

1. GENERAL

1.1 RELATED SECTIONS

.1 Not Applicable

1.2 REFERENCES

.1 Canadian Standards Association (CSA):

- .1 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .2 CAN/CSA-S157, Strength Design in Aluminum.
- .3 CSA W47.2, Certification of Companies for Fusion Welding of Aluminum.
- .4 CSA W59.2, Welded Aluminum Construction.
- .5 CSA W55.3 - Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings

.2 Canadian General Standards Board (CGSB):

- .1 CAN/CGSB-1.108, Bituminous Solvent Type Paint.

.3 American Society for Testing and Materials (ASTM):

- .1 ASTM A 307, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
- .2 ASTM A668M Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use.
- .3 ASTM A 490, Specification for Heat Treated, Steel Structural Bolts, 150 ksi (1035 Mpa) Tensile Strength.
- .4 ASTM A 490M, Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3 for Structural Steel Joints Metric.
- .5 ASTM B 209M, Specification for Aluminum and Aluminum-Alloy Sheet and Plate Metric.
- .6 ASTM B 210M, Specification for Aluminum-Alloy Drawn Seamless Tubes Metric.
- .7 ASTM B 211M, Specification for Aluminum and Aluminum-Alloy Bar, Rod and Wire Metric.
- .8 ASTM B 316M Standard Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods Metric

- .4 Aluminum Association, Inc. (AA):
 - .1 Designation System for Aluminum Finishes.
- .5 American Welding Society (AWS):
 - .1 AWS A5.10, Specification for Bare Aluminum and Aluminum-Alloy Welding Electrodes and Rods.

1.3 SHOP DRAWINGS

- .1 Shop Drawings:
 - .1 Submit shop drawings including fabrication and erection documents consisting of connection and design details, shop details, erection diagrams, erection procedures and material lists in accordance with Section 01330 – Submittals.
 - .2 Indicate cuts, copes, connections, holes, threaded fasteners, rivets, welds and other items. Indicate welds using welding symbols as shown in Appendix A of CSA W59.2.
 - .3 Submit description of methods, sequence of erection and type of equipment to be used in erecting structural aluminum.

1.4 SAMPLES

- .1 Not Applicable.

1.5 QUALITY ASSURANCE

- .1 Submit one copy of mill test reports showing chemical and physical properties and other details of aluminum to be incorporated into work, at least 4 weeks prior to fabrication of structural aluminum. Mill test reports shall be certified by metallurgists qualified to practice in the Province of Alberta, Canada.

2. PRODUCTS

2.1 MATERIALS

- .1 Aluminum bar, rod, and wire: to ASTM B 211M.
- .2 Aluminum and Aluminum-Alloy Extruded Bar, Rods, Wire, Shapes, and Tubes: to ASTM B 221M.
- .3 Aluminum sheet or plate: to ASTM B 209M.
- .4 Aluminum drawn tubes: to ASTM B 210M.
- .5 Aluminum bolts and rivets: to ASTM B 316M
- .6 Aluminum welding wire: to AWS A5.10.

- .7 Stainless steel bolts: to AISI Steel Products Manual No. 13.
- .8 Steel bolts: to ASTM A 668M.
- .9 Bituminous paint: to CAN/CGSB-1.108, type 1, 2, without thinner.
- .10 Galvanizing hot dip galvanize steel bolts to CAN/CSA-G164, minimum zinc coating of 600g/m².
- .11 Grating:
 - .1 Aluminum Grating to be Type 30-102M.
 - .2 Bearing Bars: 6063T6
 - .3 Cross Bars: 6063T5
 - .4 Maximum allowable fibre stress: 82.82 Mpa
 - .5 Grating to have smooth top edge.
 - .6 Fasteners to be Type A fixing clip c/w stainless steel screw, nut, and washer.
 - .7 Size: 51 x 4.8 unless noted otherwise on drawings
- .12 Access Hatches:
 - .1 Install hatches where indicated on drawings.
 - .2 Applicable Equipment:
 - .1 Location:
 - .1 As shown on Drawings
 - .2 Specified Equipment: **AH-1**
 - .1 Manufacturer: MSU Mississauga Ltd. or approved equivalent.
 - .2 Model: MG c/w safety grating – Cast into concrete
 - .3 Opening Size: 900 mm x 900 mm
 - .4 Doors: 1
 - .5 Finish: Factory Finish
 - .6 Body: Aluminum: to ASTM B 221M or B 209M, Alloy 6351-T6.
 - .7 Tread Plate: Aluminum: ASTM B 221M or B 209M, Alloy 6061-T6.
 - .8 Load Resistance: 12.0 kPa minimum
 - .9 Miscellaneous: Fasteners, gas spring, and hold open arm in 316 stainless steel; hinges and slam lock in 304 stainless steel.
 - .10 Accessories:
 - .1 Padlock: Complete with master padlock and key. All hatches to be keyed alike to owners preference
 - .11 Drain Outlet
 - .1 Outlet frame drain through slab to area below.
 - .3 Specified Equipment: **AH-2**
 - .1 Manufacturer: MSU Mississauga Ltd. or approved equivalent.
 - .2 Model: C – Cast into concrete

- .3 Opening Size: 1500 mm x 1200 mm
- .4 Doors: 1 (or 2 Doors, 1200mm x 750mm)
- .5 Finish: Factory Finish
- .6 Body: Aluminum: to ASTM B 221M or B 209M, Alloy 6351-T6.
- .7 Tread Plate: Aluminum: ASTM B 221M or B 209M, Alloy 6061-T6.
- .8 Load Resistance: 12.0 kPa minimum
- .9 Miscellaneous: Fasteners, gas spring, and hold open arm in 316 stainless steel; hinges and slam lock in 304 stainless steel.
- .10 Accessories:
 - .1 Padlock: Complete with master padlock and key. All hatches to be keyed alike to owners preference
- .11 Drain Outlet:
 - .1 Outlet frame drain through slab to area below.

.4 Specified Equipment: **AH-3**

- .1 Manufacturer: MSU Mississauga Ltd. or approved equivalent.
- .2 Model: C – Cast into concrete
- .3 Opening Size: 500 mm x 2500 mm
- .4 Doors: 1
- .5 Finish: Factory Finish
- .6 Body: Aluminum: to ASTM B 221M or B 209M, Alloy 6061-T6.
- .7 Tread Plate: Aluminum: ASTM B 221M or B 209M, Alloy 6061-T6.
- .8 Load Resistance: 12.0 kPa minimum
- .9 Miscellaneous: Fasteners, hold open arm, hinges, drop handle, and lock tab in 304 stainless steel.
- .10 Accessories:
 - .1 Padlock: Complete with master padlock and key. All hatches to be keyed alike to owners preference
- .11 Drain Outlet:
 - .1 Outlet frame drain through slab to gate chamber below.

2.2 FABRICATION

- .1 Fabricate in accordance with CAN/CSA-S157 and in accordance with shop drawings.

2.3 FINISHES

- .1 Plain mill finish, unless otherwise indicated.

3. EXECUTION

3.1 GENERAL

- .1 Structural aluminum work: in accordance with CAN/CSA-S157.
- .2 Welding: in accordance with CSA W59.2.
- .3 Companies to be certified under Division 1 or 2.1 of CSA W47.2 for fusion welding of

aluminum and/or CSA W55.3 for resistance welding of structural components.

- .4 Paint aluminum surfaces in contact with concrete with two (2) coats of alkali resistant bituminous paint.

3.2 ERECTION

- .1 Erect structural aluminum as indicated and in accordance with CAN/CSA-S157 and approved erection drawings.
- .2 Field cutting or altering structural members: to approval of the Engineer.

3.3 FIELD QUALITY CONTROL

- .1 Inspection and testing of materials and workmanship may be carried out by testing laboratory designated by Engineer.
- .2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Engineer.

END OF SECTION