

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 04 05 00 - Common Work Results for Masonry
- .2 Section 06 03 15 - Historic - Splicing of Wood Components.
- .3 Section 06 10 00 - Rough Carpentry.
- .4 Section 07 61 00 - Sheet Metal Roofing.
- .5 Section 07 62 00 - Sheet Metal Flashing and Trim.
- .6 Section 09 03 61 - Historic - Repainting Exterior Surfaces.

**1.2 DESCRIPTION**

- .1 Indicative list of works, but not limited to:
  - .1 Removing, repairing and reinstalling the existing gutters' wrought iron brackets;
  - .2 Fabricating and installing a new gutter's wrought iron bracket, closely replicating the existing model.
  - .3 Fabricating and installing new galvanized steel ladders to access to roof hatches.

**1.3 REFERENCES**

- .1 ASTM International
  - .1 ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2 ASTM A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  - .3 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA International
  - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA S16, Design of Steel Structures.
  - .3 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
  - .4 CSA W59, Welded Steel Construction (Metal Arc Welding).

**1.4 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, and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer member of the Ordre des ingénieurs du Québec.
  - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
  - .3 Submit the following mock-ups:
    - .1 One existing gutter bracket, repaired as indicated;
    - .2 One new gutter bracket for supporting the new type 1 gutter on the northern façade.

## **1.5 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.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 off ground, in dry location, and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
- .2 Steel pipe: to ASTM A53/A53M, standard weight, galvanized finish.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

- .6 Welding flux: rosin, diluted chlorhydric acid or other commercial preparation compatible with materials to be welded.
- .7 Rods: Stainless steel to ASTM A167, grade 304.
- .8 Threaded rods, nuts, bolts and washers : Stainless steel, grade 304..
- .9 Injectable mortar: Refer to Section 04 03 08 - Historic - Mortaring.

## **2.2 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.

## **2.3 FINISHES**

- .1 Gutter brackets (existing and new)
  - .1 Painted according to Section 09 03 61 - Historic – Repainting Exterior Surfaces.
- .2 Ladders
  - .1 Galvanizing for exterior works: hot dipped galvanizing with zinc coating 600 g/m<sup>2</sup> to CAN/CSA-G164.

## **2.4 SHOP PAINTING**

- .1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 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.
- .3 Clean surfaces to be field welded; do not paint.

## **2.5 EXISTING GUTTER BRACKETS**

- .1 Inspect the existing gutter brackets in presence of Departmental Representative, and double-check repairs to be made.
  - .1 Prepare a photographic record for each bracket.
  - .2 Notify the Departmental Representative of any specific situation.
  - .3 Wait for Departmental Representative's instructions to know which procedure to follow.
- .2 Number of brackets to be repaired: 20 on a total of 30.

## **2.6 NEW GUTTER BRACKET**

- .1 The new gutter brackets must closely replicate the existing wrought iron brackets. The Contractor will have to produce a detailed recording of the existing brackets.
- .2 Number of new brackets : 1

## **2.7 ACCESS LADDERS**

- .1 Stringers: steel bars, dimensions as indicated on the architectural drawings.
- .2 Steel Rungs: dimensions as indicated on the architectural drawings, welded to stringers according to the spacing indicated.
- .3 Brackets: sizes and shapes as indicated, bolted to stringers at top and bottom, complete with fixing anchors.
- .4 Galvanize finish for exterior.

## **Part 3 Execution**

### **3.1 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 and after receipt of written approval to proceed from Departmental Representative.

### **3.2 PREPARATORY WORK**

- .1 Removal of existing brackets.
  - .1 Tag each bracket according to the numbering indicated on the architectural drawings;
  - .2 Remove the existing brackets without damaging the elements to which they are attached (stone veneer and wood sill), or any other adjacent element.
  - .3 Should it be impossible to remove the existing brackets without damaging the stones or the sill, inform the Departmental Representative and wait for instructions.

### **3.3 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:
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

### **3.4 EXISTING GUTTER BRACKETS**

- .1 Repairs
  - .1 Scrape paint from supports using sandblasting
  - .2 Repair the curved ends of the brackets by:
    - .1 Cutting the portions of the brackets where the metal is eroded and/or pierced;
    - .2 Soldering new stainless steel curved ends to the conserved portion of the brackets
    - .2 The new curved ends must have the same profile and dimensions as the existing ones, replicate the scroll if disappeared.
  - .3 Paint all brackets.
- .2 Reinstallation
  - .1 Clean with compressed air jet all the exiting holes in the masonry where the brackets must be reinstalled.
  - .2 Reinstall all brackets in same locations.
    - .1 At the lower end, secure rod into stone veneer with injectable mortar, reusing the existing hole
    - .2 At the upper end, replace the existing wrought iron anchor rod with stainless steel lag bolt of larger diameter. Install wood dowel to increase grip if required..

### **3.5 NEW GUTTER BRACKETS**

- .1 New brackets must be identical to the existing one still intact.
- .2 Install new brackets at the same height and attached to the same elements as the existing brackets.

### **3.6 SERVICE LADDERS**

- .1 Install access ladders in locations as indicated.

- .2 Erect ladders with bracket supports and anchors as indicated.

### **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 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 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.

### **3.8 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**