Approved: 2005-03-31

Part 1 General

1.1 SUMMARY

1.2 REFERENCES

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

- .1 ASTM A307-03, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- .2 ASTM A325M-04, Standard Specification for Structural Bolts, Steel, Heat Treated 830 Mpa Minimum Tensile Strength Metric.
- .3 ASTM A490M-04, Standard Specification for High Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints Metric.
- .4 ASTM A653/A653M-04a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .5 ASTM A792/A792M-03, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- .6 ASTM D523-89(1999), Standard Test Method for Specular Gloss.
- .7 ASTM D822-01, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

.2 Canadian General Standards Board (CGSB).

- .1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.
- .2 CAN/CGSB 41-GP-6M-83, Sheets, Thermosetting Polyester Plastics, Glass Fiber Reinforced.

.3 Canadian Standards Association (CSA International).

- .1 CSA-G40.20/G40.21-04, 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 CAN/CSA-S16-01, Limit States Design of Steel Structures.
- .4 CSA W59-03, Welded Steel Construction (Metal Arc Welding).

.4 Canadian Sheet Steel Building Institute (CSSBI).

- .1 CSSBI 30M-95, Standard for Steel Building Systems.
- .2 CSSBI, Design in Cold Formed Steel-2003.
- .3 CSSBI Bulletin B15-1993, Snow, Wind and Earthquake Load Design Criteria.
- .4 CSSBI Sheet Steel Fact Sheet # 3-April 1994, Care and Maintenance of Prefinished Sheet Steel Building Products.
- .5 CSSBI S8-2001: Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.

1.3 SYSTEM DESCRIPTION

.1 Type: rigid frame.

.2 Roof slope: minimum 1:12.

.3 Wall system: single skin panels.

.4 Roof system: standing seam panels.

1.4 DESIGN REQUIREMENTS

.1 Design steel building system to withstand dead loads and live loads including ceilings, mechanical and electrical systems, as indicated.

.2 Maximum deflection:

.1 Roof cladding under full design load: 1/240 of clear span.

.2 Wall cladding under specified wind effects: 1/180 of clear span.

.3 Thermal resistance: minimum 3.5 RSI for walls and minimum 3.5 RSI for roof.

.4 Design building walls and roof to allow for thermal movement of component materials caused by ambient temperature range of 55 degrees C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

.5 Ensure building is weathertight.

.6 Provide for positive drainage to exterior of condensation occurring within wall construction and water entering at joints.

.7 Design building enclosure elements to accommodate, by means of expansion joints, any movement in element itself and between element and building structure caused by structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage.

1.5 SUBMITTALS

.1 Submit shop drawings for review.

.2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in the Province of Manitoba, Canada.

.3 Submit following documents in accordance with CSSBI 30M:

.1 Erection drawings showing foundation loads, anchor bolt setting details part numbers, connections and assembly details.

.4 Indicate plans and grid lines, structural members and connection details, bearing and anchorage details, roof cladding, wall cladding, framed openings, accessories, schedule of materials and finishes, camber, loads and reaction forces, fasteners and welds, sealant locations and details.

.5 Indicate shop and erection details including cuts, copes, connections, holes, threaded fasteners, rivets and welds. Indicate welds by CSA welding symbols.

.6 Submit description of methods and sequence of erection proposed for use in erecting structural frame.

.7 Indicate on shop drawings related provisions required for mechanical, electrical and other work.

.8 Certificates.

.1 Provide certification stating design criteria used and loads assumed in design, which places sole responsibility for design of building components with steel building systems manufacturer.

1.6 QUALITY ASSURANCE

.1 Provide certification from steel building systems manufacturer that erector is qualified to erect system.

.2 Health and Safety:

.1 Do construction in accordance with occupational health and safety standards.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Protect prefinished steel sheet during fabrication, transportation, site storage and installation in accordance with CSSBI Sheet Steel Facts #3.

.2 Handle and protect galvanized materials from damage to zinc coating.

.1 During storage space surfaces of galvanized materials to permit free circulation of air.

Part 2 Products

2.1 MATERIALS

.1 Structural steel: to CSA-G40.21, shop primed.

.2 Bolts: to ASTM A325M complete with nuts and washers.

.3 Welding materials: to CSA W59.

.4 Shop primer paint: to CAN/CGSB-1.40, Type M.

.5 Steel sheet, zinc-coated: to ASTM A653/A653M, structural quality gradeA Z275 coating, regular spangle surface, passivated for unpainted finish and unpassivated for paint finish.

.6 Screws: corrosion resistant purpose made, head colour to match attached sheet.

.7 Plastic sealants and adhesives as recommended by plastics manufacturer.

.8 Insulation blanket.

.9 Vapour barrier and sealing tape: as recommended by steel building systems manufacturer.

.10 Sealants: as recommended by sealant manufacturer.

2.2 COMPONENTS

.1 Wall System:

.1 Exterior sheet-wall: factory preformed steel sheet, zinc coated or prefinished from manufacturer's standard profiles. Include closures, gaskets, caulking, flashing and fasteners to effect weathertight installation. Cut ends of sheets square and clean. Minimum 0.607mm (24 ga.) base metal thickness.

.2 Exterior corners-wall: of material to match finish and profile of adjacent cladding material, shop cut and brake formed to correct angle.

.3 Accessories to exterior wall cladding, brake or bend to shape, of material and finish to match wall cladding, comprising cap flashings, drip flashings, copings and closures for head and jamb corners.

.2 Roof System:

.1 Exterior sheet-roof: factory preformed steel sheet zinc coated or prefinished from manufacturer's standard profiles. Include closures, gaskets, caulking, flashing and fasteners to effect weathertight installation. Cut ends of sheets square and clean. Minimum 0.607mm (24 ga.) base metal thickness.

.2 Accessories to roof cladding: brake or bend to shape, of material and finish to match roof cladding or wall cladding where applicable, comprising cap flashings, drip flashings, coping and closures for corners, fascia, soffit.

.3 Diagonal web members: factory preformed steel sheet, minimum 1.214 mm base metal thickness, zinc coated, shop cut and formed to profile from manufacturer's standard.

.4 Gussets, lateral spacers: factory preformed steel sheet, minimum 1.214 mm base metal thickness, zinc coated, shop cut and formed to profile from manufacturer's standard.

.3 Valley gutters:

.1 Form valley gutters from material and finish to match roof cladding material to size and profile with outlets as indicated. Provide:

.1 Support straps and fastenings

.2 Flute fillers and sealants

2.3 FABRICATION

.1 Fabricate structural members in accordance with shop drawings and to CAN/CSA-S16.

.1 Tolerance not to exceed those specified in CSSBI 30M.

.2 Provide holes for attachment of other work, as indicated.

.3 Reinforce openings to maintain design strength.

2.4 FINISHES

.1 Clean, prepare surfaces and shop prime structural steel to CAN/CSA-S16 except where members are zinc coated or are to be encased in concrete.

.2 Prefinished steel with factory applied silicone modified polyester.

.1 Class F1S.

.2 Colour selected by Contract Administrator from manufacturer's standard range.

.3 Coating thickness: not less than 1.5 mil. cured thickness.

Part 3 Execution

3.1 ERECTION

.1 Do work in accordance with CSSBI 30M except where specified otherwise.

.2 Erect structural frame in accordance with shop drawings and to CAN/CSA-S16.

.1 Erection tolerances not to exceed those specified in CSSBI 30M.

.3 Prepare galvanized structural steel surfaces for field welding by removing zinc before welding.

.1 After welding, chip away flux and prime with CAN/CGSB 1.40, MPI #23.

.4 Obtain written permission from Contract Administrator prior to field cutting or altering of structural members.

.5 Touch up with shop primer bolts, rivets, welds and burned or scratched surfaces where exposed at completion of erection.

.6 Install wall cladding assemblies ensuring completed installation.

.7 Secure roof cladding sheets to structural purlins.

.1 Terminate sheet ends over structural supports.

.8 Secure side laps.

.9 Continuously seal end and side laps.

.10 Install roof assemblies ensuring completed installation.

.11 Install necessary closures, gaskets, caulking sealants and flashings.

.12 Install insulation and vapour retarder to maintain continuity of thermal and moisture protection to building elements and spaces.

.13 Fit insulation closely around and behind electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

.14 Keep insulation away from hot surfaces chimneys and gas vents.

.15 Do not compress insulation to fit into spaces.

.16 For roof system, ensure continuous vapour, air barrier seal by pre-caulking joints of ceiling panel.

END OF SECTION