

Part 1 General

1.1 REFERENCES

- .1 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)
- .2 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI 30M-95, Standard for Steel Building Systems.
- .3 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - .2 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .5 National Research Council (NRC)/Institute for Research in Construction (IRC)
 - .1 Construction Technology Update No. 9-1997, Evolution of Wall Design for Controlling Rains Penetration.
 - .2 Construction Technology Update No. 17-1998, Pressure Equalization in Rainscreen Wall systems.
 - .3 Construction Technology Update No. 34-1999, Designing Exterior Walls According to the Rainscreen Principle.
 - .4 NRCC 38726-2010, National Building Code of Canada (NBC).

1.2 SYSTEM DESCRIPTION

- .1 Provide building structure and enclosure to physical dimensions shown on drawings.
- .2 Generally, building is intended to enclose operator for secure functions.

1.3 DESIGN REQUIREMENTS

- .1 Maintain heat transfer to maximum 'U' value of RSI 4.5.
- .2 Design building to allow for thermal movement of component materials caused by ambient temperature range of 70 degrees C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
- .3 Ensure total absence of condensation on interior surfaces under following minimum condition.
 - .1 Interior: 22 degrees C 30% RH, still air.
 - .2 Exterior: -35 degrees C 100 km/h wind.
- .4 Building watertight construction.

- .5 Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall in accordance with "Rain Screen Principles", as described by NRC/IRC.
- .6 Vapour seal building enclosure to withstand, without failure, design RH at design ambient temperature condition, maintained against interior atmospheric pressure of 250 Pa.
- .7 Design for hourly velocity pressure of 0.45 kPa.
 - .1 In addition to uniform live load, design for full live load on leeward half of building frame and zero live load on windward half.
- .8 Design members to withstand, within acceptable deflection limitations:
 - .1 Snow load of 2.2 kPa.
 - .2 Rain load of 0.2 kPa.
- .9 Design building enclosure elements to accommodate, by means of expansion joints, movement in wall and structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage.
- .10 Completed building: exterior to interior sound attenuation not less than STC 30.
- .11 Design, assemble and secure building elements to building frame to ensure stresses in sealants and seals are within sealant manufacturer's recommended maximum.
- .12 Design building assembly to permit easy replacement and disassembly of components.
- .13 Allow for ceiling, piping, conduit and other interior dead loads imposed on this structure.
- .14 Building interior environment: heated and cooled to maintain temperature of 20 degrees C minimum to 25 degrees C maximum with relative humidity of 25% to 50%.
- .15 Building interior ventilation: of 8.5 l/s air changes.
- .16 Building lighting: maintain measured lighting level of 10 lx at 1500mm above finished floor, after building finishes and painting complete.
- .17 Building glazing: provide LOW E glass, 6.25 mm thick, argon filled, with total solar heat gain co-efficient of 0.45, light transmittance of 35%, and shading co-efficient of 0.37.
- .18 Access units, doors, and windows to sizes and locations indicated weather resistant, insulated and weatherstripped.

1.4 PERFORMANCE REQUIREMENTS

- .1 Maximum deflection for roofing under full specified live load: 1/240 of clear span.
- .2 Maximum deflection for exterior cladding under full specified exterior wind induced loads: 1/180 of clear span.
- .3 Maintain following tolerances for building structure and enclosure elements.

- .1 Maximum variation from plane or location shown on shop drawings: 1 mm/1 m of length and up to 1 mm/5 m maximum.
- .2 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm.

1.5 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings stamped and signed by signature and qualified professional Engineer for fabricator designed assemblies, components and connections.
- .3 Indicate plans and grid lines, structural members and connection details, bearing and anchorage details, roof, wall and floor assemblies, framed openings, accessories, schedule of materials and finishes, camber and loadings, fasteners and welds.
- .4 Indicate detailed description of mechanical, electrical and other systems in Work.
- .5 Describe requirements of other systems of components related to this Work but provided by others.
 - .1 Obtain necessary information required to detail this Work including methods of integration and securing.
- .6 Submit erection drawings to Consultant for approval, before construction.
- .7 Indicate erection dimensions and methods.
- .8 Manufacturer's Field Reports: submit to Departmental Representative manufacturer's written report, within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.6 QUALITY ASSURANCE

- .1 Site Meetings: as part of Manufacturer's Services described in Part 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.
 - .1 After delivery and storage of products, and when preparatory work is complete but before installation begins.
 - .2 Twice during progress of Work at 25% and 60% complete.
 - .3 Upon completion of Work, after cleaning is carried out.
- .2 Health and Safety.
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.8 WARRANTY

- .1 For work of this section 13 34 23 - Fabricated Structures 24 months warranty period.

Part 2 Products

2.1 MATERIALS

- .1 Building materials: metal skin insulated panel assembly fully welded with interior metal walls, ceiling and floors. Metal desks and work surfaces integrated into the building shell with concealed conduits for power, data and telecom services.
- .2 Fire resistive building elements: Entire building is non-combustible construction.
- .3 Glass and glazing materials: Double glazed, tinted, low-e and argon filled sealed unit. Provide both fixed and sliding glazed panels.
- .4 Sealants: in accordance with Section 07 92 00 - Joint Sealing.
- .5 Thermal Insulation: RSI 4.0.

2.2 FABRICATION

- .1 Maintain air and vapour and thermal barrier throughout building enclosure elements.
- .2 Complete enclosure assembly with exterior skin, glass units, access doors, sliders, inner air/vapour seal membrane, thermal insulation and interior finish.
- .3 Accurately fit and rigidly frame together joints, corners and mitres.
 - .1 Match components carefully to produce continuity of line and design.
 - .2 Make joints and connections toward exterior weathertight.
 - .3 Provide hairline joints for materials in contact.
 - .4 Co-ordinate location of visible joints.

2.3 FINISHES

- .1 Factory finish baked enamel paint coating.

Part 3 Execution

3.1 ERECTION

- .1 Do prefabricated metal building Work to CSSBI 30M.
- .2 Erect building structure and enclosure elements.

3.2 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:

- .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
- .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.3 CLEANING

- .1 Remove excess sealant by moderate use of low VOC mineral spirits or other solvent as directed by sealant manufacturer.
- .2 Clean surfaces.

3.4 PROTECTION

- .1 Provide protection to finished surfaces with strippable coatings, strippable wrappers, plywood or sheet materials as required before acceptance of Work.

END OF SECTION