
Part 1 General

1.1 DESCRIPTION

- .1 This section specifies the requirements for fabrication and coating of miscellaneous metal fabrications.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.3 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA-S16.1-09, Limit States Design of Steel Structures.
 - .4 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59-13, Welded Steel Construction (Metal Arc Welding) (Imperial Version).
 - .6 CAN/CSA S16.1-09 (or latest edition), Limit States Design of Steel Structures.
 - .7 CAN/CGSB-1.181-92 (or latest edition), Ready-Mixed Organic Zinc-Rich Coating.
 - .8 ASTM A307-94 (or latest edition), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

1.4 MEASUREMENT FOR PAYMENT

- .1 This section will not be measured separately for payment but should be considered incidental to the work of other sections as required.

1.5 Product Data:

- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.

1.6 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.7 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

Part 2 Products**2.1 MATERIALS**

- .1 Steel sections, plates and angles: to CAN/CSA-G40.20/G40.21, Grade 350W.
- .2 Steel pipe bollards: to ASTM A53/A53M galvanized finish.
 - .1 Bollards at electrical panels to be galvanized SCH 40 Pipe to size and length as indicated.
 - .2 Bollard sheathing: Yellow PVC sheathing c/w moulded top to be fitted over new bollards with size in diameter and length to fit bollard as indicated.
 - .1 Acceptable materials:
 - .1 Innoplast Bollard Sheathing
 - .2 ULine Bollard Sheathing
 - .3 Post Guard Bollard Sheathing
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 Cast Ogee timber washers: to ASTM A48.
- .7 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Fabricate items from steel unless otherwise noted.
- .3 Where possible, fit and shop assemble work, ready for installation.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .2 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.4 MISCELLANEOUS METAL WORK ITEMS

- .1 Miscellaneous anchors, bolts and inserts:
 - .1 Where size, spacing and the like are not indicated, provide as necessary for the purpose.
 - .2 Galvanize all miscellaneous anchors, bolts and inserts.
- .2 Miscellaneous steel:
 - .1 Provide miscellaneous steel as required to the shape, size and details required.
 - .2 Galvanize all miscellaneous steel items.

Part 3 Execution**3.1 ERECTION**

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Install metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage as indicated on drawings or as acceptable to Departmental Representative such as embedded bolts with nut and washer, dowels, bar anchors, and expansion bolts.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Provide components for structure by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CAN/CSA-S16.1, or weld.

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- .7 Hand items over for casting into concrete to appropriate trades together with setting templates.
 - .8 Make field connections with bolts to CAN/CSA-S16.1, or weld.
 - .9 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
 - .10 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
 - .11 Bollards to be filled with concrete after bolting to concrete deck is complete.

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.

END OF SECTION