

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Section 03 30 00 - Cast-in-Place Concrete.
- .4 Section 26 50 00 - Common Work Results - Electrical.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A269-02, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A307-07a, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181-92, Ready-Mixed, Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20/G40.21-04, 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-S16.1-01 (R2007), Limit States Design of Steel Structures.
 - .4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .4 The Environmental Choice Program
 - .1 CCD-047a-98, Paints, Surface Coatings.
 - .2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

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1.3 SUBMITTALS
(CONT'D)

- .1 (cont'd)
- .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.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .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.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

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1.6 WASTE MANAGEMENT AND DISPOSAL
(CONT'D)

- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, corrugated cardboard, packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

1.7 MEASUREMENT FOR PAYMENT

- .1 No separate measurement for payment shall be made. Include all costs incidental to unit price or lump sum for item for which metal fabrication is required.
- .2 Protective Posts: No separate payment will be made for the protective posts as detailed on the drawing. Include all costs in the lump sum for electrical as per Division 26.
- .3 Aluminum Pedestals: No separate payment will be made for aluminum pedestals. Include all costs in the lump sum arrangement for electrical as per Division 26.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.
- .2 Steel pipe: to ASTM A53/A53M standard weight epoxy coated and galvanized finish.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

PART 2 - PRODUCTS **(CONT'D)**

2.1 MATERIALS **(CONT'D)**

- .7 Use heavy duty sleeve anchors to performance requirements indicated on the drawings.
- .8 Paint: Alkyd/oil resin paint similar to Pittsburgh paints "Brilliant Red(Safety Red)" product ID 7-801. Paint to conform to CAN/CGSB-1.61-2004.
- .9 Aluminum Sections and Plates: to CSA-5157-05 Grade 6061-T6 for marine application.
- .10 Concrete fill for protective posts: to Section 03 30 00 - Cast-in-Place Concrete.
- .11 Concrete for protective post foundations: to Section 03 30 00 - Cast-in-Place Concrete.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- .5 All welding shall be carried out in accordance with CSA W59 by a fabricator fully approved under CSA W47-1 latest edition No. 1 and No. 2.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to ASTM A123/A123m-09.
- .2 Shop coat primer: to CAN/CGSB-1.40.

PART 2 - PRODUCTS **(CONT'D)**

2.4 SHOP PAINTING

- .1 Apply one shop coat of primer to metal items, with exception of galvanized, aluminum, or concrete encased items.
- .2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.
- .3 Clean surfaces to be field welded; do not paint.

PART 3 - EXECUTION

3.1 ERECTION

- .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 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Provide components for building by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CAN/CSA-S16.1, or weld.
- .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

PART 3 - EXECUTION
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3.2 PROTECTIVE POSTS

- .1 Install protective posts as detailed and in locations indicted on the drawings.
- .2 Use one (1) coat of exterior oil ferrous metal primer and (2) coats of alkyd oil resin paint as specified.

3.3 ALUMINUM PEDESTALS

- .1 Install electrical pedestals as detailed in Division 26 - Electrical.

3.4 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.