
Part 1 Metal Fabrications

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 06 10 10 – Rough Carpentry

1.2 REFERENCES

- .1 CAN/CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel.
- .2 CAN/CSA-G164- Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-S16.1- Limit States Design of Steel Structures.
- .4 CSA W48- Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
- .5 CSA W59-Welded Steel Construction (Metal Arc Welding).
- .6 CSA W47-1 Arc Welding

All Standards used shall be of latest edition.

1.3 DESCRIPTION

- .1 This section specifies requirements for the supply fabrication, delivery and installation of the following:
 - .1 Galvanized Steel connectors and misc. steel as shown on drawings etc. to complete the work.
 - .2 Ladder rungs, hold fasts and mooring cleats etc.

1.4 SUBMITTALS

- .1 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
 - .3 Submit certificate of welders employed in field for review before commencing the work. All welders shall have CWB Ticket for all position welding.

1.5 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 MEASUREMENT FOR PAYMENT

- .1 Payment for items under this section shall be as follows:
 - .1 The installation of all steel connectors as shown on drawing shall be paid as Lump Sum.
 - .2 The supply and installation of mooring cleats will be measured by the unit acceptably incorporated in the work.
 - .3 The supply and installation (including welding, cutting, drilling and galvanizing as required) of miscellaneous metals including connectors to complete the work will be paid as Lump Sum.
 - .4 Measurement for payment of all washers, bolts, anchor rods and hardware will be incidental to the item that the hardware is associated with.
 - .5 Ladders shall be measured on a per unit basis. This item will include supply and placing of all ladders, angles, holdfast and all other items to complete the work.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.
- .2 Welding materials: to CSA W59.
- .3 Welding electrodes to CSA W 48
- .4 Bolts and anchor bolts: to ASTM A307. hot dipped Galvanized G- 90
- .5 Grout: non-shrink, non-metallic, flow able, 15 MPa at 24 hours.
- .6 Galvanizing 900 gm/m² Z 275 – G90
- .7 Mooring cleats – minimum mass for cleats shall be 13 kg.

2.2 FABRICATION

- .1 All fabrication of steel shall be by the company certified by CWB .
- .2 Fabricate work square, true, straight and accurate to required size, with joints
- .3 closely fitted and properly secured.
- .4 Where possible, fit and shop assemble work, ready for erection.
- .5 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- .6 Machine bolts will have standard heads, nuts and when in position will be of sufficient length to permit a full nut and two washers. Thread shall be coarse threads series as specified in latest ANS/B1-1 having a Class 2A tolerances.
- .7 Standard cast iron washers suitable for the bolt specified will be placed under the nuts of all machine bolts bearing on timber surfaces unless noted otherwise on the drawings.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 900g/m² to CAN/CSA-G164. for all bolts, washers and connectors
- .2 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

Part 3 Execution

3.1 ERECTION

- .1 Does welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metal work 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 Make field connections with bolts to CAN/CSA-S16.1, or weld.
- .6 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .7 Take necessary care in the handling of all galvanized steel parts to prevent damage to the coatings. Evidence of damage shall be cause for rejection. Touch-up galvanized surfaces with zinc rich primer where burned by field welding or damaged. As per the approval from Departmental Representative.
- .8 Welders employed in field shall be certified by CWB for all position welding.

3.2 CLEATS

- .1 Secure cleats with anchor bolts with nuts and washers as shown on drawings.
- .2 If required, grout under base of cleat using a non-shrink, no metallic type of grout to obtain a smooth level surface.
- .3 After cleat installation is complete, bolt holes in cleats shall be filled with approved waterproof exterior grade sealant.

END OF SECTION