

- 1 General
- 1.1 **SECTION INCLUDES**
 - .1 Labour, Products, equipment and services necessary to complete the Work of this section.
 - .2 Work of this section includes but is not necessarily limited to, the following:
 - .1 Surface preparation and application of paint system on interior substrates as indicated on Finish Schedule and on Drawings
 - .3 Examine the Project Manual and Drawings for the Work of other Sections regarding the provisions for primer and finish coats. Paint or finish materials installed throughout the project which are required to be painted and which are left unfinished or unpainted by other Sections. The only exception to this requirement is where the Drawings, Project Manual or schedules explicitly state that a surface is not to be finish painted.
- 1.2 **REFERENCES**
 - .1 Department of Justice Canada
 - .1 Canadian Environmental Protection Act (CEPA).
 - .2 Environmental Protection Agency (EPA)
 - .1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24, (for Surface Coatings).
 - .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .4 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual.
 - .5 National Fire Code of Canada
 - .6 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
 - .7 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act (TDGA).
 - .8 Accessibility for Ontarians with Disabilities Act (AODA), latest edition
- 1.3 **QUALITY ASSURANCE**
 - .1 Qualifications
 - .1 Contractor: Minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
 - .2 Journeymen: Qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.

- .3 Apprentices: Working under direct supervision of qualified tradesperson in accordance with trade regulations.
- .2 Conform to the standards contained in the Master Painters Institute Architectural Painting Specification Manual, latest edition (hereafter referred to a MPI Painting Specification) for all painting procedures including preparation and application of materials. MPI Painting Specification Manual as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.
- .3 All paint manufacturers and Products used shall be as listed under the “Approved Products” section of the MPI Architectural Painting Specification Manual.

1.4 **SUBMITTALS**

- .1 Product Data
 - .1 Submit Product data and instructions for each paint and coating Product to be used.
 - .2 Submit Product data for the use and application of paint thinner.
 - .3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS). Indicate VOCs during application and curing.
- .2 Samples
 - .1 Submit 200 x 300 mm draw-downs of each colour and gloss/sheen as indicated on the Finish Schedule before painting is required.
 - .1 Colours shall match those specified in the Finish Schedules as indicated on Drawings and in this section.
 - .2 Where colour availability is restricted, submit full range colour sample chips for Consultant selection.
 - .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
- .3 Certificates: Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .4 Manufacturer's Instructions
 - .1 Submit manufacturer's installation and application instructions.
- .5 Closeout submittals: Submit maintenance data for incorporation into maintenance manual. Include following:
 - .1 Product name, type and use.
 - .2 Itemized list complete with manufacturer, Product number, paint type and colour coding for all colours used for Owner's later use in maintenance.
 - .3 MPI Environmentally Friendly classification system rating.

1.5 **DELIVERY, STORAGE AND HANDLING**

- .1 Packing, Shipping, Handling and Unloading
 - .1 Pack, ship, handle and unload materials to jobsite with containers and labels intact.
- .2 Acceptance at Site
 - .1 Identify Products and materials with labels indicating:
 - .1 Manufacturer's name and address.
 - .2 Type of paint or coating.
 - .3 Compliance with applicable standard.
 - .4 Colour number in accordance with established colour schedule.
- .3 Remove damaged, opened and rejected materials from site.
- .4 Storage and Protection
 - .1 Provide and maintain dry, temperature controlled, secure storage.
 - .2 Store materials and supplies away from heat generating devices.
 - .3 Store materials and equipment in well ventilated area with temperature range 7°C to 30°C (45°F to 86°F).
- .5 Store temperature sensitive Products above minimum temperature as recommended by manufacturer.
- .6 Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.
- .7 Remove paint materials from storage only in quantities required for same day use.
- .8 Fire Safety Requirements
 - .1 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

1.6 **SITE CONDITIONS**

- .1 Surface and Environmental Conditions
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
 - .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
 - .3 Apply paint when previous coat of paint is dry or adequately cured.

1.7 **EXTRA STOCK MATERIALS**

- .1 Two drawdowns and one 4L can with complete product code, formula, date used, clearly marked for each paint product, in each finish and colour of paint, used in the Work for use in maintenance.

2 Products

2.1 **MATERIALS**

- .1 Paint materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.):
 - .1 As listed in the MPI Approved Products List (APL) are acceptable for use on this Project.
 - .2 Provide paint materials for paint systems from one manufacturer.
- .2 Only qualified Products with E2 or E3 "Environmentally Friendly" rating are acceptable for use on this Project.
- .3 Conform to latest MPI requirements for exterior and interior painting Work including preparation and priming.
- .4 Shellac and turpentine: Highest quality Product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.
- .5 Provide paint Products meeting MPI "Environmentally Friendly" ratings based on VOC (EPA Method 24) content levels.
- .6 Use MPI listed materials having minimum E2 or E3 rating where indoor air quality (odour) requirements exist.
- .7 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
 - .1 Water-based for concrete, concrete block and gypsum board
 - .2 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
 - .3 Manufactured without compounds which contribute to smog in the lower atmosphere.
- .8 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- .9 All materials and paints shall be lead and mercury free and shall have low VOC content where possible.
- .10 All paint materials shall have good flowing and brushing properties and shall dry or cure free of blemishes or sags.
- .11 Where required, paints and coatings shall meet flame spread and smoke developed ratings designated by local code requirements and/or authorities having jurisdiction.

2.2 **COLOURS**

- .1 General: Colours for some elements to be painted are based on certain Product brands
- .2 Other Products may be used on the condition that colours selected by the Consultant must be matched at no extra cost even if it requires custom matching. Refer to Finish Schedule for complete list of colours.
- .3 Refer to Finishes Schedule for manufacturer, type, colour, finish and location.

2.3 **PAINT MIXES**

- .1 Perform colour tinting operations prior to delivery of paint to site.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 **GLOSS/SHEEN RATINGS**

- .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Maximum 5	Maximum 10
Gloss Level 2 - Velvet-Like Finish	Maximum 10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

2.5 **INTERIOR PAINTING SYSTEMS**

~~.1 Concrete Vertical Surfaces~~

- ~~.1 INT 3.1C - Latex, semi-gloss finish.~~

~~.2 Concrete masonry units: Concrete block:~~

- ~~.1 INT 4.2D - High performance architectural latex, semi-gloss finish.~~

~~.3 Structural steel and metal fabrications: Exposed structural and miscellaneous metals~~

- ~~.1 INT 5.1C-DD - dry fall, water based acrylic, semi-gloss finish.~~

.4.2 Galvanized metal (not chrome passivated): Doors, frames, ferrous metal pickets/railings, miscellaneous steel, pipes, exposed decking underside, and ducts

- .1 INT 5.3K - water based acrylic, semi-gloss finish (over water based primer).
- .2 For hot-dip galvanized surfaces, apply polyamine epoxy tie-coat in lieu of cementitious primer and apply alkyd topcoat.

~~.5.3~~ Galvanized metal (not chrome passivated): Exposed decking underside, and ducts

- .1 INT 5.3H- dry fall, water based acrylic, flat finish.

~~.6.4~~ Gypsum board: Gypsum wallboard:

- .1 INT 9.2B - High performance architectural latex, flat for ceilings; semi-gloss for walls.

~~.7 Canvas and Cotton Coverings~~

~~.1 INT 10.1A Latex, flat finish.~~

~~8.5~~ Interior of all Pipe Spaces and Ducts Visible Through Grilles, and all Surfaces Visible Through Louvres Occurring in Ceilings

.1 INT 10.1A - Latex, flat finish, black colour unless indicated otherwise.

Note: Prepare surfaces as required by applying proper primers on the surface to which paint is applied. For surfaces above ceilings, paint surfaces after all services have been installed and prior to ceiling installation.

~~.9 Piping and Conduit (except gas piping)~~

~~.1 INT 5.1C-G5 dry fall, water based acrylic, semi-gloss finish.~~

~~.10 Natural Gas Piping~~

~~.1 INT 5.1C-G5 INT 5.1C-G5 dry fall, water based acrylic, semi-gloss finish, yellow colour~~

~~.11 Fire Protection Piping~~

~~.1.2 INT 5.1C-G5 dry fall, water based acrylic, semi-gloss finish, red colour.~~

~~12.6~~ Wood Substrates: Wood trim, door trim, and window trim.

.1 High-Performance Architectural Latex System MPI INT 6.3A:

.1 Prime Coat: Primer, latex for exterior wood, MPI #39.

.2 Intermediate Coat: Latex, exterior, matching topcoat.

.3 Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #139.

3 Execution

3.1 **MANUFACTURER'S INSTRUCTIONS**

.1 Compliance: Comply with manufacturer's written recommendations or specifications, including Product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 **GENERAL**

.1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 **EXAMINATION**

.1 Examine substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Consultant damages, defects, and unsatisfactory or unfavourable conditions before proceeding with Work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with Work until conditions fall within acceptable range as recommended by manufacturer.

3.4 **PREPARATION**

- .1 Protection
 - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed Consultant
 - .2 Protect items that are permanently attached such as fire labels on doors and frames.
 - .3 Protect factory finished Products and equipment.
- .2 Surface Preparation
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
 - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Consultant.
- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air, as appropriate for the given condition.
 - .2 Wash surfaces with a biodegradable detergent and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
 - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Allow surfaces to drain completely and allow to dry thoroughly.
 - .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
 - .6 Use trigger operated spray nozzles for water hoses.
 - .7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.

- .3 Tint filler to match stains for stained woodwork.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1 m.
- .7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast Products from surfaces, pockets and corners to be painted by brushing with clean brushes or other suitable means.
- .8 Touch up of shop primers with primer as specified.

3.5

APPLICATION

- .1 Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application
 - .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
 - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Anti-slip Floor Coating
 - .1 Install product in accordance with manufacturer instructions.
 - .2 Apply product to clean, dry surface free from dirt, grease, waxes, chalking, soap build up, and loose paint.
 - .3 New concrete shall be cured for minimum one month prior to painting.
 - .4 Bare metal shall be correctly primed. Glossy surface shall be scuffed sanded to promote adhesion.
- .4 Spray Application
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
 - .4 Brush out immediately all runs and sags.
 - .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

- .5 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .6 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .7 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .8 Sand and dust between coats to remove visible defects.
- .9 Finish closets and alcoves as specified for adjoining rooms.
- .10 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 **MECHANICAL/ELECTRICAL EQUIPMENT**

- .1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Boiler room, mechanical and electrical rooms: Paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- .3 Other unfinished areas: Leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .5 Do not paint over nameplates.
- .6 Keep sprinkler heads free of paint.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- .8 Paint fire protection piping red.
- .9 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .10 Paint natural gas piping yellow.
- .11 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- .12 Do not paint interior transformers and substation equipment.

3.7 **SITE TOLERANCES**

- .1 Walls: No defects visible from a distance of 1 m at ninety degrees to surface.
- .2 Ceilings: No defects visible from floor at forty-five degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.8 **RESTORATION**

- .1 Clean and re-install hardware items removed before undertaken painting operations.

- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

3.9 **FIELD QUALITY CONTROL**

- .1 All surfaces, preparation and paint application shall be inspected by the paint inspection agency.
- .2 Painted surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the painting inspection agency inspector.
 - .1 Runs, sags, hiding or shadowing by inefficient application methods.
 - .2 Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
 - .3 Damage due to touching before paint is sufficiently dry or any other contributory cause.
 - .4 Damage due to application on moist surfaces or caused by inadequate protection from the weather.
 - .5 Damage and/or contamination of paint due to wind-blown contaminants (dust, sand blast materials, salt spray, etc.).
- .3 Painted surfaces rejected by the inspector shall be made good at the expense of the Contractor. Small affected areas may be touched up; large affected areas or areas without sufficient dry film thickness of paint shall be repainted. Runs, sags of damaged paint shall be removed by scraper or by sanding prior to application of paint.

End of Section