

PART 1 - GENERAL

1.1 Summary

- .1 Types of items described in this Section:
 - .1 Surface preparation and the application of paint systems on the following interior substrates:
 - .1 Wood.
 - .2 Gypsum board.
 - .3 Steel.
 - .4 Galvanized metal.
 - .2 Scope of Work of this Contract
 - .1 While drawings and schedules identify locations for some finishes, the scope of work entails painting all of the following interior surfaces:
 - .1 All surfaces explicitly noted to be painted.
 - .2 All unfinished surfaces that are either exposed-to-view or semi-exposed-to-view and not otherwise scheduled to receive another type of finish, excluding finished hardwood; unless otherwise noted.
 - .2 Specifically, do not paint any of the following surfaces:
 - .1 Grating.
 - .2 Concrete floors, unless specifically indicated.
 - .3 Stainless steel.
 - .4 Aluminum handrail and aluminum stair and ladder components.
 - .5 PVC, rubber, copper, bronze or brass surfaces.

1.2 Definitions

- .1 Concealed Surface: A surface that cannot be seen because the view from any angle is obstructed by an immovable object.
- .2 Exposed and semi-exposed surface: Any surface that is not a concealed surface.
- .3 Finish: a final surface treatment intended to enhance the appearance of a substrate or protect it from the adverse effects of its environmental, or both, and includes but is not limited to paint, stains, coatings, laminates,

tiles, fabrics and carpets.

- .1 Primer finish is not considered a finish.

- .4 Unfinished Surface: A surface having no Finish.

- .5 Gloss Levels:

- .1 Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- .2 Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- .3 Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- .4 Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- .5 Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- .6 Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- .7 Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 Action Submittals

- .1 Product Data: For each type of product. Include preparation requirements and application instructions.
- .2 Samples for Verification: For each type of paint system and in each colour and gloss of topcoat.
 - .1 Submit Samples on rigid backing, 200 mm square.
 - .2 Step coats on Samples to show each coat required for system.
 - .3 Label each coat of each Sample.
 - .4 Label each Sample for location and application area.
- .3 Product List: For each product indicated, include the following:
 - .1 Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - .2 Printout of current *MPI Approved*

Products List for each product category specified in Part 2, with the proposed product highlighted.

.3 VOC content.

1.4 Maintenance
Materials Submittals

- .1 Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - .1 Paint: 5 percent, but not less than 3.8 L of each material and colour applied.

1.5 Quality Assurance

- .1 MPI Standards:
 - .1 Products: Complying with MPI standards indicated and listed in *MPI Approved Products List*.
 - .2 Preparation and Workmanship: Comply with requirements in *MPI Architectural Painting Specification Manual* for products and paint systems indicated.

1.6 Delivery, Storage
and Handling

- .1 Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 7 deg C.
 - .1 Maintain containers in clean condition, free of foreign materials and residue.
 - .2 Remove rags and waste from storage areas daily.

1.7 Project Conditions

- .1 Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 10 and 35 deg C.
- .2 Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 3 deg C above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 Paint, General

- .1 Material Compatibility:
 - .1 Provide materials for use within each paint system that are

- compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- .2 For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- .2 VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colourants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
 - .1 Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
 - .2 Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
- .3 Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
 - .1 Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - .2 Restricted Components: Paints and coatings shall not contain any of the following:
 - .1 Acrolein.
 - .2 Acrylonitrile.
 - .3 Antimony.
 - .4 Benzene.
 - .5 Butyl benzyl phthalate.

- .6 Cadmium.
- .7 Di (2-ethylhexyl) phthalate.
- .8 Di-n-butyl phthalate.
- .9 Di-n-octyl phthalate.
- .10 1,2-dichlorobenzene.
- .11 Diethyl phthalate.
- .12 Dimethyl phthalate.
- .13 Ethylbenzene.
- .14 Formaldehyde.
- .15 Hexavalent chromium.
- .16 Isophorone.
- .17 Lead.
- .18 Mercury.
- .19 Methyl ethyl ketone.
- .20 Methyl isobutyl ketone.
- .21 Methylene chloride.
- .22 Naphthalene.
- .23 Toluene (methylbenzene).
- .24 1,1,1-trichloroethane.
- .25 Vinyl chloride.

- .4 Colours: If not noted otherwise, then selected by Departmental Representative from full range of colours.

- .1 M&E equipment: Assume no colour coding required unless otherwise indicated in mechanical and electrical specification sections.

- .5 Gloss Levels: As determined by Departmental Representative.

2.2 Block Fillers

- .1 Interior/Exterior Latex Block Filler: MPI #4.
 - .1 VOC Content: E Range of E3.

2.3 Primers/Sealers

- .1 Interior Latex Primer/Sealer: MPI #50.
 - .1 VOC Content: E Range of E3.
 - .2 Environmental Performance Rating: EPR 3.
- .2 Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint systems indicated.

2.4 Metal Primers

- .1 Alkyd Anticorrosive Metal Primer: MPI #79.
 - .1 VOC Content: E Range of E2.
- .2 Cementitious Galvanized-Metal Primer: MPI #26.
 - .1 VOC Content: E Range of E1.

- .3 Waterborne Galvanized-Metal Primer:
MPI #134.
 - .1 VOC Content: E Range of E3.
 - .2 Environmental Performance Rating:
EPR 3.
- 2.5 Wood Primers
 - .1 Interior Latex-Based Wood Primer:
MPI #39.
 - .1 VOC Content: E Range of E3.
 - .2 Environmental Performance Rating:
EPR 3.
- 2.6 Latex Paint
 - .1 High-Performance Architectural Latex
(Semigloss): MPI #141 (Gloss Level 5).
 - .1 VOC Content: E Range of E3.
 - .2 Environmental Performance Rating:
EPR 7.
- 2.7 Alkyd Paint
 - .1 Interior Alkyd (Flat): MPI #49 (Gloss
Level 1).
 - .1 VOC Content: E Range of E3.
 - .2 Interior Alkyd (Eggshell): MPI #51
(Gloss Level 3).
 - .1 VOC Content: E Range of E2.
 - .3 Interior Alkyd (Semigloss): MPI #47
(Gloss Level 5).
 - .1 VOC Content: E Range of E2.
 - .2 Environmental Performance Rating:
EPR 3.
 - .4 Interior Alkyd (Gloss): MPI #48 (Gloss
Level 6).
 - .1 VOC Content: E Range of E2.
- 2.8 Floor Coatings
 - .1 Exterior/Interior Alkyd Floor Enamel
(Gloss): MPI #27 (Gloss Level 6).
 - .1 VOC Content: E Range of E2.
 - .2 Additives: Manufacturer's standard
additive to increase skid resistance
of painted surface.

PART 3 - EXECUTION

- 3.1 Examination
 - .1 Examine substrates and conditions, with
Applicator present, for compliance with
requirements for maximum moisture
content and other conditions affecting
performance of work.

- .2 Maximum Moisture Content of Substrates:
When measured with an electronic
moisture meter as follows:
 - .1 Concrete: 12 percent.
 - .2 Masonry (Clay and CMU): 12 percent.
 - .3 Wood: 15 percent.
 - .4 Gypsum Board: 12 percent.
 - .5 Plaster: 12 percent.
- .3 Verify suitability of substrates,
including surface conditions and
compatibility with existing finishes and
primers.
- .4 Begin coating application only after
unsatisfactory conditions have been
corrected and surfaces are dry.
 - .1 Beginning coating application
constitutes Contractor's acceptance
of substrates and conditions.

3.2 Preparation

- .1 Comply with manufacturer's written
instructions and recommendations in *MPI
Architectural Painting Specification
Manual* applicable to substrates
indicated.
- .2 Remove plates, machined surfaces, and
similar items already in place that are
not to be painted. If removal is
impractical or impossible because of
size or weight of item, provide surface-
applied protection before surface
preparation and painting.
 - .1 After completing painting
operations, use workers skilled in
the trades involved to reinstall
items that were removed. Remove
surface-applied protection if any.
 - .2 Do not paint over labels of
independent testing agencies or
equipment name, identification,
performance rating, or nomenclature
plates.
- .3 Clean substrates of substances that
could impair bond of paints, including
dirt, oil, grease, and incompatible
paints and encapsulants.
 - .1 Remove incompatible primers and
reprime substrate with compatible

primers as required to produce paint systems indicated.

- .4 Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- .5 Clay Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.
- .6 Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- .7 Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
 - .1 SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- .8 Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- .9 Wood Substrates:
 - .1 Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - .2 Sand surfaces that will be exposed to view, and dust off.
 - .3 Prime edges, ends, faces, undersides, and backsides of wood.
 - .4 After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

- .10 Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- .11 Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

3.3 Application

- .1 Apply paints according to manufacturer's written instructions.
 - .1 Use applicators and techniques suited for paint and substrate indicated.
 - .2 Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - .3 Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- .2 Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match colour of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- .3 If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, colour, and appearance.
- .4 Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and colour breaks.
- .5 Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - .1 Mechanical Work:
 - .1 Uninsulated metal piping.

- .2 Uninsulated plastic piping.
- .3 Pipe hangers and supports.
- .4 Tanks that do not have factory-applied final finishes.
- .5 Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
- .6 Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
- .7 Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- .2 Electrical Work:
 - .1 Galvanized and steel conduits.
 - .2 Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 Cleaning and Protection

- .1 At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- .2 After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- .3 Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Departmental Representative, and leave in an undamaged condition.
- .4 At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 Interior Painting Schedule

- .1 Propose paint system for any surfaces not listed. Propose paint system consisting of a minimum of a prime coat, intermediate coat, and topcoat.
- .2 Concrete Substrates, Traffic Surfaces:
 - .1 Alkyd Floor Enamel System:

- MPI INT 3.2B.
 - .1 Prime Coat: Exterior/interior alkyd floor enamel.
 - .2 Intermediate Coat: Exterior/interior alkyd floor enamel.
 - .3 Topcoat: Exterior/interior alkyd floor enamel.
- .3 CMU Substrates:
 - .1 High-Performance Architectural Latex System: MPI INT 4.2D.
 - .1 Prime Coat: Interior/exterior latex block filler.
 - .2 Intermediate Coat: High-performance Architectural latex matching topcoat.
 - .3 Topcoat: High-performance Architectural latex.
- .4 Steel Pipes filled with liquids, including but not limited to sprinkler pipes:
 - .1 Alkyd System: MPI INT 5.1E.
 - .1 Prime Coat: Alkyd anticorrosive metal primer.
 - .2 Intermediate Coat: Interior alkyd matching topcoat.
 - .3 Topcoat: Interior alkyd
- .5 Galvanized Metal Pipes filled with liquids, including but not limited to sprinkler pipes:
 - .1 Alkyd System: MPI INT 5.3C.
 - .1 Prime Coat: Cementitious galvanized-metal primer.
 - .2 Intermediate Coat: Interior alkyd matching topcoat.
 - .3 Topcoat: Interior alkyd
- .6 Steel Substrates:
 - .1 High-Performance Architectural Latex System: MPI INT 5.1R.
 - .1 Prime Coat: Alkyd anticorrosive metal primer.
 - .2 Intermediate Coat: High-performance Architectural latex matching topcoat.
 - .3 Topcoat: High-performance Architectural latex.
- .7 Galvanized-Metal Substrates:

- .1 High-Performance Architectural Latex System: MPI INT 5.3M.
 - .1 Prime Coat: Waterborne galvanized-metal primer.
 - .2 Intermediate Coat: High-performance Architectural latex matching topcoat.
 - .3 Topcoat: High-performance Architectural latex.
- .8 Dressed Lumber Substrates: Including Architectural woodwork and doors.
 - .1 High-Performance Architectural Latex System: MPI INT 6.3A.
 - .2 Prime Coat: Interior latex-based wood primer.
 - .3 Intermediate Coat: High-performance Architectural latex matching topcoat.
 - .4 Topcoat: High-performance Architectural latex.
- .9 Gypsum Board Substrates:
 - .1 High-Performance Architectural Latex System: MPI INT 9.2B.
 - .2 Prime Coat: Interior latex primer/sealer.
 - .3 Intermediate Coat: High-performance Architectural latex matching topcoat.
 - .4 Topcoat: High-performance Architectural latex.