

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1        Section 01330 - Submittal Procedures.
- .2        Section 03300 - Cast-in-Place Concrete.
- .3        Section 04051 - Masonry Procedures.
- .4        Section 05500 - Metal Fabrications.
- .5        Section 09900 – Finish Painting

**1.2                REFERENCES**

- .1        American National Standards Institute/National Association of Architectural Metal Manufacturers (ANSI/NAAMM)
  - .1        ANSI/NAAMM MBG531-00, Metal Bar Grating Manual.
- .2        American Society for Testing and Materials International, (ASTM)
  - .1        ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2        ASTM A307-02, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .3        ASTM A325M-02, Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- .3        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        CAN/CSA-G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel.
  - .4        CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4        Canadian Standards Association (CSA International)
  - .1        CSA W59-1989(R2001), Welded Steel Construction (Metal Arc Welding/Imperial Version).
- .5        National Association of Architectural Metal Manufactures (NAAMM)
  - .1        AMP 510-[92], Metal Stair Manual.
- .6        Steel Structures Painting Council (SSPC), Systems and Specifications Manual, Volume 2.

### **1.3 SYSTEM DESCRIPTION**

- .1 Design Requirements:
- .2 Design metal stair, balustrade and landing construction and connections to NBC vertical and horizontal live load requirements.
- .3 Detail and fabricate stairs to NAAMM Metal Stairs Manual.

### **1.4 SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01330 - Submittal Procedures.
- .2 Shop Drawings
  - .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
  - .2 Indicate construction details, sizes of steel sections and thickness of steel sheet.
  - .3 Submit shop drawing bearing stamp of a qualified professional engineer registered in Province of Manitoba.

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

### **1.6 WASTE MANAGEMENT AND DISPOSAL**

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Steel sections: to CAN/CSA-G40.20/G40.21 Grade 300 W.
- .2 Steel plate: to CAN/CSA-G40.20/G40.21, Grade 260 W.
- .3 Floor plate: to CAN/CSA-G40.20/G40.21, Grade [260 W] [\_\_\_\_].
  - .1 Thickness: [\_\_\_\_] mm.
  - .2 Width: [\_\_\_\_] mm.
  - .3 Design: [\_\_\_\_].

- .4 Steel pipe: to ASTM A53/A53M, standard weight, schedule 40 seamless black.
- .5 Steel tubing: to CAN/CSA-G40.20/G40.21, Grade[\_\_\_], [square] [rectangular] [round] [\_\_\_], [\_\_\_] mm wall thickness, sizes and dimensions as indicated.
- .6 Metal bar grating: to ANSI/NAAMM MBG 531, [steel] [\_\_\_], Type [W-19-4], with [checkered plate] [abrasive] [corrugated] [\_\_\_] nosings.
- .7 Welding materials: to [CSA W59] [\_\_\_].
- .8 Bolts: to ASTM A307.
- .9 High strength bolts: to ASTM A325M.

## **2.2 FABRICATION**

- .1 Fabricate to NAAMM, Metal Stair Manual.
- .2 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.
- .3 Accurately form connections with exposed faces flush; mitres and joints tight. Make risers of equal height.
- .4 Grind or file exposed welds and steel sections smooth.
- .5 Shop fabricate stairs in sections as large and complete as practicable.

## **2.3 STEEL PAN STAIRS**

- .1 Fabricate stairs with open riser steel pan construction.
- .2 Form treads [and risers] [\_\_\_] from [3] [\_\_\_] mm thick steel plate. Secure treads [and risers] [\_\_\_] to L [35 x 35 x 5] [\_\_\_]horizontal [and vertical] [\_\_\_] welded to stringers.
- .3 Form wall stringers from [MC 310 x 15.8] [\_\_\_].
- .4 Form outer stringers from [MC 310 x 15.8] [\_\_\_]with [5] [\_\_\_] mm thick plate fascia welded on.
- .5 Form landings from [3] [\_\_\_] mm thick steel plate, reinforced by L [55 x 55 x 6] [\_\_\_] mm spaced at [400] [\_\_\_] mm on centre.
- .6 Provide clip angles for fastening of furring channels, where applied finish is indicated for underside of stairs and landings.
- .7 Extend stringers around mid landings to form steel base.
- .8 Close ends of stringers where exposed.

## **2.4 PLATE/GRATING STAIRS**

- .1 Form treads from [6] [\_\_\_\_] mm thick steel plate to profile indicated, and secure to stringers with L [35 x 35 x 5] [\_\_\_\_] supports. Form landings from [6] [\_\_\_\_]mm thick steel plate, reinforced by L [55 x 55 x 6] [\_\_\_\_]spaced at [600] [\_\_\_\_] mm on centre.
- .2 Form steel grating treads and landings from metal bar grating to profile indicated and secure to stringers and supports as indicated. Form landings of steel grating and reinforce as required.
- .3 Form stringers from [MC 310 x 15.8] [\_\_\_\_].

## **2.5 PIPE/TUBING BALUSTRADES**

- .1 Construct balusters and handrails from steel pipe and steel mesh as indicated.
- .2 Cap and weld exposed ends of balusters and handrails.
- .3 Terminate at abutting wall with end flange.
- .4 Stair #1 construction: Alluminum balustrade & rail system by CR Lawrence, complete with base wedge, top rail, and glass mounted handrail, components as required for complete stair baluster-rail system. Finish: Clear Anodized.

## **2.6 FINISHES**

- .1 Galvanizing: hot dipped galvanizing with zinc coating [600] [\_\_\_\_]g/m<sup>2</sup>to CAN/CSA-G164.
- .2 Shop coat primer: to CAN/CGSB-1.40.
- .3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.
- .4 Stainless Steel Mill Finish

## **2.7 SHOP PAINTING**

- .1 Clean surfaces in accordance with Steel Structures Painting Council Manual Volume 2.
- .2 Apply one coat of shop primer except interior surfaces of pans.
- .3 Apply two coats of primer of different colours to parts inaccessible after final assembly.
- .4 Use primer as prepared by manufacturer without thinning or adding admixtures. Paint on dry surfaces, free from rust, scale, grease, do not paint when temperature is below 7 degrees C.
- .5 Do not paint surfaces to be field welded.

**Part 3 Execution**

**3.1 INSTALLATION OF STAIRS**

- .1 Install in accordance with NAAMM, Metal Stair Manual.
- .2 Install plumb and true in exact locations, using welded connections wherever possible to provide rigid structure. Provide anchor bolts, bolts and plates for connecting stairs to structure.
- .3 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .4 Do welding work in accordance with CSA W59 unless specified otherwise.
- .5 Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.

**3.2 INSTALLATION OF PLASTIC HANDRAIL**

**3.3 CLEANING**

- .1 Perform cleaning as soon as possible 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**