

PART - 1 GENERAL

1.1 SUMMARY

.1 Section Includes:

.1 Labour, Products, equipment and services necessary to complete the work of this Section.

1.2 QUALITY ASSURANCE

.1 Applicator experience: Having minimum of five years proven satisfactory experience. When requested, provide a list of the last three comparable projects including, name and location, consultant, start and completion dates, and value of the painting work.

.2 Applicator qualification: Qualified journeypersons, painters, as defined by local jurisdiction shall be engaged in painting and decorating work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyperson in accordance with trade regulations.

.3 Materials, preparation and quality of work: In conformance with requirements of the latest edition of the Architectural Painting Specification Manual by the Master Painters Institute, referred to as the MPI Painting Manual in this Section, issued by the local MPI Accredited Quality Assurance Association having jurisdiction.

.4 Manufacturers and products: Listed under the Approved Product List section of the MPI Painting Manual.

.5 Maintenance seminars: Provide, to the Owner, training seminars and recommendations on Product maintenance procedures.

.6 Pre-installation meeting: Two weeks prior to commencing work of this Section, arrange for manufacturer's technical representative to visit the site and review preparatory and installation procedures to be followed, conditions under which the work will be done, and inspect the surfaces to receive the work of this Section. Advise the Consultant of the date and time of the meeting.

.7 Manufacturer's site inspection: Have the manufacturer's technical representative inspect the Work at suitable intervals during application and at conclusion of the work of this Section, to ensure the Work is correctly installed. When requested, submit manufacturer's inspection reports and verification that the work of this Section is correctly installed.

.8 All surfaces requiring painting shall be inspected by the Consultant who shall notify the Consultant and General Contractor in writing of any defects or problems, prior to commencing painting work, or after the prime coat shows defects in the substrate.

.9 Ensure written confirmation is received from steel fabricators of the specific surface preparation procedures and primers used for steel work to ascertain appropriate and compatible finish materials.

1.3 SAMPLES AND MOCK-UPS

.1 Samples: Provide duplicate minimum 300 mm square samples of surfaces or acceptable facsimiles requested painted with specified paint or coating in colours, gloss, sheen and textures required to MPI Painting Manual standards for review. When approved, samples become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

- .2 Sample installations: When requested by the Consultant, prepare and paint designated surface, area, room or item in each colour scheme to requirements specified, with specified paint or coating showing selected colours, gloss, sheen, textures and quality of work to MPI Painting Manual standards for review and approval. When approved, surface, area, room and items become acceptable standard of finish quality and workmanship for similar on-site work.

1.4 **SUBMITTALS**

- .1 List of painting materials: Submit duplicate copy of list of painting materials for review prior to ordering materials. If requested, provide an invoice list of all paint materials ordered for project work to Consultant indicating manufacturer, types and quantities for verification and compliance with specification and design requirements.
- .2 Material Safety Data Sheets (MSDS): Submit duplicate copies prior to commencement of work for review and for posting at job site as required.
- .3 Project Data Manual: At project completion provide an itemized list complete with manufacturers' application instructions, paint type and colour coding for all colours used for Owner's later use in maintenance.

1.5 **PRODUCT DELIVERY, STORAGE AND HANDLING**

- .1 Deliver all painting materials in sealed, original labelled containers bearing manufacturer's name, brand name, type of paint or coating and colour designation, standard compliance, materials content as well as mixing and/or reducing and application requirements.
- .2 Store all paint materials in original labelled containers in a lockable, dry, heated and well ventilated single designated area meeting the minimum requirements of both paint manufacturer and authorities having jurisdiction and at a minimum ambient temperature of 7 degree C. Only material used on this project to be stored on site.
- .3 Where toxic, volatile, explosive, flammable materials are being used, provide adequate fireproof storage lockers and take all necessary precautions and post adequate warnings such as no smoking signs as required.
- .4 Take necessary precautionary and safety measures to prevent fire hazards and spontaneous combustion and to protect the environment from hazard spills. Store materials that constitute a fire hazard in suitable closed and rated containers and removed from the site on a daily basis.
- .5 Comply with requirements of authorities having jurisdiction, in regard to the use, handling, storage and disposal of hazardous materials.

1.6 **SCHEDULING**

- .1 Schedule painting operations to prevent disruption of and by other Sections.
- .2 Schedule painting operations in occupied facilities to prevent disruption of occupants in and about the building. Perform painting after facility working hours in accordance with Owner's operating requirements. Schedule work such that painted surfaces will have dried before occupants are affected. Obtain written authorization from Consultant for changes in work schedule.

1.7 **PROJECT CONDITIONS**

- .1 Unless specifically pre-approved by the Consultant, and the product manufacturer, do not perform work when the ambient air and substrate temperatures are below 10 degree C for interior work.
- .2 Do not perform interior work unless adequate continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above minimum requirements for 24 hours before, during and 48 hours after work is complete, unless required otherwise by manufacturer's instructions. Provide supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
- .3 Do not perform work when the relative humidity is above 85% or when the substrate temperature is less than 3 degree C above the measured dew point.
- .4 Do not perform work when the maximum moisture content of the substrate exceeds:
 - .1 12 % for concrete and masonry.
 - .2 15% for wood.
 - .3 12 % for plaster and gypsum board.
- .5 Conduct all moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple cover patch test.
- .6 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .7 Apply work only to dry, clean, properly cured and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.
- .8 Do not perform work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted or decorated.

1.8 **EXTRA STOCK**

- .1 At project completion provide 4 liters of each type and colour of paint from same production run used in unopened cans, properly labelled and identified for Owner's later use in maintenance. Store where directed.

1.9 **WASTE MANAGEMENT AND DISPOSAL**

- .1 Paint, stain and wood preservative finishes and related materials such as thinners, solvents are regarded as hazardous products and are subject to regulations for disposal. Obtain information on these controls from applicable authorities having jurisdiction.
- .2 Separate and recycle waste materials. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility. Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
- .3 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- .4 Strictly adhere to the following procedures to reduce the amount of contaminants entering waterways, sanitary and storm drain systems or into the ground:
 - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.

- .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - .4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
 - .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
 - .6 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
- .5 Set aside and protect surplus and uncontaminated finish materials not required by the Owner and deliver or arrange collection for verifiable re-use or re-manufacturing.

PART - 2 PRODUCTS

2.1 MATERIALS

- .1 Only materials listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project. Provide material from a single manufacturer for each system used.
- .2 Other materials not listed in the APL shall be the highest quality product of an MPI listed manufacturer and shall be compatible with paint materials being used as required.
- .3 All materials used shall be lead and mercury free and shall have low VOC content where possible.
- .4 Where required, use only materials having a minimum MPI Environmentally Friendly E2 or E3 rating based on VOC (EPA Method 24) content levels.
- .5 Where indoor air quality is an issue, use only MPI listed materials having a minimum E2 or E3 rating.
- .6 Provide materials having good flowing and brushing properties and capable to dry or cure free of blemishes, sags, air entrapment.
- .7 Where required, paints and coatings shall meet flame spread and smoke developed ratings to code requirements and authorities having jurisdiction.

2.2 EQUIPMENT

- .1 Painting and Decorating Equipment: to best trade standards for type of product and application.
- .2 Spray Painting Equipment: of ample capacity, suited to the type and consistency of paint or coating being applied and kept clean and in good working order at all times.

2.3 MIXING AND TINTING

- .1 Unless otherwise specified or pre-approved, provide materials ready-mixed and pre-tinted. Re-mix materials in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.

- .2 Mix paste, powder or catalyzed materials in strict accordance with manufacturer's written instructions.
- .3 Do not exceed amount of thinner beyond manufacturer's recommendations. Do not use kerosene or organic solvents to thin water-based materials.
- .4 If required, thin paint for spraying according 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 Consultant.

2.4 FINISH AND COLORS

- .1 The Consultant will select colours from a manufacturer's full range of colours. Refer to Section 00 01 30 List of Materials for identification and location of colours.
- .2 Where required by authorities having jurisdiction, finish exit and vestibule doors in contrasting colour to walls and a different colour than any other door in the same area.
- .3 Access doors, prime coated butts and other prime painted hardware, registers, radiators and covers, exposed piping and electrical panels: To match adjacent surfaces, unless otherwise noted or where pre-finished.
- .4 Where other applied finishes and nosing are not specified at stairs, ramps and landings providing access and exit for persons with visual impairment, provide colour contrast slip resistant finish and warning strips at treads and landings.

2.5 GLOSS AND SHEEN RATINGS

- .1 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	Max. 5	Max. 10
G2	Velvet finish	Max. 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	Min. 35
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	More than 85	

PART - 3 EXECUTION

3.1 CONDITION OF SURFACES

- .1 Prior to commencement of work thoroughly examine and test as required conditions and surfaces scheduled to be painted. Do not commence work until adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Consultant.

3.2 SURFACE PREPARATION

- .1 Prepare all surfaces in accordance with MPI requirements.
- .2 Sand, clean, dry, etch, neutralize and test surfaces under adequate illumination, ventilation and temperature requirements.

- .3 Remove and securely store miscellaneous hardware, surface fittings and fastenings such as electrical plates, mechanical louvers, door and window hardware, hinges, knobs, locks, trim, frame stops, removable rating/hazard/instruction labels, washroom accessories, light fixture trim, from wall and ceiling surfaces, doors and frames, prior to commencement of work. Carefully clean and replace items upon completion of work in each area. Do not use solvent or reactive cleaning agents on items that will mar or remove finishes. Remove doors to finish bottom and top edges and re-hang doors when work is complete.
- .4 Protect all adjacent interior surfaces and areas, including rating/hazard/instruction labels on doors, frames, equipment, piping, from painting operations and damage using drop cloths, shields, masking, templates, or other suitable protective means and make good damages caused by failure to provide such protection.
- .5 Make good substrate defects and sand ready for finishing particularly after the first coat is applied. Start of finishing on defective surfaces indicates acceptance of substrate and any costs of making good defects shall be borne by this Section including re-painting of entire defective surface.
- .6 Confirm preparation and primer used with fabricator of steel items.

3.3 **APPLICATION**

- .1 Do not perform work unless substrates are acceptable and until heating, ventilation, lighting and completion of work of other Sections are acceptable for applications of products.
- .2 Apply materials in accordance with MPI Painting Manual Premium Grade finish and manufacturers' requirements.
- .3 Work specified is intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer's recommendations.
- .4 Tint each coat of finish progressively lighter to enable confirmation of number of coats.
- .5 Unless otherwise approved by the Consultant, apply a minimum of four coats of paint where deep or bright colors are used to achieve satisfactory results.
- .6 Sand between each coat to provide an anchor for next coat and to remove defects visible from a distance up to 1000 mm.
- .7 Do not apply finishes on surfaces that are not sufficiently dry. Unless manufacturer's directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.
- .8 Prime coat of stain or varnish finishes may be reduced in accordance with manufacturer's directions.
- .9 Paint finish shall continue through behind all wall-mounted items.
- .10 Unless noted otherwise, field-apply finish paint to all structural steel work, which will remain exposed and subject to normal view by pedestrians or occupants on the completed exterior or interior of the building.

3.4 **INTERIOR FINISHING SYSTEMS**

- .1 Finish interior surfaces in accordance with MPI Painting Manual requirements:
- .2 Galvanized Metal: Doors, frames, railings, misc. steel, pipes, overhead decking, ducts.
 - .1 INT 5.3M: High performance architectural latex G5 finish.

- .3 Plaster and Gypsum Board:
 - .1 INT 9.2B: High performance architectural latex G5 finish.
 - .2 INT 9.2F: Waterborne epoxy (tile-like) finish.

3.5 **MECHANICAL, ELECTRICAL EQUIPMENT AND RELATED SURFACES**

- .1 Unless otherwise specified or noted, finish all unfinished conduits, piping, hangers, ductwork and other mechanical and electrical equipment with color and texture to match adjacent surfaces, in the following areas:
 - .1 Where exposed-to-view.
 - .2 In interior high humidity interior areas.
 - .3 In boiler room, mechanical and electrical rooms.
- .2 In unfinished areas leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .3 Touch up scratches and marks on factory finished equipment with products compatible with factory finish.
- .4 Do not paint over nameplates.
- .5 Paint the inside of all ductwork where visible behind louvers, grilles and diffusers for a minimum of 450 mm or beyond sight line, whichever is greater, with primer and one coat of flat black paint.
- .6 Paint the inside of light valances gloss white.
- .7 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .8 Paint or band all fire protection piping and sprinkler lines in accordance with mechanical specification requirements. Keep sprinkler heads free of paint.
- .9 Paint or band all natural gas piping in accordance with mechanical specification requirements.
- .10 Back prime and paint face and edges of plywood service panels for telephone and electrical equipment before installation to match adjacent wall surface. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

3.6 **FIELD QUALITY CONTROL AND STANDARD OF ACCEPTANCE**

- .1 Painted interior surfaces will be considered to lack uniformity and soundness if any of the following defects are apparent to the Consultant:
 - .1 Brush and roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.
 - .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 blown contaminants (dust, spray paint, etc.).
 - .2 Make good painted surfaces rejected by the Consultant and at the no extra cost to the Owner. Touch up small affected areas. Repaint large affected areas or areas without sufficient material dry film thickness. Remove runs, sags of damaged paint by scraper or by sanding prior to application of paint.
- 3.7 **PROTECTION**
- .1 Protect interior surfaces and areas, equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.
 - .2 Erect barriers or screens and post signs to warn of or limit or direct traffic away or around work area as required.
- 3.8 **CLEAN-UP**
- .1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.
 - .2 Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.
 - .3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.
 - .4 Clean equipment and dispose of wash water / solvents as well as all other cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers / strippers in accordance with the safety requirements of authorities having jurisdiction.
- 3.9 **EXISTING SURFACES**
- .1 Finish or refinish existing surfaces of items or rooms where noted, including new work which has been incorporated into the existing work and existing work which has been damaged, altered or otherwise disturbed during renovation operations.
 - .2 Refinish surfaces or rooms adjacent to rooms where alterations or renovations have been carried out and which have been damaged or otherwise disturbed by the alterations or renovations. Where such damages occur, refinish completely.
 - .3 Remove from existing surfaces rust, scale, oil grease, mildew, chemicals and other foreign matters.
 - .4 If coatings on existing surfaces have failed so as to affect the proper performance or appearance of materials to be applied, or if such coatings can be easily removed, remove them and prepare the substrates properly. Dull hard or glossy surfaces by sanding, sandblasting or by other abrasive methods prior to finishing.

- .5 Refinish surfaces entirely between changes of planes which have been incorporated into the existing work and existing work which has been damaged, altered or otherwise disturbed during renovation operations.

END OF SECTION