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**METAL FABRICATIONS**

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**Part 1        General**

**1.1            RELATED SECTIONS**

- .1        City of Winnipeg CWSCS.
- .2        Section 03 30 00 - Cast-in-Place Concrete.
- .3        Section 09 97 19 – Painting Exterior Metal Surfaces.

**1.2            REFERENCES**

- .1        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.
- .2        Canadian Standards Association (CSA International)
  - .1        CAN/CSA-G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel.
  - .2        CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3        CAN/CSA-S16.1-01, Limit States Design of Steel Structures.
  - .4        CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
  - .5        CSA W59-1989(R2001), Welded Steel Construction (Metal Arc Welding) (Imperial Version).

**1.3            SUBMITTALS**

- .1        Shop Drawings
  - .1        Submit shop drawings in accordance with CWSCS.
  - .2        Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

**1.4            DELIVERY, STORAGE, AND HANDLING**

- .1        Packing, Shipping, Handling and Unloading:
  - .1        Deliver, store, handle and protect materials in accordance with CWSCS.
- .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.

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**Part 2**

**Products**

**2.1 MATERIALS**

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.
- .2 Steel pipe: to ASTM A53/A53M standard weight.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 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 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 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

**2.4 ISOLATION COATING**

- .1 Isolate aluminium 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.

**2.5 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.

**2.6 PIPE RAILINGS**

- .1 Steel pipe: 50 mm nominal outside diameter, formed to shapes and sizes as indicated.
- .2 Shop coat prime interior railings after fabrication.

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**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 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .4 Provide components for building by other sections in accordance with shop drawings and schedule.
- .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 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

**3.2 PIPE RAILINGS**

- .1 Install pipe railings to stairs as indicated.
- .2 Set railing standards in concrete. Grout to fill hole. Trowel surface smooth and flush with adjacent surfaces.

**3.3 CHANNEL FRAMES**

- .1 Install steel channel frames to openings as indicated.

**3.4 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**