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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | November 13, 2009 | Modified ‘Related Section’ |
| 3 | June 5, 2012 | Added Reference and Replacement Parts Sections |
| 4 | July 3, 2012 | Reformatted to Remove White Space |
| 5 | April 22, 2015 | General formatting |
| 6 | April 11, 2016 | Phase 1 Update (AV) |
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NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

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**The on-line copy is the current version of the document.**

# GEneral

## Related Sections

#### Section 01300 – Submittals

#### Section 05500 – Metal Fabrications – General

## References

### Comply with the latest edition of the following statutes codes and standards and all amendments thereto.

#### American Society for Testing and Materials (ASTM)

##### ASTM A123/A123M-15 Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel products

##### ASTM A307-14; Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.

##### ASTM A325-14; Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

##### ASTM A53/A53M-12; Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc Coated Welded and Seamless.

#### Canadian Standards Association (CSA)

##### CAN/CSA S16-14, Design of Steel Structures.

##### CAN/CSA W59-13; Welded Steel Construction (Metal Arc Welding).

#### The National Association of Architectural Metal Manufactures (NAAMM)

##### ANSI/NAAMM, AMP-510, Metal Stair Manual

##### ANSI/NAAMM MBG 531-09; Metal Bar Grating Manual.

#### The Society for Protective Coatings (SSPC):

##### Systems and Specifications Manual, Volume 2.

##### SP 2; Hand Tool Cleaning

## Design Requirements

### Detail and fabricate stairs to NAAMM Metal Stairs Manual.

## Submittals

### Submit shop drawings in accordance with Section 01300 - Submittals.

### Indicate construction details, sizes of steel sections and thickness of steel sheet.

# PRODUCTS

## Materials

### Steel sections: in conformance with CSA G40.21/G40.21M Grade 300W.

### Steel plate: in conformance with CSA G40.21/G40.21M Grade 260W, pattern checkered.

### Floor plate: in conformance with CSA G40.21/G40.21M Grade 260 W.

#### Thickness: 6 mm.

#### Width: 1,200 mm maximum

#### Design: 4.8 KPa

### Steel pipe: to ASTM A53/A53M-12, standard weight, schedule 40, seamless black.

### Steel tubing: to G40.21-13 (R2018) , Grade 350W, sizes and dimensions as indicated.

### Metal bar grating: to ANSI/NAAMM MBG 531, steel, Type W 19 4, with abrasive nosings.

### Welding materials: to CSA W59.

### Bolts: to ASTM A307.

### High strength bolts: to ASTM A325.

### Aluminum components conforming to the following alloy designations of the Aluminum Association:

#### Extruded Shapes - Structural 6061-T6

#### Smooth Plates 5083-H34

#### Rivets and Bolts 6061-T6

#### Checkered or Tread Plate 6061-T6

#### Castings 356-T2

#### Handrailing 6351-T6

## Fabrication

### Fabricate to NAAMM, Metal Stair Manual.

### 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.

### Accurately form connections with exposed faces flush; mitres and joints tight. Make risers of equal height.

### Grind or file exposed welds and steel sections smooth.

### Shop fabricate stairs in sections as large and complete as practicable.

## Steel Pan Stairs

### Fabricate stairs with closed riser steel pan construction.

### Form treads and risers from 3 mm thick steel plate. Secure treads and risers to L35 x 35 x 5 horizontal welded to stringers.

### Form wall stringers from MC 310 x 15.8.

### Form outer stringers from MC 310 x 15.8 with 5 mm thick plate fascia welded on.

### Form landings from 3 mm thick steel plate, reinforced by L55 x 55 x 6 mm spaced at 400 mm oc.

### Provide clip angles for fastening of furring channels, where applied finish is indicated for underside of stairs and landings.

### Extend stringers around mid landings to form steel base.

### Close ends of stringers where exposed.

## Plate Grating Stairs

### Form treads from 6 mm thick steel or aluminum plate as indicated to profile indicated, and secure to stringers with L35 x 35 x 5 supports. Form landings from 6 mm thick steel or aluminum plate, as indicated, reinforced by L55 x 55 x 6 spaced at 400 mm oc.

### Form steel or aluminum grating, treads and landings as indicated from metal bar grating to profile indicated and secure to stringers and supports as indicated. Form landings of steel or aluminum grating and reinforce as required.

### Form stringers from MC 310 x 15.8 or equivalent aluminum section as indicated.

## Finishes

### Galvanizing: hot dipped galvanizing with zinc coating 610 g/m2 in accordance with ASTM A123/A123M.

### Aluminum: Architectural Class I Anodic Coating, AA-C22A41 clear.

### Shop coat primer: to CAN/CGSB-1.40-97 .

### Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181-99*.*

## Shop Painting

### Clean surfaces in accordance with The Society for Protective Coatings SSPC SP2, Hand Tool Cleaning.

### Apply one coat of shop primer except interior surfaces of pans.

### Apply two coats of primer of different colours to parts inaccessible after final assembly.

### 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 Celsius.

### Do not paint surfaces to be field welded.

# EXECUTION

## Installation of Stairs

### Install in accordance with NAAMM, Metal Stair Manual.

### 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.

### Hand items over for casting into concrete or building into masonry to appropriate forces or Subcontractor(s) with the necessary instructions and templates required for their proper installation. Include required fastenings, such as screws, bolts, expansion shields and similar items

### Perform welding work in accordance with CSA W59 unless specified otherwise.

### Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.

**END OF SECTION**