SECTION 09 9100

PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Work of this Section consists of surface preparation and field painting of the following:

1. Exposed items and surfaces without factory-applied architectural finish.
2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural.

1. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors.
2. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.

C. Painting includes field painting of exposed bare and covered pipes and ducts, hangers, exposed steel and ironwork, and primed metal surfaces of mechanical and electrical equipment. Exposed MEP items scheduled in the Finish Schedule shall be painted shall be the same color.

D. 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 wall panels.
   c. Metal toilet enclosures.
   d. Elevator entrance doors and frames.
   e. Elevator equipment.
   f. Finished mechanical and electrical equipment.
   g. Light fixtures, unless indicated to be field painted.
   h. Distribution cabinets.
2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
   a. Foundation spaces below access floor.
   b. Furred areas in walls.
   c. Pipe spaces.
   d. Duct shafts.
   e. Elevator shafts.
3. Finished metal surfaces include the following:
   a. Prefinished Aluminum: Anodized, or fluoropolymer, silicone-modified polyester (SMP), polyester or acrylic coating system.
   b. Stainless steel.
   c. Galvanized steel, unless noted otherwise.
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 (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

E. Extra Materials: Provide 1 gallon of each typical paint and 5 gallons of the predominant Gallery paint color from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents.

1.2 SYSTEM DESCRIPTION

A. References:

1. ASTM International; www.astm.org.
2. EPA. U. S. Environmental Protection Agency.
   a. EPA Method 24. Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of surface coating.
3. GS. Green Seal Certification.
4. PDCA. Painting & Decorating Contractors of America; www.pdca.org.

B. Definitions:

1. General: Standard coating terms defined in ASTM D16 apply to this Section.
2. Sheen:
   a. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
   b. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
   c. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
   d. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
   e. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.
3. Aromatic Compounds. Hydrocarbon compounds containing one or more 6-carbon benzene rings in the molecular structure.
4. Paints. Liquid, liquefiable or mastic composition that is converted to a solid protective, decorative, or functional adherent film after application as a thin layer. These coatings are intended for on-site application to interior surfaces of residential, commercial, institutional or industrial buildings.
5. VOC. Volatile Organic Compounds as defined by EPA in 40 CFR § 51.100 (s), (s) (1).

C. Warranty Requirements:

1. Contractor shall warrant installation for a period of one (1) year.
2. Contractor shall provide manufacturer’s warranty against defective materials for a period of Eight (8) years commencing on Date of Substantial Completion.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's printed descriptions of materials, components and systems, performance criteria, use limitations, recommendations and installation information.

1. Product Data should indicate coating conforms to federal, state, and local regulations,

including VOC compliance with the requirements of this Section.

B. Samples:

1. Provide all of manufacturer’s printed color charts for color selection by Architect.

C. Quality Assurance Submittals:

1. Test Reports: Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.
2. Certificates: Submit with manufacturer’s signature certifying that each product and/or system meets the requirements of the performance characteristics, physical criteria, and applicable standards specified.
3. Manufacturer’s Field Reports
4. Qualification Statements: Submit a letter, on printed letterhead and signed by an officer of the firm, for each listed quality assurance qualification listed, attesting to meeting each requirement called out.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Perform installation with skilled, experienced and trained workmen supervised by trained personnel who shall have at least three (3) years successful experience in installations of similar size and scope.

B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

C. Regulatory Requirements:

1. Underwriters Laboratories, Inc. (UL): UL 410 Slip Resistance of Floor Surface Materials.

D. Field Samples: Include two (2) 100 sq.ft. “brushout” samples of each interior color for Architect's review and acceptance. Architect may request samples on walls and ceilings and require mock-up of actual lighting conditions in spaces where “brushouts” are made.

E. Benchmark Installation: Provide a full finish-coat benchmark installation of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.

1. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted.
   a. Wall Surfaces: Provide samples on at least 100 sq. ft. of wall surface.
   b. Small Areas and Items: The Architect will designate an item or area as required.
2. After permanent lighting and other services have been activated, apply coatings in this room or to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.
   a. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature in other areas of the Project.
3. Final approval of colors by Architect will be from job-applied benchmarks.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials and products in unopened factory labeled packages. Store and handle in strict compliance with manufacturers' instructions and recommendations. Protect from freezing and damage.

B. Avoid the possibility of fire by removing flammable materials, solvents and spirits from the project site or by storing materials in UL approved fire-resistive cabinets. Keep work area free from flammable waste and soiled rags.

C. Sequence deliveries to avoid delays, but minimize on-site storage.

1.6 PROJECT CONDITIONS

A. Unless specifically pre-approved by the applied product manufacturer, perform no painting or decorating work when the ambient air and substrate temperatures are below 50 deg F for both interior work.

B. Perform no interior painting or decorating work unless adequate continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above minimum requirements for 24 hours before, during and after paint application.

1. Provide supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

C. Perform no painting or decorating work when the relative humidity is above 85% or when the dew point is less than 5 deg F variance between the air / surface temperature.

D. Perform no painting or decorating work when the maximum moisture content of the substrate exceeds:

1. 12% for concrete and masonry (clay and concrete brick/block).
2. 15% for wood.
3. 12% for plaster and gypsum board.

E. Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple cover patch test.

F. Test concrete, masonry and plaster surfaces for alkalinity as required.

1. Concrete and masonry surfaces must be installed at least 28 days prior to painting and decorating work and must be visually dry on both sides.

G. Apply paint only to dry, clean, properly cured and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.

H. Ventilation: Comply with manufacturer's requirements and recommendations.

I. Lighting: Perform no painting or decorating work unless a minimum lighting level of 323 Lux (30 foot candles) is provided on surfaces to be painted or decorated. Adequate lighting facilities shall be provided by the General Contractor.

PART 2 PRODUCTS

2.1 GENERAL

A. Refer to Section 09 0600.

2.2 INTERIOR PAINTS

A. Basis-of-Design Manufacturer: Benjamin Moore / Affinity Aura or an Architect acceptable

equivalent subject to compliance with design and performance requirements, manufacturers may include but are not limited to one of the following:

1. AFM Enterprises.
2. BioShield Paint - Eco Design Co.
3. ICI Paints North America.
4. Sherwin-Williams Company.
5. PPG Industries.

2.3 FIELD-APPLIED STEEL FINISH

A. Penetrating Oil Finish: Field-applied after installation over shop penetrating oil finish.

1. Product: Flood Company Penetrol Oil
2. Application Rate: Apply liberally to the entire surface. Wipe off excess to leave thin surface film remaining and let dry for 24 hours or as needed
   a. Do not “paint” product onto surface, leaving visible application traces.
3. Apply carnuba or beeswax to dried oil finish.

2.4 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. 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.

C. Colors: As indicated in a color schedule.

2.5 EQUIPMENT

A. Painting Equipment: to best trade standards for type of product and application.

B. Spray-Painting Equipment: of ample capacity, suited to the type and consistency of paint or coating being applied and kept clean and in good working order at all times.

2.6 MIXING AND TINTING

A. Unless otherwise specified or pre-approved, all paints shall be ready-mixed and pre-tinted. Re-mix all paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.

B. Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

C. Where thinner is used, addition shall not exceed paint manufacturer's recommendations.

D. If required, thin paint for spraying in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Architect.

2.7 FINISH AND COLORS

A. Unless otherwise specified herein, all painting work shall be in accordance with MPI Premium Grade finish requirements.

B. Colors shall be as selected by the Architect from a manufacturer's full range of colors. Refer to Finish Schedule for identification and location of colors.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.

1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

B. 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 the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.

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

C. 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.
2. Cementitious Materials: Prepare concrete, concrete masonry block, 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.
    a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
    b. 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 where moisture content exceeds

that permitted in manufacturer's written instructions.

c. 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.

3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
   a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
   b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
   c. When transparent finish is required, backprime with spar varnish.
   d. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
4. Ferrous Metals: 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 the Steel Structures Painting Council's (SSPC) recommendations.
   a. Clean steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP series.
   b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
   c. 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.

D. Materials 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.

E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

A. Do not paint unless substrates are acceptable and/or until all environmental conditions (heating, ventilation, lighting and completion of other subtrade work) are acceptable for applications of products.

B. Apply paint or stain in accordance with MPI Painting Manual [Premium] [Custom] Grade finish requirements.

C. Apply paint and decorating material in a workmanlike manner using skilled and trade qualified applicators as noted under Quality Assurance.

D. Apply paint and coatings within an appropriate time frame after cleaning when environmental conditions encourage flash-rusting, rusting, contamination or the manufacturer’s paint

specifications require earlier applications.

E. Painting coats specified are intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer's recommendations.

F. Tint each coat of paint progressively lighter to enable confirmation of number of coats.

G. Unless otherwise approved by the painting inspection agency, apply a minimum of four coats of paint where deep or bright colors are used to achieve satisfactory results.

H. Sand and dust between each coat to provide an anchor for next coat and to remove defects visible from a distance up to 1000mm.

I. Do not apply finishes on surfaces that are not sufficiently dry. Unless manufacturer's directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.

J. Prime coat of stain or varnish finishes may be reduced in accordance with manufacturer's directions.

K. Paint finish shall continue through behind all wall-mounted items (e.g. chalk and tack boards).

3.4 CLEANING

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

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.5 UNIVERSAL SHOP PRIMER

A. For use on steel items which are neither galvanize nor scheduled for finish paint, furnish shop priming for bare steel substrates as follows:

1. Preparation for Exterior Exposure (SSPC Zone 1B): Zinc rich per SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Preparation for Interior Exposure (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
3. Comply with SSPC-PA 1, "Paint Application Specification No. 1
4. Apply primer using airless handguns.
5. Abrasions caused by handling after painting shall be touched-up in the shop or field.
6. Shop Primer: Corrosion inhibiting, red oxide primer complying with SSPC Paint 25 and GS GC-03.
    a. Lead and cadmium free.
    b. VOC Concentration: 250 grams maximum per liter minus water and chemical component restrictions.
    c. Product: MIL-P-28577B, Fast-Dry Red-Oxide Weldable Primer; Acrylic Water-Borne Metal Primer, Pigmented Acrylic Latex Solution

3.6 REFINISHING FOR UNVERIFIED PRIMERS

A. Strip and Preparation for Repriming:

1. Remove existing shop primer, rust, loose mill scale. Clean using methods recommended in writing by paint manufacturer but not less than the following:
    a. SSPC-SP1, "Solvent Cleaning".
    b. SSPC-SP 6/NACE No.3, "Commercial Blast Cleaning."

c. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

3.7 INTERIOR FINISH / COATING SYSTEMS

A. Paint interior surfaces in accordance with the following MPI Painting Manual requirements:

1. GWB (Dry):
   a. INT 9.2B
      1). Prime Coat: Interior PVA primer/sealer.
      2). Intermediate Coat: High-performance architectural latex matching topcoat.
      3). Topcoat: High-performance architectural latex.
         a). Sheen: As selected by Architect
2. GWB (Wet):
   a. INT 9.2C
      1). Prime Coat: Interior PVA primer/sealer.
      2). Intermediate Coat: Interior alkyd matching topcoat.
      3). Topcoat: Interior alkyd.
         a). Sheen: As selected by Architect
3. Metal:
   a. INT 5.1R
      1). Prime Coat: As specified herein.
      2). Intermediate Coat: Interior High performance architectural latex matching topcoat.
      3). Topcoat: Interior High performance architectural latex.
         a). Sheen: As selected by Architect
4. Wood (Including Paneling and Casework Not Shop Finished):
   a. INT 6.4J Polyurethane Varnish.
      1). Stain
      2). Three Field-Applied Finish Coats: Interior, clear polyurethane, satin.

END OF SECTION

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