

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Division 1 - General Requirements
- .2 Section 09 03 61 - Historic Repainting

1.02 REFERENCES

- .1 ASTM International
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A 307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .3 CSA International
 - .1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA S16-09, Design of Steel Structures.
 - .4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59-M03(R2008), Welded Steel Construction (Metal Arc Welding) [Metric].
- .4 Environmental Choice Program
 - .1 CCD-047-98(R2005), Architectural Surface Coatings.
 - .2 CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.
- .5 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
- .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .7 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.

1.03 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 sections, pipe, bolts and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies of WHMIS MSDS
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.

- .3 Shop Drawings:
 - .1 Submit shop drawings of new lantern vent, lantern railing and entrance ramp stamped and signed by professional engineer registered or licensed in Province Nova Scotia, Canada.
 - .2 Submit shop drawings for new door louvre demonstrating, cutting, framing and blocking required for installation.
 - .3 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.04 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements 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.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .5 Packaging Waste Management: remove for reuse as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.01 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W 350W.
- .2 Steel pipe: to ASTM A 53/A 53M standard weight galvanized finish.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A 307.
- .6 Bronze 0.5mm thick.
- .7 Manufactured aluminum door louvre 1.6mm thick, with insect screen.

2.02 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.03 FINISHES

- .1 Lantern railing and Entrance Ramp Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .2 Ladders and Lantern Components - Zinc primer: zinc rich, ready mix to MPI-EXT 5.2C in accordance with chemical component limits and restrictions requirements and VOC limits of CCD-047a.
- .3 Refer to section 09 03 61 Historic Repainting for paint system specifications.

2.04 ISOLATION COATING

- .1 Isolate aluminum from following components, by means of bituminous paint:
 - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.

2.05 SHOP PAINTING

- .1 Primer: VOC limit 250 g/L maximum to GS-11.
- .2 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .3 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.
- .4 Clean surfaces to be field welded; do not paint.

2.06 NEW PIPE RAILINGS

- .1 Steel pipe: 60mm posts and bottom rail. 42mm top rail. Nominal outside diameter, formed to shapes and sizes as indicated.
- .2 Connections: Custom cast. Type 1 & Type 2 as shown on drawing. Mechanically secured with threaded ends and bolts.
- .3 Galvanize exterior pipe railings after fabrication.

2.07 RESTORATION OF EXSTING ACCESS LADDERS

- .1 Stringers: as shown on drawing. Replacement to extent shown on schedule.
- .2 Steel Rungs: Existing to be restored.
- .3 Brackets: sizes and shapes as indicated, on structural drawings.

2.08 NEW LANTERN VENT

- .1 Spun and bent bronze. Provide internal brackets to stiffen.
- .2 Cast bronze pinnacle, size and shape as shown on drawings.
 - .1 Develop detailed pattern based on architectural drawings and archival photographic references.
 - .2 Create rubber mold.
 - .3 Create wax production.
 - .4 Create slip mold.
 - .5 Burn out wax
 - .6 Pour molten metal into mold.

2.09 RESTORATION OF LOW WALL LANTERN VENT

- .1 Shop weld cracks.
- .2 Remove all existing rust as described in
- .3 Apply rust inhibitor.

2.10 RESTORATION OF LANTERN ELEMENTS

- .1 2mm thick by 40mm tall sill plate full length of lantern window to be replaced in 2 locations. Site weld.

2.11 NEW LIGHTHOUSE ACCESS RAMP

- .1 Galvanized steel, sizes, as shown on drawings.
- .2 Custom adjustable feet, with 75mm diameter threaded rods bolted to concrete.
- .3 Galvanize after fabrication.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal

fabrications installation in accordance with manufacturer's written instructions.

- .1 Visually inspect substrate in presence of Departmental Representative.
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied by Departmental Representative.

3.02 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Supply components for work by other trades in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CSA S16 or Weld field connection.
- .7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.
- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:
 - .1 Primer: maximum VOC limit 250 g/L to GS-11.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
 - .1 Primer: maximum VOC limit 250 g/L to GS-11.

3.03 PIPE RAILINGS

- .1 Install pipe railings to lantern balcony.
- .2 Set railing standards in concrete. Grout to fill hole. Trowel surface smooth and flush with adjacent surfaces.

3.04 NEW LIGHTHOUSE ACCESS RAMP

- .1 Comply with archeological monitoring requirements at all times during site preparation.
- .2 Shop fabricate, galvanize and assemble all components prior to shipping to ensure fit.
- .3 Adjust and lock in place, bolt feet to concrete foundation.

3.05 NEW LANTERN VENT

- .1 Install lantern to original location on lantern roof.
- .2 Reuse existing fastener holes in metal roof.
- .3 Install separation gasket between dissimilar metals.
- .4 Prime and paint.

3.06 RESTORATION OF EXSTING ACCESS LADDERS

- .1 Remove all existing coatings and examine condition of metal surfaces to confirm the final extent of repair required.
- .2 Temporarily support or remove ladders to allow for the replacement of the connections to the concrete structure.

3.07 RESTORATION OF LANTERN ELEMENTS

- .1 Remove all existing coatings and examine condition of metal surfaces to confirm the final extent of repair required.
- . 2 Lantern wall vents
 - .1 Remove lantern wall vents and provide temporary protection on openings.
 - .2 Complete weld repairs in shop conditions.
- .2 Lantern sills
 - .1 Complete repair in situ.
 - .2 Field weld new plates to existing metal.

3.08 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - 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 and 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.

3.09 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION