

**SECTION 09 91 00**  
**PAINTING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes: This Section consists of painting work where shown on the Drawings, as specified herein, and as required for a complete and proper installation. Painting work includes, but is not limited to the surface preparation and application of coated finishes, and subsequent touch-up, of interior and exterior items and surfaces as indicated on the Contract Drawings and as scheduled herein.
- B. Surfaces and Materials: In general, without limiting the generality thereof, the following surfaces, fixtures and equipment require a painted finish:
  - 1. Gypsum board partition and wall surfaces, ceilings and soffits.
  - 2. Metal doors and frames.
  - 3. Interior handrails and guardrails.
  - 4. Wood trim.
  - 5. Exposed to view sprinkler piping.
  - 6. Exposed to view electrical conduit and raceways.
  - 7. Access panels and frames.
- C. DO NOT PAINT the following surfaces and materials.
  - 1. Concealed from view surfaces, except as indicated otherwise in the Contract Documents or as specified herein.
  - 2. Chrome or nickel plating, stainless steel, bronze, brass.
  - 3. Aluminum other than mill finished or factory primed.
  - 4. Factory finished mechanical and electrical equipment, pumps, machinery and similar items which occur in mechanical, storage or equipment rooms or areas.
  - 5. Factory finished materials, specialties, and accessories unless otherwise specified.
  - 6. Acoustical tile, resilient flooring, and other integrally finished floor, wall and ceiling finishes.
  - 7. Prefinished millwork items.
  - 8. Fire resistant testing and certification labels, code required labels, safety warning labels, performance rating plates, nomenclature plates, identification plates, and similar other labels.

**1.2 RELATED REQUIREMENTS**

- A. Section 06 20 00 - FINISH CARPENTRY: Wood trim items, setting and filling of nails, sanding of wood trim.
- B. Section 07 92 00 - JOINT SEALANTS: Requirements for sealant and backing materials.
- C. Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES: Shop priming of metal frames and steel doors.

- D. Section 08 31 00 - ACCESS DOORS AND PANELS: Shop primed access panels, occurring in partitions and walls.
- E. Section 09 29 00 - GYPSUM BOARD: Drywall partitions, ceilings and soffits, including joint treatment and sanding.
- F. Document 09 91 23 - INTERIOR PAINTING SCHEDULE:
  - 1. Painting schedule for interior surfaces and materials.
  - 2. Painting schedule for Mechanical and Electrical Equipment.
- G. Division 22 - PLUMBING: Prefinished items such as plumbing fixtures, sprinkler heads, convectors, anemostates and similar surfaces and materials.
- H. Division 26 - ELECTRICAL: Prefinished items such as light fixtures, switch gear, electrical distribution cabinets and similar surfaces and materials.
- I. Respective sections: Factory-finishing of mechanical, plumbing, fire protection and electrical equipment.

### **1.3 REFERENCES**

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
  - 1. ANSI/ASTM D 16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.
  - 2. ASTM D 2016 - Test Method for Moisture Content of Wood.
  - 3. All applicable federal, state and municipal codes, laws and regulations for flammability and smoke generation of interior finishes.
- B. Definitions:
  - 1. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials specified herein, whether used as prime, intermediate or finish coats.
  - 2. Sheen: Specular gloss readings in accordance with ASTM D52.
    - a. Flat: less than 5 (measured at 85 degrees).
    - b. Eggshell: 5 – 20 (measured at 60 degrees).
    - c. Satin: 15-35 (measured at 60 degrees).
    - d. Low Luster: 25 – 35 (measured at 60 degrees).
    - e. Semi-Gloss: 30 -65 (measured at 60 degrees).
    - f. Gloss: 65 or more (measured at 60 degrees).
  - 3. Gloss as defined for VOC requirements. Specified specular gloss readings below are as tested in accordance with ASTM D52.
    - a. Flat: less than 15 (measured at 85 degrees), less than 5 (measured at 60 degrees).
    - b. Non-Flat: greater than 15 (measured at 85 degrees), greater than 5 (measured at 60 degrees).

### **1.4 SUBMITTALS**

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
  - 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties, material compositions, and application instructions for all finishing products to be applied hereunder.
    - a. Include certification of data indicating Volatile Organic Compound (VOC) content of all paint materials.
  - 2. Samples:
    - a. Manufacturer's color selector for custom mixed colors for Architect's color scheduling.
    - b. Opaque coatings: Two 9 x 12 inch finished samples on hardboard of each color scheduled in each finish for review and approval. Identify boards with finish type, color mix number and scheduled substrate surfaces or materials.
    - c. Transparent finishes and stains: Two 9 x 12 inch finished samples on same species of solid wood and plywood to be furnished under Section 06 20 00 - FINISH CARPENTRY, of each color scheduled in each finish for review and approval. Identify boards with finish type, color mix number and scheduled substrate surfaces or materials.
- B. Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS:
  - 1. Color chips: After final approval of all colors and tints by the Architect, submit to the Owner, color chips of all coatings used, with manufacturer's name and mix designation of the coating for the purpose of future re-ordering of coatings. Color chips shall be at least six (6) square inches in size, for each color and tint.

## **1.5 QUALITY ASSURANCE**

- A. Applicator: Company specializing in commercial painting and finishing with 3 years minimum documented experience.
- B. Single source responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- C. Environmental Requirements for Volatile Chemicals:
  - 1. For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the following chemical restrictions:
    - a. Flat Paints and Coatings: VOC not more than 50 g/L.
    - b. Non-Flat Paints and Coatings: VOC not more than 150 g/L.
    - c. Anti-Corrosive Coatings: VOC not more than 250 g/L.
    - d. Clear wood finishes:
      - 1) Varnishes: VOC not more than 350 g/L.
      - 2) Lacquer: VOC not more than 550 g/L
    - e. Floor coatings: VOC not more than 100 g/L
    - f. Sealers:
      - 1) Waterproofing sealers: VOC not more than 250 g/L.
      - 2) Sanding sealers: VOC not more than 275 g/L.

- 3) All other sealers: VOC not more than 200 g/L.
- g. Stains: VOC not more than 250 g/L.
- 2. Do not use water based paints formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure), formaldehyde, halogenated solvents, mercury or mercury compounds, or tinted with pigments of lead, cadmium, chromium VI and their oxides. Water based paints shall be low VOC and shall have a flash point of 61 degrees C or greater.
- 3. Where it is necessary to use solvent-based paints, with less than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
- 4. The following shall be low VOC and not be formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure).
  - a. High performance water based acrylic coatings.
  - b. Pigmented acrylic sealers.
  - c. Catalyzed epoxy coatings.
  - d. High performance silicone grafted epoxy coatings.
- 5. Restricted Components: Paints and coatings used on this Project shall not contain any of the following compounds. (Excluded from this restriction are residual quantities of naturally occurring elements and chlorinated organics which are found in chlorinated water supplies; contaminate levels shall be below that of the National Primary Drinking Water Standard):
  - a. 1,2-dichlorobenzene
  - b. Alkylphenol ethoxylates (APEs)
  - c. Formaldehyde-donors
  - d. Heavy metals, including lead, mercury, cadmium, hexavalent chromium and antimony in the elemental form or compounds
  - e. Phthalates
  - f. Triphenyl tins (TPT) and tributyl tins (TBT).

#### **1.6 FIELD SAMPLES**

- A. Provide field samples under provisions of Section 01 45 00 - QUALITY CONTROL for purpose of verifying selected colors.
- B. Paint on-site sample areas, minimum 40 square feet, illustrating selected color, and tint.
- C. Locate samples where directed. The Contractor shall provide in the base Contract, a total amount of samples equal to one sample per room.
- D. Accepted samples may not remain as part of the work.

#### **1.7 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; container labeling shall include manufacturer's name, type of paint, color mix designation, expected coverage, surface preparation instructions, instructions for mixing and reducing, drying time, and clean-up recommendations.
- B. Store materials, conforming with applicable codes and fire regulations, in designated spaces. Keep storage area secure when direct access is not required or when not

performing work under this Section. Take precautionary measures to prevent fire hazards and spontaneous combustion, maintain a dry-chemical type fire extinguisher in all areas where materials of this Section are being stored or used.

- C. Store paint materials in a well-ventilated area at minimum ambient temperature of 45 degrees Fahrenheit and a maximum of 90 degrees Fahrenheit.
- D. Do not use the sanitary system for mixing or disposal of refuse material. Carry water to mixing rooms and dump waste material in a suitable refuse receptacle. Remove oily rags and waste each day.

#### **1.8 PROJECT CONDITIONS**

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees Fahrenheit for 24 hours before, during and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Apply paints and finishes above minimum temperature conditions in strict accordance with manufacturer's instructions.
- C. Provide sufficient lighting to maintain 80 foot-candles measured mid-height at substrate surface.

#### **1.9 SEQUENCING AND SCHEDULING**

- A. The applicator of work specified herein is responsible to ensure that all paints, enamels, and coatings, proposed to be applied hereunder, are compatible with coatings used for shop-primed items and items which have been prime-coated under the work of other trades.
- B. Immediately notify the Architect in writing of conditions which may require a change in the specifications of this Section before proceeding with the work. Failure to do so, in a timely fashion, so as not to interfere with the schedule of work of this Contract, shall be construed as acceptance of the coatings specified. Perform all corrective measures, at no cost to the Owner, for any defects in the work, resulting from the use of such materials.
- C. Painting work should be scheduled so as to minimize touch-ups. Interior painting is to be without flashmarks. Should flashmarks occur due to touch-ups, the Contractor shall be required to redo the entire surrounding wall surface.
- D. Do not order materials until all required schedules have been properly submitted, reviewed by the Contractor and Approved by Architect.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering similar products include the following:
  - 1. Paints and general finishes:
    - a. California Paints, Andover, MA.
    - b. Glidden Professional, Strongsville, OH
    - c. Benjamin Moore & Company, Montvale, NJ.

- d. Pittsburgh Plate Glass Company (PPG), Pittsburgh, PA
- e. The Sherwin Williams Company, Cleveland, OH
- 2. Cold galvanizing touch-up paint:
  - a. ZRC Worldwide Inc., Marshfield, MA.
  - b. Duncan Galvanizing, Malden, Ma.
  - c. Rustoleum Corp., Vernon Hills, IL.

## **2.2 MATERIALS**

- A. Coatings: Ready mixed, except for field catalyzed coatings with good flow and brushing properties; capable of drying or curing free of streaks or sags. Color pigments shall be processed to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating. Provide best quality grade, where manufacturer makes more than one grade of any material specified.
- B. Liquid zinc coating, for touch-up of welds, scratches, and abrasions in galvanized steel: Low VOC organic zinc-rich coating containing 92% metallic zinc, by weight in the dried film (ASTM D520, Type III) and conforming to SSPC Paint 20, Type II, Level 1. Liquid zinc coating shall be recognized under the Component Program of Underwriter's Laboratories, Inc. as an equivalent to hot-dip galvanizing; conforming to MIL-P-21035B and SSPC Paint 29, Type II, Level I, for repair of hot-dip galvanizing and meeting the requirements for Zinc- Rich Paints.
  - 1. VOC limit: not more than 250 g/L.
  - 2. Specified manufacturer and product: ZRC Worldwide, Marshfield MA, product "ZRC- 221".
- C. Joint sealant for fill of minor cracks in plaster prior to painting: One component acrylic latex caulking compound, conforming to FS 19-TP-21M and ASTM C 834, paintable within 24 hours after application, with a minimum movement capability of  $\pm 12.5$  percent, equal to one of the following:
  - 1. Pecora, product "AC-20+".
  - 2. Sonneborn Building Products Inc., product, "Sonolac".
  - 3. Tremco, product, "Trimflex 834".

## **2.3 ACCESSORIES**

- A. Accessory materials: other materials not specifically indicated, but are required to achieve the finishes specified of commercial quality.
- B. Cleaning Materials: Tri-Sodium Phosphate (TSP) substitute. Acceptable products include the following, or approved equal:
  - 1. Savogran, Norwood, MA, products "TSP-PF", or "Liquid TSP Substitute".
  - 2. Custom Building Products, Seal Beach, CA., product "Custom T.S.P. Substitute".
  - 3. DAP Inc., Baltimore, MD., product "T.S.P. Substitute Heavy Duty Cleaner".

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section. Notify Contractor of any condition that may potentially affect proper

application of coatings.

- B. Measure moisture content of surfaces, do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Gypsum board and joint treatment: 12 percent.
  - 2. Interior wood: 15 percent.
- C. Beginning Work of this Section means acceptance of substrate surfaces and site conditions.

### **3.2 PREPARATION**

- A. Furnish and lay suitable drop cloths in all areas where coating work is being done to protect floors and all other surfaces from damage during the work. Protect adjoining surfaces with painters mask tape.
- B. Prior to preparing surfaces or finishing, remove all finish hardware for painting doors and frames, except hinges and locks on exterior door; remove electrical plates, light fixture trim,  
  
and fittings. Re-install hardware and other removed items after painted surfaces are thoroughly dry.
- C. Mix coatings thoroughly, unless otherwise directed by the manufacturer of the specific coating used, to ensure uniformity of color and mass. Strain previously opened coatings to remove skins, lumps, and other foreign matter prior to painting.
- D. Thin or reduce materials only as recommended by the specific material manufacturer, and only with the approval of the Architect.
- E. Impervious surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to thoroughly dry.
- F. Uncoated steel and iron surfaces:
  - 1. Remove grease, scale, dirt, rust, and all foreign materials, down to bright metal by wire brushing, scraping, sanding, or sandblasting where heavy coatings of scale are evident.
  - 2. Wash steel with solvent, apply a treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned.
  - 3. Spot prime after repairs with metal primer product of the finish coating manufacturer.
- G. Shop primed steel surfaces:
  - 1. Remove rust, blistered and defective shop prime paint, and all foreign materials, down to bright metal by wire brushing, scraping, sanding, or commercial paint remover. Feather edges to make touch-up patches inconspicuous.
  - 2. Remove all grease or dirt with mineral spirits.
  - 3. Spot prime bare metal with metal primer product of the finish coating manufacturer. Seal top and bottom edges of metals doors with primer.
- H. Previously painted steel surfaces:
  - 1. Remove rust, blistered and defective paint, down to bright metal by wire brushing, scraping, or sanding. Feather edges to make touch-up patches inconspicuous as possible

2. Remove grease, dirt and all foreign materials.
  3. Spot prime bare metal with metal primer product of the finish coating manufacturer.
- I. New galvanized surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- J. New interior wood items scheduled to receive paint finish.
1. Smooth minor defects and remove all foreign matter by sanding, and if necessary, steel wool.
  2. Wash sap spots and knots with mineral spirits. When dry, touch up knots, pitch streaks, and sappy sections with commercial stain sealer.
  3. Fill up nail holes and cracks with wood putty or plastic wood after primer or first coat of finish is dry and sand smooth.
- K. Gypsum board surfaces: Fill minor defects with latex based spackle. Spot-seal all compound surfaces and repair areas in gypsum board, with specified first coat material before application of the first coat.

### **3.3 APPLICATION**

- A. Apply all materials in strict accordance with the approved manufacturer's printed instruction, and in accordance with the best trade practices. Each coat shall be reviewed and approved by the Architect before succeeding coats are applied.
- B. Do not apply successive coating until the preceding coat is thoroughly dry, and in no case in less than 24 hours after the preceding coat.
- C. Number of coats is indicated under Painting Schedules. Number of coats is indicated as a minimum number to be applied over scheduled substrates. An additional coat or coats may be required for proper color coverage of substrate as determined by the Architect, at no additional cost to the Owner. Examples of these conditions include, but are not limited to:
1. Dark colored substrates may require an additional primer or intermediate coat to stabilize color, if final applied top-coat color is light.
  2. Pre-finished or pre-primed products may require an additional field applied coat to stabilize the shop/factory applied base color prior to application of top-coat finishes.
  3. Dark color top coat finishes may require additional finish coat over white or light colored substrates to obtain correct color density.
- D. Apply each coat to a uniform finish; Apply primer and first coat of slightly lighter in color tint than the scheduled color of the final coat.
- E. Sand lightly between coats to achieve required finish and remove sanding dust prior to applying succeeding coat.
- F. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- G. Prime back surfaces of all interior and exterior woodwork scheduled for painted finish with primer.
- H. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.



### **3.4 CLEANING**

- A. Upon completion of the work in each area, remove all coating splatters from glass, prefinished surfaces, bright metals, and from other surfaces that have not been painted or finished hereunder. Do not use abrasive paper or abrasive cleaner on any prefinished surface or bright metal. Remove all materials and debris; leave work area in a clean condition.

### **3.5 PROTECTION AND TOUCH-UP**

- A. During painting work, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Properly clean, repair or replace any work so damaged and soiled.
- B. Protect all painted and finished surfaces against damage until the date of final acceptance of the work. The Architect will conduct a final review of all work performed hereunder. Re- coat or touch-up, all scratches and other blemishes on surfaces, and as directed by the Architect, any areas found which do not comply with the requirements of this Section, and bear all costs therefore.
- C. Any re-coating or touch-up work, required after the work of this Section has been reviewed and accepted by the Architect, will be paid for by the Contractor.

### **3.6 PAINTING SCHEDULE**

- A. Colors: The Architect will furnish a schedule of colors for each area and surface. Tinting and matching shall be to the satisfaction of the Architect. No limit is placed on the number of colors that may be required, or the number of colors in any one room, area, or surface. Premium paints of deep-hued, bright, pigment intensive, accent and primary colors may be scheduled for up to 25 percent of all interior and exterior surfaces without additional cost to the Owner.
  - 1. Colors of priming coats (and body coats where specified) shall be lighter in tint than those of finish coat.
  - 2. Colorants: Pure, non-fading pigments, mildew-proof, ultra-violet resistant, finely ground in approved medium; and be limeproof, when used in coatings to be applied on masonry, concrete, plaster, and gypsum board surfaces.
- B. Paint schedule for interior surfaces and materials: Refer to Document 09 91 23.
- C. Paint schedule for labeling and identifying fire resistive and rated designations: Refer to Document 09 91 23.
- D. Painting schedule for mechanical and electrical equipment: Refer to Document 09 91 23.

**END OF SECTION**