

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 ASTM International
 - .1 ASTM A 53/A 53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A 307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
 - .3 CSA International
 - .1 CSA G40.20/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA S16-09, 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-M03 (R2008), Welded Steel Construction (Metal Arc Welding) Metric.
 - .4 Environmental Choice Program
 - .1 CCD-047-98 (R2005), Architectural Surface Coatings.
 - .2 CCD-048-98 (R2006), Surface Coatings - Recycled Water-borne.
 - .5 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
 - .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
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- 1.1 REFERENCES (Cont'd)
- .7 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for metal fabrications and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit electronic copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
 - .3 Sustainable Design Submittals:
 - .1 LEED Canada-NC Version 1.0 Submittals: in accordance with Section 01 35 21 - LEED Requirements.
- 1.3 QUALITY ASSURANCE
- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 1.4 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
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- 1.4 DELIVERY,
STORAGE AND
HANDLING
(Cont'd)
- .3 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
 - .4 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W.
 - .2 Steel pipe: to ASTM A 53/A 53M standard weight black or galvanized finish, as indicated.
 - .3 Welding materials: to CSA W59.
 - .4 Welding electrodes: to CSA W48 Series.
 - .5 Bolts and anchor bolts: to ASTM A 307.
 - .6 Stainless steel tubing: to ASTM A 269, Type 316 seamless welded with AISI No. 4 finish.
 - .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 Where possible, fit and shop assemble work, ready for erection.
 - .3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
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- 2.3 FINISHES
- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
 - .2 Stainless steel to ASTM A27.6.S316.
 - .3 High build epoxy coating: to CAN/CGSB-1.153.
- 2.4 SHOP PAINTING
- .1 Primer: VOC limit 250 g/L maximum to GS-11.
 - .2 Apply one shop coat of primer to metal items, with exception of galvanized, stainless steel or concrete encased items.
 - .3 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.
 - .4 Clean surfaces to be field welded; do not paint.
- 2.5 PIPE RAILINGS
- .1 Steel pipe, exterior: hot dipped galvanized steel construction, formed to shapes and sizes as indicated.
 - .2 Steel pipe interior: standard black pipe construction formed to shapes and sizes as indicated.
 - .3 Galvanized exterior railings after fabrication.
 - .4 Shop coat prime interior railings after fabrication.
- 2.6 BENT PLATE DOOR FRAMES
- .1 Fabricate frames from steel plate, sizes and shapes as indicated.
 - .2 Weld frames together to form continuous frame for jambs and head of openings, sizes as indicated.
 - .3 Finish: galvanized.
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PART 3 - EXECUTION

- 3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
- 3.2 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 Supply components for work by other trades in accordance with shop drawings and schedule.
 - .6 Weld field connection.
 - .7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.
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