

SECTION 09960

MULTI-COLOR FINISHING SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-02 (1996) Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1308 (1987, Revised 1993) Effect of Household Chemicals on Clear and Pigmented Organic Finishes

ASTM D 2486 Scrub Resistance of Wall Paint

ASTM D 3273 (1994) Resistance of Growth of Mold on the Surface of Interior Coating in an Environmental Chamber

ASTM D 3274 (1995) Evaluating Degree of Surface

ASTM D 4060 (1995) Abrasion Resistance of Organic Coatings by the Taber Abraser

ASTM E 84 (1984) Surface Burning Characteristics of Building Materials

FEDERAL STANDARDS (FED-STD)

FED-STD 141-1 (Rev. C) Paint, Varnish, Lacquer and Related Materials; Methods of Inspection, Sampling, and Testing (Test Methods 6141.1 (Washability), No. 6142 (Scrub Resistance), and No. 6271.2 (Mildew Resistance))

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Paint; FIO.

The names, quantity represented, and intended use for the proprietary brands of materials proposed to be substituted for the specified materials regardless of quantities in states where VOC content limitations apply.

SD-06 Instructions

Mixing and Thinning; FIO. Application; FIO.

Manufacturer's current printed product description, material safety data sheets (MSDS) and technical data sheets for each coating system. Detailed mixing, thinning and application instructions, minimum and maximum application temperature, and curing and drying times between coats for epoxy, moisture-curing polyurethane, and liquid glaze coatings. Detailed application instructions for textured coatings shall be provided.

SD-09 Reports

Paint; FIO.

A statement as to the quantity represented and the intended use, plus the following test report for batches in excess of 200 L:25 gallons:

- a. A test report showing that the proposed batch to be used meets all specification requirements, or:
- b. A test report showing that a previous batch of the same formulation as the batch to be used met all specification requirements, plus, on the proposed batch to be used, a report of test results for properties of weight per liter, gallon, viscosity, fineness of grind, drying time, color, and gloss.

SD-13 Certificates

Lead; FIO. Mildewcide and Insecticide; FIO. Volatile Organic Compound (VOC) Content; FIO. Qualifications; FIO.

Certificate stating that paints for interior use contain no mercurial mildewcide or insecticide. Certificate stating that paints proposed for use contain not more than 0.06 percent lead by weight of the total nonvolatile. Certificate stating that paints proposed for use meet Federal VOC regulations and those of the local Air Pollution Control Districts having jurisdiction over the geographical area in which the project is located. Certificate stating that the applicator is duly trained by the manufacturer in the application of the product to be installed and that the applicator has worked on installations of comparable type and size and that specialized equipment as required by the manufacturer will be used for the application.

SD-14 Samples

Paint; GA.

While the material is at the site or source of supply, and at a time agreeable to the Contractor and the Contracting Officer, a 1 liter/1 quart sample of each color and batch, except for quantities of 200 liters/50 gallons or less, shall be taken by random selection from the sealed

containers by the Contractor in the presence of a representative of the Contracting Officer. The contents of the containers to be sampled shall be thoroughly mixed to ensure that the sample is representative. Samples shall be identified by designated name, specification number, manufacturer name and address, batch number, project contract number, intended use, and quantity involved.

Mock-ups; GA.

Prepare a mock-up area not to exceed 30 square meters100 square feet for each coating on each type of substrate specified and each color blend for approval. The approved mock-up shall establish a quality of work for the color, pattern, and texture; and will be used in judging the completed work. Mockup(s) shall be retained and protected in undisturbed condition until the work is completed and approved. Mock-ups may be a part of the completed work provided their locations are noted on the drawings before the work is started.

1.3 PACKAGING, LABELING, AND STORING

Paints shall be delivered unopened in containers that legibly show the designated name, formula or specification number, batch number, color, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name of manufacturer. Pigmented paints shall be furnished in containers not larger than 20 liters.5 gallons.Paints and thinner shall be stored in accordance with the manufacturer's written directions and as a minimum stored off the ground, under cover, with sufficient ventilation to prevent the buildup of flammable vapors and at temperatures between4 and 35 degrees C. 40 and 95 degrees F. Paints shall be stored on the project site or segregated at the source of supply sufficiently in advance of need to allow 30 days for testing.

1.4 APPROVAL OF MATERIALS

When samples are tested, approval of materials will be based on tests of the samples; otherwise, materials will be approved based on test reports furnished with them. If materials are approved based on test reports furnished, samples will be retained by the Government for testing should the materials appear defective during or after application. In addition to any other remedies under the contract the cost of retesting defective materials will be at the Contractor's expense.

1.5 ENVIRONMENTAL CONDITIONS

Water-thinned coatings shall be applied only when ambient temperature is between10 and 32 degrees C. 50 and 95 degrees F. Lighting shall be maintained at 80 foot candles minimum on surfaces to be finished.

1.6 SAFETY AND HEALTH

Work shall comply with applicable Federal, State, and local laws and regulations, and with the ACCIDENT PREVENTION PLAN, including the Activity Hazard Analysis as specified in the CONTRACT CLAUSES. The Activity Hazard Analysis shall include analyses of the potential impact of painting operations on painting personnel and on others involved in and adjacent to the work zone.

1.6.1 Worker Exposures

Exposure of workers to hazardous chemical substances shall not exceed limits as established by ACGIH-02, or as required by a more stringent applicable regulation.

1.6.2 Toxic Compounds

Toxic products having ineffective physiological warning properties, such as no or low odor or irritation levels, shall not be used unless approved by the Contracting Officer.

1.6.3 Training

Workers having access to an affected work area shall be informed of the contents of the applicable material data safety sheets (MSDS) and shall be informed of potential health and safety hazard and protective controls associated with materials used on the project. An affected work area is one which may receive mists and odors from the painting operations. Workers involved in preparation, painting and clean-up shall be trained in the safe handling and application, and the exposure limit, for each material which the worker will use in the project. Personnel having a need to use respirators and masks shall be instructed in the use and maintenance of such equipment.

1.6.4 Coordination

Work shall be coordinated to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from preparation, painting and clean-up operations.

1.7 EXTRA STOCK/RE-PURCHASE

Spare paint of each multi-color textured interior coating shall be furnished at the rate of [[3 liters]][20 liters]5 percent of the amount applied. Colors and pigments shall be from the same lots as that applied. Product shall be from a manufacturer that will allow product to be purchased in one gallon minimums.

PART 2 PRODUCTS

2.1 MULTI-COLOR TEXTURED COATING MATERIAL

Multi-color tone-on-tone, textured, spray-on coating shall consist of pigmented resin particles suspended in an aqueous solution incorporating a high resistance to fungus, mildew, alkalinity, soil and abrasion. The second coat shall be polychromatic, consisting of "beads" of copolymer pigments, suspended in a chemically treated aqueous solution, which rupture and splatter their contents upon contact with the surface. The coating shall have a flame spread of not more than 25 and a smoke development rating of not more than 450 when tested in accordance with ASTM E 84. The coating system shall have been tested and passed the tests specified in ASTM D 1308 and Fed Std 141, Test Methods 6141.1, 6142, and 6271. Provide ready mixed textured coating materials. Job tinting and mixing is not acceptable.

2.1.1 Color, Pattern, and Texture

Color, pattern, and texture of the background and pattern coats shall

conform to as specified on the Finish Schedule in the architectural drawings.

2.1.2 Heavy Wear Areas

For areas exposed to heavy wear use, including stairs and lobby shall conform to ASTM D 2486, 4150 Cycles (light or no wear) and ASTM D 4060-84 of 168 mg loss, 1000 Cycle 1000 gms (weight), the color, pattern, and texture of the top coat shall as specified on the Finish Schedule in the architectural drawings; sheen shall be eggshell. Flat finishes shall not be acceptable.

2.1.3 Scrubability/Washability

Product shall have a minimum scrubability of 1000 cycles, no wear ASTM D 2486, and washability minimum of 15,500 cycles, no wear Fed Std 141 Method 6142.

2.1.4 Mildewcide and Insecticide

Paint specified for all coats applied to fabrics and vapor barrier jackets over insulation and surfaces in lobby area shall contain a mildewcide that will not adversely affect the color, texture, or durability of the coating.

The mildewcide shall be incorporated into the paint by the manufacturer and shall attain a surface disfigurement rating of 8 or greater when tested in accordance with ASTM D 3273 and evaluated in accordance with ASTM D 3274.

Mercurial mildewcide shall not be used in interior paint. Insecticides shall not be used in paint.

2.1.5 Lead

Paints containing lead in excess of 0.06 percent by weight of the total nonvolatile content (calculated as lead metal) shall not be used.

2.1.6 Chromium

Paints containing zinc chromate or strontium chromate pigments shall not be used.

2.1.7 Volatile Organic Compound (VOC) Content

Paints shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards and shall conform to the restrictions of the local air pollution control authority.

2.2 PRIMER

Primer shall be as recommended by the manufacturer for substrates.

PART 3 EXECUTION

3.1 PROTECTION OF AREAS NOT TO BE PAINTED

Items not to be painted which are in contact with or adjacent to painted surfaces shall be removed or protected prior to surface preparation and painting operations. Items removed shall be replaced when painting is completed. Following completion of painting, workmen skilled in the trades involved shall reinstall all removed items. Surfaces contaminated by coating materials shall be restored to original condition.

3.1.1 Surface Preparation

Clean, dry, and adequately protect from dampness the surfaces to be coated.

Remove and neutralize mildew. Surfaces shall be smooth, even, true to plane, and free of any flaking, unsound coatings, foreign material, or defects which will adversely affect adhesion or appearance of the applied coating. Fill cracks.

3.1.2 Adjacent Surfaces

Prior to surface preparation and application operations, completely mask, remove or otherwise adequately protect hardware, accessories, machined surfaces, plates, lighting fixtures, and similar items in contact with the coated surfaces that are not scheduled to receive the textured coating.

3.2 EQUIPMENT

Conventional air spray gun(s) with an internal mix air nozzle assembly shall be used. Airless atomization and external mix air nozzles are not permitted. The compressor shall be of adequate size to provide the necessary volume of air to the spray gun on a continuous basis.

3.3 APPLICATION

Painting practices shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards. Application shall be in accordance with the manufacturer's printed recommendations and instructions, this section, and Section 09900 PAINTING, GENERAL and shall be the same as that used for the approved mock-up panel. The multi-color textured coating system shall consist of a primer coat followed by a high pressure sprayed-on covering coat (background coat) and a final low-pressure coat (pattern coat) to achieve the multi-color final appearance. Primer coat shall be the type recommended by the manufacturer and shall be applied in as many coats as required to produce a uniform appearance. The high pressure sprayed-on covering coat shall be applied with air pressure higher than fluid pressure in a continuous uniform film to completely cover the primer. The lower pressure or pattern coat shall be applied immediately after the background coat with an air pressure lower than the fluid pressure. The finished appearance shall be equivalent to the approved samples and mock-up(s), free from sags, voids, and excessive tactile texture, and be uniform in pattern and sheen. All touch up and repair work shall be accomplished prior to final acceptance.

3.3.1 Ventilation

Affected areas shall be ventilated during paint application so that workers exposure to chemical or other airborne substances shall not exceed limits as established by ACGIH-02, or as required by a more stringent applicable regulation. Interior work zones having a volume of 280 cubic meters 10,000 cubic feet or less shall be ventilated at a minimum of 2 air exchanges per hour. Ventilation in larger work zones shall be maintained by means of mechanical exhaust. Solvent vapors shall be exhausted outdoors, away from air intakes and workers. Return air inlets in the work zone shall be temporarily sealed before start of work until the coatings have dried.

3.3.2 Respirators

Operators and personnel in the vicinity of operating paint sprayers shall

wear respirators.

3.4 CLEANING

Clean up over-spray and spills on adjacent surfaces. Protect coating from damage and remove masking. Repair any damage to coatings or surfaces caused by cleaning operations. Remove debris from job site and leave storage area clean.

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