SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.2 SUMMARY

A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.

B. Paint exposed surfaces whether or not colors are designated in "schedules," except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.

1. Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

1. Prefinished items not to be painted include the following factory-finished components:

a. Toilet enclosures.
b. Acoustic materials.
c. Finished mechanical and electrical equipment.
d. Light fixtures.
e. Switchgear.
f. Distribution cabinets.

2. Finished metal surfaces not to be painted include:

a. Anodized aluminum.
b. Stainless steel.
c. Chromium plate.
d. Prefinished metals.

3. Operating parts not to be painted include moving parts of operating equipment such as the following:

a. Valve and damper operators.

b. Linkages.
c. Sensing devices.
d. Motor and fan shafts.

4. Labels: Do not paint over Underwriter's Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Related Sections: The following sections contain requirements that relate to this section:

1. Division 8 Section "Steel Doors and Frames" for shop priming steel doors and frames.
2. Division 5 Section "Metal Fabrications" for shop priming ferrous metal.

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.

1.4 SUBMITTALS

A. Product Data: Manufacturer's technical information, label analysis, and application instructions for each material proposed for use.

B. Samples for initial color selection in the form of manufacturer's color charts.

1. After color selection, the Architect will furnish color chips for surfaces to be coated.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

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

1. Notify the Architect of problems anticipated using the materials specified.

C. Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary names used to designate colors or materials are not intended to imply that products named are required or to exclude equal products of other manufacturers.

2. Products that comply with qualitative requirements of applicable Federal Specifications, yet differ in quantitative requirements, may be considered for use when acceptable to the Architect. Furnish material data and manufacturer's certificate of performance to Architect

for proposed substitutions.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the job site in the 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. Manufacturer's stock number and date of manufacture.
3. Contents by volume, for pigment and vehicle constituents.
4. Thinning instructions.
5. Application instructions.
6. Color name and number.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.7 JOB CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).

C. Do not apply paint in snow, rain, fog, or mist, when the 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.

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include but are not limited to the following:

1. Devoe and Reynolds Co. (Devoe).
2. Benjamin Moore and Co. (Moore).
3. The Sherwin-Williams Company (S-W).

2.2 MASONRY BLOCK FILLER

A. High-Performance Latex Block Filler: Heavy-duty latex block fillers used for filling open textured interior and exterior concrete masonry block before application of top coats:

1. Devoe: 52901 Bloxfil Acrylic Latex Block Filler.
2. S-W: Heavy-Duty Block Filler B42W46.

2.3 PRIMERS

A. Interior Flat Latex-Based Paint: Flat latex paint used as a primer over concrete and masonry under alkyd flat and semigloss enamel:

1. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.

B. Exterior Primer Coating: Exterior alkyd wood primer for priming wood under alkyd gloss enamels, flat lusterless finish, and wood trim under medium shade or deep color high-gloss alkyds:

1. Devoe: 1102 All-Weather Alkyd House Paint Primer.

C. Synthetic, Rust-Inhibiting Primer: Quick-drying, rust-inhibiting primer for priming ferrous metal on the exterior under full-gloss and flat alkyd enamel and on the interior under flat latex paint or odorless alkyd semigloss or alkyd gloss enamels:

1. Devoe: 14920 Bar-Ox Quick Dry Metal Primer, Red.
2. S-W: Kem Kromik Metal Primer B50N2/B50W1.

2.4 UNDERCOAT MATERIALS

A. Interior Enamel Undercoat: Ready-mixed enamel for use on the interior as an undercoat over a primer on filled concrete masonry under an odorless semigloss enamel finish:

1. Devoe: 8801 Velour Alkyd Enamel Undercoat.

B. Interior Enamel Undercoat: Ready-mixed enamel for use as an undercoat over wood and hardboard under an odorless alkyd semigloss enamel or full gloss alkyd enamel:

1. Devoe: 8801 Velour Alkyd Enamel Undercoat.

C. Interior Enamel Undercoat: Ready-mixed enamel for use as an undercoat over a primer on ferrous or zinc-coated metal under an interior alkyd semigloss enamel or a full-gloss alkyd enamel:

1. Devoe: 8801 Velour Alkyd Enamel Undercoat.

2.5 EXTERIOR FINISH PAINT MATERIAL

A. Alkyd Gloss Enamel: Weather-resistant high-gloss enamel for use over primed ferrous metal

surfaces:

1. Devoe: 70XX Mirrolac Interior/Exterior Alkyd Gloss Enamel.

B. Deep Color Alkyd Resin Exterior Trim Paint: Deep color, ready- mixed alkyd paint for use on the exterior over prime-coated ferrous metal:

1. Devoe: 155 All-Weather Exterior Alkyd Gloss House and Trim Paint Ultra Deep Base.

2.6 INTERIOR FINISH PAINT MATERIAL

A. Interior Semigloss Odorless Alkyd Enamel: Low-odor, semigloss, alkyd enamel for use over a primer and undercoat on concrete, masonry (including concrete masonry block), plaster, wood, and hardboard and both ferrous and zinc-coated (galvanized) metal surfaces and over a primer on gypsum drywall:

1. Devoe: 26XX Velour Alkyd Semigloss Enamel.

2.7 MISCELLANEOUS WOOD FINISHING MATERIALS

A. Cut Shellac: Quick-drying, rosin-free, clear, general-purpose shellac varnish for use on the interior over stained and natural- finished woodwork for a clear finish:

1. Devoe: 4900 Wonder Woodsealer Quick-Dry Sealer.

B. Paste Wood Filler: Solvent-based, air-drying, paste-type wood filler for use on open-grain wood on interior wood surfaces:

1. Devoe: 4800 Wonder Woodstain Interior Paste Wood Filler.

C. Oil Rubbing Varnish: Clear, oil-type rubbing varnish for use on interior stained or natural-finished woodwork:

1. Devoe: 4600 Wonder Wood Satin Alkyd Satin Varnish.

D. Paste Wax: Provide paste wax as recommended by the coating manufacturer for use on interior stained and natural-finished woodwork.

2.8 TRAFFIC MARKING PAINT:

A. Traffic Marking Paint: Alkyd-resin type, ready-mixed complying with AASHTO M 248, Type I.

1. Color: White
2. Color: Yellow
3. Color: Blue

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.

1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

3.2 PREPARATION

A. General Procedures: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

B. Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.
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 the paint manufacturer.
b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
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, and 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 application of 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 upon 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. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.

4. Ferrous Metals: Clean nongalvanized 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 recommendations of the Steel Structures Painting Council.

a. Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC-SP 10.
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 the paint manufacturer, and touch up with the same primer as the shop coat.

5. Galvanized Surfaces: Clean galvanized surfaces with non- petroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

C. Materials Preparation: Carefully mix and prepare paint materials in accordance with manufacturer's directions.

1. Maintain containers used in mixing and application of 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. Remove film and, if necessary, strain material before using.
3. Use only thinners approved by the paint manufacturer, and only within recommended limits.

D. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where 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. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

1. Paint colors, surface treatments, and finishes are indicated in "schedules."
2. Provide finish coats that are compatible with primers used.
3. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.

4. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired protection.
6. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.
7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
9. Finish interior of wall and base cabinets and similar field- finished casework to match exterior.
10. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.
11. Sand lightly between each succeeding enamel or varnish coat.
12. Omit primer on metal surfaces that have been shop-primed and touch up painted.

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

1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

D. Minimum Coating Thickness: Apply materials at not less than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire system as recommended by the manufacturer.

E. Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.

F. Mechanical items to be painted include but are not limited to:

1. Piping, pipe hangers, and supports.
2. Heat exchangers.
3. Tanks.

4. Ductwork.
5. Insulation.
6. Supports.
7. Motors and mechanical equipment.
8. Accessory items.

G. Electrical items to be painted include but are not limited to:

1. Conduit and fittings.
2. Switchgear.

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

I. Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

J. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

K. Textured paint finish. First coat of Interior latex paint with sand additive and second coat of interior latex paint.

L. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

1. Provide satin finish for final coats.

M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

3.4 CLEANING

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

B. Upon completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

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

3.6 EXTERIOR PAINT SCHEDULE

A. General: Provide the following paint systems for the various substrates indicated.

B. Ferrous Metal: Primer is not required on shop-primed items.

1. Full-Gloss Alkyd Enamel: 2 finish coats over primer.

a. Primer: Synthetic Rust-Inhibiting Primer (FS TT-P-664).
b. First Coat: Alkyd Gloss Enamel (FS TT-E-489).
c. Second Coat: Alkyd Gloss Enamel (FS TT-E-489).

2. Lusterless Alkyd Enamel: 2 finish coats over primer.

a. Primer: Synthetic Rust-Inhibiting Primer (FS TT-P-664).
b. First Coat: Lusterless Alkyd Enamel (FS TT-E-527).
c. Second Coat: Lusterless Alkyd Enamel (FS TT-E-527).

3. Deep Color, High-Gloss Alkyd Trim Enamel: Two coats over primer.

a. Primer: Alkyd-Type Zinc Chromate Primer (FS TT-P-645).
b. First Coat: Deep Color Alkyd Resin Exterior Trim Paint (FS TT-P-37).
c. Second Coat: Deep Color Alkyd Resin Exterior Trim Paint (FS TT-P- 37).

C. Zinc-Coated Metal (Galvanized):

1. High-Gloss Alkyd Enamel: 2 finish coats over primer.

a. Primer: Galvanized Metal Primer (FS TT-P-641).
b. First Coat: Alkyd Gloss Enamel (FS TT-E-489).
c. Second Coat: Alkyd Gloss Enamel (FS TT-E-489).

D. Traffic Markings:

1. Lane Marking Paint: Alkyd-resin type, ready mixed complying with AASHTO M 248, Type I.

2. Apply paint with mechanical equipment to produce uniform straight edges. Apply at manufacturer's recommended rates to provide minimum 12 to 15 mils dry thickness.

3.7 INTERIOR PAINT SCHEDULE

A. General: Provide the following paint systems for the various substrates, as indicated.

B. Concrete Masonry Units:

1. Semigloss Alkyd Enamel Finish: 2 coats over filled surface with total dry film thickness not less than 3.5 mils, excluding filler coat.
   a. Block Filler: High-Performance latex Block Filler.
   b. Undercoat: Interior Enamel Undercoat (FS TT-E-543).
   c. Finish Coat: Interior Semigloss Odorless Alkyd Enamel (FS TT-E-509).

C. Gypsum Drywall Systems:

1. Odorless Semigloss Alkyd Enamel Finish: 3 coats with total dry film thickness not less than 2.5 mils.

   a. Primer: Interior Latex-Based White Primer (FS TT-P-650).
   b. First Coat: Interior latex paint with sand additive.
   c. Second Coat: Interior latex paint with roller to give knock down finish.

D. Woodwork:

1. Semigloss Enamel Finish: 3 coats.

   a. Undercoat: Interior Enamel Undercoat (FS TT-E-543).
   b. First Coat: Interior Semigloss Odorless Alkyd Enamel (FS TT-E-509).
   c. Second Coat: Interior Semigloss Odorless Alkyd Enamel (FS TT-E-509).

E. Stained Woodwork:

1. Stained-Varnish Rubbed Finish: 3 finish coats over stain plus filler on open-grain wood. Wipe filler before applying first varnish coat.

   a. Stain Coat: Oil-Type Interior Wood Stain (FS TT-S-711).
   b. First Coat: Cut Shellac (FS TT-S-300).
   c. Filler Coat: Paste Wood Filler (FS TT-F-336).
   d. Second Coat: Oil Rubbing Varnish (FS TT-V-86).
   e. Third Coat: Oil Rubbing Varnish (FS TT-V-86).

F. Ferrous Metal:

1. Semigloss Enamel Finish: 2 coats over primer with total dry film thickness not less than 2.5 mils.

   a. Primer: Synthetic Rust-Inhibiting Primer (FS TT-P-664).
   b. Undercoat: Interior Enamel Undercoat (FS TT-E-543).
   c. Finish Coat: Interior Semigloss Odorless Alkyd Enamel (FS TT-E-509).

G. Zinc-Coated Metal (Galvanized):

1. Semigloss Finish: 2 coats over primer, with total dry film thickness not less than 2.5 mils.

    a. Primer: Galvanized Metal Primer (FS TT-P- 641).
    b. Undercoat: Interior Enamel Undercoat (FS TT-E-543).
    c. Finish Coat: Interior Semigloss Odorless Alkyd Enamel (FS TT-E-509).

END OF SECTION 09900