

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA).
 - .1 Handbook of the Canadian Institute of Steel Construction.
 - .2 CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.
 - .2 Canadian Standards Association (CSA International)
 - .1 CSA G40.20/G40.21-04 (2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA-S16-09, Limit States Design of Steel Structures.
 - .3 CSA W47.1-09, Certification of Companies for Fusion Welding of Steel.
 - .4 CSA W55.3-08, Certification of Companies for Resistance Welding of Steel and Aluminium.
 - .5 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding).
 - .3 The Society for Protective Coatings (SSPC).
 - .1 SSPC SP-2-06, Hand Tool Cleaning.
 - .2 SSPC SP-3-06, Power Tool Cleaning.
 - .3 SSPC SP-6-06, Commercial Blast Cleaning.
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Shop Drawings:
 - .1 Each drawing submission to bear signature and stamp of qualified Professional Engineer registered or licensed in the Province of New Brunswick, Canada.
 - .3 Erection drawings:
 - .1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:
 - .1 Description of methods.
 - .2 Sequence of erection.
 - .3 Type of equipment used in erection.
 - .4 Temporary bracings.
 - .4 Fabrication drawings:
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| 1.2 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd) | .4 | Fabrication drawings: (Cont'd)
.1 Submit fabrication drawings showing
designed assemblies, components and
connections. |
| | .5 | Review of shop details and erection diagrams
will extend to general design concept only.
This review does not relieve the Contractor of
the responsibility for accuracy of the detail
dimensions, general fit-up of parts to be
assembled, adequacy of connection details, or
for errors or defects contained in the
details. |

PART 2 - PRODUCTS

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| 2.1 MATERIALS | .1 | Structural steel: new to CSA-G40.20/G40.21
Grade 350W for W-sections, and Grade 300W for
plates, channels and angles. |
| | .2 | Welding materials: to CSA W59 and certified
by Canadian Welding Bureau. |
| | .3 | Shop paint primer: to CISC/CPMA 2-75. |
| 2.2 FABRICATION | .1 | Fabricate structural steel in accordance with
CAN/CSA-S16 and in accordance with reviewed
shop drawings. |
| | .2 | Minimum fillet weld size to be 5 mm. |
| 2.3 SHOP PAINTING | .1 | Clean, prepare surfaces and shop prime
structural steel in accordance with
CAN/CSA-S16. |
| | .2 | Clean members, remove loose mill scale, rust,
oil, dirt and foreign matter. Prepare surface
according to SSPC-SP-6. |
| | .3 | Apply one coat of primer in shop to steel
surfaces to achieve minimum dry film thickness
of 1.5 to 2.0 mils, except surfaces and edges
to be field welded. |
| | .4 | Apply paint under cover, on dry surfaces when
surface and air temperatures are above 5
degrees C. |
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| <u>2.3 SHOP PAINTING</u>
(Cont'd) | .5 | Maintain dry condition and 5 degrees C minimum temperature until paint is thoroughly dry. |
| | .6 | Strip paint from bolts, nuts, sharp edges and corners before prime coat is dry. |

PART 3 - EXECUTION

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| <u>3.1 GENERAL</u> | .1 | Structural steel work: in accordance with CAN/CSA-S16. |
| | .2 | Welding: in accordance with CSA W59. |
| | .3 | Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components. |

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| <u>3.2 CONNECTION TO EXISTING WORK</u> | .1 | Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Departmental Representative for direction before commencing fabrication. |
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| <u>3.3 ERECTION</u> | .1 | Erect structural steel, as indicated and in accordance with CAN/CSA-S16 and in accordance with reviewed erection drawings. |
| | .2 | Field cutting or altering structural members: to approval of Departmental Representative. |
| | .3 | Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection. |

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| <u>3.4 FIELD PAINTING</u> | .1 | New steel: Touch up damaged surfaces and surfaces without shop coat with primer to CISC/CPMA 2-75 except as specified otherwise. |
| | .2 | See related sections for top coat requirements. |

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 04 05 00 - Common Work Results for Masonry
- .3 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- .4 Section 04 05 23 - Masonry Accessories.
- .5 Section 09 91 12 - Exterior Painting.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A 307-12, 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-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA-S16.1-01, Limit States Design of Steel Structures.
 - .3 CSA W48-06,(R2011) Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .4 CSA W59-1903(R2008),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:
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| <u>1.3 SUBMITTALS
(Cont'd)</u> | .1 (Cont'd)
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit 1 copy 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. |
| <u>1.4 QUALITY
ASSURANCE</u> | .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. |
| <u>1.5 DELIVERY,
STORAGE, AND
HANDLING</u> | .1 Packing, Shipping, Handling and Unloading:
.1 Deliver, store, handle and protect materials in accordance with Manufacturer's Requirements.

.2 Storage and Protection:
.1 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering. |
| <u>1.6 WASTE
MANAGEMENT AND
DISPOSAL</u> | .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 polystyrene 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.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.
- .2 Welding materials: to CSA W59.
- .3 Welding electrodes: to CSA W48 Series.
- .4 Bolts and anchor bolts: to ASTM A 307.
- .5 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.

2.3 FINISHES

- .1 Shop coat primer: to CAN/CGSB-1.40.
 - .2 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.
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- 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 Apply one shop coat of primer to metal items, with exception of galvanized 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.

- 2.6 ANGLE LINTELS
- .1 Steel angles: prime painted, sizes indicated for openings. Provide 150 mm minimum bearing at ends.
 - .2 Weld or bolt back-to-back angles to profiles as indicated.
 - .3 Finish: shop painted.

- 2.7 CHANNEL FRAMES
- .1 Fabricate frames from steel, sizes of channel and opening as indicated.
 - .2 Weld channels together to form continuous frame for jambs and head of openings, sizes as indicated.
 - .3 Finish: prime coat painted.

PART 3 - EXECUTION

- 3.1 ERECTION
- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
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3.1 ERECTION
(Cont'd)

- .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.

3.2 CHANNEL FRAMES

- .1 Install steel channel frames to openings as indicated.

3.3 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.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 05 50 00 Metal Fabrications.

1.2 REFERENCES

- .1 ASTM A 53/A 53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- .2 ASTM A 307-12, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
- .3 ASTM A 325M-09, Specification for High-Strength Bolts for Structural Steel Joints.
- .4 ANSI/NAAMM MBG 531-00, Metal Bar Grating Manual.
- .5 CAN/CGSB-1.40-M89, Primer, Structural Steel,
- .6 CSA G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel.
- .7 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .8 CSA W59-M-03, Welded Steel Construction (Metal Arc Welding).

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 10 10 - General Instructions.
- .2 Indicate construction details, sizes of steel sections and thickness of steel sheet.
- .3 Submit shop drawing bearing stamp of a qualified professional engineer registered in the Province of New Brunswick.
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PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel sections: to CSA G40.21, Grade 300W.
- .2 Steel plate: to CSA G40.21, Grade 260W, pattern plain.
- .3 Steel pipe: to ASTM A 53/A 53M, standard weight, schedule 40, seamless black.
- .4 Steel tubing (HSS): to CSA G40.21, Grade 350W, square and rectangular, wall thickness, sizes and dimensions as indicated.
- .5 Welding materials: to CSA W59.
- .6 Bolts: to ASTM A 307.
- .7 High strength bolts: to ASTM A 325M.

2.2 FABRICATION

- .1 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur.
- .2 Accurately form connections with exposed faces flush; mitres and joints tight. Make risers of equal height.
- .3 Grind or file exposed welds and steel sections smooth.
- .4 Shop fabricate ladder in sections as large and complete as practicable.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164 at exterior.
 - .2 Shop coat primer: to CAN/CGSB-1.40 (interior).
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- 2.4 SHOP PAINTING
- .1 Clean surfaces in accordance with Steel Structures Painting Council SSPC-SP2.
 - .2 Apply one coat of shop primer except interior surfaces of pans.
 - .3 Apply two coats of primer of different colours to parts inaccessible after final assembly.
 - .4 Use primer as prepared by manufacturer without thinning or adding admixtures. Paint on dry surfaces, free from rust, scale, grease, do not paint when temperature is below 7°C.
 - .5 Do not paint surfaces to be field welded.

- 2.5 ELEVATOR PIT LADDER
- .1 Fabricate elevator pit ladder using 10 x 65 mm plate with 19 mm round rod rungs at 300 mm centers. Stand off wall 100 mm. Extend ladder from 200 mm off pit floor to 1200 mm above floor.

PART 3 - EXECUTION

- 3.1 INSTALLATION OF STAIRS
- .1 Install in accordance with NAAMM, Metal Stair Manual.
 - .2 Install plumb and true in exact locations, using welded connections wherever possible to provide rigid structure. Provide anchor bolts, bolts and plates for connecting stairs to structure.
 - .3 Do welding work in accordance with CSA W59 unless specified otherwise.
 - .4 Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.
 - .5 Provide continuous weld joints, caulking between spot weld to resemble a continuous joint.