

PART 1        GENERAL

- 1.1    REFERENCES        .1    ASTM International
- .1    ASTM A53/A53M-07, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2    ASTM A269-08, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  - .3    ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2    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.
- .3    Environmental Choice Program
- .1    CCD-047-98(R2005), Architectural Surface Coatings.
  - .2    CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.
- .4    Green Seal Environmental Standards (GS)
- .1    GS-11-2008, 2nd Edition, Paints and Coatings.
- .5    Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .1    Material Safety Data Sheets (MSDS).
- .6    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 sections plates pipe tubing bolts and include product characteristics, performance criteria, physical size, finish and limitations.
    - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements 01 35 43 - Environmental Procedures.
      - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
  - .3 Shop Drawings:
    - .1 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
- 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.
  - .3 Storage and Handling Requirements:
    - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
    - .2 Replace defective or damaged materials with new.

- .4 Develop Construction Waste Management Plan  
Waste Reduction Workplan related to Work of  
this Section.
- .5 Packaging Waste Management: remove for reuse  
and return by manufacturer of pallets,  
crates, padding, and packaging materials as  
specified in Construction Waste Management  
Plan Waste Reduction Workplan in accordance  
with Section 01 74 21 -  
Construction/Demolition Waste Management and  
Disposal.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- .1 Steel sections and plates: to CSA  
G40.20/G40.21, Grade 350W.
- .2 Steel pipe: to ASTM A53/A53M standard weight,  
black finish.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 Aluminum sheet: proprietary utility sheet  
plain, 1.0 mm minimum thickness, finish,  
colour clear.
- .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 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 Shop coat primer: MPI-INT EXT 5.1A MPI-INT  
EXT 5.1B in accordance with chemical

component limits and restrictions  
requirements and VOC limits of CCD-047a CCD-  
048 GS-11.

- .2 Zinc primer: zinc rich, ready mix to MPI-INT  
EXT 5.2C in accordance with chemical  
component limits and restrictions  
requirements and VOC limits of CCD-047a CCD-  
048 GS-11.

2.4 ISOLATION  
COATING

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

- .1 Dissimilar metals except stainless  
steel, zinc, or white bronze of small  
area.
- .2 Concrete, mortar and masonry.
- .3 Wood.

2.5 SHOP  
PAINTING

- .1 Primer: VOC limit 250 g/L maximum to GS-11  
CCD-047a CCD-048.
- .2 Apply one shop coat of primer to metal items,  
with exception of galvanized 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.

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 Make field connections with bolts to CSA S16 or 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.
  - .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:
    - .1 Primer: maximum VOC limit 250 g/L to GS-11.
  - .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
    - .1 Primer: maximum VOC limit 250 g/L to GS-11.
- 3.3 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
    - .1 Leave Work area clean at end of each day.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste

Management and Disposal.

- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.