
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 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 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 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 plates, 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.
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
 - .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada;
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
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| <u>1.3 Quality Assurance</u> | .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. |
| <u>1.4 Delivery, Storage and Handling</u> | .1 | Deliver, store and handle materials in accordance with Section 01 00 10 – General Instructions 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 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 | Packaging Waste Management: remove for reuse packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal. |

PART 2 - PRODUCTS

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| <u>2.1 Materials</u> | .1 | Steel sections and plates: to CSA G40.20/G40.21, Grade 350W. |
| | .2 | Steel pipe: to ASTM A 53/A 53M standard weight black finish. |
| | .3 | Welding materials: to CSA W59. |
| | .4 | Welding electrodes: to CSA W48 Series. |
| | .5 | Bolts and anchor bolts: to ASTM A 307. |
| | .6 | Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours. |
| <u>2.2 Fabrication</u> | .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 |
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joint. File or grind exposed welds smooth and flush.

2.3 Finishes

- .1 Shop coat primer: MPI-EXT 5.1A in accordance with chemical component limits and restrictions requirements and VOC limits of GS-11.

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 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: nominal outside diameter, formed to shapes and sizes to match existing.

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 Department Representative.
- .2 Inform Department Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied.

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 Department 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 Touch-up rivets, field welds, bolts and burnt or scratched
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surfaces with primer after completion of:

- .1 Primer: maximum VOC limit 250 g/L to GS-11.

3.3 Pipe Railings

- .1 Install pipe railings as indicated.
- .2 Set railing standards in concrete. Grout to fill hole. Trowel surface smooth and flush with adjacent surfaces.

3.4 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 reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.5 Protection

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

END OF SECTION
