SECTION 099103

MECHANICAL PAINTING

PART 1 GENERAL

1.01 DEFINITIONS

A. The word "paint" in this Section refers to substrate cleaners, fillers, sealers, primers, undercoats, enamels and other first, intermediate, last or finish coatings.

B. The word "primer" in this Section refers to substrate cleaners, fillers, sealers, undercoats, and other first or intermediate coats beneath the last or finish coating.

C. The words "finish paint" in this Section refers to the last or final coat and previous coats of the same material or product directly beneath the last or final coat.

D. Finish Paint Systems: Finish paint and primers applied over the same substrate shall be considered a paint system of products manufactured or recommended by the finish coat manufacturer.
   1. Finish paint products shall meet or exceed specified minimum physical properties.

1.02 SUBMITTALS

A. Painting Schedule: Cross-referenced Painting Schedule listing all exterior and interior substrates to be painted and specified finish paint type designation; product name and manufacturer, recommended primers and product numbers, and finish paint color designation for each substrate to be painted.
   1. Designate exterior substrates by building name and number, substrate to be painted and surface location.
   2. Designate interior substrates by building name and number, floor, room name and number, and surface to be painted.

B. Product Data Sheets: Manufacturer's published product data sheets describing the following for each finish paint product to be applied:
   1. Percent solids by weight and volume, solvent, vehicle, weight per gallon, ASTM D 523 gloss/reflectance angle, recommended wet and dry film thickness, volatile organic compound (VOC) content in lbs/gallon, product use limitations and environmental restrictions, substrate surface preparation methods, directions and precautions for mixing and thinning, recommended application methods, square foot area coverage per gallon, storage instructions, and shelf-life expiration date.
   2. Manufacturer's recommended primer for each finish paint product and substrate to be painted.
   3. Manufacturer's complete range of available colors for each finish paint product to be applied.

C. Finish Paint Type Samples: Two finish paint samples applied over recommended primers for each substrate to be painted.

1. Samples shall be in the designated color and specified ASTM D 523 reflectance.
2. Label each sample with the following information:
    a. Project number and Painting Schedule designation describing substrates and locations represented by the sample.
    b. Finish paint and primer manufacturer, product names and numbers, finish paint color and reflectance.
3. Leave a 1 inch wide exposed strip of unpainted substrate and each coat of primer and finish paint.
4. Sample Sizes:
    a. Sheet Metals: 4 inch by 8 inch flat sheets.
    b. Bar and Tubular Metals: 8 inch long bars or tubular stock.

D. Quality Control Submittals:
1. Test Reports: Furnish certified test results from an independent testing laboratory, showing that products submitted comply with the specifications, when requested by the Director's Representative
2. Certificates: Furnish certificates of compliance required under QUALITY ASSURANCE Article.

1.03 QUALITY ASSURANCE

A. Volatile Organic Compounds (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (Title 6 NYCRR), Part 205 Architectural Surface Coatings.
1. Certificate of Compliance: List of each paint product to be delivered and installed. List shall include written certification stating that each paint product listed complies with the VOC regulatory requirements in effect at the time of job site delivery and installation.

B. Container Labels: Label each product container with paint manufacturer's name, product name and number, color name and number, thinning and application instructions, date of manufacture, shelf-life expiration date, required surface preparations, recommended coverage per gallon, wet and dry film thickness, drying time, and clean up procedures.

C. Field Examples:
1. Prior to on-site painting, at locations designated by the Director's Representative, apply field examples of each paint type to be applied.
2. Field examples to be applied on actual substrates to be painted and shall duplicate earlier approved paint samples.
    a. Field Example Minimum Wet and Dry Film Thickness: As indicated on approved product data sheet.
    b. Application: Apply each coat in a smooth uniform wet mil thickness without brush marks, laps, holidays, runs, stains, cloudiness, discolorations and other surface imperfections.
        1) Leave a specified exposed width of each previous coat beneath each subsequent coat of finish paint and primer.
    c. Use of Field Examples: Field examples shall serve as a quality control standard for acceptance or rejection of painting Work to be done under this Section.
3. Field Example Sizes:

a. Linear Substrate Examples: 20 lineal feet with 12 inch long strips.

4. Do not begin applying paints represented by field examples until examples have been reviewed and approved by the Director's Representative.
   a. Protect and maintain approved field examples until all painting work represented by the example has been completed and approved.

D. Compatibility of Paint Materials: Primers and intermediate paints shall be products manufactured or recommended by the finish paint manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to the Site in original, unopened containers and cartons bearing manufacturer's printed labels. Do not deliver products which have exceeded their shelf life, are in open or damaged containers or cartons, or are not properly labeled as specified.

B. Storage and Handling: Store products in a dry, well ventilated area in accordance with manufacturer's published product data sheets. Storage location shall have an ambient air temperature between 45 degrees F and 90 degrees F.

1.05 PROJECT CONDITIONS

A. Environmental Requirements:
   1. Ambient Air Temperature, Relative Humidity, Ventilation, and Surface Temperature: Comply with paint manufacturer's published product data sheet or other printed product instructions.
   2. If paint manufacturer does not provide environmental requirements, use the following:
      a. Ambient Air Temperature: Between 45 degrees F and .75 degrees F.
      b. Relative Humidity: Below 75 percent.
      c. Ventilation: Maintain the painting environment free from fumes and odors throughout the Work of this Section.
      d. Surface Temperature: At least 5 degrees F above the surface dewpoint temperature.
   3. Maintain environmental requirements throughout the drying period.

B. The following items are not to be field painted unless otherwise specified, noted or directed:
   1. Stainless steel, chrome plated or monel surfaces.
   2. Piping or ductwork to be insulated.
   3. Insulation on concealed piping and concealed ductwork.
   4. Insulated items covered with aluminum, stainless steel, or PVC jacketing.
   5. Insulation on piping in walk-in and non walk-in tunnels.
   6. Uninsulated mechanical equipment with factory applied baked on enamel finish.
   7. Mechanical equipment with enameled steel insulated jacket.
   8. Prefabricated multi-wall chimneys.

1.06 EXTRA MATERIALS

A. Provide extra finish paint materials, from the same production run as paints to be applied, in the following quantities for each color installed:
   1. Paint Types IAL: Two gallons.
   2. Color Coded Paints: One gallon, each type.
   3. Other Paint Types: One gallon, each type.

PART 2 PRODUCTS

2.01 PAINT MANUFACTURERS

A. Where noted, the following finish paint manufacturers produce the paint types specified.
   1. Ameron Protective Coatings, 201 Berry St., Brea, CA 92621, (800) 926-3766.
   2. Armstrong World Industries, Inc., P.O. Box 3001, Lancaster, PA 17604, (800) 866-5639.
   3. Benjamin Moore and Co., 51 Chestnut Ridge Rd., Montvale, NJ 07645, (201) 573-9600.
   4. ICI Dulux Paints, 4000 DuPont Cr., Louisville, KY 40207, (800) 984-5444.
   5. Inorganic Coatings, Inc., 500 Lapp Rd., Malvern, PA 19355, (800) 345-0531.
   6. Insl-X, 50 Holt Drive, P.O. Box 694, Stony Point, NY 10980, (845) 786-5000.
   7. PPG Architectural Finishes, One PPG Plaza, Pittsburgh, PA 15272, (800) 441-9695.
   8. Rust-Oleum Corporation, 11 Hawthorn Pky., Vernon Hills, IL 60061, (800) 553-8444.
   9. Sherwin-Williams Co., Cleveland, OH 44101; 1-800-321-8194.
   10. Valspar Corp., 1401 Severn St., Baltimore, MD 21230, (800) 638-7756.
   11. Wm. Zinsser & Co., 39 Belmont Dr., Somerset, NJ 08875-1285, (908) 469-8100.

2.02 MISCELLANEOUS PRODUCTS

A. Cleaning Solvents: Low toxicity with flash point in excess of 100 degrees F.

B. Color Pigments: Pure, non-fading, finely ground pigments with at least 99 percent passing a 325 mesh sieve.
   1. Use lime-proof color pigments on masonry, concrete and plaster.

C. Galvanizing Compound, Cold: Single component compound with 93 percent pure zinc in the dried film and meeting the requirements of DOD-P-21035A (NAVY).

D. Masking Tape: Removable paper or fiber tape, self-adhesive and non-staining.

E. Metal Filler: Polyester resin base autobody filler.

F. Mineral Spirits: Low odor type recommended by finish paint manufacturer.

G. Paint Stripper: As recommended by finish paint manufacturer.

H. Stain Blocker, Primer-Sealer: As recommended by finish paint manufacturer.

I. Turpentine: ASTM D 13.

2.03 FINISH PAINT TYPES

A. Physical Properties:
   1. Specified percent solids by weight and volume, pigment by weight, wet and dry film thickness per coat, and weight per gallon are minimum physical properties of acceptable materials.
      a. Opaque Pigmented Paints: Physical properties specified are for white titanium dioxide base before color pigments are added.
      b. Specified minimum wet and dry film thickness per coat are for determining acceptable finish paint products. Minimum wet and dry film thickness per coat to be applied shall comply with approved finish paint manufacturer's product data sheets.
   2. Gloss or Reflectance: The following ASTM D 523 specified light levels and angles of reflectance:
      a. Flat: Below 15 at 85 degrees.
      b. Eggshell: Between 5 and 20 at 60 degrees.
      c. Satin: Between 15 and 35 at 60 degrees.
      d. Semigloss: Between 30 and 65 at 60 degrees.
      e. Gloss: Over 65 at 60 degrees.

B. Interior Finish Paint Types:
   1. Paint Type IAL-3: Interior Acrylic Latex, Semigloss Enamel.
      a. Solids by Weight: 49.0 percent.
      b. Solids by Volume: 35.0 percent.
      c. Solvent: Water.
      d. Vehicle: Vinyl acrylic resin.
      e. Weight per Gallon: 10.0 lbs.
      f. Wet Film Thickness: 3.8 mils.
      g. Dry Film Thickness: 1.2 mils.
      h. Manufacturers: Benjamin Moore, ICI Dulux, Sherwin-Williams.

C. Other Finish Paint Types:
   1. Paint Type EIC: Elastomeric Insulation Coating, Acrylic Latex.
      a. As manufactured or recommended by insulation manufacturer.
         1) Armstrong Armaflex Insulation: Use WB Armaflex Finish.

D. Colors: Provide paint colors to be selected by the Director from finish paint manufacturers available color selections.
   1. Approved finish paint manufacturers to match designated colors of other manufacturers where colors are shown on contract documents.
   2. Safety Colors: Industry Standard ANSI Safety Colors.
   3. Color Coding: Apply exposed insulated and uninsulated piping finish paints in the following colors in all locations.

a. Existing Facility Buildings: Color code to match Facility's color code.
b. Other Colors:
1) Exposed Ductwork: Gray.
2) Insulated and Uninsulated Equipment: Gray.
a) Do not paint equipment with factory finish paint.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to be prepared, primed, or painted for compliance with contract documents, required environmental conditions, manufacturer's product data sheets, product label instructions and other written requirements.
1. Do not begin any phase of the work without first checking and verifying that surfaces and environmental conditions are acceptable for such work and that any earlier phase deficiencies and discrepancies have been properly corrected.
a. The commencement of new work shall be interpreted to mean acceptance of surfaces to be affected.

3.02 PREPARATION

A. Protection: Cover and protect surfaces to be painted, adjacent surfaces not to be painted, and removed furnishings and equipment from existing paint removals, airborne sanding particles, cleaning fluids and paint spills using suitable drop cloths, barriers and other protective devices.
1. Adjacent exterior surface protections include roofs, walls, landscaping, driveways and walkways. Interior protections include floors, walls, furniture, furnishings and electronic equipment.
2. Remove and replace removable hardware, lighting fixtures, telephone equipment, other devices and cover plates over concealed openings in substrates to be painted.
a. Cover and neatly mask permanently installed hardware, lighting fixtures, cover plates and other devices which cannot be removed and are not scheduled for painting.
3. Schedule and coordinate surface preparations so as not to interfere with work of other trades or allow airborne sanding dust particle to fall on freshly painted surfaces.
4. Provide adequate natural or mechanical ventilation to allow surfaces to be prepared and painted in accordance with product manufacturer's instructions and applicable regulations.
5. Provide and maintain "Wet Paint" signs, temporary barriers and other protective devices necessary to protect prepared and freshly painted surfaces from damages until Work has been accepted.

B. Clean and prepare surfaces to be painted in accordance with specifications, paint manufacturer's approved product data sheets and printed label instructions. In the event of conflicting instructions or directions, the more stringent requirements shall apply.

1. Cleaners: Use only approved products manufactured or recommended by finish paint manufacturer. Unless otherwise recommended by cleaner manufacturer, thoroughly rinse with clean water to remove surface contaminants and cleaner residue.

C. Surfaces:
1. Existing Painted Substrates: Thoroughly clean to remove dirt, soot, grease, mildew, chalkiness and stains using finish paint manufacturer's recommended cleaners.
   a. Remove loose, peeling, cracked and blistered paint by chipping, scraping, and sanding smooth with medium and fine sandpaper
   b. Completely strip and remove existing paint films where shown on the drawings using approved methods. When approved, chemical strippers are to be applied and rinsed or removed in accordance with product manufacturer's printed instructions.
   c. Fill surface holes and depressions with finish paint manufacturer's recommended filler and sand smooth to adjacent undisturbed edges.
   d. Touch-up bare spots on previously painted surfaces with finish paint manufacturer's recommended primer.
   e. Sand existing semigloss and gloss paint surfaces to a uniform smooth dull finish before painting.
   f. Fill and sand smooth existing paint surface damages, depressions, ridges and other imperfections that will remain visible after new paints have been applied.
2. Steel Substrates:
   a. Prepare steel in accordance with Structural Steel Painting Council (SSPC) standards:
      1) SSPC-SP1: Remove oil, grease, dirt, soil, salts, and other surface contaminants using appropriate cleaning solvents and clean rags, vapor, alkali, emulsion, or steam and adequate ventilation.
      2) SSPC-SP2: Remove loose rust, mill scale, and paint to the degree specified by hand chipping, scraping, sanding, and wire-brushing.
      3) SSPC-SP3: Remove loose rust, mill scale, and paint to the degree specified by power-tool chipping, descaling, sanding, wire-brushing, and grinding.
3. Galvanized Metal:
   a. Allow new galvanized surfaces to weather as long as possible before cleaning. Remove surface contaminants using clean rags and petroleum spirits.
   b. Remove "white rust" using appropriate solvent and, if necessary, wire brushing or sanding.
   c. Use appropriate Structural Steel Painting Council Standard SSPC-SP1 to SSPC-SP6 to prepare steel substrates where galvanized protection has been removed.

D. Painting Material Preparations:
1. Prepare painting materials in accordance with manufacturer's approved product data sheets and printed label instructions.

a. Stir materials before and during application for a consistent mixture of density. Remove container surface paint films before stirring and mixing.
b. Slightly tint first opaque finish coat where primer and finish coats are the same color.
c. Do not thin paints unless allowed and directed to do so in writing within limits stated on approved product data sheets.

3.03 PAINTING SCHEDULE

A. Exterior Exposed Items: Unless otherwise specified, exterior exposed items shall be hot dipped galvanized:
1. Hot dipped galvanized:
b. Equipment hangers, supports and accessories for pipe.

B. Interior Exposed Items: Unless otherwise specified, apply the following paint types with manufacturer's recommended primers on the following interior substrates.
1. Paint Type IAL-3:
a. Insulated and uninsulated piping.
b. Equipment hangars, supports and accessories for pipe and ductwork.
c. Hot and cold service equipment insulation.
d. Electrical raceways, fittings, pull boxes, junction boxes, etc..
2. Paint Type EIC:
a. Flexible elastomeric foam insulation on piping, ductwork, and equipment.

3.04 APPLICATION

A. Environmental Conditions:
1. Water-based Paints: Apply when surface temperatures will be 50 degrees Fahrenheit to 90 degrees Fahrenheit throughout the drying period.
2. Other Paints: Apply when surface temperatures will be 45 degrees Fahrenheit to 95 degrees Fahrenheit throughout the drying period.

B. Application: Apply approved paints where specified, or shown on the drawings, and to match approved field examples.
1. Applicators: Brushes, rollers or spray equipment recommended by the paint manufacturer and appropriate for the location and surface area to be painted.
a. Approved minimum wet and dry film thicknesses for each coat shall be as recommended on approved product data sheets and the same for each application method and substrate.

C. Paint Type Coats To Be Applied: Unless otherwise specified, or recommended by finish paint manufacturer's product data sheet and approved by submittal, the number of coats to be applied for each paint type are as follows:
1. Acrylic Latex Paint Types IAL:

a. New Unpainted Surfaces: Apply 1 coat of primer and 2 coats of finish paint.
b. Existing Painted Surfaces:
1) Apply 2 coats of finish paint when existing paint has a lower gloss.
2) Apply one coat of primer and 2 finish coats when existing paint has a higher gloss.
c. Paint Type IAL: Provide mildewcide additive for bathrooms, kitchens, janitor closets, laundry rooms, restrooms and other wet or damp areas.

2. Other Paint Types: Apply in accordance with paint manufacturer's product data sheets.

3.05 FIELD QUALITY CONTROL

A. Paint Samples: Assist the Director's Representative in obtaining random one quart paint samples for testing at any time during the Work.
1. Notify the Director's Representative upon delivery of paints to the Site.
2. Furnish new one quart metal paint containers with tight fitting lids and suitable labels for marking.
a. Furnish labor to thoroughly mix paint before sampling and provide assistance with sampling when required.

3.06 ADJUSTING AND CLEANING

A. Reinstall removed items after painting has been completed.
1. Restore damaged items to a condition equal to or better than when removed. Replace damaged items that cannot be restored.

B. Touch up and restore damaged finish paints. Touch up and restoration paint coats are in addition to the number of specified finish paint coats.

C. Remove spilled, splashed, or spattered paint without marring, staining or damaging the surface. Restore damaged surfaces to the satisfaction of the Director's representative.

D. Remove temporary barriers, masking tape, and other protective coverings upon completion of painting, cleaning and restoration work.

END OF SECTION