

Part 1 General

RELATED WORK

Section 09 00 10 – Finishes

Mechanical components – Engineer drawings and specifications

Electrical components - Engineer drawings and specifications

REFERENCES

American Society for Testing and Materials (ASTM):

ASTM D 3960-05, Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

Architectural Painting Specifications Manual, Master Painters Institute (MPI).

MPI Architectural Painting Specifications Manual, 2004.

Society for Protective Coatings (SSPC)

SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA).

National Fire Code of Canada.

QUALITY ASSURANCE

Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

Conform to latest MPI requirements for interior painting work including preparation and priming.

Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with MPI Painting Specification Manual "Approved Product" listing and shall be from a single manufacturer for each system used.

Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and shall be compatible with other coating materials as required.

Flaxseed oil, varnish, shellac, and turpentine should be the highest quality products on the list of approved products presented in the MPI Architectural Painting Specification Manual and they must be compatible with other coating products used.

Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.

Standard of Acceptance:

Walls: No defects visible from a distance of 1000 mm at 90° to surface.

Bulkheads/Ceilings: No defects visible from at 45° to surface when viewed using final lighting source.

Final coat to exhibit uniformity of color and uniformity of sheen across full surface area.

DOCUMENTS AND SAMPLES

Submit the required documents and sample in accordance with Section 01 01 50 General Instructions - documents and samples.

Product data sheets

Submit product data sheets and instructions required for each type of paint or coating used in the production of the covering.

Submit product data sheets in relation to the application or use paint thinner.

Samples

Submit the documents and sample colors of each paint type specified in accordance with Section 01 01 50 General Instructions - documents and samples.

Provide two (2) samples panels of each special paint finish colorless dye product finishing product prescribed for each color, texture and gloss or gloss required.

Use 10 mm D-Fir plywood for finishes over natural wood surfaces. Use 12.5 mm gypsum board for finishes over smooth surfaces.

MAINTENANCE

Materials and substitutes

Provide materials and substitute products from the same production batch as those implemented. Cover with a protective packaging, properly identified with appropriate labels in compliance with Section 01 78 00 – Closeout submittals.

Quantity: provide one (1) container of four (4) liters of each color and each type of topcoat product. Mark containers of paint and coating by associating each color and each type of product used in the accepted nomenclature of paint coatings and coated, specifying selected colors for different products.

Transport, storage and protection: comply with the Ministerial Representative's requirements in regard to the transportation and storage of materials and replacement products.

DELIVERY, STORAGE AND HANDLING

Delivering, storing and handling

Package, ship, handle and unload materials and products as indicated in Section 01 61 00 - Common product requirements, and as per the manufacturer's written instructions.

Labels shall clearly indicate:

Manufacturer's name and address.

Type of paint or coating.

Compliance with applicable standard.

Color number in accordance with established color schedule.

Remove damaged, opened and rejected materials from site.

Provide and maintain dry, temperature controlled, and secure storage.

Follow manufacturer's recommendations for storage and handling.

Store materials and supplies away from sources of heat.

Store materials and equipment in a well ventilated area with temperature range of 7° C to 30° C.

Store temperature sensitive products at a temperature above their minimum storage temperature as recommended by the manufacturer.

Keep areas used for storage, cleaning, and preparation clean and orderly. Once the work is completed , restore these areas to their original state of cleanliness.

Remove paint materials from storage only in quantities required for same day use.

Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

Fire Safety Requirements:

Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

- .1 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

ENVIRONMENTAL PERFORMANCE REQUIREMENTS

Provide paint products meeting MPI "Environmentally Friendly"E2, E3 rating based on VOC (EPA Method 24) content levels.

WASTE MANAGEMENT AND DISPOSAL

Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/demolition waste management and disposal.

SITE REQUIREMENTS

Heating, Ventilation and Lighting:

Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 ° C for 24 hours before, during and after paint application until paint has cured sufficiently.

Provide continuous ventilation for seven days after completion of application of paint.

Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.

Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

Provide all necessary lighting equipment to maintain a minimum lighting level of 323 Lux on surfaces to be painted.

Temperature, Humidity and Substrate Moisture Content Levels. Perform no painting work when:

Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:

Ambient air and substrate temperatures are below 10 ° C.

Substrate temperature is over 32 ° C unless paint is specifically formulated for application at high temperatures.

Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.

The relative humidity is less than 85 % or the dew point corresponds to a difference of more than 3° Celsius between the air temperature and that of the substrate. The coating material should not be applied if the difference between the dew point and the ambient or the temperature of the substrate is greater than 3 degrees Celsius. Relative humidity should be determined by a whirling hygrometer prior to implementation.

It's raining, it's snowing, there is fog or drizzle, or precipitation such as snow or rain forecasted before the complete drying of the paint.

Ambient conditions for drying or curing of the product or the applied coating comply with specified ranges and this, until the new coating implemented can withstand the current climate.

Perform no painting work when the maximum moisture content of the substrate exceeds:

Cure period of at least 28 days for new concrete or masonry surfaces.

15% for wood.

12% for gypsum board.

Conduct moisture tests using a properly calibrated electronic Moisture Meter.

Test concrete, masonry and plaster surfaces for alkalinity as required.

Surface and Environmental Conditions:

Apply paint finish only 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. Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.

Proceed with application of paints and coatings on surfaces properly prepared and that the

moisture content is within the specified range.
Apply paint only when previous coat of paint is dry or adequately cured.

Additional Interior Application Requirements:

Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Schedule operations to the approval of the Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

MATERIALS

Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

Paint materials for paint systems shall be products of a single manufacturer.

Comply with the latest requirements of the MPI in relation to paint coatings, including those for surface preparation and application of primary or print painting.

Flashpoint: 61.0° Celsius or more in the case of water-based coatings and recycled water-based coatings.

COLOURS

Departmental Representative will provide Colour Schedule after Contract award.

The Color list will be established according to the selection of five (5) basic colors and three (3) accent colors. A maximum of eight (8) color will be chosen for all the work and no more than three (3) colors will be used in the same area.

The colors will be selected from the full range of colors and shades offered by manufacturers

Where specific products are available in a restricted range of colours, selection will be based on the limited range.

Second coat in a three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

MIXING AND TINTING

Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Departmental Representative's written permission.

Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

Dilute the paint for spraying in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative.

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.

GLOSS/SHEEN RATINGS

Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI values:

Gloss Level	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 max.
G2	Velvet finish	0 to 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 min.
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
	High-Gloss finish	> 85	

Gloss level ratings of painted surfaces as specified.

INTERIOR PAINTING SYSTEMS

Concrete walls (including horizontal soffits):

INT 3.1C High performance architectural latex G2 finish.

Horizontal concrete surfaces: Floors and stairs

INT 3.2B Paint with alkyd resins for floors, finish G2.

Concrete masonry: brick and smooth-faced or split face block:

INT 4.2C Product with alkyd resins, finish G2.

INT 4.2K light industrial coating water based finish G2.

EXTERIOR PAINTING SYSTEMS

Not applicable.

Part 3 Execution

MANUFACTURER'S INSTRUCTIONS

Compliance: comply with the recommendations or manufacturer's written instructions, including newsletters and fact sheets when dealing with products and instructions for handling, storage and implementation of products.

GENERAL

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

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

EXISTING CONDITIONS

Inspect existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to the Departmental Representative any damages, defects, and unsatisfactory or unfavourable conditions before proceeding with work.

Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

Maximum moisture content as follows:

Concrete block: 12%.

Concrete: 12%

PREPARATORY WORK

Protection

Protect interior and exterior building surfaces not to be painted from paint spatters, markings and other damage. If damaged, clean and restore such surfaces as directed by Departmental Representative.

Cover or mask windows and other ornamental hardware adjacent to areas being painted to prevent damage and to protect from paint drops and splatters. Use non-staining coverings.

Protect items that are permanently attached such as Fire Labels on doors and frames.

Protect factory finished products and equipment.

Surface Preparation

Remove electrical cover plates, light fixtures, surface hardware on doors, accessories and other surface mounted equipment, fittings and fastenings prior to undertaking any painting operations by General Contractor. Securely store and re-install items after painting is completed by General Contractor.

When necessary, cover or move items of furniture and transportable equipment to facilitate painting. Put these elements and materials back in place as the work progresses.

As painting operations progress, place "WET PAINT" signs in all areas to approval of Departmental Representative.

Clean and prepare surfaces in accordance with MPI 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.
- .2 Wash surfaces with a biodegradable detergent and bleach where applicable 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. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

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 pre-treatment as soon as possible after cleaning and before deterioration occurs.

Where possible, prime surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

Apply wood filler to nail holes and cracks.

Tint filler to match stains for stained woodwork.

Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

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 vacuum cleaning.

Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.

Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

APPLICATION

Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.

Brush and Roller Application:

Apply paint in a uniform layer using brush and/or roller of types suitable for application.

Work paint into cracks, crevices and corners.

Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins.

Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple unless approved by Consultant Departmental Representative.

Remove runs, sags and brush marks from finished work and repaint.

Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Departmental Representative.

Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

Sand and dust between coats to remove visible defects.

Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

Finish top, bottom, edges and cut-outs of doors after fitting as specified for door surfaces.

MECHANICAL/ELECTRICAL EQUIPMENT

Unless otherwise specified, paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as noted otherwise.

Mechanical and electrical installations: paint piping, electrical conduits, ventilation ducts, supports and other apparent electrical and mechanical components.

Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.

Do not paint over nameplates.

Keep sprinkler heads free of paint.

Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.

Apply red paint to all the piping in the fire protection network.

Apply red enamel paint on the switches of the fire alarm system and the lighting system of emergency exits.

Apply yellow paint to all the piping of the natural gas network.

Paint both sides and sides of the connection tables of the electrical and telephone equipment before installation. Leave the material in its original state, except for alterations necessary, if any, and paint the conduits, mounting accessories, and other unfinished items.

Do not paint the inside transformers and equipment for power distribution substations.

FIELD QUALITY CONTROL

Interior work surfaces shall be inspected, before the painting or after application of a printing layer having revealed deficiencies in the substrate, by the agency inspection painting that will inform in writing the Ministerial Representative and General Contractors different nonconformities and problems.

During the implementation of paint, coatings or special decoration systems * + (p. Ex. Of elastomer-based products), or products or systems that are not on the list of MPI products the manufacturer of the paint or coating used must ensure, as part of his duties, approval of existing surfaces and conditions for the application of the special system of paint or plaster as prescribed on-site supervision, inspection and approval of the work of implementing paints or coatings, as needed, without additional cost to the Ministerial Representative.

Quality Standards

Walls: no defects visible at a distance of 1000 mm, with an angle of 90 degrees to the projection surface.

Ceilings: no defects visible to an observer on the ground at an angle of 45 degrees to the surface examined under the planned final lighting.

The color and gloss of the topcoat must be uniform over the entire surface examined.

Inform Departmental Representative when a surface and a product applied to the construction site ready to be inspected. Do not apply the next coat before the previous layer has been approved.

Keep purchase receipts, invoices and other documentation to establish, at the request of the Ministerial Representative, the compliance with specified MPI requirements.

RESTORATION

Clean and re-install all items that were removed before undertaking painting operations.

Remove protective coverings and warning signs as soon as practical after operations cease.

Remove paint splashes on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

Protect surfaces from paint droppings and dust to the approval of Departmental Representative. Avoid scuffing newly applied paint.

Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION