

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications.
- .2 Section 06 10 00 - Rough Carpentry.

1.2 REFERENCES

- .1 The Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specifications Manual, 2007.
 - .2 MPI Maintenance Repainting Manual, 2004.
- .2 National Fire Code of Canada.
- .3 Society for Protective Coatings (SSPC)
 - .1 Systems and Specifications, SSPC Painting Manual 2005.

1.3 SOURCE QUALITY CONTROL

- .1 Retain purchase orders, invoices and other documents to prove that material used in contract meets requirements of specification and produce when requested by Departmental Representative.

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety.
 - .3 Upon completion, submit 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 numbers.
 - .4 Manufacturer's index card for each product.
- .3 Samples
 - .1 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

- .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.
- .3 Submit the following mock-up surfaces:
 - .1 Wood windows
 - .1 On site, prepare surfaces and paint one (1) sample window frame in order to make sure that the colour matches the existing wood frame, as well as to show workmanship and finished result.
 - .2 Existing vents along the façades
 - .1 On site, prepare surfaces and paint one (1) sample vent on a height of 2 m in order to make sure that the colour matches the existing limestone veneer of the building's exterior walls, as well as to show workmanship and finished result.
 - .3 Wrought iron brackets
 - .1 In shop, prepare surfaces and paint one (1) sample bracket in order to show workmanship and finished result.
 - .4 Standard of Acceptance:
 - .1 Colour match with existing adjacent surface (as indicated).
 - .2 No defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.5 DELIVERY AND STORAGE

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in manufacturer's original container with labels intact.
- .3 Ensure dry delivery and storage of materials and equipment at site.
- .4 Store materials and equipment in a well ventilated place with temperature range 10 to 30° C, away from heat generating devices.
- .5 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .6 Remove paint materials from storage only in quantities required for same day use.
- .7 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC 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 on a daily basis.

1.6 AMBIANT CONDITION

- .1 Temperature, Humidity and Substrate Moisture Content Levels
 - .1 In a general manner, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .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 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 temperature.
 - .5 Rain or snow are forecast to occur before paint has thoroughly cured.
 - .6 When it is foggy, misty, raining or snowing at site.
 - .2 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 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.
 - .6 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
 - .7 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

1.7 EXISTING CONDITIONS

- .1 Investigate structural problems related to safe execution of preparation of structure to be painted and report unsatisfactory conditions to Departmental Representative before beginning work.
- .2 Report to Departmental Representative conditions of deteriorated materials found during preparation, not previously disclosed.

1.8 ENVIRONMENTAL REQUIREMENTS

- .1 Substrate and ambient temperature must be within limits prescribed in paint standard, by manufacturer, and Departmental Representative.

1.9 PROTECTION

- .1 Protect paint and painting equipment before use and during length of contract from climatic elements.
- .2 Protect exterior of structure from markings and other damage. Protect completed work from paint droppings. Use non-staining coverings.
- .3 Provide for protection of passing pedestrians and the general public.

1.10 SCHEDULING OF WORK

- .1 Submit work schedule starting and final completion dates for approval by Departmental Representative.
- .2 Take measures necessary to complete work within approved scheduled time. Change in schedule must be approved by Departmental Representative.
- .3 Co-ordinate execution with other work at site.

1.11 ALTERNATES

- .1 Products conforming with this specification must be identified in writing by contractor for approval by Departmental Representative.
- .2 Changing manufacturers brands, sources of supply of painting materials from those previously approved must be approved by Departmental Representative.
- .3 Request for alternative approval must be submitted in writing and be accompanied by full literature and recommendations from manufacturers concerned.

Part 2 Products

2.1 MATERIALS

- .1 Paint materials for each coating formulae to be products of a single manufacturer.
- .2 Paint materials to be as specified. Refer to item 3.4 FINISHES.
- .3 Liquid paint remover to recommendations of paint manufacturer with regards to surface preparation or proprietary liquid paint remover of known performance.
- .4 Wood replacement compound: epoxy adhesive system consisting of two components (resin paste and hardener paste) mixed in equal volumes into a lightweight, high-strength, non-shrinking, highly dimensionally stable adhesive putty, and having the following properties:
 - .1 Tensile strength: 17.5 MPa
 - .2 Compressive strength: 38 MPa
 - .3 Hardness Shore D: 53-55
 - .4 Elongation: 4%

2.2 TOOLS AND EQUIPMENT

- .1 The Contractor will have to provide scaffoldings, ladders, aerial bucket truck, paint buckets, tarps, masks and other safety material, tools for repairing our adjusting materiel for removing paint or for painting and other required equipment.
- .2 Workers will have to provide their own small hand tools, such as glazing knife, scraper, spatula, hammer, nail punch, screwdriver, grips and pen.

2.3 MIXING PAINT

- .1 Paint to be ready for application by brush or roller when received.
- .2 Add thinners for brush or roller application only with prior approval of Departmental Representative.
- .3 Mix paint in full containers up to 25 litres capacity by vibrator shaker method.
- .4 Mix paint in full containers up to 5 litres by propeller mixer method.
- .5 Do not mix or keep paint in suspension by means of an air stream under paint surface.

2.4 PROPORTIONS

- .1 Obtain approval, of Departmental Representative to substitute paint on Qualified Product List.

Part 3 Execution

3.1 PREPARATION FOR TASKS

- .1 Ensure that workers are informed of safety rules.
- .2 Ensure that safety measures have been taken each day before any job is started.
- .3 Verify that equipment meets safety standards.
- .4 Encourage workers to report hazards in their work.
- .5 Place safety devices and signs near work area as indicated or directed.

3.2 SURFACE PREPARATION

- .1 Prepare wood area to CGSB 85-GP-2M.
 - .1 Existing wood windows (touch-up painting work only):
 - .1 Remove dust, dirt, and surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
 - .2 Fill in the holes left by the screwing of temporary protection panels with wood replacement compound, sand surfaces by hand to remove rough areas and visible defects.
- .2 Prepare steel surfaces exposed to salt or fresh water to CGSB 85-GP-18M.
 - .1 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.
- .2 Existing vents along the façades: on-site sanding surfaces to remove traces of rust and visible defects.
 - .1 Favor the use of hand tools. Submit work method, including protection measures for the adjacent surfaces, and obtain approval from the Departmental Representative prior to using power tools.
 - .3 Wrought iron brackets: shop preparation, in accordance with of one or the other following methods or a combination of them:
 - .1 Remove mill scale using sandblasting or grit blasting SSPC-SP6, smooth sharp edges at cutting angles and drilling holes. Roughness level of 12,5 µm (0.5 mil) minimum.
 - .2 Chemical option: Acid cleaning with high pressure water rinsing.
 - .3 Rusted steel with or without an existing paint layer: Scrape surface using a high pressure SSPC-SP12-WJ4, 5000 lbs minimum rotating nozzle system. Remove black iron oxide mechanically.

3.3 PAINT APPLICATION

- .1 Method of application and uniform coats of specified film thickness be in agreement with paint supplier and Departmental Representative.
 - .1 Existing wood windows (touch-ups only)
 - .1 Finish: two (2) coats.
 - .2 Existing vents along the façades
 - .1 Primer: one (1) coat.
 - .2 Finish: two (2) coats.
 - .3 Wrought iron brackets
 - .1 Primer: two (2) coats.
 - .2 Finish: two (2) coats.
- .4 The first coat of paint (primer) should be applied as soon as possible following surface preparation in order to prevent rust or prematured contamination caused by airborne impurities (salt, dust, sulfur dioxide).

3.4 FINISHES

- .1 Paint for the existing wood windows
 - .1 Opaque paint designed for exterior surfaces of wood, and having the following properties:
 - .1 All-in-one primer and finish coat.
 - .2 Diluent: water
 - .3 Binder: 100 % acrylic emulsion
 - .4 Solids by volume: 36 %
 - .5 Volatile Organic Compounds (VOCs) according to ASTM D3960-05: < 150 g/L

- .6 Certification: Type MPI no.11 Latex, Exterior Semi-Gloss (Gloss Level Type MPI no. 5)
- .7 Colour: white to match the existing wood window frames
- .8 Finish: semi-gloss, gloss at 60°: 57 to 67%
- .1 On steel surfaces, apply a primer containing rust inhibiting pigments, in accordance with CGSB 85-GP-18M standard.
 - .1 Paint for the existing vents along the façades
 - .1 Opaque primer (if required): ultra-adherent, ultra-hiding and ultra-resistant alkyd-based primer specially formulated for metal surfaces only, and having the following properties:
 - .1 Diluent: hydrocarbons
 - .2 Binder: alkyd
 - .3 Solids by volume: 50 %
 - .4 Volatile Organic Compounds (VOCs) to ASTM D3960-05: < 400 g/L
 - .2 Finish coat: Anti-rust and plastic enamel alkyd, urethane and silicone based paint formulated for metal surfaces only, and having the following properties:
 - .1 Ultra-resistant, ultra-hiding, ultra-glossy and ultra-adherent
 - .2 Diluent: hydrocarbons
 - .3 Binder: polyurethane reinforced alkyd
 - .4 Solids by volume: 50 %
 - .5 Volatile Organic Compounds (VOCs) to ASTM D3960-05: < 400 g/L
 - .6 Colour: grey to match the existing limestone veneer of the building's façades
 - .7 Finish: semi-gloss, gloss at 60°: 85 à 1005
 - .2 Paint for the wrought iron brackets (existing and new)
 - .1 Primer: one-component paint offering a cathodic protection against rust identical to hot galvanization, and having the following properties:
 - .1 Zinc content: ± 88% (± 2%) (wt.) of pure zinc in dry coat / coating rich in organic zinc to ONGC - 1.181
 - .2 Zinc purity: ± 99,995% pure
 - .3 Colour: matte light grey
 - .4 Safety: non toxic and non flammable when dry
 - .5 Mass density: 2,50 Kg/dm³ ± 0,1
 - .6 VOC (volatile organic compound): 300 grams/liter
 - .7 Thinner: Dry thinner
 - .8 Cold / heat resistance: From -80°C to + 200/250°C.
 - .9 Application temperature: From -10°C to +40°C

- .10 Acid / base resistance: can be applied in an atmosphere with a pH varying from 5,5 to 12,5
- .11 Salt mist: ISO 7253 - 4200 hours
- .12 Bending: ASTM D-522
- .13 Flexibility: ONGC-1-GP-71 Method 119.5
- .2 Finish coat: two-component polyurethane (thinner base), of industrial quality for exterior use and having the following properties:
 - .1 Viscosity: 72 ± 2 KU
 - .2 Sheen: 90°
 - .3 Solid weight: $65 \pm 1\%$
 - .4 Solid volume: $47 \pm 1\%$
 - .5 Colour: Black
 - .6 Finish: semi-gloss

3.5 WORKMENSHIP

- .1 All painting work to be carried out by qualified personnel and to job specifications.
- .2 Brush application
 - .1 Apply a uniform coat of paint with a brush.
 - .2 Make sure paint penetrates cracks, seams and corners of elements.
 - .3 Remove swags, drops, and brush marks on finish surfaces and redo these surfaces.
- .3 Apply coats of paint in a continuous manner, and let dry and harden surfaces adequately between each coat, waiting no less the minimum time required by the manufacturer. The minimum dry film thickness of each applied coat may not be thinner than what is recommended by the manufacturer. Redo unprotected surfaces or surfaces covered with too thin a film prior to applying the next coat.
- .4 Sand and remove dust between each layer to eliminate visible defects.

3.6 FIELD QUALITY CONTROL

- .1 Examine surface for adequate preparation.
- .2 Check all materials for correctness.
- .3 Inspect during application for correct procedures.

3.7 CLEANING

- .1 Avoid paint splashings on exposed surfaces not to be painted. Smears and spatter be removed immediately, using compatible solvent.
- .2 Avoid scuffing newly applied paint.

3.8 PROTECTION OF COMPLETED WORK

- .1 Protect area where paint has been applied.

- .2 On completion of specified work remove surplus materials, tools and equipment and debris on work area; leave clean and tidy to complete satisfaction of Departmental Representative.

END OF SECTION