

**Part 1            General**

**1.1            References**

- .1 American Society for Testing and Materials International, (ASTM)
  - .1 *ASTM A36/A36M-08* - Standard Specification for Carbon Structural Steel
  - .2 *ASTM A53/A53M-07*, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .3 *ASTM A269-10*, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  - .4 *ASTM A307-07*, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
  - .2 CAN/CGSB-1.181-92, Ready-Mixed, Organic Zinc-Rich Coating.
- .3 Correctional Service Canada (CSC) Technical Criteria, 2015.
- .4 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel.
  - .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CAN/CSA-S16.1-09, Limit States 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) (Imperial Version).
- .5 The Environmental Choice Program
  - .1 CCD-047a, Paints, Surface Coatings.
  - .2 CCD-048, Surface Coatings - Recycled Water-borne.

**1.2            Submittals**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 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 For handrails and guardrails, indicate design loads on shop drawings. Drawings to be sealed by a professional Engineer licensed in the province of Saskatchewan.

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### **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.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

### **1.4 Delivery, Storage, And Handling**

- .1 Packing, Shipping, Handling and Unloading:
  - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
  - .1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
  - .2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

### **1.5 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 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 All materials to comply with Correctional Service Canada (CSC) Technical Criteria, 2015.
- .2 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W or to *ASTM A36/A36M-08*, 350W for wide flange and HSS sections.
- .3 Steel pipe: to *ASTM A53/A53M* standard weight, galvanized finish.
- .4 Welding materials: to *CSA W59*.
- .5 Welding electrodes: to *CSA W48 Series*.
- .6 Bolts and anchor bolts: to *ASTM A307*.
- .7 Stainless steel tubing: to *ASTM A269*, Type 302 Commercial grade Seamless welded with AISI No. 4 finish.

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- .8 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

## **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 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m<sup>2</sup> to CAN/CSA-G164.
- .2 All metal fabrications to be galvanized.
- .3 All galvanized surfaces receiving paint to be cleaned, dry, and free of contaminants. Surface to be prepared in accordance with CAN/CSA-S16-09 to the SSPC.SP level recommended by the finish manufacturer. Apply wash primer if required by manufacturer's instructions. Apply test patch to confirm adhesion.

## **2.4 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.

## **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 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 CAN/CSA-S16.1, or weld.
- .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.

- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

**3.2 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**