4R Winnipeg Depot
Bid Opportunity
No. 559-2014

STRUCTURAL STEEL FOR
BUILDINGS

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July 2014

Approved: 2003-12-31

Part 1   **General**

1.1   **RELATED SECTIONS**

.1   Section D13.

.2   Section E3.

.3   Section E4.

1.2   **REFERENCES**

.1   National Building Code of Canada (NBC).

.2   Manitoba Building Code (MBC).

.3   American Society for Testing and Materials International, (ASTM)

    .1   ASTM A36/A36M-12, Specification for Structural Steel.

    .2   ASTM A325-10, Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

.4   Canadian Standards Association (CSA International)

    .1   CAN/CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

    .2   CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.

    .3   CAN/CSA-S16-09, Limit States Design of Steel Structures.

    .4   CSA W47.1-09, Certification of Companies for Fusion Welding of Steel Structures.

    .5   CSA W48-06 (R2011), Filler Metals and Allied Materials for Metal Arc Welding.

    .6   CSA W59-13, Welded Steel Construction (Metal Arc Welding).

.5   The Society for Protective Coatings (SSPC)

    .1   SSPC SP-6/NACE No. 3, Commercial Blast Cleaning.

1.3   **DESIGN REQUIREMENTS**

.1   Design details and connections in accordance with requirements of CAN/CSA-S16 to resist forces, moments, shears and allow for movements indicated.

.2   Shear connections:

    .1   Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.

.2   Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.

.3   Submit sketches and design calculations stamped and signed by qualified Contract Administrator licensed in Province of Manitoba, Canada for non-standard connections.

1.4   SHOP DRAWINGS

.1   Submit shop drawings including fabrication and erection documents and materials list in accordance with Section E3.

.2   Erection drawings: indicate 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.

.3   Ensure Fabricator drawings showing designed assemblies, components and connections are stamped and signed by qualified Contract Administrator licensed in the province of Manitoba, Canada.

1.5   QUALITY ASSURANCE

.1   Submit one copy of mill test reports four weeks prior to fabrication of structural steel.

     .1   Mill test reports to show chemical and physical properties and other details of steel to be incorporated in project.

     .2   Provide mill test reports certified by metallurgists qualified to practice in province of Manitoba, Canada.

1.6   WASTE MANAGEMENT AND DISPOSAL

.1   Separate and recycle waste materials in accordance with Section D13.

.2   Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3   Collect and separate for disposal paper, plastic, polystyrene, and corrugated cardboard packaging material in appropriate on-site containers for recycling in accordance with Waste Management Plan.

.4   Divert unused metal materials from landfill to metal recycling facility.

Part 2   Products

2.1   MATERIALS

.1   Structural steel: to CAN/CSA-G40.20/G40.21 Grade as indicated.

.2 Anchor bolts: to ASTM A36/A36M, hot-dip galvanized.

.3 Bolts, nuts and washers: to ASTM A325/ASTM A325M.

.4 Welding materials: to CSA W59 and certified by Canadian Welding Bureau.

.5 Welding electrodes: to CSA W48.

.6 Surface preparation: to SSPC SP-6.

.7 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 600 g/m^2.

2.2 FABRICATION

.1 Fabricate structural steel in accordance with CAN/CSA-S16 and in accordance with approved shop drawings.

.2 Continuously seal members by continuous welds.

2.3 GALVANIZING

.1 Clean, prepare surfaces in accordance with CAN/CSA-S16.

.2 Clean members, remove loose mill scale, rust, oil, dirt and other foreign matter. Prepare surface according to SSPC-SP-6.

.3 Galvanize all surfaces in accordance with CAN/CSA-G164-M92 (R1998) to a net retention of 600 g/m^2.

Part 3 Execution

3.1 GENERAL

.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.

3.2 CONNECTION TO EXISTING WORK

.1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to the Contract Administrator for direction before commencing fabrication.

3.3   **MARKING**

     .1   Mark materials in accordance with CAN/CSA G40.20/G40.21. Do not use die stamping. If steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

     .2   Match marking: shop mark bearing assemblies and splices for fit and match.

3.4   **ERECTION**

     .1   Erect structural steel, as indicated and in accordance with CAN/CSA-S16 and in accordance with approved erection drawings.

     .2   Field cutting or altering structural members: to approval of the Contract Administrator.

     .3   Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.

     .4   Continuously seal members by continuous welds where indicated. Grind smooth.

3.5   **FIELD QUALITY CONTROL**

     .1   Inspection and testing of materials and workmanship will be carried out by the Contract Administrator.

     .2   Provide safe access and working areas for testing on site, as required by testing agency and as authorized by the Contract Administrator.

     .3   Submit test reports to Contract Administrator within two weeks of completion of inspection.

END OF SECTION