

**PART 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Non applicable.

**1.2 PRICE AND PAYMENT PROCEDURES**

- .1 Alternates:
  - .1 Identify alternate products in writing for the Departmental Representative review.
  - .2 Change manufacturer's brands, sources of supply of painting materials from those previously approved only on the Departmental Representative's approval.
  - .3 Requests for alternate approval: in writing and accompanied by manufacturer's literature and recommendations.

**1.3 REFERENCE STANDARDS**

- .1 Environmental Protection Agency (EPA)
  - .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Master Painters Institute (MPI)
  - .1 Maintenance Repainting Manual (current edition), Master Painters Institute (MPI) including Identifiers, Evaluation, Systems, Preparation and Approved Products List.
- .4 National Fire Code of Canada (NFC), 2010.
- .5 United States Federal Standards, issued by General Services Administration.
  - .1 Federal Standard 595C—Colors Used in Government Procurement.

**1.4 DEFINITIONS**

- .1 Exterior surfaces: refers to surfaces of a historic structure which is exposed to exterior weather including wet conditions of rain, sleet, or snow, high temperatures and sunlight, as well as temperatures below the freezing point.

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00—Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature, and data sheets for paint and coating products as well as include product characteristics, performance criteria, physical size, finish, and limitations.

- .2 Submit electronic copies of WHMIS MSDS in accordance with Section 01 35 29.06—Health and Safety Requirements and 01 35 43—Environmental Procedures.
- .3 Samples:
  - .1 Submit full range of coating colour sample matches for review and selection.

## **1.6 CLOSEOUT SUBMITTALS**

- .1 Operation and Maintenance Data: submit operation and maintenance data for paint and coating.
  - .1 Provide records of products used. List products in relation to finish system and include the following:
    - .1 Product name, type, and use (e.g. materials and location).
    - .2 Manufacturer's product number.
    - .3 Colour code numbers.
    - .4 MPI Environmentally Friendly classification system rating.
    - .5 Manufacturer's Material Safety Data Sheets.
  - .2 Submit maintenance record of painting work.

## **1.7 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Extra Stock Materials:
  - .1 Submit a 4-litre can of each type and colour of finish coating. Identify type and colour in accordance with the established colour schedule and finish system.

## **1.8 QUALITY ASSURANCE**

- .1 Regulatory Agency Sustainability Approvals:
  - .1 Compliance Report indicating requirement to purchase energy efficient and environmentally friendly products.
  - .2 Conform to applicable standards and requirements for exterior repainting work including cleaning, preparation, and priming.
  - .3 Retain purchase orders, invoices, and other documents and produce when requested by the Departmental Representative.
- .2 Qualifications:
  - .1 Contractor: minimum of 5 years proven satisfactory experience with historic structures painting. When requested, provide list of last three comparable jobs including job name and location, specifying authority, and project manager.
  - .2 Qualified journeypersons: as identified by local jurisdiction.
  - .3 Apprentices: work under direct supervision of qualified journeyperson in accordance with the applicable trade regulations.

## **1.9 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
  - .1 Labels must indicate:
    - .1 Type of paint or coating.
    - .2 Compliance with applicable standard.
    - .3 Colour number in accordance with established colour schedule.
  - .3 Storage and Handling Requirements:
    - .1 Store materials in clean, dry, well-ventilated area, and in accordance with manufacturer's recommendations.
    - .2 Keep areas for storage, cleaning, and preparation clean and orderly.
    - .3 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
    - .4 Store materials and supplies away from heat generating devices and sensitive materials above minimum temperature as recommended by manufacturer. Respect at all time minimum and maximum storage temperature prescribed by manufacturer.
    - .5 Replace defective or damaged materials with new.
- .4 Fire Safety Requirements:
  - .1 Provide one 9-kg dry chemical 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 daily.
  - .3 Handle, store, use, and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada (NFC).

## **1.10 AMBIENT CONDITIONS**

- .1 Substrate and ambient temperatures: in accordance with limits prescribed by manufacturer.
- .2 Apply paint finish in areas where:
  - .1 Dust is no longer being generated by related construction operations.
  - .2 Wind conditions are such that airborne particles will not affect quality of finished surface.

- .3 Substrate and ambient air temperature, humidity, and moisture content levels:
  - .1 Do not perform repainting work when:
    - .1 Ambient air and substrate temperatures are below 10°C.
    - .2 Substrate temperature is over 32°C, unless paint is specifically formulated for application at high temperatures.
    - .3 Substrate and ambient air temperatures are expected to fall outside paint manufacturer's prescribed limits.
    - .4 Substrate is wet, damp, or frosted.
    - .5 Relative humidity is above 85%.
    - .6 Dew point is less than 3°C variance between air/surface temperatures.
    - .7 It is foggy, misty, raining, icing, or snowing at site.
  - .2 Damp and cold weather conditions:
    - .1 Provide and maintain cover for paint finish.
    - .2 Heat substrates and surrounding air to comply with temperature and humidity conditions required.
    - .3 Protect until paint is dry.
    - .4 Protect until weather conditions are suitable.
- .4 Perform work on surfaces exposed to direct, intense sunlight in early morning.

## **PART 2 PRODUCT**

### **2.1 MATERIALS**

- .1 Thinners and solvents: in accordance with MPI.
- .2 Primers and coatings:
  - .1 Provide fire-resistance rating where required by authorities having jurisdiction.
  - .2 Products of single manufacturer.
- .3 Liquid paint remover: proprietary liquid paint remover of known performance.

### **2.2 EXTERIOR PAINTING SYSTEMS**

- .1 REX 5.1—Structural Steel and Metal Fabrications: (doors and frames).

### **2.3 PERFORMANCE CRITERIA**

- .1 Environmental Performance Requirements:
  - .1 Provide Paint products meeting legislated VOC content levels.
- .2 Conservation Performance Requirements:
  - .1 Repainting work shall provide adequate protection against rust for a minimum of 25 years.

## 2.4 COLOURS

- .1 Colour Schedule:
  - .1 Doors and frames: GREY (similar to original colour), gloss level G1.
- .2 Obtain written approval from the Departmental Representative for change in Colour Schedule.
- .3 First coat in two-coat repaint system: tinted slightly lighter colour than top coat to show visible difference between coats.

## 2.5 MIXING AND TINTING

- .1 Pigment according to MPI.
- .2 Vehicle according to MPI standards.
- .3 Colouring matter according to standards.
- .4 Perform colour tinting operations prior to delivery of paint to site.
- .5 Obtain the Departmental Representative's written approval for on-site tinting of paint materials.
- .6 Reproduce historic paint colour and gloss level using compatible materials meeting current standards.
- .7 Mix paste, powder, or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .8 Where thinner is used, addition shall not exceed paint manufacturer's recommendations.
- .9 Do not use kerosene or other organic solvents to thin water-based paint.
- .10 Thin paint for roller and brush application in accordance with paint manufacturer's recommendations.
  - .1 Obtain instructions in writing from manufacturer and provide a copy of instructions to the Departmental Representative.
- .11 Remix paint in containers prior to and during application. Ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

## 2.6 GLOSS/SHEEN RATINGS

- .1 Paint gloss: in accordance with the following MPI Gloss/Sheen ratings:

| Gloss Level Category/ | Units @ 60 Degrees/ | Units @ 85 Degrees/ |
|-----------------------|---------------------|---------------------|
| G1—matte finish       | 0 to 5              | Maximum 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            | Minimum 85          |
| G5—semi-gloss finish  | 35 to 70            |                     |
| G6—gloss finish       | 70 to 85            |                     |
| G7—high gloss finish  | 85                  |                     |

- .2 Gloss level ratings of painted surfaces as noted on Finish Schedule.

## **2.7 ACCESSORIES**

- .1 Obtain approval from the Departmental Representative for use of power tools.
- .2 Use tools that do not damage adjacent materials.
- .3 Spray equipment: capable of atomizing paint, equipped with pressure regulators and gauges.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for painting in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of the Departmental Representative.
  - .2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.

### **3.2 PREPARATION**

- .1 Ensure workers are kept safe in accordance with Federal, Provincial, and Municipal Regulations.
- .2 Implement safety measures as required in preparation for implementing work.
- .3 Place safety devices and signage in locations in accordance with Federal, Provincial, and Municipal Regulations.

### **3.3 PROTECTION OF IN-PLACE CONDITIONS**

- .1 Protect existing building surfaces and adjacent structures with masking against paint spatters, markings, and other damage.
- .2 Remove and safely secure and store surface hardware on doors, surface mounted equipment, fittings, and fastenings prior to undertaking painting operations.
- .3 Move and cover exterior furniture and portable equipment as necessary to carry out painting operations. Replace as painting progresses.
- .4 As painting operations progress, place "WET PAINT" signs in pedestrian and vehicle traffic areas.

### **3.4 SURFACE PREPARATION**

- .1 Perform preparation and operations for exterior painting in accordance with MPI Maintenance Repainting Requirements, except where specified otherwise.
- .2 Clean surfaces according to SSPC SP-1 requirements.
- .3 Prepare surfaces according to SSPC SP-6 requirements.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil, and solvents before priming.
- .5 Obtain written approval of prepared surfaces from the Departmental Representative before applying paint.

### **3.5 APPLICATION**

- .1 Special Techniques:
  - .1 Apply coating in manner that replicates texture of existing paint coating.
  - .2 Manufacturer's instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, as well as datasheets.
  - .3 Apply paint materials in accordance with paint manufacturer's written application instructions.
    - .1 Apply paint:
      - .1 To adequately prepared surfaces and within moisture limits.
      - .2 When previous coat of paint is dry and adequately cured.
      - .3 In accordance with manufacturer's written instructions.
- .4 Brush and Roller Application:
  - .1 Apply paint in a uniform layer using roller and/or brush suitable for application.
  - .2 Work paint into cracks, crevices, and corners.
  - .3 Brush, roll out runs and sags, and overlap marks.
  - .4 Eliminate roller tracking and stipple by finishing with a brush. Maintain historic appearance.
  - .5 Remove runs and sags from finished work and repaint.
  - .6 Allow surfaces to dry and cure between coats for minimum time period as recommended by manufacturer.
  - .7 Minimum dry film thickness of coats: not less than that recommended by manufacturer.
  - .8 Repaint thin spots and bare areas before applying next coat of paint.
  - .9 Sand and dust between coats to remove visible defects.
  - .10 Prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil, and solvents between applications of coats.

- .11 Finish to doors: includes top, bottom, and side edges.
  - .1 Paint surfaces concealed by door hardware.
- .12 Apply final coat of paint with brush.

### 3.6 FIELD QUALITY CONTROL

- .1 Standard of acceptance:
  - .1 When viewed using natural prevailing sunlight at peak period of day (mid-day) on surface viewed, surfaces to indicate the following:
    - .1 No defects visible from a distance of 1000 mm at 90° to surface.
    - .2 Final coat: to exhibit uniformity of colour and sheen across full surface.
  - .2 Inform the Departmental Representative when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until the previous coat has been approved by the Departmental Representative.
  - .3 Co-operate with Paint Inspection Agency and provide access to areas of work.
  - .4 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.
  - .5 Test painted concrete, masonry, and plaster surfaces for alkalinity as required.

### 3.7 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11—Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Reinstall and clean removed items after painting is completed.
- .3 Remove paint where spilled, splashed, splattered, or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.
  - .1 Clean and restore as directed by the Departmental Representative.
- .4 Wipe spills and spots with a damp cloth immediately.
- .5 Minimize use of kerosene and organic solvents to clean up water-based paint.
- .6 Final Cleaning: upon completion remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 11—Cleaning.
- .7 Waste Management: separate waste materials for 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.
  - .2 Separate coating products waste in accordance with Waste Management Plan and place in designated areas for recycling or disposal.
  - .3 Place materials defined as hazardous or toxic waste in designated containers.

- .4 Seal and store emptied containers safely away from children for disposal.
- .5 Dispose of surplus chemical and finishing materials in accordance with Federal, Provincial, and Municipal regulations.
- .6 Treat non-reusable materials as hazardous waste and dispose of legally off site.
- .7 Place excess cleaners, thinners, solvents, and paint in designated containers and dispose of legally off site.
- .8 Reduce the amount of contaminants entering waterways, sanitary/storm drain systems, and into the ground. Adhere to the following procedures:
  - .1 Retain cleaning water for water-based materials. Allow sediments to be filtered out. Do not use free-draining water to clean equipment.
  - .2 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
  - .3 Dry empty paint cans prior to disposal or recycling.
  - .4 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store product in well-ventilated fire-safe area at moderate temperature.
- .9 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling facility.
- .10 Set aside and protect surplus and uncontaminated finish materials. Entrust responsible organizations for verifiable reuse of remanufacturing. Make appropriate arrangements for transportation, if need be.
- .11 Keep work area free from unnecessary accumulation of tools, equipment, surplus materials, and debris.
- .12 Remove combustible rubbish materials, empty paint cans each day, and safely dispose of same in accordance with Federal, Provincial, and Municipal Regulations.
- .13 Clean equipment and dispose of wash water used for water borne materials, solvents used for oil-based materials, as well as cleaning and protective materials, paint, thinners, and paint removers/strippers in accordance with Federal, Provincial, and Municipal Regulations.
- .14 Clean painting equipment in leak-proof containers that will permit particulate matter to settle out and be collected. Recycle or dispose of sediment remaining from cleaning operations in accordance with Federal, Provincial, and Municipal Regulations.

### **3.8 HARDWARE REINSTALLATION**

- .1 Clean and reinstall hardware items removed and stored prior to commencement of the Work.
- .2 Reinstall hardware items in original locations.

**3.9 PROTECTION**

- .1 Protect freshly completed surfaces from paint droppings and dust. Avoid scuffing newly applied paint.
- .2 Remove paint splashing on exposed surfaces. Remove smears and spatter using compatible solvent immediately as operations progress.
- .3 Protect completed work from paint droppings. Use non-staining coverings.
- .4 Restore areas used for paint storage, cleaning, mixing, and handling to clean condition as approved by the Departmental Representative.
- .5 Remove protective coverings and warning signs as soon as practical after operations cease.

**END OF SECTION**