

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Division 1

**1.2 REFERENCE STANDARDS**

- .1 ASTM International
  - .1 ASTM A 53/A 53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2 ASTM A 307-14, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA Group
  - .1 CSA G40.20-13/G40.21-13, 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 S16-14, Design of Steel Structures.
  - .4 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
  - .5 CSA W59-13, Welded Steel Construction (Metal Arc Welding) Metric.
- .3 Green Seal Environmental Standards (GS)
  - .1 GS-11-2011, Paints and Coatings.
- .4 The Master Painters Institute (MPI)
  - .1 Architectural Painting Specification Manual - current edition.
- .5 ULC Standards
  - .1 UL 2768-2011, Architectural Surface Coatings.
  - .2 UL 2760-2011, Surface Coatings - Recycled Water-borne.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Division 1.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, pipe, tubing and bolts and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS MSDS in accordance with Division 1 Health and Safety Requirements.

.3 Shop Drawings:

- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada, if required.
- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

**1.4 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.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Division 1 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, indoors, 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 for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Division 1.

**Part 2 Products**

**2.1 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.

**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 round oval headed screws on items requiring assembly by screws or as indicated.

- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Exposed welds continuous for length of each joint. File or grind exposed welds smooth and flush.

## 2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m<sup>2</sup> to CAN/CSA-G164.

## Part 3 EXECUTION

### 3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate and inform Architect of unacceptable conditions immediately upon discovery.
  - .2 Proceed with installation only after unacceptable conditions have been remedied.

### 3.2 ERECTION - GENERAL

- .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 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .4 Make field connections with bolts to CSA S16 or Weld field connection.
- .5 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion
- .6 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

### 3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Division 1 Cleaning. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Division 1 Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Division 1 Waste Management and Disposal. Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**3.4 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**