

## **SECTION 09901 – PAINTING**

### **PART 1 - GENERAL**

**1.01 GENERAL REQUIREMENTS:** The General Terms and Conditions, City and County of Honolulu (not specifically attached), the Special Provisions, and all other applicable documents preceding these specifications shall govern all work specified hereinafter in all DIVISIONS AND SECTIONS.

#### **1.02 SUMMARY**

- A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
  - 1. 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 these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Officer-in-Charge will select from standard colors and finishes available. Paint surfaces including but not limited to the following:
  - 1. Surfaces exposed during this work.
  - 2. Surfaces damaged during this work.
  - 3. Surfaces requiring touch-up painting.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

#### **1.03 REFERENCES**

- A. ASTM D 16 - Definition of terms relating to Paint, Varnish, Lacquer and Related Products.
- B. ASTM D 2016 - Test Method for Moisture Content of Wood.
- C. MPI (Master Painter's Institute) - Approved Product List.
- D. PCDA (Painting and Decorating Contractors of America - Painting - Architectural Specification Manual.
- E. PCA (Portland Cement Association) - Painting Concrete.
- F. SSPC (Steel Structures Painting Council - Steel Structures Painting Manual).

#### **1.04 DEFINITIONS**

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

#### **1.05 SUBMITTALS**

- A. Submit in accordance with GR 6 - SUBMITTALS.

- B. Product Data:
  - 1. Materials List: Provide an inclusive list of required patching and coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
    - a) For products with premixed colors, provide manufacturer's standard color chips for selection by Officer-in-Charge.
  - 2. Manufacturer's Information: Provide data on all listed materials, including:
    - a. Thinning and mixing instructions.
    - b. Application instructions and required mil film thicknesses.
    - c. Manufacturer's Material Safety Data Sheets (MSDS).
- C. Certifications: Provide a letter certifying paints and coatings are free of asbestos, lead, zinc-chromate, strontium chromate, cadmium, mercury, crystalline silica, and other EPA regulated and hazardous materials. Provide a letter certifying the amounts of mildewcide added by both the paint manufacturer and paint supplier.
- D. Schedule of Finishes: Provide finish schedule including paint spread rates required to achieve final dry film thickness.
- E. Schedule of Operations: Provide a work schedule showing sequence of operation and installation dates.
- F. Samples:
  - 1. Submit color and finish samples, at manufacturers normal paint chip size illustrating range of colors and textures available for each surface finishing product scheduled.
  - 2. After color and finish sample are returned, submit paint finish samples, 8.5" x 11" in size illustrating selected colors and textures for each selection. Divide sample in horizontal strips showing prime and overlapping second and finish coats. Show coat tinting. Prepare transparent finish samples on same material as that on which coating will be applied. Identify each sample.
- G. Manufacturer's Instructions: Indicate special surface preparation procedures, and substrate conditions requiring special attention. Refer to Article 3.02 PREPARATION.
- H. Qualification Data: For Applicator
- I. Delivery Receipts: Provide 3 copies of the delivery receipt, signed by the user's representative, attesting to delivery of extra paint as required under Article 3.07 EXTRA PAINT.
- J. Warranty: Submit warranty as noted under item entitled "WARRANTY" hereinbelow.

**1.06 QUALITY ASSURANCE**

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
  - 1. Exception: Alkali resistant primers if compatible with the intermediate coat paint products.

## **1.07 REGULATORY REQUIREMENTS**

- A. Comply with State OSHL (Occupational Safety and Health Law) and pollution control regulations of the State Department of Health and EPA.

## **1.08 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 brand name and lot number and date of manufacture.
  - 4. Contents by volume, for pigment and vehicle constituents.
  - 5. Thinning instructions.
  - 6. Application instructions and coverage.
  - 7. Color name and number.
  - 8. VOC content.
- B. Storage
  - 1. Non-flammable Materials: Store materials not in use in tightly covered containers in a well-ventilated area. Maintain storage containers in a clean condition, free of foreign materials and residue.
  - 2. Flammable Materials:
    - a. Store in such a manner as to prevent damage. No paint material, empty cans, paint brushes and rollers may be stored in the building(s). Store these items in separate storage facilities away from the building(s). Contractor may furnish a separate job site storage structure, if the structure complies with the requirements of the local Fire Department. Keep the storage area shall clean. Lock any storage structures when not in use or when no visual supervision is possible.
    - b. All rejected materials shall be removed from the job site immediately.

## **1.09 PROJECT CONDITIONS**

- A. Do not apply materials when surfaces and ambient temperatures are outside the ranges required by the paint product manufacturer. Do not apply exterior coatings during rain or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- B. Protect public, pedestrians and tenants from injury. Provided, erect and maintain safety barricades around scaffolds, hoists and where construction operations create hazardous conditions.
- C. Completed Work: Provide necessary protection for wet paint surfaces
- D. Protective Covering and Enclosures: Provide and install clean sanitary drop cloth or plastic sheets to protect furniture, equipment, floor and other areas that are not scheduled for treatment. Remove any paint applied to surfaces not scheduled for treatment.
- E. Fire Safety: Contractor and its employees shall not smoke in the vicinity of the paint storage area. Exercise precautions against fire at all times and remove waste rags, plastic (polyester sheets), empty cans, etc. from the site at the end of each day.
- F. Safeguarding Property: Safeguard the work and also the property of the State and other individuals in the vicinity of Contractor's work. Make good on any damages and

for losses to work or property caused by Contractor or its employee's negligence. Where damaged property cannot be cleaned and restored to its original condition (i.e. prior to being damaged) replace it with a new product of equal quality. No prorating or use of "used" products will be permitted.

#### 1.10 WARRANTY

- A. Provide a two (2) year guarantee that the work performed under this section conforms to the contract requirements and is free of any defect of material or workmanship.
- B. The Surety shall not be liable beyond two (2) years from the project acceptance date.
- C. **Anti-Graffiti Coating: Provide manufacturers written warranty guaranteeing effective graffiti removal for not less than 10 years and warrant that treated surfaces can be effectively and repeatedly cleaned of graffiti without damage or loss of effectiveness of the graffiti resistant coating. Manufacturer shall, for the duration of the warranty period, guarantee replacement of product where graffiti removal has shown to be ineffective.**

### PART 2 - PRODUCTS

#### 2.01 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Mildewcide: Except for metal primers, provide primer and finish coats with suitable chemical mildewcide to the maximum amount of mildewcide per gallon of paint permitted by the mildewcide manufacturer without adversely affecting the quality of the paint, but not less than one ounce per gallon.
- C. 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 in the Paint Systems Schedule in Part 3 below 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 products to be used.
  - 2. Equivalent products to the specified products are listed in the Master Painter's Institute's "Architectural Painting Specification Manual."
  - 3. Substitution: Requests for substitution of a product or product if a manufacturer is not on the "Approved Product List" will be evaluated for equivalency based on product test results per the test criteria of the Master Painter's Institute.
- D. Colors: Paint colors as indicated in the contract documents are for bid purposes only. Contractor shall coordinate with the Users and the Officer-in-Charge for final approval on color selection from the manufacturer's full range.
- E. EPA Regulated and Hazard Materials: Do not use paint or paint products containing asbestos, lead, mercury, zinc chromates, strontium-chromate, cadmium, crystalline

silica, or the EPA regulated or hazardous materials. Select paint from the Master Painter's Institute's Approved Product List.

## **2.02 GRAFFITI RESISTANT COATING**

### **A. Manufacturer:**

- 1. Precision Coatings, 2736 West McDowell Road, Phoenix AZ 85009; Ph. No. 888-765-7070, x1003.**
- 2. Approved equal.**

### **B. Graffiti resistant coating shall be a clear, non-sacrificial graffiti resistant coating which provides protection for stainless steel vertical surfaces from permanent graffiti staining and damage caused by spray paint and marking pens. Coating shall be suitable for application to painted and unpainted surfaces on metals. Product shall be of type such that recoating with the underlying paint is possible without removal of the graffiti resistant coating. Product shall be a coating that dries clear, non-yellowing, with a low luster**

## **2.03 MISCELLANEOUS MATERIALS**

- A. Provide patching and repair materials. Compatible with paint finishes and substrates. Use weather resistant materials for exterior surfaces and surfaces exposed to moisture.
- B. Accessories
  1. General: Provide other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
  2. Thinners: Thinning of paint shall be done using material recommended by the manufacturer. Mix proprietary products according to manufacturer's requirements. Do not use compound thinner, mineral oil, kerosene, refined linseed oil, or gasoline for thinning.

## **2.04 EXTERIOR PAINT SCHEDULE**

- A. Concrete: Provide the following finish systems over exterior concrete:
  1. Acrylic Finish: Two finish coats over a primer.
    - a. Primer: Exterior Concrete primer. MPI 42.
    - b. Finish Coats: Exterior acrylic paint. MPI 11.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 4.5 mils.
- B. Concrete Unit Masonry: Provide the following finish systems over exterior concrete unit masonry:
  1. Acrylic Finish: Two finish coats over block filler.
    - a. Block Filler: Concrete unit masonry block filler. MPI 4.
    - b. Finish Coats: Exterior acrylic paint. MPI 11.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 11 mils.
- C. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
  1. Alkyd Finish: Two finish coats over a primer.
    - a. Primer: Exterior ferrous-metal primer. MPI 23.
    - b. Finish Coats: Exterior acrylic paint. MP194.

- c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
  - d. System DFT: 5.25 mils.
- D. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated metal surfaces:
- 1. Acrylic Finish: Two finish coats over a galvanized metal primer.
    - a. Primer: Exterior galvanized metal primer. MPI 134.
    - b. Finish Coats: Exterior acrylic paint. MPI 11 Q-G5.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 4.5 mils.

## 2.05 INTERIOR PAINT SCHEDULE

- A. Concrete: Provide the following finish systems over interior concrete:
- 1. Acrylic Finish: Two finish coats over a primer.
    - a. Primer: Exterior concrete primer. MPI 50.
    - b. Finish Coats: Interior acrylic paint. MPI 54.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 5 mils.
- B. Concrete Unit Masonry: Provide the following finish systems over interior concrete masonry:
- 1. Acrylic Finish: Two finish coats over a block filler.
    - a. Block Filler: Concrete unit masonry block filler. MPI 4.
    - b. Finish Coats: Interior acrylic paint. MPI 141.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 11 mils.
- C. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
- 1. Acrylic Finish: Two finish coats over a primer.
    - a. Primer: Interior gypsum board primer. MPI 50.
    - b. Finish Coats: Interior acrylic paint. MPI 141.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 4 mils.
- D. Wood: Provide the following paint finish systems over new interior wood surfaces:
- 1. Acrylic-Enamel Finish: Two finish coats over a primer.
    - a. Primer: Interior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes. MPI 39.
    - b. Finish Coats: Interior acrylic enamel. MPI 141.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 4.5 mils.
- E. Ferrous Metal: Provide the following finish systems over ferrous metal:
- 1. Acrylic Finish: Two finish coats over a primer.
    - a. Primer: Interior ferrous-metal primer. MPI 79.
    - b. Finish Coats: Interior acrylic paint. MPI 141.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.

- d. System DFT: 5 mils.
- F. Galvanized and Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:
  - 1. Acrylic Finish: Two finish coats over a primer.
    - a. Primer: Interior zinc-coated metal primer. MPI 79.
    - b. Finish Coats: Interior acrylic paint. ,MPI 141.
    - c. Finish Coat Gloss Level: Semi-gloss or match existing adjacent surface.
    - d. System DFT: 5 mils.

**G. Anti-Graffiti Coating on non ferrous metal (comply with manufacturer's instructions):**

- 1. **PC3 Solvent Based Polyurethane Anti-graffiti Coating.**
  - a. **Color: Clear**
  - b. **Sheen: Semi-gloss.**

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
  - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
    - a. Ensure that concrete and masonry surfaces are cured and dried to meet paint manufacturer's recommendations.
  - 2. Start of painting will be construed as 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 Contracting Officer about anticipated problems when using the materials specified over substrates primed by others.

**3.02 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 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 substrates of substances that could impair bond of the various coatings. Remove dust, 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 re-prime.
- D. Surface Preparation Cementitious Materials: Prepare concrete, concrete unit masonry, 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. Submit test results to Officer-in-Charge.
    - a. Prior to painting, concrete and masonry surfaces shall be allowed to cure and dry in accordance with the paint manufacturer's instructions and recommendations.
    - b. Efflorescence and laitance shall be removed from the surface.
  3. Prior to paint application, interior and exterior concrete and masonry (including grout joints) scheduled to receive paint shall be tested to determine the alkalinity level of the surface. Testing shall be performed in strict accordance with the test kit manufacturer's instructions. Submit test results to Officer-in-Charge.
    - a. Where the alkalinity level exceeds the pH level limit of the primer take one of the following three remedies at no additional cost to the State:
      - 1) If new concrete or masonry, wait until alkaline level has dropped below the limit.
      - 2) Substitute a primer that is able to resist the measured alkalinity and that is compatible with the paint finish. Alkyd based primers and top-coats or epoxy ester primers shall not be used. Submit the substitute primer to the Contracting Officer for review.
      - 3) Neutralize the surface in accordance with the primer manufacturer's instructions to reduce the alkaline level. However, acid washing is not permitted where the surface has been finished with a cementitious coating.
- E. Surface Preparation 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.
1. 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.
  2. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
  3. If transparent finish is required, back prime with spar varnish.
  4. Back prime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
  5. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
- F. Surface Preparation 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 SSPC's recommendations.
1. If mill scale or mild surface rust cannot be removed with solvent, then blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3 and SSPC-SP 10/NACE No. 2.

2. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
3. 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 same primer as the shop coat. Spot priming specified here shall be in addition to full prime painting scheduled in Part 3 below.

**4. Anti-Graffiti Coating on metal surfaces: Prepare surface as recommended by manufacturer.**

- G. Surface Preparation 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
- H. Surface Preparation - Repainting: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  1. General: Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.
    - a. Provide barrier coats over marks, patches, and other imperfections which may bleed through surface finish.
    - b. Remove from surfaces to be repainted all foreign matter such as nails, screws, staples, tape and gum.
    - c. Remove all loose, blistered, scaled, crazed or chalky finish to an existing tight and firm finish.
    - d. Remove mildew as noted in PREPARATION Article.
    - e. Spot prime areas where bare wood, concrete, masonry, plaster, fill, seal or patched material is exposed with the specified primer and feather out onto adjacent paint.
    - f. Patch existing holes larger than 1/4"x1/4".
    - g. Inspect existing sealant joints and remove failing sealant and re-seal joint prior to painting.
  2. Wash all surfaces with a solution of tri-sodium phosphate and water or other appropriate solution to remove any accumulated film of wax, oil, grease, smoke, dust, dirt, chalking or other foreign matter which would impair the bond of, or bleed through the new paint finish. After washing, rinse the surface with potable water and allow to thoroughly dry. Rinsing may be performed by high pressure water washing as noted in PREPARATION Article.
    - a. Surfaces shall dry a minimum of 24 hours before the application of primers. For wood surfaces drying shall continue until the moisture content of the wood is less than 15 percent. For concrete and concrete masonry surfaces test for alkali and moisture.
  3. Lightly sand the surface where existing finish remains tight and firm. Where the paint has been removed, sand the edges of scarred areas to a smooth feathered edge.
  4. Fill holes (nail, tack, staple, and other similar items), cracks, open joints and other imperfections with appropriate compound and allow to set (door and trim included). Seal all openings which will permit the entrance of water. Sealing compounds shall be compatible with the substrate, primer and paint. Apply and allow sealants to set in accordance with the manufacturer's recommendations.
  5. Cementitious Materials: Seal all cracks hairline to 1/8 inch in width with concrete patching compound. All cracks over 1/8 inch in width and holes 1/4 inch diameter or greater shall be sealed with a latex modified or epoxy modified reinforced patching system before paint application. All patching

- shall be done in accordance with the patching manufacturer's recommendations and instructions. All patching shall be done in accordance with the manufacturer's recommendations and instructions. Apply texture, if required, to match existing textured surfaces.
- a. Concrete Floors: Remove contamination, acid etch, neutralize and rinse floors with clean water. Verify required acid-alkali balance is achieved. Allow to dry.
  6. Plaster Surfaces: Scarred plaster areas shall be patched with appropriate plaster materials. Fill holes, cracks, open joints and damaged areas with vinyl base or latex modified patching system. Apply texture, if required, to match existing textured surfaces.
  7. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
  8. Wood:
    - a. Interior: Wipe off dust and grit prior to sealing.
    - b. Exterior: Wash glu-laminated wood with solvent to remove grease and dirt prior to sealing.
    - c. Seal knots, pitch streaks, and sappy sections with sealer. Fill fastener holes and cracks after priming has dried; sand between coats.
  9. Ferrous and Galvanized Metal Surfaces:
    - a. Comply with preparation requirements of the Steel Structures Painting Council (SSPC) Standard SP3.
    - b. Remove rust, loose mill scale and blistering / loose paint by power tool chipping, de-scaling, sanding, wire brushing and grinding down to bare metal. Only tightly adhering surface rust, mill scale and paint which cannot be removed with a dull putty knife may remaining. Do not burnish the surfaces during cleaning.
    - c. Completely wipe surfaces with mineral spirits or other appropriate solution to remove accumulated film of wax, oil, grease, smoke, dust, dirt, chalky or other foreign matter which would impair the bond of, or bleed through the new paint finish. Patch imperfections, holes, dents to form a smooth surface.
    - d. Lightly sand the surface where existing finish remains tight and firm. Where the paint has been removed, sand the edges of scarred areas to a smooth feathered edge. Allow the surfaces to thoroughly dry and immediately spot prime bare metal areas with the specified primer and feather out onto adjacent paint.
  10. Aluminum Surfaces Scheduled for Paint Finish:
    - a. Remove surface contamination by steam or high pressure wash.
    - b. Remove oxidation with acid etch and solvent washing.
    - c. Apply etching primer immediately following cleaning.
  11. PVC and Plastic Surfaces:
    - a. Clean the PVC and plastic of all dirt, dust and oil prior to painting. Wash surface and dry thoroughly.
    - b. Sandpaper the PVC or plastic pipe (220 grit) to gently roughen the surface to-be-painted, clean off excess sanded material.
    - c. In a well ventilated area, spray a light, thin primer coat with an even side-to-side motion along the length of the pipe or material.
    - d. Allow 10 minutes between coats before applying following coats.
    - e. Repeat the light, thin coats until the desired build up is achieved.
- I. 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.
- J. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat and provide sufficient differences in shade of undercoats to distinguish each separate coat.

### **3.03 APPLICATION**

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
  2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  3. Provide finish coats that are compatible with primers used.
  4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
  5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only unless otherwise noted.
  6. Paint interior surfaces of ducts with a flat, non-specular black paint where visible through registers or grilles.
  7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
  9. Sand lightly between each succeeding enamel or varnish coat.
  10. Ensure primers are top coated within the times required by the paint manufacturers. Top coats not applied within the recoating window may be rejected.
- B. 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. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications
  2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  3. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.

- C. Application Procedures: Apply paints and coatings by brush, roller.
  - 1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
  - 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- F. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that 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 ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque 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.
- H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

**I. Anti-Graffiti Coating:**

- 1. Apply coating according to manufacturer's instructions.
- 2. Apply graffiti resistant coating to exposed vertical surface at published application rate.

**3.04 FIELD QUALITY CONTROL TESTING**

- A. Inspection and Approvals: Obtain written approval upon completion of each phase of work (phases of work are: surface preparation and spot prime, prime, first finish coat, second finish coat) before proceeding into the next phase or work. For any particular area of work that deviates from the submitted work schedule, notify the Contracting Officer one day (24 hours minimum) in advance when completing any phase of work. Provide access to areas to be inspected.
  - 1. Failure to obtain approval of any phase of work for a work area may result in redoing the operation at no cost to the State.
  - 2. Right of Rejection: Non conforming work will be rejected by the Officer-in-Charge. Remove rejected material from the job site immediately. Redo rejected work at no cost to the State.
- B. Thickness Testing: The Contracting Officer will require all paints and their applied thickness tested determine compliance with the Contract Documents. The cost of testing shall be borne by the Contractor.
  - 1. Where the required paint thickness is deficient, provide additional coats to the affected surface(s) to meet the required paint thickness.
  - 2. Test schedule: One (1) test per each surface painted, unless otherwise directed by Contracting Officer.
  - 3. Tests shall be paid by Contractor and performed by Contractor.

- C. Moisture Testing: Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
- D. Alkalinity Testing: Measure pH Level of surface to be painted. Notify Contracting Officer if alkalinity level is below the maximum permitted by the paint or primer manufacturer.
  - 1. Test schedule: One (1) test per each surface type, unless otherwise directed by Contracting Officer.
  - 2. Tests shall be paid by Contractor and performed by Contractor.
- E. Adhesion Testing:
  - 1. Provide adhesion testing per ASTM D3759 Test 8 (x scratch peel test):
    - a. Test after each scheduled paint coat.
    - b. Should test fail, remove paint, prepare surface, then recoat and test again.
  - 2. Testing shall be performed by a NACE certified inspector selected by the State. Cost of testing shall be borne by Contractor.
  - 3. Test schedule: One (1) test per each surface type, unless otherwise directed by Contracting Officer.
  - 4. Tests shall be paid by Contractor and performed by Contractor.
- F. Manufacturer's Field Services: The Painting Contractor shall be responsible to assure the presence of a qualified Technical Representative (approved by a responsible officer of the Material Manufacturer) at the job site prior to starting of the work and as require while the work is in progress. The Technical Representative shall provide assistance to the Painting Contractor in physical demonstrations on the use of the materials and methods or techniques required to accomplish all of the work as specified herein.
  - 1. A minimum two (2) visits will be required. The Technical Representative shall submit a detailed report simultaneously to the Officer-in-Charge and a Responsible Officer of the Painting Contractor and not to the on-site project manager or foremen. This report shall contain in detail the findings, conclusions and recommendations and shall be submitted during each visit. It is the intent of this provision to ensure that the on-site project manager or foreman does not have supervisory rights over the Technical Representative.

### **3.05 CLEANING**

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

### **3.06 PROTECTION**

- A. 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 Contracting Officer.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

**3.07 EXTRA PAINT**

- A. The Contractor shall provide extra paint in each of the different colors of exterior and interior paint used for walls, eaves and trim to the facility upon completion of the project. The paint shall be in unopened one gallon cans and shall be in the quantities listed below:
1. Paint used over large areas, such as the exterior of the building - 5 gallons of each color and each type used (alkyd, latex, gloss, semi-gloss, flat, etc.).
  2. Paint used in single room areas and in small areas, such as bathrooms and doors - 1 gallon of each color and each type used (alkyd, latex, gloss, semi-gloss, flat, etc.)

END OF SECTION