

The Executed Agreement including General Conditions and Supplementary Conditions, Division 01, applicable drawings and amendments are part of and are to be read in conjunction with this Section

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Metal Deck: Section 05 31 00

1.2 REFERENCES

- .1 ASTM A 307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
- .2 ASTM A 325, Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- .3 CISC/CPMA 1-73a, A Quick-Drying, One-Coat Paint for Use on Structural Steel.
- .4 CISC/CPMA 2-75, A Quick-Drying, Primer for Use on Structural Steel.
- .5 CSA-G40.20, General Requirements for Rolled or Welded Structural Quality Steel.
- .6 CSA-G40.21, Structural Quality Steel.
- .7 ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- .8 CSA-S16, Consolidation: Limit States Design of Steel Structures.
- .9 CSA-S136, Design of Cold Formed Steel Structural Members.
- .10 CSA-W47.1, Certification of Companies for Fusion Welding of Steel.
- .11 CSA-W48, Filler Metals and Allied Materials for Metal Arc Welding.
- .12 CSA-W55.3, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
- .13 CSA-W59, Welded Steel Construction (Metal Arc Welding).

1.3 SHOP DRAWINGS

- .1 Submit erection drawings in accordance with Section 01 33 00. Shop Detail Drawings for individual pieces and for standard connections are not to be submitted.
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- .2 Submit shop details of non-standard connections to be used in the connection of structural steel members. Identify on erection drawings the location of all non-standard connections.
- .3 On erection drawings, indicate member size, base plate elevations, anchor bolt size, all details and information necessary for assembly and erection purposes.
- .4 Ensure fabricator designed assemblies, components and connections, and drawings are stamped and signed by qualified professional engineer licensed in the Province of Construction.

1.4 DESIGN OF DETAILS AND CONNECTIONS

- .1 Design details and connections in accordance with requirements of CSA-S16 and CSA-S136 to resist forces, moments, shears and allow for movements indicated.
- .2 If connection for shear only (standard connection) is required:
 - .1 Select framed beam shear connections from an industry-accepted publication such as "Handbook of the Canadian Institute of Steel Construction".
 - .2 If shears are not indicated, select or design connections to support reaction resulting from maximum uniformly distributed load that can be safely supported by beam in bending, provided no concentrated loads act on beam. If concentrated loads act on beam, calculate loads or contact structural consultant for loads.
- .3 For non-standard connections submit sketches stamped and signed by qualified professional engineer licensed in Province of construction.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Structural steel: to CSA-G40.21 Grade 350W.
- .2 Channels, angles, plates and rod : Type 300W
- .3 Anchor bolts: to CSA-G40.21, Grade 300W
- .4 Bolts, nuts and washers: to ASTM A-325 and ASTM A-490
- .5 Welding materials: to CSA-W48 and CSA-W59 and certified by Canadian Welding Bureau.
- .6 Shop paint: to CISC/CPMA 1-73a and 2-75 as applicable.

- .7 Hot dip galvanizing: Galvanize all structural steel exposed to weather and other steel as indicated on drawings to CSA-G164. Minimum zinc coating shall be 1.75 ounces/square foot.

2.2 FABRICATION

- .1 Fabricate structural steel in accordance with CSA-S16, S136 and in accordance with reviewed shop drawings.
- .2 Provide holes for attachment of other work where required.
- .3 Where finished surfaces of steel are to be left exposed to view, fabricate to AISC specifications for architecturally exposed steel including straightness. Remove mill marks, identification and surface imperfections.
- .4 Exposed welds to be continuous for length of each joint. Grind exposed welds smooth and flush.

2.3 SHOP PAINTING

- .1 For steel not to receive finish painting on site:
- .1 Clean all members of loose mill scale, rust, oil, dirt and other foreign matter, prepare and paint to CISC/CPMA 1-73. Red colour to be used.
 - .2 Apply one coat of paint in shop to all steel surfaces except:
Surfaces to be encased in concrete.
Surfaces and edges to be field welded.
- .2 For steel to receive finish painting on site:
- .1 Clean all members of loose mill scale, rust, oil, dirt and other foreign matter, prepare and prime to CISC/CPMA 2-75. Grey primer to be used
 - .2 Apply one coat of primer in shop to all steel surfaces.
- .3 Hot dip galvanizing: Galvanize all structural steel exposed to weather and other steel as indicated on drawings to CSA-G164. Minimum zinc coating shall be 1.75 ounces/square foot.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Structural steel work: in accordance with CSA-S16 and CSA-S136.
- .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.

3.2 MARKING

- .1 Mark materials in accordance with CSA-G40.20. Do not use die stamping.

3.3 ERECTION

- .1 Erect structural steel, as indicated and in accordance with CSA-S16, CSA-S136 and in accordance with reviewed erection drawings.
- .2 Field cutting or altering structural members: to approval of Consultant.
- .3 Clean with mechanical brush and touch up shop primer to bolts, welds and burned or scratched surfaces at completion of erection.
- .4 Continuously seal members by continuous welds where indicated. Grind smooth.
- .5 Assume full responsibility for the integrity of structure during erection. Make necessary provision for all erection loads and for sufficient temporary bracing to maintain safe structure, plumb and in true alignment until completion of erection and installation of necessary permanent bracing.
- .6 Set column base plates and loose bearing plates with steel shims to proper elevation, true and level, ready for grouting-in.

3.4 FIELD QUALITY CONTROL

- .1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by Owner.
- .2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Consultant.
- .3 Owner will pay costs of testing.

END OF SECTION