

**Part 1 GENERAL**

**1.1 Work Included**

- .1 Shop fabricated steel items. The following is a list of principal items only. Refer to drawing details for items not specifically listed.
  - .1 Grating, frames, and support beams
  - .2 Safety anchors
  - .3 Monorail beams
  - .4 Guardrail and handrail
  - .5 Ferrules
  - .6 Anchors, plates, bolts, nuts, screws, brackets, etc., required for Work of this Section
  - .7 Field touch up galvanized surfaces including field welding

**1.2 Design Code, Quality Assurance**

- .1 Perform welding in accordance with requirements of CSA W59.
- .2 Welding work on all load carrying structures and assemblies is to be performed by a firm certified by the Canadian Welding Bureau to the requirements of CSA W47.1 in Division 2.
- .3 All welders employed to weld load carrying structures in the field are to possess valid "S" Classification Class "O" certificates issued by the Canadian Welding Bureau.

**1.3 Shop Drawings**

- .1 Submit Shop Drawings in accordance with CW1100.
- .2 Clearly indicate profiles, sizes, connections, attachments, reinforcing, anchorage and size and type of fasteners and accessories.
- .3 Include erection drawings, elevations and details where applicable.
- .4 Indicate welded connections using CISC standard welding symbols. Clearly indicate net weld lengths.
- .5 Shop Drawings and design briefs are to bear the seal of a Professional Engineer registered in the Province of Manitoba.

**Part 2 PRODUCTS**

**2.1 Materials**

- .1 Miscellaneous Steel (angles, channels, plates): conforming to CAN/CSA-G40.21; Type W with minimum yield strength of 300 MPa.
- .2 Structural Steel Wide Flange Sections (W Shapes): conforming to CAN/CSA-640.21, grade 350W with minimum yield of 350 MPa, or conforming to ASTM A992 or A572, grade 50 with minimum yield of 345 MPa.

- .3 Hollow Structural Steel: conforming to CAN/CSA-G40.21, Grade 350W Class 'C' with minimum yield strength of 350 MPa. Hollow structural sections conforming to ASTM A 500 Grade C will not be acceptable unless accepted by the Contract Administrator.
- .4 Welding Materials: conforming to CSA W59.
- .5 Ferrules: acceptable product Dayton Superior F-52 Thin slab Ferrule Insert ¾"-10 NC complete with F-74 Threaded Plastic Plug.
- .6 Safety anchors: [to be decided].
- .7 Bolts conforming to ASTM A 325 and ANSI ASME B18.2.6 heavy hex class 2A; nuts conforming to ASTM A 563; and washers conforming to ASTM F 436; painted to match fastened items.
- .8 Concrete anchors: as manufactured by Hilti (Canada) Ltd. where indicated.

## **2.2 Finishes**

- .1 All metal fabrications to be galvanized except the hoist beam.
- .2 Galvanizing for steel shapes: conforming to ASTM A 123/A 123M.
- .3 Galvanizing for steel fasteners: conforming to ASTM A 153/A 153M.
- .4 Clean all members receiving galvanizing material to SSPC SP-10 "near white blast cleaning".

## **2.3 General Fabrication**

- .1 All metal fabrications are to be galvanized with exposed finish unless noted otherwise.
- .2 Verify all dimensions on Site prior to shop fabrication.
- .3 Fabricate items of sizes and profiles detailed on Drawings, with joints neatly fitted and properly secured.
- .4 Fit and shop assemble in largest practical sections for delivery to Site.
- .5 Supply all components required for proper anchorage of steel fabrications. Fabricate anchorage and related components of same material and finish as steel fabrications, unless otherwise specified or shown.
- .6 Weld connections where possible, otherwise bolt connections. Cut off bolts flush with nuts.
- .7 Accurately form all connections and joints with exposed faces flush, mitres and joints tight.
- .8 Exposed welds and metal sections shall be smooth and flush; grind or file as required.
- .9 Top rail of guardrail and handrail galvanized finish shall be smooth; grind or file as required.
- .10 Provide for flush welded or hairline butt field joints.
- .11 Shop fabricate openings in members for other building components. Reinforce openings to restore member to original design strengths.
- .12 Provide lugs, clips, brackets, hangers and struts as required for attaching steel items securely to building structure.

**Part 3 EXECUTION**

**3.1 Examination**

- .1 Before starting erection, examine other work that may affect this work.
- .2 Notify the Contract Administrator of any conditions that would prejudice proper installation of this work.
- .3 Commencement of erection work implies acceptance of existing conditions.

**3.2 Erection**

- .1 Obtain the Contract Administrator's permission prior to Site cutting or making adjustments that are not part of scheduled work.
- .2 Install items plumb, square, level and fitted accurately and maintain free from distortion or defects detrimental to appearance and performance.
- .3 Make provision for erection stresses and temporary bracing. Keep work in alignment at all times.
- .4 Replace items damaged in course of installation.
- .5 Perform required field welding. Exposed welds shall be smooth and flush; grind or file as required.
- .6 Perform necessary cutting and altering for the installation of work of other Sections, and as indicated on Drawings. No additional cutting is to be done without the permission of the Contract Administrator.
- .7 Perform all field assembly bolting and welding to match standard of shop bolting and welding. Bolts and screws are to be concealed whenever possible.
- .8 After installation, touch up field bolts, nuts, welds and scratched and damaged galvanized surfaces. Touch up galvanized surfaces with minimum two (2) coats of zinc rich primer.
- .9 Supply, to appropriate sections, items required to be cast into concrete, complete with necessary setting templates.

**END OF SECTION**