

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 45 00 - Quality Control.
- .2 Section 32.92.23 Sodding
- .3 Section 01 33 00 - Submittal Procedures.
- .4 Section 01 35 29.06 - Health and Safety Requirements
- .5 Section 01 35 43 - Environmental Procedures.
- .6 Section 01 61 00 - Common Product Requirements.
- .7 Section 01 74 11 - Cleaning.

**1.2 REFERENCE STANDARDS**

- .1 Environmental Protection Agency (EPA)
  - .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, EPA Method 24 - Surface Coatings.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Master Painters Institute (MPI)
  - .1 Architectural Painting Specification Manual - September 2012.
  - .2 Standard GPS-1- 12, MPI Green Performance Standard for Painting and Coatings.
  - .3 Standard GPS-2-12, MPI Green Performance Standard.
- .4 National Research Council Canada (NRC)
  - .1 National Fire Code of Canada 2015 (NFC).
- .5 Society for Protective Coatings (SSPC)
  - .1 Systems and Specifications, SSPC Painting Manual 2013.
- .6 Statement of Work to be provided on a site specific basis.

**1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Scheduling
  - .1 Provide work schedule for various stages of painting to Departmental Representative. Provide schedule minimum of 48 hours in advance of proposed operations.
  - .2 Obtain written authorization from Departmental Representative for changes in work schedule.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:

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- .1 Provide manufacturer's instructions, printed product literature and data sheets for paint and paint products and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures.
  - .3 Confirm products to be used are in MPI's approved product list.
  - .4 Upon completion, provide records of products used. List products in relation to finish system and include the following:
    - .1 Product name, type and use.
    - .2 Manufacturer's product number.
    - .3 Colour number[s].
    - .4 MPI Environmentally Friendly classification system rating.
    - .5 Manufacturer's Material Safety Data Sheets (MSDS).
  - .3 Samples:
    - .1 Provide 200 x 300 mm sample panels of each paint, stain, special finish, clear coating with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on 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 10 mm hardboard, siding, cedar shingle, or plywood for finishes over wood surfaces.
    - .2 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.
    - .3 Submit full range of available colours where colour availability is restricted.

## 1.5 QUALITY ASSURANCE

- .1 Qualifications:
  - .1 Contractor: to have a minimum of 5 years proven satisfactory experience. When requested, provide list of last 3 comparable jobs including, job name and location, specifying authority, and project manager.
  - .2 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work
  - .3 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.
  - .4 Conform to latest MPI requirements for exterior painting work including preparation and priming.

- .5 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
- .6 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
- .7 Standard of Acceptance:
  - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
  - .2 Soffits: no defects visible from floor at 45 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.

## 1.6 QUALITY CONTROL

- .1 Provide mock-up in accordance with Section 01 45 00 - Quality Control.
- .2 When requested by Departmental Representative or Paint Inspection Agency, prepare and paint designated surface, area, room or item to requirements specified herein, with specified paint or coating showing selected colours, number of coats, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval. When approved, surface, area, room and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.

## 1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.
- .2 Labels: to indicate:
  - .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 Storage and Handling Requirements:
  - .1 Store materials in dry location, off ground, indoors, and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Observe manufacturer's recommendations for storage and handling.
  - .3 Store materials and supplies away from heat generating devices.
  - .4 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
  - .5 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.
  - .6 Remove paint materials from storage only in quantities required for same day use.

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- .7 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
  - .8 Fire Safety Requirements:
    - .1 Provide one 9 kg 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 (NFC).
  - .9 Replace defective or damaged materials with new.
  - .4 Waste Management and Disposal:
    - .1 Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.
    - .2 Material which 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 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
      - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
      - .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).
    - .5 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
    - .6 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
  - .5 Temperature, Humidity and Substrate Moisture Content Levels:
    - .1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer, perform no painting work when:
      - .1 Ambient air and substrate temperatures are below 5 degrees C.

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- .2 Substrate temperature is over 32 degrees C unless paint is specifically formulated for application at high temperatures.
  - .3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
  - .4 Relative humidity is above 85 % or when dew point is less than 3 degrees C variance between air/surface temperatures.
  - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
  - .2 Perform no painting work when maximum moisture content of substrate exceeds:
    - .1 12% for concrete and masonry (clay and concrete brick/block).
    - .2 15% for wood.
    - .3 12% for plaster and gypsum board.
  - .3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".
  - .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
  - .6 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 noted herein.
    - .3 Apply paint when previous coat of paint is dry or adequately cured.
    - .4 Apply paint finishes 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 5 degrees 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. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
    - .7 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
    - .8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

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**Part 2 Products**

**2.1 PERFORMANCE REQUIREMENTS**

- .1 Environmental Performance Requirements:
  - .1 Provide paint products meeting MPI "Environmentally Friendly" E2 or E3 ratings based on VOC (EPA Method 24) content levels.
  - .2 Green Performance in accordance with MPI Standard GPS-2 or GPS-1.

**2.2 MATERIALS**

- .1 Paint materials listed in latest edition of MPI Approved Products List (APL) are acceptable for use on these projects.
- .2 Paint materials for paint systems: to be products of single manufacturer.
- .3 Only qualified products with E2 or E3 "Environmentally Friendly" rating[s] are acceptable for use on this project.
- .4 Exterior Wood Paint System:
  - .1 Primer: as specified by manufacturer of topcoat from MPI # 5, one coat required.
  - .2 Top Coat: MPI # 10, minimum of two coats required.
- .5 Exterior Concrete Paint System:
  - .1 Primer: as specified by manufacturer of topcoat from MPI # 4, one coat required.
  - .2 Top Coat: MPI # 4, minimum of two coats required.
- .6 Interior Wood Paint System:
  - .1 Primer: as specified by manufacturer of topcoat from MPI # 45, one coat required.
  - .2 Top Coat: MPI # 43, minimum of two coats required.
- .7 Interior Metal Paint System:
  - .1 Primer: as specified by manufacturer of topcoat from MPI # 23, one coat required.
  - .2 Top Coat: MPI # 8, minimum of two coats required.

**2.3 COLOURS**

- .1 Departmental Representative will approve colour schedule after contract award. Contractor to propose Colour Schedule to Departmental Representative for approval.
- .2 Colour schedule will be based upon the current colours and is intended to recreate the current interior and/or exterior colours. No more than 8 colours will be selected for entire project and no more than 3 colours will be selected in each area.
- .3 Selection of colours will be from manufacturers' full range of colours.
- .4 Where specific products are available in restricted range of colours, selection will be based on limited range.

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- .5 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.
- .6 For deep and ultra-deep colours 4 coats may be required.

**2.4 MIXING AND TINTING**

- .1 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.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Add thinner to paint manufacturer's recommendations. Do not use kerosene or organic solvents to thin water-based paints.
- .4 Thin paint for spraying according in 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 in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.
- .6 Deep and ultra-deep colors; 4 coats may be required.

**2.5 GLOSS/SHEEN RATINGS**

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

| Gloss Level Category/  | Units @ 60 Degrees/ | Units @ 85 Degrees/ |
|------------------------|---------------------|---------------------|
| G1 - matte finish      | 0 to 5              | max. 10             |
| G2 - velvet finish     | 0 to 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 | 85                  |                     |

- .2 Acceptable Gloss Level Categories include G1, G2, or G3.

**Part 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 datasheets.

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**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 Interior and exterior repainting work: inspected by Departmental representative or MPI Accredited Paint Inspection Agency (inspector) acceptable to specifying authority and local Painting Contractor's Association. Painting contractor to notify Paint Inspection Agency minimum of one week prior to commencement of work and provide copy of project repainting specification and Finish Schedule.
- .2 Interior and exterior surfaces requiring repainting: inspected by both painting contractor and Paint Inspection Agency who will notify Departmental Representative in writing of defects or problems, prior to commencing repainting work, or after surface preparation if unseen substrate damage is discovered.
- .3 Where assessed degree of surface degradation of DSD-1 to DSD-3 before preparation of surfaces for repainting is revealed to be DSD-4 after preparation, repair or replacement of such unforeseen defects discovered are to be corrected, as mutually agreed, before repainting is started.
- .4 Where "special" repainting or recoating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer to provide as part of work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Departmental Representative.

**3.4 PREPARATION**

- .1 Perform preparation and operations for exterior painting in accordance with MPI Maintenance Repainting Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.
- .3 Clean and prepare exterior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to the MPI Manual in regard to specific requirements and as follows:
  - .1 Remove dust, dirt, and surface debris by HEPA vacuuming, wiping with dry, clean cloths.
  - .2 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.
  - .3 Many water-based paints cannot be removed with water once dried. Minimize use of kerosene or such organic solvents to clean up water-based paints.
- .4 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such

contaminates from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.

- .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
- .6 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.
- .7 Sand and dust between coats using HEPA vacuum as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

### 3.5 EXISTING CONDITIONS

- .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 unfavourable conditions before proceeding with work. Repair such conditions as per the contract requirements. Any defects not visible from the ground, and not listed in the specification shall not be considered as being included in the lump sum price and shall be negotiated separately.
- .2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Departmental Representative. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
  - .1 Concrete: 12%.
  - .2 Wood: 15%.

### 3.6 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 such surfaces as directed by Departmental Representative.
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products and equipment.
- .4 Protect passing pedestrians, building occupants, and general public in and about building.
- .5 Remove light fixtures, surface hardware on doors, and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Store items and re-install after painting is completed.
- .6 As painting operations progress, place "WET PAINT" signs in pedestrian and vehicle traffic areas to approval of Departmental Representative.

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**3.7 APPLICATION**

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, air sprayer, or airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
  - .1 Apply paint in a uniform layer using brush and/or roller of types 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 to be free of roller tracking and heavy stipple unless approved by Departmental Representative.
  - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Departmental Representative.
- .4 Apply coats of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .6 Sand and dust between coats to remove visible defects.
- .7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.
- .8 Finish top, bottom, edges and cut-outs of doors after fitting as specified for door surfaces.

**3.8 FIELD QUALITY CONTROL**

- .1 Inspection:
  - .1 Field inspection of interior and exterior painting operations to be carried out by independent inspection firm as designated by Departmental Representative.
  - .2 Advise Departmental Representative when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.
  - .3 Co-operate with inspection firm and Departmental Representative and provide access to areas of work.
- .2 Manufacturer's Field Services:
  - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .3 Standard of Acceptance:

- .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
- .2 Ceilings: no defects visible from floor at 45 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.

### **3.9 CLEANING**

- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse or recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .4 Proceed in accordance with Section 01 74 11 - Cleaning.
  - .1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

### **3.10 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**