

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 08 99 - Rough Carpentry for minor works.
- .2 Section 06 20 00 - Finish Carpentry.
- .3 Section 08 50 00 - Windows.
- .4 Section 09 21 16.08 - Gypsum Board Assemblies for Minor Works.

1.2 REFERENCES

- .1 Department of Justice Canada (Jus)
 - .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 - latest edition.
 - .6 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

1.3 DEFINITIONS

- .1 "Exposed" means visible in completed work.
- .2 "Surface Preparation" means cleaning or treating of surface to be painted to ensure best possible bond between surface to and painting to be applied; remove surface contaminants that will affect performance of painting, without limitations such as oil, grease, salts, dust, dirt, rust, rust scale, ill scale, and old coatings where applicable; remove surface imperfections without limitations such as weld spatter, sharp edges, burrs, silvers, laminations, pits, porosities and crevices; prepare surfaces to provide anchor profile or surface profile which improve mechanical bonding of coating to prepared surface by increasing surface area.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Contractor: minimum of five years proven satisfactory experience.
 - .2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.
 - .3 Apprentices: working under direct supervision of qualified trades person in accordance with trade regulations.
- .2 Standard of Acceptance:
 - .1 Walls: No defects visible from a distance of 1000 mm at 90° to surface.
 - .2 Ceilings and Soffits: No defects visible from floor at 45° to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of color and uniformity of sheen across full surface area.

1.5 HEALTH AND SAFETY

- .1 Occupational Health and Safety in accordance with Section 01 35 29.06 - Health, Safety, and Emergency Response Procedures.
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1.6 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

- .1 Environment Choice Program:
 - .1 Provide paint products certified to meet the requirements of the Environmental Choice Program, Department of the Environment.
 - .2 Submit CSA Certification Reports that products proposed for use are certified under the Environmental Choice Program.

1.7 QUALITY CONTROL

- .1 Provide mock up in accordance with Section 01 45 00 - Quality Control.
- .2 On completion have paint thickness tested for proper film thickness. Do not proceed with balance of project until test results are in compliance with MPI Painting Specification Manual standards.
- .3 When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on site work.

1.8 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's literature, data sheets for each type of material provided under this Section for Project. Data sheets shall provide all required information. Submit manufacturer's installation instructions.
 - .2 Material Safety Data Sheets: Submit MSDS for inclusion in Operation and Maintenance Manual without limitations for adhesives, sealants, patching and leveling compound, solid polymer and as designated later by Departmental Representative.
 - .3 Progress Reports:
 - .1 Materials: Submit in writing list of proposed materials prepared by paint manufacturer, for approval at least 60 Days before materials are required. List shall bear manufacturer's official certification that materials listed meet or exceed requirements specified herein.
 - .4 Samples:
 - .1 Submit full range color sample chips to indicate where color availability is restricted.
 - .2 Submit duplicate 200 mm sample panels of each paint with specified paint or coating in colors, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.
 - .2 13 mm birch plywood for finishes over wood surfaces.
 - .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
 - .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
 - .5 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.
 - .5 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation and instructions.
 - .6 Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.

- .1 Color numbers and associated locations.

1.9 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in original containers, sealed, with labels intact.
- .3 Labels shall clearly indicate:
 - .1 Manufacturer's name and address.
 - .2 Type of paint or coating.
 - .3 Compliance with applicable standard.
 - .4 Color number in accordance with established color schedule.
- .4 Remove damaged, opened and rejected materials from site.
- .5 Provide and maintain dry, temperature controlled, secure storage.
- .6 Observe manufacturer's recommendations for storage and handling.
- .7 Store materials and supplies away from heat generating devices.
- .8 Store materials and equipment in a well ventilated area with temperature range 7°C to 25°C.
- .9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .10 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.
- .11 Remove paint materials from storage only in quantities required for same day use.
- .12 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

1.10 FIRE SAFETY REQUIREMENTS

- .1 Provide one - 3kg Type ABC fire extinguisher adjacent to storage area.
- .2 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.
- .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.11 SITE CONDITIONS

- .1 Environmental Requirements: Paint and finish in clean, dust-free, properly ventilated and adequately lit areas (minimum 100 lx (9.3 ft candles).
- .2 Maintain minimum interior temperature of 18 deg C during application and drying of paint and maintain until building occupancy occurs.
- .3 Do not undertake exterior painting if air and surface temperature are expected to fall below 10 deg C before coating has dried. Avoid painting during winds, weather conditions which may affect paint application or following rain. Wait until frost, dew or condensation has evaporated. Avoid painting surfaces exposed directly to hot summer sun.
- .4 Do not undertake interior painting on surfaces where condensation has or will form due to presence of high humidity and lack of proper ventilation.
- .5 Ventilate enclosed spaces.
- .6 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".
- .7 Perform no painting work when maximum moisture content of substrate exceeds:
 - .1 12% for concrete.
 - .2 12% for clay and concrete brick and block.
 - .3 15% for wood.

- .4 12% for stucco, plaster and gypsum board.
- .8 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .9 Surface and Environmental Conditions:
 - .1 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.
 - .2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.
 - .3 Apply paint only when previous coat of paint is dry or adequately cured.
 - .4 Apply paint finishes only when conditions forecast for entire period of application fall within manufacturer's recommendations.
 - .5 Do not apply paint when:
 - .1 Temperature is expected to drop below 10°C before paint has thoroughly cured.
 - .2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.
 - .3 Surface to be painted is wet, damp or frosted.
 - .6 Provide and maintain cover when paint must be applied in damp or cold weather.
 - .7 Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer.
 - .8 Protect until paint is dry or until weather conditions are suitable.
 - .9 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
 - .10 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of the Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

1.12 EXTRA MATERIAL

- .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit one - one liter can of each type and color of primer, identified color and paint type in relation to established color schedule and finish system.
- .3 Deliver and store where directed.

1.13 SCHEDULING OF THE WORK

- .1 Submit work schedule for various stages of painting to Departmental Representative for approval. Submit schedule minimum of 48 hours in advance of proposed operations.
- .2 Obtain written authorization from Departmental Representative for changes in work schedule.
- .3 Schedule painting operations to prevent disruption of occupants in and about the building.

1.14 WARRANTY

- .1 Warrant work of this Section for period of 2 years against defects and/or deficiencies in accordance with General Conditions of the Contract.
- .2 Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Departmental Representative and at no extra expense.
- .3 Defects include but are not limited to; material shrinkage, cracking, splitting and defective workmanship including but are not limited to failure in bubbling, blistering and delamination.

1.15 WASTE MANAGEMENT AND DISPOSAL

- .1 Collect and separate for disposal waste material generated by this Section.
- .2 Place in appropriate on-site bins in accordance with Waste Management Plan.
- .3 A clean worksite is mandatory at all times. Failure to maintain the site in a clean, safe condition shall result in the Departmental Representative initiating a clean-up and related costs being deducted from progress claims.
- .4 Separate for reuse and place in designated containers steel waste in accordance with Waste Management Plan.
- .5 Handle and dispose of hazardous materials in accordance with CEPA, regulations.
- .6 Unused paint materials must be disposed of at official hazardous material collections site.

2 Products

2.1 MATERIALS

- .1 Conform to latest MPI requirements for painting work including preparation and priming.
- .2 Linseed oil, shellac, and turpentine: compatible with other coating materials as required.
- .3 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- .4 Water-borne surface coatings and recycled water-borne surface coatings must have a flash point of 61.00C or greater.
- .5 Both water-borne surface coatings and recycled water-borne surface coatings must be made by a process that does not release:
 - .1 Matter in undiluted production plant effluent generating a 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
 - .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.
- .6 Recycled water-borne surface coatings must contain 50 % post-consumer material by volume.
- .7 Recycled water-borne surface coatings must not contain:
 - .1 Lead in excess of 600.0 ppm weight/weight total solids.
 - .2 Mercury in excess of 50.0 ppm weight/weight total product.
 - .3 Cadmium in excess of 1.0 ppm weight/weight total product.
 - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
 - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.
- .8 The following must be performed on each batch of consolidated post-consumer material before surface coating is reformulated and canned. These tests must be performed at a laboratory or facility which has been accredited by the Standards Council of Canada.
 - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
 - .2 Mercury is to be determined by Cold Vapor Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
- .9 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique No. 8081 as defined in EPA SW-846.

2.2 COLORS

- .1 Departmental Representative will provide Color Schedule after Contract award.
 - .2 Selection of colors from manufacturers full range of colors.
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- .3 Second coat in three coat system to be tinted slightly lighter color than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

- .1 Perform color tinting operations prior to delivery of paint to site in strict accordance with manufacturer's written instructions.
- .2 Paste, powder or catalyzed paint mixes shall be mixed
- .3 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.
- .4 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 Departmental Representative.
- .5 Re-mix paint prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color 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)	Max. 5 Max. 10
Gloss Level 2	Velvet-Like Finish	Max.10 10 to 35
Gloss Level 3	Eggshell Finish	10 to 25 10 to 35
Gloss Level 4	10 to 25 10 to 35	20 to 35 min. 35
Gloss Level 5	20 to 35 min. 35	35 to 70
Gloss Level 6	Traditional Gloss	70 to 85
Gloss Level 7	High Gloss Finish	More than 85

- .2 Gloss level ratings of painted surfaces as indicated.

2.5 INTERIOR PAINTING SYSTEMS

- .1 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.
 - .1 INT 5.3A - Latex gloss level 5-semi-gloss finish.
- .2 Dressed lumber: including doors, door and window frames, casings, mouldings:
 - .1 INT 6.3T - Latex semi-gloss finish (over latex primer).
- .3 Wood paneling and casework: partitions, panels, shelving, millwork:
 - .1 INT 6.4P - Pigmented fire retardant gloss level 5-semi-gloss coating (ULC rated).
- .4 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:
 - .1 INT 9.2B - High performance architectural latex gloss level finish 3-eggshell finish.

2.6 EXTERIOR PAINTING SYSTEMS

- .1 Galvanized Metal: not chromate passivated
 - .1 EXT 5.3A - Latex gloss level 5 finish.

3 Execution

3.1 TOPCOAT AND INTERMEDIATE COAT THICKNESSES

- .1 Latex & Acrylics (Interior): 0.03 mm (1.2 mils) DFT/coat.

- .2 Latex & Acrylics (Exterior): 0.038 mm (1.5 mils) DFT/coat.
- .3 Epoxys (Interior): 0.076 mm (3 mils) DFT/coat.
- .4 Urethanes (Interior and Exterior): 0.076 mm (3 mils) DFT/coat.

3.2 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.

3.3 EXAMINATION

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative damages, defects, unsatisfactory or unfavorable 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.
 - .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.
- .3 Clean and prepare surfaces as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalies, 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 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
- .6 Apply wood filler to nail holes and cracks.
- .7 Tint filler to match stains for stained woodwork.
- .8 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.
- .9 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.

3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative.
- .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.
- .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 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.
- .4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 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.
- .9 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .10 Finish closets and alcoves as specified for adjoining rooms.
- .11 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 color 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 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matte black paint.
 - .7 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.
 - .8 Do not paint interior transformers and substation equipment.
 - .9 Mechanical and electrical covers located in electrical, mechanical and service rooms are to remain factory finish.
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3.7 FIELD QUALITY CONTROL

- .1 Interior painting and decorating work shall be inspected by the Departmental Representative. The Contractor shall notify the Departmental Representative a minimum of one (1) week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.
- .2 Interior surfaces requiring painting shall be inspected by the Departmental Representative in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.
- .3 The Contractor is to advise the Departmental Representative when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

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 Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION
