

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- .1 Do welding work in accordance with CSA W59-1989 unless specified otherwise. Welding qualifications to CSA W47.1-1983.
- .2 Steel for structural and other shapes shall conform to CAN3-G40.21M. Bolts and nuts shall conform to CSA B35.1-1976.

1.2 MEASUREMENT FOR PAYMENT

- .1 Miscellaneous Metals:  
No separate measurement for payment shall be made for the supply and installation of all miscellaneous metals and fabrications, as shown on the drawings. Include all costs in the lump sum portion of the work on the Bid and Acceptance Form. Miscellaneous metals include, but not necessarily limited to, pipe hold downs, anchor bolts, screen grating, screen caps, steel plates, protection plates/boxes, grating/grating supports, relocate steel angle, stop log guides/sill plate, fall arrest eye bolts, and other items required to facilitate new work.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00. All fabrication shop drawings shall be submitted under seal of professional engineer licensed to practice in Newfoundland.
- .2 Indicate materials, core thicknesses, finishes, corrections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 SITE MEASUREMENTS

- .1 Take critical measurements at site to facilitate installation and fitting.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 All miscellaneous metals materials to be galvanized.
- .2 Steel sections and plates: to CSA-G40.21-M97, Grade 350W.

- .3 Steel pipe: to ASTM A53-84a. Standard and extra strong grade pipe with minimum yield strength of 240 MPa.
- .4 Welding materials: to CSA W59.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 Galvanizing: hot dipped galvanizing with zinc coating 705 g/m<sup>2</sup> to ASTM A1234/A123M.
- .7 Shop coat primer: To CGSB 1-GP-40M.
- .8 Zinc primer: zinc rich, ready mix to CGSB 1-GP-191M+Amdt-Mar-78.
- .9 Grout: non-shrink, non-metallic, flowable, 28 day compressive strength: 40 MPa.
- .10 Concrete anchors
  - .1 As indicated on the drawings.
- .11 Concrete anchor adhesive: HILTI HIT RE 500 epoxy adhesive.

2.2 MISCELLANEOUS ANGLES,  
BRACKETS AND SUPPORTS

- .1 Supply and install all rods, angles, brackets, nuts, bolts, and other such ancillary supports and fastenings not specifically mentioned elsewhere in contract documents.

2.3 FABRICATION

- .1 Do not commence fabrication until shop drawings have been reviewed.
- .2 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .3 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated. Use screws for interior metal work. Use welded connections exterior metal work unless otherwise approved by the Departmental Representative.
- .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. Seal exterior steel fabrications to provide corrosion protection in accordance with CAN3-S16.1-M84.

- 
- .6 All fabricated sections including all steel sections and plate shall be welded all around (full perimeter) with fillet weld, (where possible). In areas or irregular adjoining surfaces use a complete joint penetration, all around (full perimeter) groove weld to CSA S16-09 standards for design of steel structures. All welding to be equal to or stronger than the steel sections being attached. Welding and fabrication shop drawings shall be designed and stamped by a Professional Engineer licensed to practice in the Province of Newfoundland.
  - .7 Welding to be in accordance with CSA W59.
  - .8 Submit fabrication drawings under seal of professional engineer licensed to practice in the Province of Newfoundland. Any alterations to the fabricated sections from what is shown on the drawings shall be included on the stamped fabrication drawings.
  - .9 All dimensions shown for fabricated sections are considered approximate. Fabricator shall confirm all dimensions and notify Departmental Representative of any discrepancies prior to fabrication.

### PART 3 - EXECUTION

#### 3.1 ERECTION

- .1 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .2 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .3 Make field connections with high tensile bolts to CAN3-S16.1, or weld.
- .4 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .5 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

#### 3.2 MISCELLANEOUS

- .1 Install all rods, angles, brackets, plates, nuts, bolts, and other such ancillary items as detailed on drawings and as specified.
- .2 Ensure they are adequately secured to structure. Install blocking where necessary to ensure compliance with above.