

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 The Contract Documents applied to the Work of this Section.

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM A53/A53M-18, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless;
 - .2 ASTM A269/A269M-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service;
 - .3 ASTM A307-14e1, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength; and
 - .4 ASTM A108-18, Standard Specification for Steel Bar, Carbon and Alloy, Cold-finished.
- .2 CSA Group
 - .1 CAN/CSA-G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel;
 - .2 CAN/CSA-G164-18, Hot Dip Galvanizing of Irregularly Shaped Articles;
 - .3 CAN/CSA-S16-14, Design of Steel Structures;
 - .4 CAN/CSA S167-17, Strength Design in Aluminum;
 - .5 CSA W48-18, Filler Metals and Allied Materials for Metal Arc Welding; and
 - .6 CSA W59-18, Welded Steel Construction (Metal Arc Welding).

1.3 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Product Data
 - .1 Submit Product Data
 - .2 Submit data sheets for all materials specified in this section.
 - .3 Submit certifications for Application Specialists to demonstrate compliance to the requirements of ANSI/NACE No.13.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Manitoba, Canada.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
- .4 Certificates:
 - .1 Submit certifications for Application Specialists to demonstrate compliance to the requirements of ANSI/NACE No.13.

1.4 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.
- .3 Fabricator and welders must be certified in accordance with CSA and the Canadian Welding Bureau.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .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.
 - .3 Store materials off ground in a dry, well-ventilated area.
 - .4 Replace defective or damaged materials with new.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials.
- .2 Remove from Site and dispose of packaging materials at appropriate recycling facilities and all other waste at appropriate point of disposal.

Part 2 Products

2.1 MATERIALS

- .1 All material shall be subject to inspection and testing by the Contract Administrator.
- .2 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W/350W.
- .3 Steel pipe: to ASTM A53/A53M, galvanized finish.
- .4 Welding materials: to CSA W59.
- .5 Welding electrodes: to CSA W48 Series.
- .6 Bolts: Stainless Steel or to ASTM A325.
- .7 Anchor bolts and fasteners: ASTM F1554 Grade 36 (galvanized); ASTM F3125 A325 (galvanized); ASTM A276, Type 316 stainless steel, of ample section to safely withstand the forces created by operation of the equipment or the load to which they may be subjected. Existing concrete shall be scanned for rebar location prior to ancho installation in order to avoid interfering and damaging the rebar.

- .8 Aluminum: to CSA S157 and the Aluminum Association Specifications for Aluminum Structures.
- .9 Aluminum plates: type 6061-T651. Aluminium plate shall have an approved raised multi-grip pattern.
- .10 Aluminum welding: CAN W59.2.
- .11 Stainless steel tubing: to ASTM A269, Type 302.
- .12 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.
- .13 Paint: n/a

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Confirm measurements for all fabrications before fabricating.
- .3 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as noted.
- .4 Where possible, fit and shop assemble Work, ready for erection.
- .5 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- .6 Remove and grind smooth burrs, filings, sharp protrusions and projections from metal fabrications to prevent possible injury.
- .7 Angle frames shall be of the same material as the cover plate (except for existing frames designated on the drawings for re-use), and cover plates shall be hinged and be supplied with lifting handles, as shown on the drawings. Exterior covers shall be supplied with a hasp for a padlock.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating six hundred (600) g/m2 to CAN/CSA-G164.
- .2 Paint for shop primed ferrous metal surfaces: MPI EXT 5.1D Alkyd G5 (semigloss) finish, premium grade. Color schedule will be provided by the Contract Administrator.
- .3 Zinc primer: zinc rich, ready mix.
- .4 Galvanized Steel Schedule
 - .1 All steel frames supporting catwalks
 - .2 All Access ladders
 - .3 All Guardrails

2.4 ISOLATION COATING

- .1 Isolate aluminum 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 ACCESS LADDERS

.1 Construct to PIP STE05501

2.6 STAIRS

.1 n/a

2.7 PIPE BOLLARDS

.1 N/A

2.8 GUARDRAILS, HANDRAILS AND GATES

.1 Guardrails: Aluminum pipe: diameter as indicated,.

.2 Fabricate and install pipe rails to be removable by bolting to frame below.

.3 Gates: n/a

.4 Standards: System shall have top and mid rail in accordance with OSHA Standards - 29 CFR 1910.29 (b)(1)(2)

.5 Width: As indicated on Drawings.

.6 Height:

.1 Top Rail: As indicated on Drawings.

.2 Bottom Rail: As indicated on Drawings.

Part 3 Execution

3.1 ERECTION - GENERAL

.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 All connection to be bolted or welded in accordance with CSA.

.4 All bolts to be stainless steel or A325.

.5 Exposed fastening devices to match finish and be compatible with material through which they pass.

.6 Supply components for work by other trades in accordance with shop drawings and schedule.

.7 Make field connections with bolts to CSA S1, or weld.

.8 Install suitable trolleys on all monorail crane beams and ensure their proper and safe operation.

.9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

.1 Primer: maximum VOC limit 250g/L to GS-11.

3.2 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.

3.3 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION