

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 American National Standards Institute/National Association of Architectural Metal Manufacturers (ANSI/NAAMM)
 - .1 ANSI/NAAMM MBG 531-00, Metal Bar Grating Manual.
 - .2 ASTM International
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - .3 ASTM A 325M-09, Standard Specification for Structural Bolts, Steel, Heat Treated, 830 MPa Minimum Tensile Strength Metric.
 - .3 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
 - .4 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.
 - .5 CSA International
 - .1 CSA G40.20/G40.21-04 (R2009), 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 W59-03 (R2008), Welded Steel Construction (Metal Arc Welding).
 - .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .7 National Association of Architectural Metal Manufacturers (NAAMM)
 - .1 AMP 510-92, Metal Stair Manual.
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- 1.1 REFERENCES (Cont'd)
- .8 The Society for Protective Coatings (SSPC)
 - .1 Systems and Specifications Manual, Volume 2, 2008 Edition.
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for stairs and include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Newfoundland and Labrador, Canada.
 - .2 Indicate construction details, sizes of steel sections and thickness of steel sheet.
 - .4 Sustainable Design Submittals:
 - .1 LEED Canada-NC Version 1.0 Submittals: in accordance with Section 01 35 21 - LEED Requirements.
- 1.3 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.
- 1.4 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Develop Construction Waste Management Plan related to Work of this Section and in
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- 1.4 DELIVERY,
STORAGE AND
HANDLING
(Cont'd)
- .2 (Cont'd)
accordance with Section 01 35 21 - LEED Requirements.
 - .3 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.

PART 2 - PRODUCTS

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

- 2.2 MATERIALS
- .1 Steel sections: to CSA G40.20/G40.21 Grade 300 W.
 - .2 Steel plate: to CSA G40.20/G40.21, Grade 260 W.
 - .3 Steel pipe: to ASTM A 53/A 53M, standard weight, schedule 40 seamless black.
 - .4 Welding materials: to CSA W59.
 - .5 Bolts: to ASTM A 307.
 - .6 High strength bolts: to ASTM A 325M.

- 2.3 FABRICATION
- .1 Fabricate in accordance with NAAMM, Metal Stair Manual.
 - .2 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts.

2.3 FABRICATION
(Cont'd)

- .2 (Cont'd)
Make exposed connections of same material, colour and finish as base material on which they occur.
- .3 Accurately form connections with exposed faces flush:
 - .1 Make mitres and joints tight.
 - .2 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.

2.4 STEEL PAN
STAIRS

- .1 Fabricate stairs with closed riser steel pan construction back sloped as required by authorities having jurisdiction.
- .2 Form treads and risers from minimum 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 minimum 300 mm deep channel shapes.
- .4 Form landings from minimum 3 mm thick steel plate, reinforced by L 55 x 55 x 6 mm spaced at 400 mm on centre.
- .5 Provide clip angles for fastening of furring channels, where applied finish is indicated for underside of stairs and landings.
- .6 Extend stringers around mid landings to form steel base.
- .7 Close ends of stringers where exposed.

2.5 PIPE/TUBING AND
BALUSTRADES

- .1 Construct balusters and handrails from steel as indicated.
 - .2 Cap and weld exposed ends of balusters and handrails.
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2.5 PIPE/TUBING AND BALUSTRADES .3 Terminate at abutting wall with end flange.
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2.6 FINISHES .1 Shop coat primer: to CAN/CGSB-1.40.

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 EXAMINATION .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal stairs and ladders installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval from Departmental Representative.

- 3.2 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.
- 3.3 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .4 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
 - .5 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
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- 3.4 PROTECTION .1 Protect installed products and components
from damage during construction.
- .2 Repair damage to adjacent materials caused by
metal stairs installation.