to color shown on the Contract Drawings.

E. Scheduling Painting: Apply paint to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Apply materials at the manufacturer's recommended spreading rate, to establish a total dry film thickness as shown on the Contract Drawings or, if not shown, as recommended by coating manufacturer. Monitor paint application rate by use of wet film thickness gage in accordance with ASTM D4414. For metal surfaces, measure dry film thickness in accordance with SSPC-PA 2. Use a non-ferrous gauge to measure coating thickness on galvanized surfaces or aluminum.

    a. Apply each coat at proper consistency. After each coat has dried, visually examine for pinholes, fish eyes, blisters, runs, sags and missed areas. Repair defects and repaint.

2. The number of coats and the film thickness required are the same regardless of application method.

    a. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer.
    b. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
    c. Omit primer on metal surfaces that have been shop primed and touchup painted.

3. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied.

    a. Tint undercoats to match color of topcoat but provide sufficient difference in shade of undercoats to distinguish each separate coat.
    b. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
    c. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

4. Apply additional coating to areas of insufficient thickness. Use care during application to assure that all repairs blend in with the surrounding surfaces.
5. Allow sufficient time between successive coats to permit proper drying. Abide by the coating manufacturer's minimum and maximum recoat. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb

pressure, and application of another coat of paint does not cause lifting or loss of adhesion.

F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work: Paint items exposed to view in public areas including, but not limited to, the following:

1. Mechanical Work:

a. Uninsulated metal piping.
b. Uninsulated plastic piping.
c. Metal and plastic conduit.
d. Pipe hangers and supports.
e. Tanks that do not have factory-applied final finishes.
f. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

2. Electrical Work:

a. Equipment, including panelboards.
b. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3. Mechanical and electrical items including equipment and insulation covers and the like mounted above the open baffle type ceilings shall be considered exposed to view and shall be painted **PT-08** except where other paint colors are mandated by the IBC and authorities having jurisdiction.

G. Electrical equipment that is indicated to have a factory-primed finish for field painting. 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.

H. Coating Adhesion

1. Apply coats to assure that they are well-adhered to each other and to the substrate. Remove coatings that lift upon application of additional coats and coats that lose cohesive or adhesive bond with the substrate or previous coats and reapply.
2. Conduct adhesion tests in accordance with ASTM D3359 or ASTM D4541 and repair test areas. Replace defective coatings and coatings that fail to meet testing requirements.

I. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repair Work not in compliance with the requirements specified in this Section.

J. 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.

K. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.4 EXTERIOR PAINT SCHEDULE

A. Galvanized Door and Frames Semi-Gloss:

1. Carboline:

    a. Primer: Galoseal WB
    b. Top Coat: 3359

2. PPG:

    a. Primer: Pitt-Tech 90-912 Int./Ext. Primer
    b. Top Coat: Pitt-Tech 90-1310 Int./Ext.

3. Sherwin-Williams:

    a. Primer: Pro-Cryl B66-310 Series.
    b. Intermediate Coat: DTM Acrylic B66-200 Series

B. Steel Metal Fabrications; Semi-Gloss:

1. Carboline:

    a. Primer: [_____].
    b. Top Coat: [_____].

2. PPG:

    a. Primer: [_____].
    b. Top Coat: [_____].

3. Sherwin Williams

    a. Primer: [_____].
    b. Top Coat: [_____].

3.5 INTERIOR PAINT SCHEDULE

A. General: Provide the designated paint systems below for the various substrates shown and colors indicated in the Finish Legend.

B. Concrete Masonry Units:

1. Three (3) latex coat system, semigloss finish:

    a. Block Filler: Spread Rate: 75 to 125 sq. ft. per gal. (1.84 to 3.07 sq. m per liter)
    b. Primer/Sealer: 3.2 mils (0.081 mm) DFT minimum.
    c. First Coat: 1.6 mils (0.041 mm) DFT minimum.
    d. Second Coat: 1.6 mils (0.041 mm) DFT minimum.
    e. Block Filler: PrepRite Block Filler, B25W25.
    f. Primer: Loxon Concrete & Masonry Primer Sealer, A24W8300.
    g. First Coat: Promar 200 Latex Interior Semigloss B31-2600 Series or Pro Industrial B66-650 Series
    h. Second Coat: Promar 200 Latex Interior Semigloss B31-2600 Series or Pro Industrial B66-650 Series

2. Three (3) epoxy system, heavy duty epoxy, semigloss finish:

    a. Block Filler: Spread Rate: 75 to 125 sq. ft. per gal. (1.84 to 3.07 sq. m per liter)
    b. Primer/Sealer: 3.2 mils (0.081 mm) DFT minimum.
    c. First Coat: 1.5 mils (0.038 mm) DFT minimum.
    d. Second Coat: 1.5 mils (0.038 mm) DFT minimum.
    e. Block Filler: PrepRite Block Filler, B25W25.
    f. First Coat: Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series.
    g. Second Coat: Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series.

C. Concrete Columns:

1. Waterborne polyurethane finish:

a. Block Filler: [_____].
b. Primer/Sealer: [_____].
c. First Coat: [_____].
d. Second Coat: [_____].

D. Metal (Primer is not required on shop primed items):

1. Nonferrous metal dry fall system, two (2) pass, single coat spray application, flat:

a. Top Coat:

1) DFT. Varies by finish
2) VOC: 50 g/l
3) % Solids, Volume: 25% at 55 degrees F; 33% at 77 degrees F; 40% at 110 degrees F.
4) Weight per Gallon: 11.3 at 55 degrees F; 11.73 at 77 degrees F; 10.6 at 110 degrees F.

b. Top Coat:

1) Pro Industrial Waterborne Acrylic DryFall, Flat, B42-181 series.

2. Galvanized metal doors and frames, three (3) coat system, semigloss finish:

a. Primer:

1) DFT Maximum 5.0 mils
2) VOC: 150 g/l
3) % Solids, Volume: 46%
4) % Solids, Weight: 61%

b. First Coat:

1) DFT Minimum 1.6 mils
2) VOC: 50g/l.
3) % Solids, Volume: 39%
4) % Solids, Weight: 50%

c. Second Coat:

1) DFT Minimum 1.6 mils
2) VOC: 50 g/l.
3) % Solids, Volume: 39%
4) % Solids, Weight: 50%

d. Primer: Pro Industrial DTM Acrylic Primer/Finish B66W1
e. First Coat: Promar 200 Latex Interior Semigloss B31-2600 Series or Pro Industrial B66-650 Series
f. Second Coat: Promar 200 Latex Interior Semigloss B31-2600 Series or Pro Industrial B66-650 Series

3. Nonferrous metal three (3) coat system, heavy duty; water-based alkyd urethane, semigloss finish:

a. Primer/Sealer: 2.0 to 4.0 mils (0.051 to 0.102 mm) DFT minimum.
b. First Coat: 1.4 mils (0.036 mm) DFT minimum.
c. Second Coat: 1.4 mils (0.036 mm) DFT minimum.
d. Primer: Pro Industrial Pro-Cryl Universal Primer, B66-310 Series.

e. First Coat: Pro Industrial Water-based Alkyd Urethane Semi-Gloss, B53-1150 Series.
f. Second Coat: Pro Industrial Water-based Alkyd Urethane Semi-Gloss, B53-1150 Series.

4. Galvanized metal ductwork two (2) coat dryfall system, flat finish

a. Primer:

1) DFT Minimum 2.0 mils
2) VOC: 50 g/l.
3) % Solids, Volume: 32%

b. First Coat:

1) DFT Minimum 2 mils
2) VOC: 50 g/l.
3) % Solids, Volume: 32%

c. First Coat: Pro Industrial Waterborne Acrylic Dryfall B42 Series
d. Second Coat: Pro Industrial Waterborne Acrylic Dryfall B42 Series

E. Gypsum Board:

1. Gypsum board ceilings, two (2) coat system, flat finish.

a. Primer:

1) DFT Minimum 1.0 mils
2) VOC: 50 g/l
3) % Solids, Volume: 26%
4) % Solids, Weight: 44%

b. First Coat:

1) DFT Minimum 1.6 mils.
2) % Solids, Volume: 41%
3) % Solids, Weight: 57%

c. Second Coat:

1) DFT Minimum 1.6 mils.
2) % Solids, Volume: 41%
3) % Solids, Weight: 57%

d. Primer: Promar 200 Interior Latex Primer B28-2600 Series
e. First Coat: Promar 200 Latex Interior Flat B30-2600 Series
f. Second Coat: Promar 200 Latex Interior Flat B30-2600 Series

2. Gypsum board walls, three (3) coat system, semigloss finish:

a. Primer:

1) DFT Minimum 1.0.0 mils
2) VOC: 50 g/l
3) % Solids, Volume: 26%
4) % Solids, Weight: 44%

b. First Coat:

1) DFT Minimum 1.6 mils
2) VOC: 50g/l.
3) % Solids, Volume: 39%
4) % Solids, Weight: 50%

c. Second Coat:

1) DFT Minimum 1.6 mils
2) VOC: 50 g/l.
3) % Solids, Volume: 39%
4) % Solids, Weight: 50%

d. Primer: Promar 200 Interior Latex Primer B28-2600 Series
e. First Coat: Promar 200 Latex Interior Semigloss B31-2600 Series or Pro Industrial B66-650 Series

3. Gypsum board walls scrub resistant, water based polyurethane/acrylic paint; semi-gloss:

a. Benjamin Moore:

1) Primer: "Insl-x Stix waterborne Bonding Primer SXA-110".
2) First Coat: "Scuff-X UltraSpec".
3) Second Coat: "Scuff-X UltraSpec".

b. Sherwin Williams:

1) Primer: "Pro Industrial, Pro-Cryl Universal Primer".
2) First Coat: "Pro Industrial, Water Based Catalyzed Epoxy".
3) Second Coat: "Pro industrial, Water Based Catalyzed Epoxy".

c. Wolf Gordon:

1) Primer: "Primemaster Bonding Primer".
2) First Coat: "Scrubtough ST10416, with Microban".
3) Second Coat: "Scrubtough ST10416 with Microban".

3.6 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. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with product requirements.
3. Contractor shall touch up and restore painted surfaces damaged by testing.
4. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.
5. Remove noncomplying-paint materials from Project site, retest and repaint surfaces painted with rejected materials.

3.7 CLEANING AND PROTECTION

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
3. Allow empty paint cans to dry before disposal.
4. Collect waste paint by type and deliver to recycling or collection facility.

B. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

C. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

D. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION