

**Part 1 General****1.1 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM).
  - .1 ASTM A53/A53M-12. Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  - .2 ASTM A167-99(2009). Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
  - .3 ASTM A307-12. Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
  - .4 ASTM A336/A336M-10a. Standard Specification for Alloy Steel Forgings for Pressure and High-Temperature Parts.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.40-97. Anti-corrosive Structural Steel Alkyd Primer.
  - .2 CAN/CGSB-1.181-99. Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International).
  - .1 CSA-G40.20-04/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 (R2011). Filler Metals and Allied Materials for Metal Arc Welding.
  - .5 CSA-W59-03 (R2008). Welded Steel Construction (Metal Arc Welding).

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data. Submit manufacturer's printed product literature, specifications and data sheet.
- .3 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for finishes, coatings, primers and paints.
- .4 Submit Shop Drawings:
  - .1 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories. On installation drawings, indicate all information necessary for assembly, including member size, base plate elevation, anchor bolt size and location.
  - .2 Indicate cuts, copes, holes, threaded fasteners, rivets and welds. Indicate welds by AWS welding symbols.

**METAL FABRICATIONS**

- .3 Ensure Fabricator designed assemblies, components and connections, and drawings are stamped and signed by qualified Professional Engineer licensed in the province of Quebec.

**1.3 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.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

**Part 2 Products****2.1 MATERIALS**

- .1 Steel section and plates: to CSA-G40.20/G40.21, Grade 350W.
- .2 Stainless steel sheet: to ASTM A167-99. Type 309, 310 or 316. Brushed finish.
- .3 Bolts and anchor bolts: steel bolts to ASTM A307. Provide stainless steel bolts, screws and anchors for stainless steel fabrications. Provide hot dip galvanized bolts, screws and anchors for hot dip galvanized fabrications.
- .4 Grout: non-shrink, non-metallic, flowable. 15 MPa at 24 hours.

**2.2 SHOP PAINTING**

- .1 Clean, prepare surfaces, and apply primer to CSA-S16. 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.
- .4 Interior components: apply one coat of shop coat primer. Minimum 0.4mm, maximum 0.75mm dry thickness.
- .5 Exterior components (non-galvanized): apply one coat of zinc primer. Minimum 0.4mm, maximum 0.75mm dry thickness.

**2.3 FABRICATION**

- .1 Fabricate custom support frames from angle iron and plate steel sections as per details.

**METAL FABRICATIONS**

- .2 Brackets: sizes and shapes as per details. Weld to support frame. Provide anchor plates for attachment to wall surfaces as detailed including solid wood blocking. Complete with anchors as per details.
- .3 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .4 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur. Use self-tapping shake-proof screws on items requiring assembly by screws or as indicated. Provide wall and floor anchors as indicated or required for attachment.
- .5 Where possible, fit and shop assemble work, ready for erection.
- .6 Accurately form connections with exposed faces flush; mitres and joints tight. Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

**Part 3 Execution****3.1 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's approval 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 Provide components for building by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CSA-S16.1, or weld.
- .7 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .8 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

**3.2 MISCELLANEOUS FABRICATIONS**

- .1 Install miscellaneous metal fabrications to locations as indicated.
- .2 Provide anchors and provide solid fastening to substrate as indicated.

**METAL FABRICATIONS**

**3.3 CLEANING**

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**END OF SECTION**