

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Division 1 - General Requirements
- .2 Section 08 51 00 - Reproduction Steel Windows
- .3 Section 05 50 00 - Metal Fabrications

1.02 REFERENCES

- .1 CGSB 1-GP-2M-80 Oil, Linseed, Boiled.
- .2 CGSB 1-GP-16M-79 Shellac Varnish.
- .3 CGSB 1-GP-28M-77 Paint, Exterior, Alkyd, House.
- .4 CGSB 1-GP-40M-79 Primer, Structural Steel, Oil Alkyd Type.
- .5 CGSB 1-GP-55M-82 Primer, Wood Exterior.
- .6 CGSB 1-GP-59M-78 Enamel, Exterior, Gloss, Alkyd Type.
- .7 CGSB 1-GP-61Ma-85 Enamel, Alkyd, Marine, Exterior and Interior.
- .8 CGSB 1-GP-69M-79 Paint, Aluminum.
- .9 CGSB 1-GP-138M-78 Paint, Exterior, Latex Type, Flat.
- .10 CGSB 1-GP-140M-78 Primer, Red Lead, Iron Oxide, Oil Alkyd Type.
- .11 CGSB 1-GP-166M-79 Primer, Basic Lead Silico - Chromate, Oil, Alkyd Type.
- .12 CGSB 1-GP-167M-80 Enamel, Exterior, Basic head Silico-Chromate, Alkyd Type.
- .13 CGSB 1-GP-189M-78 Primer, Alkyd, Wood, Exterior.
- .14 MPI (Master Painters Institute) - Architectural Painting Specifications Manual and Maintenance Repainting Manual.
- .15 Environmental Protection Agency (EPA)
 - .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).
- .16 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.03 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.

1.04 SAMPLES AND SUBMITTALS

.1 Product Data:

- .1 Submit Product data on all specified finishing products.
- .2 Submit two (2) copies of WHMIS MSDS - Material Safety Data Sheets.
- .2 All colours will be selected by the Departmental Representative to match existing. Obtain 100mm 100 mm in sample of the original paint colours of the wood stairs top, bottom, lantern exterior and shingles. Submit labelled samples to the Departmental Representative for review and colour selection.
- .3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit two (2) samples, 300mm x 300mm in size illustrating range of colours and textures available for each surface finishing product scheduled.
 - .2 Submit two (2) samples, 300mm x 300mm in size illustrating selected colours and textures for each colour selected.
- .4 Provide Departmental Representative with two (2) litre samples of each paint delivered to site, one sample from Manufacturer's containers and one sample from painters pot.

1.05 CLOSEOUT SYBMITTALS

- .1 Submit in accordance with section 01 78 00.
- .2 Operation and Maintenance Data: Submit operation and maintenance data for paints and coating for incorporation into manual.
- .1 Provide records of products used. List products in relation to finish system and include following:
 - .1 Product name, type and use (eg. Materials location).
 - .2 Manufacturer's product number.
 - .3 Colour code numbers.
 - .4 Manufacturer's Material Safety Data Sheets.
- .2 Submit maintenance record of painting work.

1.06 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra stock materials

- .1 Submit one, 1 litre can of each type and colour of finish coating.
- .2 Identify type and colour in accordance with established colour schedule and finish system.

1.07 QUALITY ASSURANCE

- .1 Qualifications
 - .1 Contractor: Contractor must be competent to meet all performance criteria associated with historic structures painting.
 - .2 Crew completing all mock-up work is to be the same crew that undertakes the finish work.

1.08 MOCK-UP

- .1 Section 01 43 00: Requirements for mock-up.
- .2 Provide the following mock-ups
 - .1 Liquid paint remover, primer and Hi-Solids Polyurethane lantern paint.
 - .2 Primer and Hi-Solids polyurethane on new lantern railing.
 - .3 Liquid paint remover, mechanical cleaning, primer and hi-Solids polyurethane ladder paint.
- .3 Minimum mock-up size to be 1000mm by 1000mm.
- .4 Mock-ups to demonstrate
 - .1 Surface preparation
 - .2 Coating colour, gloss, texture, and workmanship.
- .5 All mock-ups must be fully cured prior to Departmental Representative's review.
- .5 Locate where directed by Departmental Representative.
- .6 Approved mock-up will be the acceptable standard of finish quality and workmanship for all painting Work.
- .7 Approved mock-up may remain as part of the Work.

1.09 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 manufacturers original container with labels intact.
 - .1 . Labels: to indicate:
 - .1 Type of paint or coating.
 - .2 Compliance with applicable standard.
 - .3 Colour number in accordance with established colour schedule.

- .3 Ensure dry delivery and storage of materials and equipment at site.
- .4 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect paints and coatings.
 - .3 Keep areas for storage, cleaning and preparation, clean and orderly.
 - .4 Remove paint materials from storage in quantities required for same day use.
 - .5 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
 - .6 Store materials and equipment within temperature range between 7 degrees C to 30 degrees C.
 - .7 Store materials and supplies away from heat generating devices and sensitive materials above minimum temperature as recommended by manufacturer.
 - .8 Replace defective or damaged materials with new.
- .5 Fire Safety Requirements:
 - .1 Provide one 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.

1.10 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.

1.11 ENVIRONMENTAL REQUIREMENTS

- .1 Substrate and ambient temperature must be within 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 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 Substrate is wet, damp or frosted.
- .5 Maximum moisture content of substrate exceeds: 12% for concrete and unit masonry.
- .6 Maximum moisture content of substrate exceeds: 15% for wood.
- .7 Relative humidity is above 85%.
- .9 Dew point is less than 3 degrees C variance between air/surface temperature.
- .10 Precipitation is forecast to occur before paint has thoroughly cured.
- .11 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.

1.12 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.

1.13 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.

2 PRODUCTS

2.01 MATERIALS

- .1 Paint materials for each coating formulae to be products of a single manufacturer.
- .2 Paint materials to be as specified.

- .3 Gel and liquid rust remover and inhibitor.
- .4 Liquid paint remover proprietary liquid paint remover of known performance
 - .1 Non-caustic
 - .2 Will not raise the grain of the wood
 - .3 will not darken hardwoods
 - .4 Formulated without methylene choride.
 - .5 Solvent based.

2.02 TOOLS AND EQUIPMENT

- .1 Departmental Representative will determine areas where power tools or equipment may be used for both preparing and painting of substrate. Based bid price should assume that all work will be carried out by hand tools.

2.03 PAINTING SYSTEMS

- .1 Lantern Interior Wood Primers (selective wood elements as indicated on schedules Ab100)(PT3):
 - .1 Organic Linseed Oil Primer.
 - .2 1 coat
- .2 Lantern Interior Wood Topcoats (selective wood elements as indicated on schedules Ab100)(PT3):
 - .1 Organic Linseed Oil Paint.
 - .2 3 coats
 - .3 Colour Selection:
 - .1 Lantern Floor - White
- .3 Exterior Aluminum Primer (exterior door at grade)(PT):
 - .1 Water based wash primer.
 - .2 1 coat
- .4 Exterior Steel Primer (exterior lantern door, lantern exterior and interior, railing)(PT4):
 - .1 Alkyd metal primer. Fast drying, heavy metal free, rush inhibitive.
 - .2 1 coat
- .5 Exterior Aluminum & Steel Paint (exterior door, lantern, railing)(PT4/PT):
 - .1 Hi-Solids Moisture Cured Polyurethane.
 - .2 2 coats
 - .3 Colour Selection:
 - .1 Railing - Red to match existing.
 - .2 Exterior Door - Red to match existing.
 - .3 Lantern - Red to match existing.

- .4 Ladder - Red to match existing.
- .6 Interior Concrete Primer (PT2):
 - .1 Water Based Epoxy.
 - .2 Water Vapor Permeability (ASTM E96): 12 perms.
 - .3 2 coats
 - .4 Colour Selection:
 - .1 Red and White and shown on floor plans drawing Ab400.
- .7 Interior Concrete Paint (PT2):
 - .1 Water Based Epoxy.
 - .2 Water Vapor Permeability (ASTM E96): 12 perms.
 - .3 2 coats
 - .4 Colour Selection:
 - .1 Red and White and shown on floor plans drawing Ab200
- .8 PT8 - Refer to Section 08 51 00 Reproduction Steel Windows for shop applied system.
 - .1 Colour Selection:
 - .1 Black

2.04 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 Reproduce historic paint by:
 - .1 Adding small amount of vehicle to pigment.
 - .2 Mixing well by propeller method.
 - .3 Adding slowly remainder of vehicle while mixing until coating is homoneneous.
 - .4 Adding small amounts of colouring matter (if necessary) until colour achieved.
 - .5 Mixing until homogeneous.
 - .6 Checking all labels for special manufacturer's instructions.
- .6 Do not mix or keep paint in suspension by means of an air stream under paint surface.

2.05 PROPORTIONS

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

3 EXECUTION

3.01 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.

3.02 SURFACE PREPARATION

- .1 Prepare wood surfaces exposed to normally dry rural atmosphere to CGSB 85-GP-2M.
- .2 Clean wood surfaces exposed to maritime atmosphere:
 - .1 Scrub area with diluted detergent solution and clean warm water using a stiff bristle brush to remove salt, dirt and oil.
 - .2 Hose down scrubbed area with clean water until foreign matter is flushed from surface.
 - .3 Allow washed area to drain completely and allow to dry thoroughly.
- .3 Prepare wood area to CGSB 85-GP-2M.
- .4 Prepare steel surfaces exposed normally to dry weather to CGSB 85-GP-15M.
- .5 Prepare steel surfaces exposed to salt or fresh water to CGSB 85-GP-18M.
- .6 Prepare galvanized steel surfaces to CGSB 85-GP-16M.
- .7 Prepare copper and copper alloys surfaces to CGSB 85-GP-20M.
- .8 Prepare concrete surfaces to CGSB 85-GP-31M.
- .9 Prepare surfaces in accordance with MPI requirements.
- .10 Remove and store or mask miscellaneous hardware and surface fittings such as electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to painting. Clean and replace upon completion of painting Work in each area. Remove doors before painting to paint bottom and top edges and rehung.
- .11 Protect adjacent surfaces and areas, including rating and instruction labels on doors, frames, equipment, piping, from painting operations with drop cloths, shields, masking, templates, or other suitable protective means.
- .12 Correct defects and clean surfaces which affect work of this section. Start of finish painting of defective surfaces indicates acceptance of substrate and making good defects will be at no cost to Owner.
- .13 Confirm preparation and primer used with fabricator of steel items.

- .14 Seal with shellac and seal marks which may bleed through surface finishes.
- .15 Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- .16 Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- .17 Galvanized Surfaces (NEW LANTERN RAILING): Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- .18 Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- .19 Previously finished Wood Scheduled to Receive Paint Finish (LANTERN INTERIOR): Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Flatten gloss paint and varnish with sandpaper and wipe off dust. If previous coatings have failed so as to affect proper performance or appearance of coatings to be applied, remove previous coatings completely and prepare substrates properly and refinish as specified for new work.
- .20 Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.
- .21 Previously Finished Metal and Concrete Surfaces: (LANTERN EXTERIOR, LANTERN INTERIOR, LADDERS, AND CONCRETE FLOOR) Clean existing interior and exterior surfaces to be repainted or varnished to original unfinished surface to provide bond. Remove rust, scale, oil, grease, mildew, chemicals and other foreign matters. Clean off paint by stripping with liquid paint remover. Treat residue from stripping as Hazardous Waste. Leave entire surface suitable to receive designated finishes and in accordance with finish manufacturer's instructions.
 - .1 Photo document cleaned surface.
 - .2 Inspect cleaned surfaces for metal defects including pits, cracks, excessive wear and bending.
 - .3 Submit written report with photo documentation to Departmental Representative.

3.03 PAINT APPLICATION

- .1 Method of application and uniform coats of specified film thickness be in agreement with paint supplier.
- .2 Special Techniques:
 - .1 Apply coating in manner that replicates texture of existing paint coating.

- .3 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.
- .4 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 Apply paint with brush.
 - .1 Obtain Departmental Representative's approval of application method before commencing work.
 - .5 Brush and Roller Application:
 - .1 Apply paint in a uniform layer using brush suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Brush 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 Apply final coat of paint with brush.

3.04 WORKMENSHP

- .1 All painting work to be carried out by qualified personnel and to job specifications.

3.05 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 following:
 - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Soffits: no defects visible from grade at 45 degrees to surface.
 - .3 Final coat: to exhibit uniformity of colour and sheen across full surface.
- .2 Advise Departmental Representative and Paint Inspection Agency when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved by Departmental Representative and Paint Inspection Agency.
- .3 Co-operate with Paint Inspection Agency and provide access to areas of work.
- .4 Manufacturer's Field Services:
 - .1 As part of testing and inspection, provide manufacturer's field services consisting of product use recommendations and periodic site visits, minimum 1 visits to be included in base contract, for

inspection of product installation.

- .1 Visit 1: Paint system manufacturer, to review surface preparation and mock-ups.
- .5 Test painted concrete and masonry surfaces for alkalinity as required.
- .6 Conduct moisture tests on substrates.
 - .1 Use calibrated electronic moisture meter.
 - .2 Test existing painted concrete floors using simple "Cover patch test" on failed areas.

3.06 CLEANING

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

3.07 PROTECTION OF COMPLETED WORK

- .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 immediately as operations progress, using compatible solvent.
- .3 Protect completed work from paint droppings. Use non-staining coverings.
- .4 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.
- .5 Remove protective coverings and warning signs as soon as practical after operations cease.

END OF SECTION