

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. The work includes painting and finishing of exterior and interior items and surfaces throughout the project, whether scheduled or not, except as otherwise indicated. Painting shall include new work and existing new surfaces made bare or damaged during construction and existing surfaces as indicated. Surface preparation, priming, and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work and are included in this section.
- B. The work includes field painting of exposed bare and covered pipes, and of hangers, exposed steel and iron work.
- C. "Paint" as used herein means all coating systems materials, including primers, enamels, sealers, and fillers, and other applied materials whether used as prime, intermediate, or finish coats, except as specifically noted herein.
- D. Paint all exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color of finish is not designated, the City & County of Honolulu (City and County) will select these from standard colors available for the materials systems specified.

1.02 PAINTING NOT INCLUDED

The following categories of work are not included as part of the field-applied finish work, or are included in other sections of these specifications.

- A. Concealed Surfaces (Present and Future): Unless otherwise indicated, painting is not required on surfaces such as walls or ceiling in concealed areas and generally inaccessible areas, furred areas, and pipe spaces.
- B. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, and similar finished materials will not require finish painting, unless otherwise indicated.
- C. Labels: Do not paint over any code-required labels, such as Underwriters' Laboratories, or any equipment identification, performance rating, name, or nomenclature plates.

1.03 SUBMITTALS

- A. Submit in accordance with requirements of this section.

- B. Schedule of Finishes: Submit four sets of the proposed painting finish schedule to the Officer-in-Charge for acceptance. The schedule shall indicate the wet film thickness (mils) at which the proposed paints/coatings will be applied that are necessary to achieve the final dry film thickness indicated on the Schedule of Finishes item entitled "SCHEDULE OF FINISHES" herein below.
- C. Color Samples: Submit the following to the Officer-in-Charge for acceptance:
 - 1. Four sets of each color finish sample.
 - 2. After the color finish has been accepted, one set of color finish samples painted onto 8-1/2 inch x 11-inch cardboard shall be submitted. The cardboard shall be divided into three horizontal strips and painted as follows:
 - a. Prime 3 strips.
 - b. First coat bottom 2 strips.
 - c. Second coat bottom strip.
- D. Schedule of Operations: Before work on the project is commenced, submit complete sets of a work schedule showing Contractor's sequence of operations and dates.
- E. Warranty: Submit warranty as stipulated in item entitled "WARRANTY" herein below.
- F. Certifications: Submit copies of asbestos-free, lead-free, zinc-chromate-free, strontium-chromate-free, cadmium-free, and mercury-free paint certificates.
- G. Manufacturer's Product Data Sheets: Submit copies of the Manufacturer's Product Data Sheets for the primers, paints, coatings, solvents, sealing and patching materials, sealants and caulking, and other materials being used. Data sheets shall indicate thinning and mixing instructions, required film thickness (mil) and application instructions.
- H. Manufacturer's Material Safety Data Sheets for coatings, solvents, and other hazardous materials.

1.04 ANALYZING AND TESTING

- A. All paints and their applied thickness shall be subject to testing whenever the Officer-in-Charge deems necessary to determine conformance to the requirements of these specifications. Should testing by a laboratory be required, the laboratory shall be selected by the Officer-in-Charge and the cost of testing shall be borne by the Contractor. However, should the test results show that the paint is in compliance with the specifications, the cost shall be borne by the City and County.
- B. All rejected material shall be removed from the job site immediately. Surfaces painted with the rejected material shall be redone at no additional cost to the City and County.

- C. Where the required paint thickness is deficient, the affected surfaces(s) shall be recoated as necessary to provide the required paint thickness at no additional cost to the City and County.

1.05 QUALITY ASSURANCE

- A. Painting Terminology: Refer to ASTM D 16, "Standard Terminology for Paint, Related Coatings, Materials, and Applications".
- B. Gloss/Sheen Levels: ASTM D 523, "Specular Gloss", as follows:

| <u>Description</u> | <u>Units @ 60 degrees</u> | <u>Units @ 85 degrees</u> |
|--------------------|---------------------------|---------------------------|
| Matte or Flat | 0 to 5 | 10 max |
| Velvet | 0 to 10 | 10 to 35 |
| Eggshell | 10 to 25 | 10 to 35 |
| Satin | 20 to 35 | 35 min |
| Semi-Gloss | 35 to 70 | |
| Gloss | 70 to 85 | |
| High Gloss | more than 85 | |

- C. Where the Contractor proposes to employ airless spraying, the applicator(s) shall have completed an accepted "Spray Applicator Certification Program" conducted by the Painting Industry of Hawaii.
- D. As a minimum, the certification shall include material and equipment selection, use and maintenance, hands-on application, and safety training.

1.06 WARRANTY

- A. The Contractor shall warrant that the work performed under this section conforms to the contract requirements and is free of any defect in the materials used and workmanship performed by the Contractor. Such warranty shall continue for a period of two years from the project acceptance date and the Contractor shall remedy any such defect which is discovered during that period at no cost to the City and County.
- B. The Officer-in-Charge will notify the Contractor in writing within a reasonable time after discovery of any failure or defect.
- C. Should the Contractor fail to remedy any failure or defect described in Paragraph A above within 10 working days after receipt of notice thereof, the City and County shall have the right to repair or otherwise remedy such failure or defect and charge the Contractor for the cost of same.

1.07 SPECIAL REQUIREMENTS

- A. Codes: The Contractor shall comply with the State OSHL (Occupational Safety and Health Law) and all pollution control regulations of the State Department of Health.

- B. Safety methods used during coating application shall comply with SSPC-PA Guide 3.
- C. Protection:
 - 1. Persons:
 - a. The Contractor shall take all necessary precautions to protect public pedestrians, including tenants from injury.
 - b. The Contractor shall provide, erect, and maintain safety barricades around scaffolds, hoists, and wherever Contractor's operation create hazardous conditions in order to properly protect the public and workmen.
 - 2. Completed Work: The Contractor shall provide all necessary protection for wet paint surfaces.
 - 3. Protective Covering: The Contractor shall provide and install protective covering over equipment, floor, and other areas that are not scheduled for treatment. Protective covering shall be clean, sanitary drop cloth or plastic sheets. Paint applied to surfaces not scheduled for treatment shall be completely removed and surfaces shall be returned to original condition.
 - 4. Safeguarding of Property: The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of the City and County and other individuals in the vicinity of the work area during the execution of this Contract. Contractor shall be responsible for and make good on any and all damages and for losses to work or property caused by his or his employee's negligence. Where the damaged property cannot be cleaned and restored to its original condition (i.e. prior to being damaged) it shall be replaced with a new product of equal quality. No proration or use of "used" products will be permitted.
 - 5. Fire Safety: The Contractor shall direct his employees not to smoke in the vicinity and to exercise precautions against fire at all times. Waste rags, plastic (polyester sheets), empty cans, etc., shall be removed from the site at the end of each day.
- D. Right of Rejection: The Officer-in-Charge will have the right to reject all work which is not in compliance with the plans and specifications. Rejected work will be redone at no additional cost to the City and County. In addition, the Officer-in-Charge will have the right to require the immediate removal of any paint applicator who demonstrates negligence, lack of competence or repeated non-compliance with the contract requirements.
- E. Sequence of Operations: The sequence of operations shall divide the surfaces into work areas and present a schedule for:
 - 1. Surface preparation and spot prime.

2. Prime coat.
 3. First finish coat.
 4. Second finish coat.
- F. Inspection and Acceptance: The Contractor shall obtain written acceptance from the Officer-in-Charge 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 of work. The Contractor shall give the Officer-in-Charge one day (24 hours minimum) advance notice of completion of any phase of work for a work area only when he deviates from the previously submitted work schedule. The Contractor shall provide necessary access to areas to be inspected. Failure to obtain acceptance of any phase of work for a work area may result in redoing the operation at no cost to the City and County.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver paint materials to the job site in original unopened containers with original labels intact.
- B. No paint material, empty cans and paint brushes and rollers, drop cloths and rags, may be stored in buildings, and shall be stored in separate storage facilities away from the buildings. Receiving, opening, and mixing of painting materials shall be done in this area.
- C. The Contractor may furnish a job site storage facility. Such facility shall comply with requirements of the local Fire Department. The storage area shall be kept clean and facility shall be locked when not in use or when no visual supervision is possible.
- D. Ensure the safe storage and use of paint materials and the safe storage and disposal of waste at the end of each work day.
- E. Handle manufactured materials as recommended by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Asbestos Prohibition: All paint shall be asbestos-free.
- B. Lead Prohibition: All paint shall be lead-free.
- C. Mercury Prohibition: All paint shall be mercury-free.
- D. Chromate Prohibition: All paint shall be free of zinc-chromate and/or strontium-chromate.
- E. Cadmium Prohibition: All paint shall be cadmium-free.

- F. Material shall be equal in quality to that specified under the Schedule of Finishes and any given finish shall be as labeled by one manufacturer.
- G. All materials shall be delivered to the job site in undamaged original containers bearing the manufacturer's label and shall be stored in such a manner as to prevent damage. All rejected materials shall be removed from the job site immediately.
- H. Paints shall be as manufactured by Ace, Benjamin Moore, Cabot's, Carboline, Dupont, Dutch Boy, Fine Line Paint Corp., Henkel, Devoe, Devoe Coatings, Glidden, Glidden Professional, Martin Senour, General Polymers, Olympic Stain, Pervo, PPG Protective & Marine Coatings, Pittsburg, Porter Inti., Pratt & Lambert, Rust-Oleum, Sherwin-Williams, Smiland (Styletone), Spectra-Tone, Thoro Systems, Tnemec, United Paint and Coatings, or approved substitute.
- I. Thinning of paint shall be done using material recommended by the manufacturer. Mix proprietary products according to manufacturer's printed specifications. Compound thinner, mineral oil, kerosene, refined linseed oil, or gasoline shall not be used for thinning.
- J. Except for metal primers, all paint shall contain maximum amount of mildewcide per gallon of paint permitted by the mildewcide manufacturer without adversely affecting the quality of the paint.
- K. The supplier shall submit a signed certificate indicating the amounts of mildewcide added by both the paint manufacturer and the paint supplier. Mercurial fungicide shall not be used.

2.02 SCHEDULE OF FINISHES

- A. The Schedule of Finishes is made for the convenience of the Contractor and indicates the types and quality of finishes to be applied to the surfaces. Refer to Finish Schedule for symbols indicating location for various finishes. Provide additional systems for surfaces to be painted not listed hereinafter.
- B. Treatments shall be applied on exposed surfaces of designated materials, in conformity with instructions of the paint product used.
- C. Exterior Painting:
 - 1. Ferrous Surfaces, including Pipe and Fittings, and accessories
 - Pre-Prime coat: High Solids Epoxy Penetrating Sealer (for rusted areas only)
 - Prime Coat: 2-Part Epoxy Primer, compatible with finish coat
 - Finish Coat: 2 Coats Aliphatic Urethane, gloss to match similar adjacent surfaces.

2. Galvanized Metal:

Pre-Treatment: Clean per SSPC-SP1 (Solvent Wash)
Prime Coat: 2-Part Epoxy Primer compatible with finish coat
Finish Coat: 2 Coats Aliphatic Urethane, gloss to match similar adjacent surfaces

3. Plastic Piping:

Prime coat: As recommended by finish coat manufacturer
Finish Coat: 2 Coats Aliphatic Urethane, gloss to match similar adjacent surfaces

D. Interior Painting: Use low VOC/low odor paint to maximum extent possible.

1. Ferrous Surfaces - including Pipe and Fittings, and accessories:

Pre-Prime coat: High Solids Epoxy Penetrating Sealer (for rusted areas only)
Prime Coat: 2-Part Epoxy Primer, compatible with finish coat
Finish Coat: 2 Coats Aliphatic Urethane, gloss to match similar adjacent surfaces.

2. Galvanized Metal:

Pre-Treatment: Clean per SSPC-SP1 (Solvent Wash)
Prime Coat: 2-Part Epoxy Primer, compatible with finish coat
Finish Coat: 2 Coats Aliphatic Urethane, gloss to match similar adjacent surfaces

3. Plastic Piping:

Prime coat: As recommended by finish coat manufacturer
Finish Coat: 2 Coats Aliphatic Urethane, gloss to match similar adjacent surfaces

2.03 COMPATIBILITY OF PAINTING SYSTEMS AND SUBSTRATES

A. The Contractor shall ensure that painting systems specified are compatible with existing painted surfaces. Alkyd paints shall not be applied over existing latex coating. Alkyd paints shall be used over cementitious surfaces. Latex paints shall not be applied directly over alkyd paints without proper conditioner and accepted by the Officer-in-Charge.

B. Field Tests for Alkyd or Latex Paints: The Contractor shall perform the following field tests for compatibility of substrates to new paint systems prior to ordering paint:

1. Latex films will dissolve when wiped with rubbing alcohol; alkyd films will not.

2. When sanded, latex films will "clog" sandpaper; alkyd films will sand clean.
 3. Alkyds will soften after applying a 10 percent solution of Drano in water; latex films will not soften.
 4. Alkyds will burn when exposed to a flame; latex film will not burn.
 5. Paints which do not respond to two or more of these tests are probably epoxy, urethane, or other type of coating.
 6. Provide a packaged swab test in accordance with the package directions.
 7. Existing paint identified or suspect of having lead-containing paint shall be tested in a manner that does not produce airborne or uncontrolled lead debris.
- C. Should there be any discrepancies between the specified Schedule of Finishes and the existing paint systems, the Contractor shall notify the Officer-in-Charge in writing of any incompatible systems specified and submit a revised Schedule of Finishes for acceptance when necessary. With the acceptance of the revised Schedule of Finishes, the Contractor shall make any corrections and/or revisions necessary to resolve the discrepancies and/or inconsistencies. The Contractor shall not proceed with any painting systems that are incompatible, although specified otherwise, until all incompatible conditions detrimental for the proper application and performance of the painting systems have been corrected. The failures due to the application of the incompatible paint systems shall be corrected at no additional cost to the City and County. Proceeding with the work shall imply acceptance of the specified Schedule of Finishes and the compatibility with the existing painted surfaces by the Contractor.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. General:

1. Surface preparation shall be in accordance with the Painting and Decorating Contractors of America, "Architectural Specification Manual", methods are applicable to all substrates.
2. Scrub surfaces with stiff nylon bristle brush and T.S.P. solution at rate of 3/4 cup T.S.P. per gallon of warm water to remove accumulated film of wax, oil, grease, smoke, dust, dirt, chalky, or other foreign matter which would impair bond or bleeding through new finish. Thoroughly sponge wipe surfaces with clean water. Allow surfaces to thoroughly dry before priming, painting, calking, or sealing.
 - a. Following sponge wiping, the surfaces shall be allowed to dry for a minimum of 24 hours.

- b. Wood surfaces shall have a maximum moisture content of 12 percent when measured with an electronic moisture meter.
- 3. Cracks and openings found at joints and where different materials about each other shall be sealed with a caulking compound compatible with the substrate and primer/paint. The caulking shall be applied and allowed to set in accordance with the manufacturer's recommendations and instructions.
- 4. Mildew Removal: Remove all mildew and sterilize the surface to be painted using one of the following methods: Apply a treatment solution composed of the following ingredients and in the noted proportions to the affected surface using a sponge or low-pressure sprayer:

2/3 cup TSP (Trisodium Phosphate)
1 quart household bleach
3 quarts warm water

Note: Household bleach shall not be mixed with ammonia or any detergents or cleaners containing ammonia as this will create a poisonous gas.

Apply a commercial mildew treatment solution such as Purex, Jomax Remover or equal in strict accordance with the manufacturer's recommendations and instructions.

Following treatment, the surface shall be cleaned with potable water and allowed to thoroughly dry before priming, painting or the applying of sealing and caulking compounds.

- B. The painting contractor shall be wholly responsible for the finish of his work and shall not commence any part of it until surfaces are in proper condition. If painting contractor considers any surfaces unsuitable for proper finish of his work, he shall notify the Officer-in-Charge of this fact in writing and he shall not apply any material until the unsuitable surfaces have been made satisfactory, or until the Officer-in-Charge has instructed him to proceed. Major defects shall be restored by the proper trades. In general, follow paint manufacturer's directions for surface preparation for the paint to be applied.
- C. Surfaces adjacent to areas being finished shall be protected and left clean of paints, stains, etc. Clean drop cloths shall be used until completion of job.
- D. Unprimed galvanized metal shall be washed with a solution of chemical phosphoric metal etch and allowed to dry.
- E. Metal surfaces shall be made clean and free of any defects or condition that may produce unsatisfactory finish. Touch-up any chipped or abraded places on surfaces that have been shop coated with the proper primer.
- F. Wood Surfaces: Surfaces shall be free from dust and other deleterious substances and in a condition accepted by the Officer-in-Charge prior to receiving paint or other finish. Do not use water to clean uncoated wood.

3.02 PAINT APPLICATION

A. General:

1. Apply coating materials in accordance with SSPC-PA 1. SSPC-PA 1 methods are applicable to all substrates, except as modified herein. Thoroughly work coating materials into joints, crevices, and open spaces. Touch-up damaged coatings before applying subsequent coats.
2. Work shall be done in a workmanlike manner by skilled and experienced mechanics and shall conform to the best painting practices.
3. Materials shall be applied in accordance with the manufacturer's specifications and the finished surfaces shall be free from runs, sags, drips, ridges, waves, laps, streaks, brush marks, and variations in color, texture, and finish (glossy or dull). The coverage shall be complete and each coat shall be so applied as to produce a film of uniform thickness. No paint, varnish or enamel shall be applied until the preceding coat is thoroughly dry and acceptance.
4. No exterior painting of unprotected surfaces shall be done in rainy, damp weather. Coats shall be applied only to surfaces that are thoroughly dry.
5. Mixing shall be done outside the buildings.

B. Application:

1. Paint application shall be by brush or roller. Airless spraying may be permitted only with the acceptance of the Officer-in-Charge for otherwise inaccessible areas.
2. Drying Time: Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying. Provide each coat in specified condition to receive the next coat.
3. Primers and Intermediate Coats: Do not allow primers or intermediate coats to dry more than 30 days, or longer than recommended by the manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover the surface of the preceding coat or surface completely, and there shall be a visually perceptible difference in shades of successive coats.
4. Finished Surfaces: Provide finished surfaces free from runs, drops, ridges, waves, laps, brush marks, and variations in selected colors.

C. Colors: Each coat shall be tinted a different shade from the preceding coat. Colors shall match existing or as selected by the Officer-in-Charge.

D. Finish Film Thickness: Apply primer, intermediate, and finish coats to not less than 1.5 mils dry film thickness, 4 mils wet unless recommended otherwise in writing by the manufacturer, for each coat and in accordance with the manufacturer's

recommendations. Verify mil thickness by use of a suitable wet film gauge. Use a Tooke or other dry film gauge to test for total dry film thickness.

3.03 MISCELLANEOUS

- A. Installation of Removed Items: After completion of final paint coat, removed items shall be reinstalled.
- B. At the completion of other trades, touch up damaged surfaces.

3.04 CLEAN UP

- A. During the progress of the work, all debris, empty crates, waste, drippings, etc., shall be removed by the Contractor and the grounds about the areas to be painted shall be left clean and orderly at the end of each work day.
- B. Upon completion of the work, staging, scaffolding, containers, and all other debris shall be removed from the site. All paint, shellac, oil or stains splashed or spilled upon adjacent surfaces not requiring treatment (hardware, fixture, floor) shall be removed and the entire job left clean and acceptable.

END OF SECTION