

PART 1 - GENERAL

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| <u>1.1 RELATED SECTIONS</u> | .1 | Section 01 33 00 - Submittal Procedures.  |
|                             | .2 | Section 01 74 21 - Construction/Demolition Waste Management And Disposal.   |
| <u>1.2 REFERENCES</u>       | .1 | American Society for Testing and Materials International, (ASTM)<br>.1 ASTM A 53/A53M-07, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.<br>.2 ASTM A 307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.  |
|                             | .2 | Canadian General Standards Board (CGSB)<br>.1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.<br>.2 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.  |
|                             | .3 | Canadian Standards Association (CSA International)<br>.1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel.<br>.2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.<br>.3 CAN/CSA-S16-01 (R2007)), Limit States Design of Steel Structures.<br>.4 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).<br>.5 CSA W59-03, Welded Steel Construction (Metal Arc Welding) (Imperial Version). |
|                             | .4 | The Environmental Choice Program<br>.1 CCD-047a-98, Paints, Surface Coatings.<br>.2 CCD-048-98, Surface Coatings - Recycled Water-borne.  |
| <u>1.3 SUBMITTALS</u>       | .1 | Product Data:   |
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1.3 SUBMITTALS  
(Cont'd)

- .1 (Cont'd)
  - .1 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.

1.6 WASTE  
MANAGEMENT AND  
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA-G40.20-04/G40.21-04, Grade 300W.
- .2 Steel pipe: to ASTM A 53/A53M-06a extra strong, black finish.
- .3 Welding materials: to CSA W59-03.
- .4 Welding electrodes: to CSA W48-06 Series.
- .5 Bolts and anchor bolts: to ASTM A 307-04e1.
- .6 Grout: non-shrink, non-metallic, flowable, 50 MPa at 24 hours.
- .7 Stainless Steel: 316 Stainless Steel to CAN/CSA G40.21.

### 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.

### 2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m<sup>2</sup> to CAN/CSA-G164-M92(R2003).
- .2 Zinc primer: zinc rich, zinc rich epoxy, to CAN/CGSB-1.181-99.

### 2.4 ISOLATION COATING

- .1 Isolate aluminum from following components, by means of bituminous paint:

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| 2.4 ISOLATION<br>COATING<br>(Cont'd) | .1 | (Cont'd)<br>.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.<br>.2 Concrete, mortar and masonry.  |
| 2.5 SCHEDULE OF<br>ITEMS             | .1 | Miscellaneous metal fabrication items include, but are not limited to, the following:<br>.1 Temporary waterline supports, anchors straps, bolts and connectors: stainless steel.<br>.2 Membrane drains and support members: galvanized.<br>.3 Decorative crashblock plaques: stainless steel.<br>.4 Approach slab end armouring: galvanized.<br>.5 Bridge rails, supports, base plates and anchorages: galvanized.<br>.6 New or existing lateral bracing of structural steel frame; shop painted in accordance with Section 09 91 13.<br>.7 Exterior railings, guards, and non-structural protective frames; hot dip galvanized. |

### PART 3 - EXECUTION

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| 3.1 ERECTION | .1 | Do welding work in accordance with CSA W59-03 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.   |

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| <u>3.1 ERECTION</u><br><u>(Cont'd)</u> | .6 | Make field connections with bolts to CAN/CSA-S16.1, or weld.  |
|  | .7 | Hand items over for casting into concrete or 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 or damaged during erection.  |
| <u>3.2 CLEANING</u>                    | .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.             |