March 17, 2009

Attention: All users of the Alberta Building Code 2006

Re: Replacement Pages for the Alberta Building Code 2006

The following package of replacement pages for the Alberta Building Code 2006 are offered to all code users as a result of changes to the Code from numerous errata (as outlined in STANDATA 06-BCE-001 and 06-BCE-002) as well as the Code changes recommended by the High Intensity Residential Fires Working Group.

Changes are indicated by a "★" symbol in the outside margin of the page.

The pages are intended to be printed double-sided. If they are printed single-sided, blank pages can be discarded.

Please remove the existing pages from your copy of the Alberta Building Code 2006 and replace them with the following replacement pages.

Sincerely,

Chris Salvian, P.Eng.
Acting Chief Building Administrator
Alberta Municipal Affairs
Division A
1.2.2. Materials, Appliances, Systems and Equipment

1.2.2.1. Characteristics of Materials, Appliances, Systems and Equipment

1) All materials, appliances, systems and equipment installed to meet the requirements of this Code shall possess the necessary characteristics to perform their intended functions when installed in a building.

2) Evaluation reports issued by the Canadian Construction Materials Centre, National Research Council of Canada, or an organization approved by the Chief Building Administrator may be used in determining compliance with the requirements of this Code.

3) The Chief Building Administrator may issue lists of materials or products that, in his opinion, satisfy the requirements of this Code and, after listing, may be used to fulfill the requirements of this Code.

1.2.2.2. Storage on the Building Site

1) All building materials, appliances and equipment on the building site shall be stored in such a way as to prevent the deterioration or impairment of their essential properties.

1.2.2.3. Used Materials, Appliances and Equipment

1) Unless otherwise specified, used materials, appliances and equipment are permitted to be reused when they meet the requirements of this Code for new materials, appliances and equipment and are satisfactory for the intended use.

1.2.2.4. Asbestos

1) Except as permitted by Sentence (2), no person shall install any product that has a potential for releasing asbestos fibres in a building.

2) Asbestos-cement board and asbestos-cement pipe may be used in a building but not in a supply or return air system.

Section 1.3. Divisions A, B and C of this Code

1.3.1. General

1.3.1.1. Scope of Division A

1) Division A contains the compliance and application provisions, objectives and functional statements of this Code.

1.3.1.2. Scope of Division B

1) Division B contains the acceptable solutions of this Code.

1.3.1.3. Scope of Division C

1) Division C contains the administrative provisions of this Code.

1.3.1.4. Internal Cross-references

1) Where the Division of a referenced provision is not specified in this Code, it shall mean that the referenced provision is in the same Division as the referencing provision.

1.3.2. Application of Division A

1.3.2.1. Application of Parts 1, 2, 3 and 4

1) Parts 1, 2, 3 and 4 of Division A apply to all buildings covered in this Code. (See Article 1.1.1.1.)
1.3.3. Application of Division B

1.3.3.1. Application of Parts 1, 7 and 8

1) Parts 1, 7 and 8 of Division B apply to all buildings covered in this Code. (See Article 1.1.1.1.)

1.3.3.2. Application of Parts 3, 4, 5 and 6

1) Parts 3, 4, 5, and 6 of Division B apply to all buildings described in Article 1.1.1.1. and:

   a) classified as post-disaster buildings,
   b) used for major occupancies classified as
      i) Group A, assembly occupancies,
      ii) Group B, care or detention occupancies, or
      iii) Group F, Division 1, high-hazard industrial occupancies, or
   c) exceeding 600 m$^2$ in building area or exceeding 3 storeys in building height
      used for major occupancies classified as
      i) Group C, residential occupancies,
      ii) Group D, business and personal services occupancies,
      iii) Group E, mercantile occupancies, or
      iv) Group F, Divisions 2 and 3, medium- and low-hazard industrial occupancies.

1.3.3.3. Application of Parts 9, 10 and 11

1) Part 9 of Division B applies to all buildings described in Article 1.1.1.1. of 3 storeys or less in building height, having a building area not exceeding 600 m$^2$, and used for major occupancies classified as

   a) Group C, residential occupancies (see Appendix Note A-9.1.1.1.(1) of Division B),
   b) Group D, business and personal services occupancies,
   c) Group E, mercantile occupancies, or
   d) Group F, Divisions 2 and 3, medium- and low-hazard industrial occupancies.

2) Part 10 of Division B applies to a building conforming to Sentence (3) in which accommodation is provided for an industrial work force living and working in a temporary location.

3) Part 10 of Division B applies to a

   a) one storey building
      i) without sleeping accommodation, that is not more than 1200 m$^2$ in building area and if sprinklered, that is not more than 2400 m$^2$ in building area, or
      ii) with sleeping accommodation, that is not more than 600 m$^2$ in building area and if sprinklered, that is not more than 1200 m$^2$ in building area, and
   b) two storey building
      i) without sleeping accommodation, that is not more than 600 m$^2$ in building area and if sprinklered, that is not more than 1200 m$^2$ in building area, or
      ii) with sleeping accommodation, that is not more than 300 m$^2$ in building area and if sprinklered, that is not more than 600 m$^2$ in building area.

4) Part 10 of Division B applies to Group D and Group F, Division 3 occupancies for a work force working in a temporary location.

5) Except as permitted in Sentence (6), Part 11 of Division B applies to a building constructed within an airport vicinity protection area that has been established by an Airport Vicinity Protection Area regulation under the Municipal Government Act.
A-1.1.1.1.(2) Factory-Built Houses. The Alberta Building Code applies the same requirements to site-built and manufactured homes (also known as factory-built houses). However, it can often be difficult to determine whether a manufactured home complies with these requirements once it has been delivered to its construction site, because many of the wall, roof and floor assemblies are closed in and their components cannot be inspected.

In Alberta, two certification and labelling programs are used for manufactured homes. One is based on CAN/CSA-A277, “Procedure for Certification of Factory-Built Houses”; the second is based on the CAN/CSA-Z240 MH series of standards. Both incorporate the use of a label issued by Alberta Municipal Affairs and Housing confirming compliance with the requirements of Part 9 of the Alberta Building Code.

The labelling programs for manufactured homes are a cooperative effort between Alberta Municipal Affairs and Housing and Canadian Standards Association (CSA). CSA conducts periodic audits of the manufacturing plants, reviews the building plans, informs the manufacturer of deficiencies and distributes labels.

All new manufactured homes carry two labels:
(a) CSA label to verify that the home was built by a CSA certified manufacturer under a quality assurance program, and
(b) provincial label to confirm the home was designed and built to Part 9 of the Alberta Building Code as a single-family dwelling.

The provincial labels are only applied to manufactured homes that are fully completed in the factory. Unfinished homes sold to owners to be completed on the site do not receive provincial labels. In this situation only, CAN/CSA-A277 labels are applied and owners must then obtain all necessary permits for the work remaining to be completed.

For each incomplete manufactured home, the manufacturer provides the purchaser with written confirmation of the work completed in the factory. This confirmation is then provided to the authority having jurisdiction to support the release of permit(s) for on-site construction necessary to complete the home.

A-1.1.1.1.(5)(a) Farm and Acreage Buildings. Farm and acreage buildings include but are not limited to produce storage facilities, livestock and poultry housing, milking centres (except as required by Section 7.4.), manure storage facilities, grain bins, silos, feed preparation centres, farm workshops, and horse riding, exercise and training facilities not used by the public. Farm buildings may be classed as low or high human occupancy, depending on the occupant load.

Examples of farm buildings likely to be classed as low human occupancy as defined in Article 1.2.1.2. of the National Farm Building Code of Canada are livestock and poultry housing, manure and machinery storage facilities, and horse exercise and training facilities where no bleachers or viewing area are provided.

Examples of buildings that would be classed as other than low human occupancy include farm retail centres for feeds, horticultural and livestock produce, auction barns and show areas where bleachers or other public facilities are provided. Farm work centres where the number of workers frequently exceeds the limit for low human occupancy are also in this category.

It is possible to have areas of both high and low human occupancy in the same building provided that the structural safety and fire separation requirements for high human occupancy are met in that part.

This Appendix is included for explanatory purposes only and does not form part of the requirements. The numbers that introduce each Appendix Note correspond to the applicable requirements in this Division.
A-1.1.1.2. Application to Existing Buildings. This Code is most often applied to existing buildings when an owner wishes to rehabilitate a building, change its use, or build an addition, or when an enforcement authority decrees that a building or class of buildings be altered for reasons of public safety. It is not intended that the Alberta Building Code be used to enforce the retrospective application of new requirements to existing buildings or existing portions of relocated buildings. For example, although the Alberta Fire Code could be interpreted to require the installation of fire alarm, standpipe and hose, and automatic sprinkler systems in an existing building for which there were no requirements at the time of construction, it is the intent of the Safety Codes Council that the Alberta Fire Code not be applied in this manner to these buildings unless the authority having jurisdiction has determined that there is an inherent threat to occupant safety and has issued an order to eliminate the unsafe condition, or where substantial changes or additions are being made to an existing building or the occupancy has been changed. (See also Appendix Note A-1.1.1.(I) of Division A of the Alberta Fire Code.)

Relocated buildings that have been in use in another location for a number of years can be considered as existing buildings, in part, and the same analytical process can be applied as for existing buildings. It should be noted, however, that a change in occupancy may affect some requirements (e.g., loads and fire separations) and relocation to an area with different wind, snow or earthquake loads will require the application of current code requirements. Depending on the construction of the building and the changes in load, structural modifications may be required. Similarly, parts of a relocated or existing building that are reconstructed, such as foundations and basements, or parts being modified are required to be built to current codes.

Whatever the reason, Code application to existing or relocated buildings requires careful consideration of the level of safety needed for that building. This consideration involves an analytical process similar to that required to assess alternative design proposals for new construction. See Clause 1.2.1.1.(I)(b) and its Appendix Note for information on achieving compliance with the Code using alternative solutions.

In developing Code requirements for new buildings, consideration has been given to the cost they impose on a design in relation to the perceived benefits in terms of safety. The former is definable; the latter difficult to establish on a quantitative basis. In applying the Code requirements to an existing building, the benefits derived are the same as in new buildings. On the other hand, the increased cost of implementing in an existing building a design solution that would normally be intended for a new building may be prohibitive.

The successful application of Code requirements to existing construction becomes a matter of balancing the cost of implementing a requirement with the relative importance of that requirement to the overall Code objectives. The degree to which any particular requirement can be relaxed without affecting the intended level of safety of the Code requires considerable judgment on the part of both the designer and the authority having jurisdiction.

Further information on the application of Code requirements to existing or relocated buildings may be found in the following publications:

- Guidelines for Application of Part 3 of the National Building Code of Canada to Existing Buildings
- Canadian Building Digest No. 230, “Applying Building Codes to Existing Buildings”

These publications can be ordered through Client Services, Institute for Research in Construction, National Research Council of Canada, Ottawa, Ontario K1A 0R6, or through the Web site at www.nationalcodes.ca.

A-1.1.3.(1) Temporary Use. An authority having jurisdiction has the discretionary power to allow the temporary use or occupancy of a building even though the building may not comply entirely with all requirements of the Alberta Building Code. Exceptions to compliance with all requirements are permitted because these buildings are intended for use and/or occupancy for short periods of time. It is a reasonable approach which allows tents and air-supported structures to be erected and occupied at carnivals, circuses, sideshows, auctions, religious outdoor events, etc. It also allows for more permanent structures, although still temporary in nature, to be used as school rooms, trailers on car dealer lots, storage sheds, office accommodation at construction sites or shelters to house plants during the spring season at shopping centres.

★“Temporary” is usually thought of as being under three years.
Division B
3.1.4.6. **Heavy Timber Construction**

1) Wood elements in *heavy timber construction* shall be arranged in heavy solid masses and with essentially smooth flat surfaces to avoid thin sections and sharp projections.

2) Except as permitted by Sentences (3) to (6) and (12), the minimum dimensions of wood elements in *heavy timber construction* shall conform to Table 3.1.4.6.

<table>
<thead>
<tr>
<th>Supported Assembly</th>
<th>Structural Element</th>
<th>Solid Sawn (width x depth), mm x mm</th>
<th>Glued-Laminated (width x depth), mm x mm</th>
<th>Round (diam), mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofs only</td>
<td>Columns</td>
<td>140 x 191</td>
<td>130 x 190</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Arches supported on the tops of walls or abutments</td>
<td>89 x 140</td>
<td>80 x 152</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Beams, girders and trusses</td>
<td>89 x 140</td>
<td>80 x 152</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Arches supported at or near the floor line</td>
<td>140 x 140</td>
<td>130 x 152</td>
<td>—</td>
</tr>
<tr>
<td>Floors, floors plus roofs</td>
<td>Columns</td>
<td>191 x 191</td>
<td>175 x 190</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Beams, girders, trusses and arches</td>
<td>140 x 241 or 191 x 191</td>
<td>130 x 228 or 175 x 190</td>
<td>—</td>
</tr>
</tbody>
</table>

3) Where splice plates are used at splices of roof arches supported on the tops of walls or abutments, roof trusses, roof beams and roof girders in *heavy timber construction*, they shall be not less than 64 mm thick.

4) Floors in *heavy timber construction* shall be of glued-laminated or solid sawn plank not less than
   a) 64 mm thick, splined or tongued and grooved, or
   b) 38 mm wide and 89 mm deep set on edge and well spiked together.

5) Floors in *heavy timber construction* shall be laid
   a) so that no continuous line of end joints will occur except at points of support, and covered with
      i) tongued and grooved flooring not less than 19 mm thick laid crosswise or diagonally, or
      ii) tongued and grooved phenolic-bonded plywood, strandboard or waferboard not less than 12.5 mm thick, and
   b) not closer than 15 mm to the walls to provide for expansion, with the gap covered at the top or bottom.

6) Roofs in *heavy timber construction* shall be of tongued and grooved phenolic-bonded plywood not less than 28 mm thick, or glued-laminated or solid sawn plank that is
   a) not less than 38 mm thick, splined or tongued and grooved, or
   b) not less than 38 mm wide and 64 mm deep set on edge and laid so that no continuous line of end joints will occur except at the points of support.

7) Wood columns in *heavy timber construction* shall be continuous or superimposed throughout all storeys.

8) Superimposed wood columns in *heavy timber construction* shall be connected by
   a) reinforced concrete or metal caps with brackets,
   b) steel or iron caps with pintles and base plates, or
   c) timber splice plates fastened to the columns by metal connectors housed within the contact faces.

9) Where beams and girders in *heavy timber construction* enter masonry, wall plates, boxes of the self-releasing type or hangers shall be used.
3.1.5.1. Division B

10) Wood girders and beams in heavy timber construction shall be closely fitted to columns, and adjoining ends shall be connected by ties or caps to transfer horizontal loads across the joints.

11) In heavy timber construction, intermediate wood beams used to support a floor shall be supported on top of the girders or on metal hangers into which the ends of the beams are closely fitted.

12) Roof arches supported on the top of walls or abutments, roof trusses, roof beams and roof girders in heavy timber construction shall be not less than 64 mm wide provided
   a) where two or more spaced members are used, the intervening spaces are
      i) blocked solidly throughout, or
      ii) tightly closed by a continuous wood cover plate not less than 38 mm thick
          secured to the underside of the members, or
   b) the underneath of the roof deck or sheathing is sprinklered.

3.1.5. Noncombustible Construction

3.1.5.1. Noncombustible Materials

1) Except as permitted by Sentences (2) to (4) and Articles 3.1.5.2. to 3.1.5.21., 3.1.13.4. and 3.2.2.16., a building or part of a building required to be of noncombustible construction shall be constructed with noncombustible materials. (See also Subsection 3.1.13. for the requirements regarding the flame-spread rating of interior finishes.)

2) Notwithstanding the definition of noncombustible materials stated in Article 1.4.1.2. of Division A, a material is permitted to be used in noncombustible construction provided that, when tested in accordance with ULC-S135, “Test Method for the Determination of Combustibility Parameters of Building Materials Using an Oxygen Consumption Calorimeter (Cone Calorimeter),” at a heat flux of 50 kW/m²,
   a) its average total heat release is not more than 3 MJ/m²,
   b) its average total smoke extinction area is not more than 1.0 m², and
   c) the test duration is extended beyond the time stipulated in the referenced standard until it is clear that there is no further release of heat or smoke.

3) If a material referred to in Sentence (2) consists of a number of discrete layers and testing reveals that the surface layer or layers protect the underlying layers such that complete combustion of the underlying layers does not occur, the test shall be repeated by removing the outer layers sequentially until all layers have been exposed during testing, or until complete combustion has occurred.

4) The acceptance criteria for a material tested in accordance with Sentence (3) shall be based on the cumulative emissions from all layers, which must not exceed the criteria stated in Clauses (2)(a) and (b).

3.1.5.2. Minor Combustible Components

1) The following minor combustible components are permitted in a building required to be of noncombustible construction:
   a) paint (see also Sentence 3.1.5.10.(1)),
   b) mastics and caulking materials, including foamed plastic air sealants, applied to provide a seal between the major components of exterior wall construction, (see also Article 3.6.4.3. for limits on the use of combustible materials in plenum spaces),
   c) fire stop materials conforming to Sentence 3.1.9.1.(1) and Article 3.1.11.7.,
   d) tubing for pneumatic controls provided it has an outside diameter of not more than 10 mm,
   e) adhesives, vapour barriers and sheathing papers,
   f) electrical outlet and junction boxes,
g) wood blocking within wall assemblies intended for the attachment of handrails, fixtures, and similar items mounted on the surface of the wall, and
h) similar minor components.

3.1.5.4. **Combustible Glazing and Skylights**

1) **Combustible** skylight assemblies are permitted in a building required to be of noncombustible construction if the assemblies have a flame-spread rating not more than 150 provided the assemblies

   a) have an individual area not more than 9 m²,
   b) have an aggregate horizontal projected area of the openings through the ceiling not more than 25% of the area of the ceiling of the room or space in which they are located, and
   c) are spaced not less than 2.5 m from adjacent assemblies and from required fire separations, or

2) 75 provided the assemblies

   a) have an individual area not more than 27 m²,
   b) have an aggregate horizontal projected area of the openings through the ceiling not more than 33% of the area of the ceiling of the room or space in which they are located, and
   c) are spaced not less than 1.2 m from adjacent assemblies and from required fire separations.

(See Appendix A.)

2) **Combustible** vertical glazing installed no higher than the second storey is permitted in a building required to be of noncombustible construction.

3) Except as permitted by Sentence (4), the combustible vertical glazing permitted by Sentence (2) shall have a flame-spread rating not more than 75.
3.1.5.5. **Combustible Components for Exterior Walls**

1) Except for an exposing building face with a maximum aggregate area of unprotected openings that is not more than 10% of the exposing building face as determined by Sentence 3.2.3.7.(1), an exterior non-loadbearing wall assembly that includes combustible components is permitted to be used in a building required to be of noncombustible construction provided
   a) the building is
      i) not more than 3 storeys in building height, or
      ii) sprinklered throughout,
   b) the interior surfaces of the wall assembly are protected by a thermal barrier conforming to Sentence 3.1.5.12.(3), and
   c) the wall assembly satisfies the criteria of Sentences (2) and (3) when subjected to testing in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”
(See Appendix A.)

2) Flaming on or in the wall assembly shall not spread more than 5 m above the opening during or following the test procedure referenced in Sentence (1). (See Appendix A.)

3) The heat flux during the flame exposure on a wall assembly shall be not more than 35 kW/m² measured 3.5 m above the opening during the test procedure referenced in Sentence (1). (See Appendix A.)

4) A wall assembly permitted by Sentence (1) that includes combustible cladding of fire-retardant-treated wood shall be tested for fire exposure after the cladding has been subjected to an accelerated weathering test as specified in ASTM D 2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.”

3.1.5.6. **Nailing Elements**

1) Wood nailing elements attached directly to or set into a continuous noncombustible backing for the attachment of interior finishes are permitted in a building required to be of noncombustible construction provided the concealed space created by the wood elements is not more than 50 mm thick.

3.1.5.7. **Combustible Millwork**

1) Combustible millwork, including interior trim, doors and door frames, show windows together with their frames, aprons and backing, handrails, shelves, cabinets and counters, is permitted in a building required to be of noncombustible construction.

3.1.5.8. **Combustible Flooring Elements**

1) Combustible stage flooring supported on noncombustible structural members is permitted in a building required to be of noncombustible construction.
b) the wires and cables are located in
   i) totally enclosed noncombustible raceways (see A-3.1.4.3.(1)(b)(i) in Appendix A),
   ii) masonry walls,
   iii) concrete slabs,
   iv) a service room separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h, or
   v) totally enclosed non-metallic raceways conforming to Article 3.1.5.20., or
c) the wires and cables are communication cables used at the service entry to a building and are not more than 3 m long.

(See Appendix A.)

3.1.5.19. Combustible Travelling Cables for Elevators

1) Combustible travelling cables are permitted on elevating devices in a building required to be of noncombustible construction.

3.1.5.20. Non-metallic Raceways

1) Subject to the limits on the size of elements that penetrate fire separations as stated in Sentence 3.1.9.3.(2), within a fire compartment of a building required to be of noncombustible construction, totally enclosed non-metallic raceways not more than 175 mm in outside diameter, or of an equivalent rectangular area, are permitted to be used to enclose optical fibre cables and electrical wires and cables, provided the raceways exhibit a vertical char not more than 1.5 m when tested in conformance with the Vertical Flame Test (FT - 4) – Conduit or Tubing on Cable Tray in Clause 6.16 of CSA C22.2 No. 211.0, “General Requirements and Methods of Testing for Non-metallic Conduit.”

3.1.5.21. Decorative Wood Cladding

1) On buildings required to be of noncombustible construction, decorative wood cladding is permitted to be used on the exterior marquee fascias of a storey having direct access to a street or access route, provided the cladding is fire-retardant-treated wood that has been conditioned in conformance with ASTM D 2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing,” before being tested in accordance with CAN/ULC-S102, “Test for Surface Burning Characteristics of Building Materials and Assemblies.”

3.1.6. Tents and Air-Supported Structures

(See Appendix A.)

3.1.6.1. Means of Egress

1) Tents and air-supported structures shall conform to Sections 3.3. and 3.4.

3.1.6.2. Restrictions

1) An air-supported structure shall not be located above the first storey on any building.

2) An air-supported structure shall not be used for Groups B, C, or Group F, Division 1 major occupancies or for classrooms.

3) An air-supported structure shall be designed as open floor space without interior walls, mezzanines, intermediate floors or similar construction.

3.1.6.3. Clearance to Other Structures

1) Except as permitted by Sentences (2), (3) and (4), every tent and air-supported structure shall conform to Subsection 3.2.3.
3.1.6.4. Clearance to Flammable Material

1) The ground enclosed by a tent or air-supported structure and not less than 3 m of ground outside the structure shall be cleared of all flammable material or vegetation that will spread fire.

3.1.6.5. Flame Resistance

1) Every tent and air-supported structure and all tarpaulins and decorative materials used in connection with these structures shall conform to CAN/ULC-S109, “Flame Tests of Flame-Resistant Fabrics and Films.”

3.1.6.6. Emergency Air Supply

1) An air-supported structure used as a place of assembly for more than 200 persons shall have either
   a) an automatic emergency engine-generator set capable of powering one blower continuously for 4 h, or
   b) a supplementary blower powered by an automatic internal combustion engine.

3.1.7. Fire-Resistance Ratings

3.1.7.1. Determination of Ratings

1) Except as permitted by Sentence (2) and Article 3.1.7.2., the rating of a material, assembly of materials or a structural member that is required to have a fire-resistance rating, shall be determined on the basis of the results of tests conducted in conformance with CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials.”

2) A material, assembly of materials or a structural member is permitted to be assigned a fire-resistance rating on the basis of Appendix D.

3.1.7.2. Exception for Exterior Walls

1) The limit on the rise of temperature on the unexposed surface of an assembly as required by the tests referred to in Sentence 3.1.7.1.(1) shall not apply to an exterior wall that has a limiting distance of 1.2 m or more, provided correction is made for radiation from the unexposed surface in accordance with Sentence 3.2.3.1.(9).

3.1.7.3. Exposure Conditions for Rating

1) Floor, roof and ceiling assemblies shall be rated for exposure to fire on the underside.

2) Firewalls and interior vertical fire separations shall be rated for exposure to fire on each side.

3) Exterior walls shall be rated for exposure to fire from inside the building.
3.2.2.78. **Group F, Division 3, up to 2 Storeys**

1) A building classified as Group F, Division 3 is permitted to conform to Sentence (2) provided
   a) it is not more than 2 storeys in building height, and
   b) it has a building area not more than the value in Table 3.2.2.78.

<table>
<thead>
<tr>
<th>No. of Storeys</th>
<th>Facing 1 Street</th>
<th>Facing 2 Streets</th>
<th>Facing 3 Streets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 600</td>
<td>2 000</td>
<td>2 400</td>
</tr>
<tr>
<td>2</td>
<td>800</td>
<td>1 000</td>
<td>1 200</td>
</tr>
</tbody>
</table>

2) The building referred to in Sentence (1) is permitted to be of combustible construction or noncombustible construction used singly or in combination, and
   a) floor assemblies shall be fire separations and, if of combustible construction, shall have a fire-resistance rating not less than 45 min, and
   b) loadbearing walls, columns and arches supporting an assembly required to have a fire-resistance rating shall
      i) have a fire-resistance rating not less than 45 min, or
      ii) be of noncombustible construction.

3.2.2.79. **Group F, Division 3, up to 2 Storeys, Sprinklered**

1) A building classified as Group F, Division 3 is permitted to conform to Sentence (2) provided
   a) except as permitted by Sentences 3.2.2.7.(1) and 3.2.2.18.(2), the building is sprinklered throughout,
   b) it is not more than 2 storeys in building height, and
   c) it has a building area not more than
      i) 7 200 m² if 1 storey in building height, or
      ii) 2 400 m² if 2 storeys in building height.

2) The building referred to in Sentence (1) is permitted to be of combustible construction or noncombustible construction used singly or in combination, and
   a) floor assemblies shall be fire separations and, if of combustible construction, shall have a fire-resistance rating not less than 45 min, and
   b) loadbearing walls, columns and arches supporting an assembly required to have a fire-resistance rating shall
      i) have a fire-resistance rating not less than 45 min, or
      ii) be of noncombustible construction.

3.2.2.80. **Group F, Division 3, One Storey**

1) A building classified as Group F, Division 3 is permitted to be of heavy timber construction or noncombustible construction used singly or in combination provided
   a) it is not more than 1 storey in building height, and
   b) it has a building area not more than
      i) 5 600 m² if facing one street,
      ii) 7 000 m² if facing 2 streets, or
      iii) 8 400 m² if facing 3 streets.

3.2.2.81. **Group F, Division 3, One Storey, Sprinklered**

1) A building classified as Group F, Division 3 is permitted to be of heavy timber construction or noncombustible construction used singly or in combination provided
   a) except as permitted by Sentences 3.2.2.7.(1) and 3.2.2.18.(2), the building is sprinklered throughout,
3.2.2.82. **Group F, Division 3, One Storey, Any Area, Low Fire Load Occupancy**

1) A building classified as Group F, Division 3 is permitted to conform to Sentence (2) provided it is
   a) not more than 1 storey in building height,
   b) used solely for low fire load occupancies such as
      i) power generating plants, or
      ii) plants for the manufacture or storage of noncombustible materials, and
   c) not limited in building area.

2) The building referred to in Sentence (1) shall be of noncombustible construction.

3.2.2.83. **Group F, Division 3, Storage Garages up to 22 m High**

1) A building used as a storage garage with all storeys constructed as open-air storeys and having no other occupancy above it is permitted to have its floor, wall, ceiling and roof assemblies constructed without a fire-resistance rating provided it is
   a) of noncombustible construction,
   b) not more than 22 m high, measured between grade and the ceiling level of the top storey,
   c) not more than 10 000 m² in building area, and
   d) designed so that every portion of each floor area is within 60 m of an exterior wall opening.

3.2.3. **Spatial Separation and Exposure Protection**

3.2.3.1. **Limiting Distance and Area of Unprotected Openings**

(See Appendix A.)

1) Except as permitted by Articles 3.2.3.10. to 3.2.3.12., the area of unprotected openings in an exposing building face for the applicable limiting distance shall be not more than the value determined in accordance with
   a) Table 3.2.3.1.A. or Table 3.2.3.1.B. for an exposing building face conforming to Article 3.2.3.2. of a building or fire compartment which is not sprinklered, or
   b) Table 3.2.3.1.C. or Table 3.2.3.1.D. for an exposing building face conforming to Article 3.2.3.2. of a sprinklered fire compartment that is part of a building which is sprinklered in conformance with Section 3.2.

(See A-3 in Appendix A.)
(See also Article 3.1.6.3.)

2) The area of the unprotected openings in an exposing building face shall be the aggregate area of unprotected openings expressed as a percentage of the area of the exposing building face in Table 3.2.3.1.A., Table 3.2.3.1.B., Table 3.2.3.1.C. or Table 3.2.3.1.D.

(See Sentence 3.2.3.2.(1).)

3) For the purpose of determining the type of construction and cladding and the fire-resistance rating of an exterior wall,
   a) the exposing building face shall be taken as the projection of the exterior wall onto a vertical plane located so that no portion of the exterior wall of the building or of a fire compartment, if the fire compartment complies with the requirements of Article 3.2.3.2., is between the vertical plane and the line to which the limiting distance is measured, and
   b) the area of unprotected openings shall be determined from Table 3.2.3.1.A., Table 3.2.3.1.B., Table 3.2.3.1.C. or Table 3.2.3.1.D.

4) For the purpose of determining the actual percentage of unprotected openings permitted in an exterior wall, the location of the exposing building face is permitted to be taken at a vertical plane located so that there are no unprotected openings between the vertical plane and the line to which the limiting distance is measured. (See Appendix A.)
5) Individual unprotected openings in an exposing building face shall have a projected area that is not more than the value determined in accordance with Table 3.2.3.1.E., unless
   a) the building is sprinklered throughout, or
   b) the limiting distance is more than 2 m.

   Table 3.2.3.1.E.
   Maximum Concentrated Area of Unprotected Openings
   Forming Part of Sentence 3.2.3.1.(5)

<table>
<thead>
<tr>
<th>Limiting Distance, m</th>
<th>Maximum Area of Individual Unprotected Openings, m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1.2</td>
<td>0.35</td>
</tr>
<tr>
<td>1.5</td>
<td>0.78</td>
</tr>
<tr>
<td>2.0</td>
<td>1.88</td>
</tr>
</tbody>
</table>

6) An individual unprotected opening described in Sentence (5) shall be separated by not less than 2 m horizontally and 2 m vertically from any other unprotected opening that is located on the same exposing building face and within the same fire compartment. (See Appendix A.)

7) For the purposes of Sentence (6),
   a) two adjacent spaces are permitted to be considered as separate fire compartments where there is a full height wall extending not less than 1.5 m from the interior face of the exterior wall, finished in accordance with Subsection 9.29.4. or 9.29.5., and
   b) two stacked spaces shall be considered to be a single room or space where the spaces are on the same storey.

8) A limiting distance equal to half the actual limiting distance shall be used as input to the requirements of this Subsection, where
   a) the time from receipt of notification of a fire by the fire department until the first fire department vehicle capable of beginning suppression activities arrives at the building is greater than 10 minutes in not less than 10% of all calls to the building, and
   b) any storey in the building is not sprinklered.
   (See Appendix A and A-3.2.3.1. in Appendix A.)

9) If the surface temperature on the unexposed surface of a wall assembly exceeds the temperature limit of a standard fire test as permitted by Article 3.1.7.2., an allowance shall be made for the radiation from the hot unexposed wall surface by adding an equivalent area of unprotected opening to the area of actual openings as follows:

   \[ A_c = A + \left( A_F \times F_{EO} \right) \]

   where

   \( A_c \) = corrected area of unprotected openings including actual and equivalent openings,
   \( A \) = actual area of unprotected openings,
   \( A_F \) = area of exterior surface of the exposing building face, exclusive of openings, on which the temperature limit of the standard test is exceeded, and
   \( F_{EO} \) = an equivalent opening factor derived from the following expression:

   \[ F_{EO} = \frac{\left( T_u + 273 \right)^4}{\left( T_e + 273 \right)^4} \]
T_u = average temperature in degrees Celsius of the unexposed wall surface at the time the required fire-resistance rating is reached under test conditions,

T_e = 892°C for a fire-resistance rating not less than 45 min, 927°C for a fire-resistance rating not less than 1 h, and 1 010°C for a fire-resistance rating not less than 2 h.

10) Unless a closure used to protect an opening in an exposing building face has a protective performance equivalent to that required for the wall assembly in which it is located, an equivalent area of unprotected opening, determined in accordance with the procedures of Sentence (9) shall be added to the greater of
   a) the actual area of unprotected openings, or
   b) the corrected area of unprotected openings.
## Unprotected Opening Limits for a Building or Fire Compartment that is not Sprinklered Throughout Forming Part of Article 3.2.3.1.

<table>
<thead>
<tr>
<th>Exposing Building Face</th>
<th>Area of Unprotected Opening for Groups A, C, D, and F, Division 3 Occupancies, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Limiting Distance, m</td>
</tr>
<tr>
<td>Max. Area, m²</td>
<td>0</td>
</tr>
<tr>
<td>Less than 3 : 1</td>
<td>0</td>
</tr>
<tr>
<td>3 : 1 to 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>over 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>3 : 1 to 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>over 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>3 : 1 to 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>over 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>3 : 1 to 10 : 1</td>
<td>0</td>
</tr>
<tr>
<td>over 10 : 1</td>
<td>0</td>
</tr>
</tbody>
</table>

### Notes:
- L/H or H/L refers to the length-to-height or height-to-length ratio of the opening.
- The values in the table represent the maximum allowed area of unprotected openings for different ratios and distances.
- The limiting distance is calculated based on the ratio of the opening and the face being exposed.
3.2.3.6. Combustible Projections

1) Except as provided in Sentence (2), combustible projections on the exterior of a wall that are more than 1 m above ground level and that could expose an adjacent building to fire spread shall not be permitted within
   a) 1.2 m of a property line or the centre line of a public way, or
   b) 2.4 m of a combustible projection on another building on the same property.

2) Sentence (1) shall not apply to
   a) buildings containing 1 or 2 dwelling units, and
   b) detached garages or accessory buildings, where
      i) the detached garage or accessory building serves only one dwelling unit or a primary dwelling unit with a secondary suite,
      ii) the detached garage or accessory building is located on the same property as that dwelling unit, and
      iii) the dwelling unit served by the detached garage or accessory building is the only major occupancy on the property.

(See A-9.10.15.5.(6) in Appendix A.)

3) Where the limiting distance is not more than 0.45 m, projecting roof soffits shall not be constructed above an exposing building face.

4) Where the limiting distance is more than 0.45 m, the face of roof soffits above an exposing building face are permitted to project to not less than 0.45 m from a property line.

5) Where roof soffits project closer than 1.2 m from a property line, they shall
   a) have no openings, and
   b) be protected by
      i) not less than 0.38 mm thick sheet steel conforming to CAN/CGSB-93.4, “Galvanized Steel and Aluminum-Zinc Alloy Coated Steel Siding, Soffits and Fascia, Prefinished, Residential,”
      ii) unvented aluminum conforming to CAN/CGSB-93.2-M, “Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use,”
      iii) not less than 12.7 mm thick gypsum board conforming to Sentence 9.29.5.1.(2), Clauses 9.29.5.2.(1)(e) and (f), and Articles 9.29.5.3. to 9.29.5.10.,
      iv) not less than 11 mm thick plywood conforming to Sentences 9.27.9.1.(1), 9.27.9.3.(1) and 9.27.9.4.(1),
      v) not less than 12.5 mm thick OSB or waferboard conforming to Sentences 9.27.11.1.(1) and 9.27.11.3.(1), or
3.2.3.7. Construction of Exposing Building Face

1) Except as provided in Sentences (2) and (3) and Articles 3.2.3.10. and 3.2.3.11., fire-resistance rating, construction and cladding for exposing building faces of buildings or fire compartments shall comply with Table 3.2.3.7.

Table 3.2.3.7.
Minimum Construction Requirements for Exposing Building Faces
Forming Part of Sentence 3.2.3.7.(1)

<table>
<thead>
<tr>
<th>Occupancy Classification of Building or Fire Compartment</th>
<th>Maximum Area of Unprotected Openings Permitted, % of Exposing Building Face Area</th>
<th>Minimum Required Fire-Resistance Rating</th>
<th>Type of Construction Required</th>
<th>Type of Cladding Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A, B, C, D, or Group F, Division 3</td>
<td>0 - 10</td>
<td>1 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 - 25</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible(1)</td>
</tr>
<tr>
<td></td>
<td>&gt; 25 - 50</td>
<td>45 min</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible(2)</td>
</tr>
<tr>
<td></td>
<td>&gt; 50 - &lt; 100</td>
<td>45 min</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>Group E, or Group F, Division 1 or 2</td>
<td>0 - 10</td>
<td>2 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 - 25</td>
<td>2 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible(1)</td>
</tr>
<tr>
<td></td>
<td>&gt; 25 - 50</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible(2)</td>
</tr>
<tr>
<td></td>
<td>&gt; 50 - &lt; 100</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
</tbody>
</table>

Notes to Table 3.2.3.7.:
(1) See Sentence (2).
(2) See Sentence (3).

2) Except as provided in Sentence (3), cladding for buildings or fire compartments where the maximum aggregate area of unprotected openings is more than 10% of the exposing building face need not be noncombustible where the wall assembly satisfies the criteria of Sentences 3.1.5.5.(2) and (3) when subjected to testing in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”

3) Cladding for buildings or fire compartments where the maximum aggregate area of unprotected openings is more than 25% but not more than 50% of the exposing building face need not be noncombustible where
   a) the limiting distance is not less than 5 m,
   b) the building or fire compartment is sprinklered throughout,
   c) the cladding
      i) conforms to Subsection 9.27.6., 9.27.7., 9.27.9., 9.27.10., or 9.27.11.,
      ii) is installed with or without furring members, over gypsum sheathing not less than 12.7 mm thick conforming to Articles 9.23.16.2. and 9.23.16.3. or over masonry (see Articles 3.1.11.2. and 9.10.16.2. for additional requirements for fire stopping of concealed spaces in wall assemblies), and
      iii) after conditioning in conformance with ASTM D 2898, “Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing,” has a flame-spread rating not more than 25 when tested in accordance with Sentence 3.1.12.1.(1), or
   d) the cladding
      i) conforms to Subsection 9.27.13.,
      ii) is installed with or without furring members over gypsum sheathing not less than 12.7 mm thick conforming to Articles 9.23.16.2. and 9.23.16.3. or
over masonry (see Articles 3.1.11.2. and 9.10.16.2. for additional requirements for fire stopping of concealed spaces in wall assemblies),

iii) has a flame-spread rating not more than 25 when tested in accordance with Sentence 3.1.12.1.(2), and

iv) does not exceed 2 mm in thickness exclusive of fasteners, joints and local reinforcements.

4) The construction requirements for the exposing building face stated in Sentence (1) shall be satisfied before increasing the unprotected opening area as permitted by Sentence 3.2.3.12.(1).

3.2.3.8. Protection of Exterior Building Face

1) Except as permitted by Sentence (3) and in addition to the requirements for buildings with a maximum aggregate area of unprotected openings more than 10% of the exposing building face as determined by Sentence 3.2.3.7.(1), foamed plastic insulation used in an exterior wall of a building more than 3 storeys in building height shall be protected on its exterior surface by

- a) concrete or masonry not less than 25 mm thick, or
- b) noncombustible material that complies with the criteria for testing and the conditions of acceptance stated in Sentence (2) when tested in conformance with CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials.”

2) The criteria for testing and the conditions of acceptance for a wall assembly to satisfy the requirements of Clause (1)(b) are that

- a) the fire exposed area of the wall assembly shall be not less than 9.3 m² and have no dimension less than 2.75 m,
- b) the exposed surface shall include typical vertical and horizontal joints,
- c) the test shall be continued for not less than 15 min and the standard time/temperature curve of the referenced standard shall be followed,
- d) the noncombustible protective material must remain in place and no through openings should develop that are visible when viewed normal to the face of the material, and
- e) the noncombustible protective material should not disintegrate in a manner that would permit fire to propagate along the surface of the test assembly.

3) The requirements of Sentence (1) are waived for wall assemblies that comply with the requirements of Article 3.1.5.5. (See Appendix A.)

3.2.3.9. Protection of Structural Members

1) Structural members, including beams, columns and arches, that are placed wholly or partly outside the exterior face of a building and are less than 3 m from the property line or the centre line of a public thoroughfare shall be protected from exterior fire exposure by fire protection having a fire-resistance rating not less than that required for their protection from interior fire exposure, as stated in Articles 3.2.2.20. to 3.2.2.83., but not less than 1 h.

2) Structural members of heavy timber construction, including beams, columns and arches, that are placed wholly or partly outside the exterior face of a building and are 3 m or more from the property line or the centre line of a public thoroughfare need not be covered with noncombustible cladding.
3.2.3.10. Unlimited Unprotected Openings

1) An exposing building face in a storage garage with all storeys constructed as open-air storeys is permitted to have unlimited unprotected openings provided it has a limiting distance not less than 3 m.

2) The exposing building face of a storey that faces a street and is at the same level as the street is permitted to have unlimited unprotected openings if the limiting distance is not less than 9 m.

3.2.3.11. Low Fire Load, One Storey Building

1) An exposing building face of a building of low-hazard industrial occupancy conforming to Article 3.2.2.82. is permitted to be of noncombustible construction without a fire-resistance rating provided
   a) it is not a loadbearing wall, and
   b) the limiting distance is not less than 3 m.

3.2.3.12. Area Increase for Unprotected Openings

1) Except as required by Sentence 3.2.3.7.(4), the maximum area of unprotected openings in any exposing building face of an unsprinklered building is permitted to be doubled if the openings are glazed with
   a) glass block conforming to the requirements of Article 3.1.8.14., or
   b) wired glass assemblies conforming to D-2.3.14. in Appendix D.

3.2.3.13. Protection of Exit Facilities

1) Except as required by Sentence (3) and as permitted by Sentence 3.4.4.3.(1), if the plane of an exterior wall of an exit enclosure forms an angle less than 135° with the plane of an exterior wall of the building it serves, and an opening in the exterior wall of the exit enclosure could be exposed to fire from an opening in the exterior wall of the building, the opening in either the exterior wall of the exit or the exterior wall of the building shall be protected in conformance with the requirements of Sentence (4) where the opening in the exterior wall of the building is within 3 m horizontally and
   a) less than 10 m below an opening in the exterior wall of the exit, or
   b) less than 2 m above an opening in the exterior wall of the exit.
   (See A-3.2.3.14.(1) in Appendix A.)

2) If an unenclosed exterior exit stair or ramp could be exposed to fire from an opening in the exterior wall of the building it serves, the opening in the exterior wall of the building shall be protected in conformance with the requirements of Sentence (4) where the opening in the exterior wall of the building is within 3 m horizontally and
   a) less than 10 m below the exit stair or ramp, or
   b) less than 5 m above the exit stair or ramp.

3) Except as permitted by Sentence 3.4.4.3.(1), if an exterior exit door in one fire compartment is within 3 m horizontally of an opening in another fire compartment and the exterior walls of these fire compartments intersect at an exterior angle of less than 135°, the opening shall be protected in conformance with the requirements of Sentence (4).

4) The opening protection referred to in Sentences (1), (2) and (3) shall consist of
   a) glass block conforming to the requirements of Article 3.1.8.14.,
   b) a wired glass assembly conforming to D-2.3.14. in Appendix D, or
   c) a closure conforming to the requirements of Subsection 3.1.8. and Articles 3.2.3.1. and 3.2.3.14.
3.2.3.14. Wall Exposed to Another Wall

1) Except as required by Sentences (3) and 3.2.3.13.(1) or as permitted by Sentence 3.2.3.19.(4), if an unprotected opening in an exterior wall of a fire compartment is exposed to an unprotected opening in the exterior wall of another fire compartment, and the planes of the 2 walls are parallel or at an angle less than $135^\circ$, measured from the exterior of the building, the unprotected openings in the 2 fire compartments shall be separated by a distance not less than $D_o$ where $D_o = D \times (\frac{\theta}{90})$ but in no case less than 1 m, and

\[ D = \text{the greater required limiting distance for the exposing building faces of the} \]
\[ \text{2 fire compartments, and} \]
\[ \theta = \text{the angle made by the intersecting planes of the exposing building faces of the} \]
\[ \text{2 fire compartments (in the case where the exterior walls are parallel and face each other,} \theta = 0^\circ).} \]

(See Appendix A.)

2) The exterior wall of each fire compartment referred to in Sentence (1) within the distance, $D_o$, shall have a fire-resistance rating not less than that required for the interior vertical fire separation between the fire compartment and the remainder of the building.

3) Sentence (1) does not apply to unprotected openings of fire compartments within a building that is sprinklered throughout, but shall apply to

a) unprotected openings of fire compartments on opposite sides of a firewall, and

b) exposure from unprotected openings of a fire compartment that is not protected by an automatic sprinkler system.

3.2.3.15. Wall Exposed to Adjoining Roof

1) Except as permitted by Sentence 3.2.3.19.(4), if a wall in a building is exposed to a fire hazard from an adjoining roof of a separate fire compartment that is not sprinklered in the same building, and the exposed wall contains windows within 3 storeys vertically and 5 m horizontally of the roof, the roof shall contain no skylights within 5 m of the exposed wall.

3.2.3.16. Protection of Soffits

1) Except as permitted by Sentences (3) and (4), where there is a common attic or roof space above more than 2 suites of residential occupancy or above more than 2 patients’ sleeping rooms, and the common attic or roof space projects beyond the exterior wall of the building, the soffit, and any opening in the soffit or other surface of the projection located within 2 500 mm of a window or door opening, shall be protected by

a) noncombustible material
   i) not less than 0.38 mm thick, and
   ii) having a melting point not below 650°C,

b) plywood not less than 11 mm thick,

c) strandboard or waferboard not less than 12.5 mm thick, or

d) lumber not less than 11 mm thick.

2) The soffit protection required by Sentence (1) shall extend the full width of the opening and to not less than 1 200 mm on either side of it, and shall apply to all openings through the soffit within this limit.

3) If an eave overhang is completely separated from the remainder of the attic or roof space by fire stopping, the requirements of Sentence (1) do not apply.

4) The protection required by Sentence (1) for projections is permitted to be omitted if

a) the fire compartments behind the window and door openings are sprinklered in accordance with Article 3.2.5.13., and

b) all rooms, including closets and bathrooms, having openings in the wall beneath the soffit are sprinklered, notwithstanding exceptions permitted in the standards referenced in Article 3.2.5.13. for the installation of automatic sprinkler systems.
Table 3.2.5.8.
Building Limits without Standpipe Systems
Forming Part of Sentence 3.2.5.8.(1)

<table>
<thead>
<tr>
<th>Occupancy Classification</th>
<th>Building Area, m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 storey</td>
</tr>
<tr>
<td>Group A</td>
<td>2 500</td>
</tr>
<tr>
<td>Group C</td>
<td>2 000</td>
</tr>
<tr>
<td>Group D</td>
<td>4 000</td>
</tr>
<tr>
<td>Group F, Division 2</td>
<td>1 500</td>
</tr>
<tr>
<td>Group F, Division 3</td>
<td>3 000</td>
</tr>
</tbody>
</table>

3.2.5.9. Standpipe System Design

1) Except as required or permitted by Sentences (2) to (6) and Articles 3.2.5.10., 3.2.5.11. and 3.2.5.12., the design, construction, installation and testing of a standpipe system shall conform to NFPA 14, “Installation of Standpipe and Hose Systems.”

2) A dry standpipe that is not connected to a water supply shall not be considered as fulfilling the requirements of this Article.

3) If more than one standpipe is provided, the total water supply need not be more than 30 L/s.

4) A standpipe need not be installed in a storage garage conforming to Article 3.2.2.8 provided the building is not more than 15 m high.

5) The residual water pressure at the design flow rate at the topmost hose connection of a standpipe system that is required to be installed in a building is permitted to be less than 690 kPa provided:
   a) the building is sprinklered throughout,
   b) the water supply at the base of the sprinkler riser is capable of meeting, without a fire pump, the design flow rate and pressure demand of the sprinkler system, including the inside and outside hose allowance, and
   c) fire protection equipment is available to deliver, by means of the fire department connection, the full demand flow rate at a residual water pressure of 690 kPa at the topmost hose connection of the standpipe system. (See Appendix A.)

6) A fire department connection shall be provided for every standpipe system.

3.2.5.10. Hose Connections

1) Hose connections shall be located in exits, in accordance with NFPA 14, “Installation of Standpipe and Hose Systems.”

2) Hose connections are not required within a floor area.

3) Hose connections shall be provided with sufficient clearance to permit the use of a standard fire department hose key.

4) Except as permitted by Sentences (5) and (6), 65 mm diam hose connections shall be installed in a standpipe system.

5) Hose connections for 65 mm diam hose are not required in a building that is not sprinklered and is not more than 25 m high, measured between grade and the ceiling level of the top storey.

6) Hose connections for 65 mm diam hose are permitted to be 38 mm diam in a sprinklered building having a building area not more than 4 000 m² and not more than 25 m high, measured between grade and the ceiling level of the top storey.
3.2.5.11. Hose Stations and Cabinets

1) Hose stations for 38 mm diam hose shall be installed for a standpipe system in a building that is not sprinklered throughout.

2) Hose stations for a 38 mm diam hose shall be installed for a standpipe system within every floor area that is not sprinklered throughout. (See Appendix A.)

3) Hose stations shall be located in the floor area within 5 m of exits and at other locations to provide coverage of the entire floor area.

4) A hose station located on one side of a horizontal exit shall be considered to serve only the floor area on that side of the horizontal exit.

5) A hose cabinet shall be located so that its door, when fully opened, will not obstruct the required width of a means of egress.

6) Except as permitted by Sentence (7), a hose cabinet shall be provided with a glass viewing panel not less than 5 mm thick and not less than 70% of the door area.

7) A hose cabinet located in a part of a floor area and used only for industrial occupancy may have a solid door with no glass viewing panel provided
   a) the door is painted red, and
   b) the words “FIRE HOSE” are
      i) in raised lettering on the front of the door,
      ii) painted in white, and
      iii) at least 100 mm high with 12 mm strokes.

8) Hose cabinets with 38 mm diameter hose are to be installed in a building that
   a) is not required by Article 3.2.1.7. to have an automatic fire suppression system, or
   b) is required by Article 3.2.1.7. to have an automatic fire suppression system and the system does not comply with
      i) NFPA 13, “Installation of Sprinkler Systems,” and
      ii) Sentences 3.2.4.9.(2) and (3).

9) Where hose cabinets with 38 mm diameter hose are not required by Sentence (8) in a building required to have an automatic fire suppression system,
   a) the standpipe system shall be equipped with hose stations having both
      65 mm and 38 mm diameter hose connections and valves, and
   b) hose stations shall be located so that all parts of the building are within 9 m of a hose nozzle when attached to not more than 30 m of connected hose.

10) Fittings for inlets and outlets for firefighting use shall conform to the Alberta Fire Code 2006.

3.2.5.12. Trouble Signal Annunciation for Valves

1) If a fire alarm system in a building is required to have an annunciator by Sentence 3.2.4.8.(1), except for hose valves, all valves controlling water supplies in a standpipe system shall be equipped with an electrically supervised switch for transmitting a trouble signal to the annunciator in the event of movement of the valve handle.

3.2.5.13. Automatic Sprinkler Systems

1) Except as permitted by Sentences (2), (3) and (4), an automatic sprinkler system shall be designed, constructed, installed and tested in conformance with NFPA 13, “Installation of Sprinkler Systems.” (See Appendix A.)

2) Except as required by Sentences (10) and (11), NFPA 13R, “Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height,” is permitted to be used for the design, construction, installation and testing of an automatic sprinkler system installed in a building of residential occupancy throughout, not more than 4 storeys in building height conforming to Articles 3.2.2.42. to 3.2.2.48.
3) Instead of the requirements of Sentence (1), NFPA 13D, “Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes,” is permitted to be used for the design, construction, installation and testing of an automatic sprinkler system installed in a building of residential occupancy throughout that contains not more than 2 dwelling units.

4) If a building contains fewer than 9 sprinklers, the water supply for these sprinklers is permitted to be supplied from the domestic water system for the building provided the required flow for the sprinklers can be met by the domestic system.

5) If a water supply serves both an automatic sprinkler system and a system serving other equipment, control valves shall be provided so that either system can be shut off independently.

6) Notwithstanding the requirements of the standards referenced in Sentences (1) and (2) regarding the installation of automatic sprinkler systems, sprinklers shall not be omitted in any room or closet in the storey immediately below a roof assembly. (See Appendix A.)

7) Fast response sprinklers shall be installed in residential occupancies and in care or detention occupancies. (See Appendix A.)

8) Sprinklers in elevator machine rooms shall have a temperature rating not less than that required for an intermediate temperature classification and shall be protected against physical damage. (See Appendix A.)

9) If a sprinklered building receives its water supply for the sprinkler system from sources other than a piped municipal water system, external provision shall be made for the fire department to use the water supply.

10) Notwithstanding the requirements of Sentence (2) regarding the installation of automatic sprinkler systems, in buildings of combustible construction, sprinklers shall be required in
   a) porches and balconies,
   b) public corridors,
   c) stairs that are open and attached,
   d) attics and floor/ceiling spaces,
   e) penthouse equipment rooms,
   f) elevator machine rooms,
   g) concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment,
   h) crawl spaces,
   i) closets or storage rooms on exterior balconies, and
   j) other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired appliances.

11) A concealed space mentioned in Sentence (10) need not require sprinkler protection provided the concealed space meets one of the criteria described in Clause 8.14.1.2. of NFPA 13, “Installation of Sprinkler Systems.”

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3.2.5.14. Combustible Sprinkler Piping

1) Combustible sprinkler piping shall be used only for wet systems in residential occupancies and other light-hazard occupancies. (See Appendix A.)

2) Combustible sprinkler piping shall meet the requirements of ULC/ORD-C199P, “Combustible Piping for Sprinkler Systems.”

3) Except as permitted by Sentence (5), combustible sprinkler piping shall be separated from the area served by the sprinkler system, and from any other fire compartment, by ceilings, walls, or soffits consisting of, as a minimum,
   a) lath and plaster,
   b) gypsum board not less than 9.5 mm thick,
   c) plywood not less than 13 mm thick, or
   d) a suspended membrane ceiling with
3.2.5.15. Sprinklered Service Space

1) An automatic sprinkler system shall be installed in a service space referred to in Sentence 3.2.1.1.(8) if flooring for access within the service space is other than catwalks.

2) The sprinkler system required by Sentence (1) shall be equipped with waterflow detecting devices, with each device serving not more than one storey.

3) The waterflow detecting devices required by Sentence (2) shall be connected to the fire alarm system, to
   a) initiate an alert signal in a 2 stage system or an alarm signal in a single stage system, and
   b) indicate separately on the fire alarm system annunciator the actuation of each device.

3.2.5.16. Fire Department Connections

1) The fire department connection for a standpipe system shall be located so that the distance from the fire department connection to a hydrant is not more than 45 m and is unobstructed.

2) The fire department connection for an automatic sprinkler system shall be located so that the distance from the fire department connection to a hydrant is not more than 45 m and is unobstructed.

3) The fire department connection referred to in Sentences (1) and (2) shall be located no closer than 3 m and no further than 15 m from the principal entrance to the building.

3.2.5.17. Portable Fire Extinguishers

1) Portable extinguishers shall be provided and installed in conformance with the Alberta Fire Code 2006.

2) In a Group B, Division 1 major occupancy, portable fire extinguishers are permitted to be located in secure areas, or in lockable cabinets provided
   a) identical keys for all cabinets are located at all supervisory or security stations, or
   b) electrical remote release devices are provided and are connected to an emergency power supply.

3) Except as permitted by Sentence (2), in assembly occupancies, business and personal services occupancies, care or detention occupancies, mercantile occupancies and residential occupancies, each portable fire extinguisher shall be located in a cabinet that
   a) is not lockable,
   b) is not obscured or obstructed from view, and
   c) has a door that, if the door is not glazed,
      i) is painted red, and
      ii) is clearly marked with the words “FIRE EXTINGUISHER” in raised white lettering on the front with letters not less than 100 mm high and with 12 mm strokes.
3.2.5.18. Protection from Freezing

1) Equipment forming part of a fire protection system shall be protected from freezing if
   a) it could be adversely affected by freezing temperatures, and
   b) it is located in an unheated area.

3.2.5.19. Fire Pumps

1) If a fire pump is installed, it shall be
   a) installed in accordance with the requirements of NFPA 20, “Installation of Stationary Pumps for Fire Protection,”
   b) tested to ensure satisfactory operation in conformance with NFPA 20, “Installation of Stationary Pumps for Fire Protection,” and
   c) provided with emergency power meeting the requirements of Article 3.2.7.9.
(See Appendix A.)
2) A platform-equipped passenger-elevating device used in a barrier-free path of travel shall conform to the elevating devices regulations made pursuant to the Safety Codes Act.

3.8.3.6. Spaces in Seating Area

1) Spaces designated for use by persons using wheelchairs referred to in Sentence 3.8.2.1.(3) shall be
   a) clear and level, or level with easily removable seating,
   b) not less than 900 mm wide and 1 525 mm long to allow a person using a wheelchair to enter from a side approach and 1 220 mm long where the person using a wheelchair enters from the front or rear of the space,
   c) arranged so that at least 2 designated spaces are side by side,
   d) located adjoining a barrier-free path of travel without infringing on egress from any row of seating or any aisle requirements, and
   e) situated, as part of the designated seating plan, to provide a choice of viewing locations and a clear view of the event taking place.

3.8.3.7. Assistive Listening Devices

(See Appendix A.)

1) Except as permitted by Sentence (2), in a building of assembly occupancy, all assembly areas with an area of more than 100 m² shall be equipped with an assistive listening system encompassing the entire seating area.

2) If the assistive listening system required by Sentence (1) is an induction loop system, only half the seating area in the room need be encompassed.

3.8.3.8. Water Closet Stalls

1) A water closet stall or enclosure in a washroom required by Article 3.8.2.3. to be barrier-free shall
   a) be designed to allow a person using a wheelchair to turn in an open space that has a diameter of not less than 1 500 mm,
   b) be equipped with a door that
      i) can be latched from the inside with a closed fist,
      ii) provides a clear opening of not less than 800 mm wide with the door in the open position,
      iii) swings outward, unless sufficient room is provided within the stall or enclosure to allow the door to be closed without interfering with the person using a wheelchair (see Appendix A),
      iv) is provided with a door pull on the inside not less than 140 mm long located so that its midpoint is not less than 200 mm and not more than 300 mm from the hinged side of the door and not less than 900 mm and not more than 1 000 mm from the floor (see Appendix A), and
      v) is provided with a door pull on the outside, near the latch side of the door,
   c) have a water closet located so that its centreline is not less than 460 mm and not more than 480 mm from an adjacent side wall on one side,
   d) be equipped with knurled finished grab bars as described in Sentence (2),
   e) be equipped with a coat hook mounted not more than 1 400 mm above the floor on a side wall and projecting not more than 50 mm from the wall, and
   f) have a clearance of not less than 1 700 mm between the outside of the stall face and the face of an in-swinging washroom door and 1 400 mm between the outside of the stall face and any wall-mounted fixture.
2) A grab bar required by Sentence (1) shall
   a) be mounted
      i) horizontally on the wall beside the water closet, and be not less than 1 200 mm in length, located with its centerline between 300 mm and 330 mm above the height of the water closet seat and with its midpoint located in line with the front edge of the water closet, or
      ii) on the wall beside the water closet and have a horizontal portion 600 mm in length with a 600 mm extension extending upwards to the front and away from the horizontal portion at an angle of 60° to the horizontal with the centreline of the horizontal portion between 300 mm and 330 mm above the height of the water closet seat and the intersection of the horizontal and sloping portions located in line with the front edge of the water closet,
   b) be mounted horizontally on the wall behind the water closet, if the water closet does not have an attached water tank, centred on the toilet bowl, and be not less than 600 mm in length,
   c) be installed to resist a load not less than 1.3 kN applied vertically or horizontally,
   d) be not less than 30 mm and not more than 40 mm in diameter, and
   e) have a clearance not less than 35 mm and not more than 45 mm from the wall.
(See Appendix A.)

3.8.3.9. Water Closets
   1) A water closet for a person with physical disabilities shall
      a) be equipped with a seat located at not less than 400 mm and not more than 460 mm above the floor,
      b) be equipped with hand-operated flushing controls that are easily accessible to a wheelchair user or be automatically operable,
      c) be equipped with a seat lid or other back support, and
      d) not have a spring-actuated seat.
(See Appendix A.)

3.8.3.10. Urinals
   1) If urinals are provided in a barrier-free washroom, at least one urinal shall be
      a) wall mounted, with the rim located between 488 mm and 512 mm above the floor, or
      b) floor mounted, with the rim level with the finished floor.
   2) The urinal described in Sentence (1) shall have
      a) a clear width of approach of 800 mm centred on the urinal,
      b) no step in front, and
      c) installed on each side a vertically mounted grab bar that is not less than 300 mm long, with its centreline 1 000 mm above the floor, and located not more than 380 mm from the centreline of the urinal.
(See Appendix A.)

3.8.3.11. Lavatories
   1) A barrier-free washroom shall be provided with a lavatory that
      a) is located so that the distance between the centreline of the lavatory and the side wall is not less than 460 mm,
      b) has a rim height not more than 865 mm above the floor,
Table 4.1.6.2.
Importance Factor for Snow Load, $I_S$
Forming Part of Sentence 4.1.6.2.(1)

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<tr>
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</tr>
<tr>
<td>High</td>
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</tr>
<tr>
<td>Post-disaster</td>
<td>1.25</td>
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</tbody>
</table>

2) The basic roof snow load factor, $C_b$, shall be 0.8, except that for large roofs it shall be
   a) $1.0 - (30/l_c)^2$, for roofs with $C_w = 1.0$ and $l_c$ greater than or equal to 70 m, or
   b) $1.3 - (140/l_c)^2$, for roofs with $C_w = 0.75$ or 0.5 and $l_c$ greater than or equal to 200 m,
   where
   - $l_c$ = characteristic length of the upper or lower roof, defined as $2w - w^2/l$,
   - $w$ = smaller plan dimension of the roof, in metres,
   - $l$ = larger plan dimension of the roof, in metres.

3) Except as provided for in Sentence (4), the wind exposure factor, $C_w$, shall be 1.0.

4) For buildings in the Low and Normal Importance Categories as set out in Table 4.1.2.1., the wind exposure factor given in Sentence (3) may be reduced to 0.75, or to 0.5 in exposed areas north of the treeline, where
   a) the building is exposed on all sides to wind over open terrain as defined in Clause 4.1.7.1.(5)(a), and is expected to remain so during its life,
   b) the area of roof under consideration is exposed to the wind on all sides with no significant obstructions on the roof, such as parapet walls, within a distance of at least 10 times the difference between the height of the obstruction and $C_bC_wS_s/\gamma$ metres, where $\gamma$ is the unit weight of snow on roofs (see Appendix A), and
   c) the loading does not involve the accumulation of snow due to drifting from adjacent surfaces.

5) Except as provided for in Sentences (6) and (7), the slope factor, $C_s$, shall be
   a) 1.0 where the roof slope, $\alpha$, is equal to or less than $30^\circ$,
   b) $(70^\circ - \alpha)/40^\circ$ where $\alpha$ is greater than $30^\circ$ but not greater than $70^\circ$, and
   c) 0 where $\alpha$ exceeds $70^\circ$.

6) The slope factor, $C_s$, for unobstructed slippery roofs where snow and ice can slide completely off the roof shall be
   a) 1.0 where the roof slope, $\alpha$, is equal to or less than $15^\circ$,
   b) $(60^\circ - \alpha)/45^\circ$ where $\alpha$ is greater than $15^\circ$ but not greater than $60^\circ$, and
   c) 0 where $\alpha$ exceeds $60^\circ$.

7) The slope factor, $C_s$, shall be 1.0 when used in conjunction with shape factors for increased snow loads as given in Clauses (8)(b) and (e).

8) The shape factor, $C_a$, shall be 1.0, except that where appropriate for the shape of the roof, it shall be assigned other values that account for
   a) non-uniform snow loads on gable, arched or curved roofs and domes,
   b) increased snow loads in valleys,
   c) increased non-uniform snow loads due to snow drifting onto a roof that is at a level lower than other parts of the same building or at a level lower than another building within 5 m of it,
d) increased non-uniform snow loads on areas adjacent to roof projections, such as penthouses, large chimneys and equipment, and
e) increased snow or ice loads due to snow sliding or meltwater draining from adjacent roofs.

4.1.6.3. Full and Partial Loading

1) A roof or other building surface and its structural members subject to loads due to snow accumulation shall be designed for the specified load given in Sentence 4.1.6.2.(1), distributed over the entire loaded area.

2) In addition to the distribution mentioned in Sentence (1), flat roofs and shed roofs, gable roofs of 15° slope or less, and arched or curved roofs with rise to span ratios not more than 1/10 shall be designed for the specified uniform snow load indicated in Sentence 4.1.6.2.(1), which shall be calculated using $C_a = 1.0$, distributed on any one portion of the loaded area and half of this load on the remainder of the loaded area, in such a way as to produce the most critical effects on the member concerned. (See Appendix A.)

4.1.6.4. Specified Rain Load

1) Except as provided in Sentence (4), the specified load, $S$, due to the accumulation of rainwater on a surface whose position, shape and deflection under load make such an accumulation possible, is that resulting from the one-day rainfall determined in conformance with Subsection 1.1.3. and applied over the horizontal projection of the surface and all tributary surfaces. (See Appendix A.)

2) The provisions of Sentence (1) apply whether or not the surface is provided with a means of drainage, such as rainwater leaders.

3) Except as provided in Sentence 4.1.6.2.(1), loads due to rain need not be considered to act simultaneously with loads due to snow. (See Appendix A.)

4) Where scuppers are provided and where the position, shape and deflection of the loaded surface make an accumulation of rainwater possible, the loads due to rain shall be the lesser of either the one-day rainfall determined in conformance with Subsection 1.1.3. or a depth of rainwater equal to 30 mm above the level of the scuppers, applied over the horizontal projection of the surface and tributary areas.

4.1.7. Wind Load

4.1.7.1. Specified Wind Load

1) The specified external pressure or suction due to wind on part or all of a surface of a building shall be calculated using the formula

$$p = I_W q C_e C_g C_p$$

where

- $p$ = specified external pressure acting statically and in a direction normal to the surface, either as a pressure directed towards the surface or as a suction directed away from the surface,
- $I_W$ = importance factor for wind load, as provided in Table 4.1.7.1.,
- $q$ = reference velocity pressure, as provided in Sentence (4),
- $C_e$ = exposure factor, as provided in Sentence (5),
- $C_g$ = gust effect factor, as provided in Sentence (6), and
- $C_p$ = external pressure coefficient, averaged over the area of the surface considered.

(See Appendix A.)
Division B

Part 7
Plumbing Services and Health

Section 7.1. General

7.1.1. Scope

7.1.1.1. Scope

1) The scope of this Part shall be as described in Subsection 1.3.3. of Division A.

7.1.1.2. Application

1) This Part applies to the design, construction, extension, alteration, renewal or repair of:
   a) plumbing systems,
   b) swimming pools, water theme parks, steam rooms, sauna rooms and beaches,
   c) non-flammable medical gas piping systems,
   d) food establishments and personal service facilities,
   e) child care institutions and day care facilities,
   f) dairy manufacturing plants,
   g) abattoirs and secondary meat processing plants,
   h) laboratories using biological agents, and
   i) cemeteries and related buildings.

7.1.2. Required Facilities

7.1.2.1. All Buildings Except Dwelling Units

1) Buildings shall be equipped with plumbing facilities as required in Section 7.2. and Article 3.8.2.3.

7.1.2.2. Dwelling Units

1) Dwelling units shall be equipped with plumbing facilities as required in Section 7.2.

7.1.3. Definitions

7.1.3.1. Defined Terms

1) Words that appear in italics are defined in Article 1.4.1.2. of Division A.

7.1.4. Height of Rooms

7.1.4.1. Room and Space Height

1) The height of every room and space shall be sufficient so that the ceiling or ceiling fixtures do not obstruct movement or activities below.

2) The unobstructed height in dwelling units shall conform to Subsection 9.5.3.
7.1.5. Windows

7.1.5.1. General

1) Except as permitted in Article 3.3.3.8., every sleeping room in a building and every principal room in a dwelling unit, including living rooms and dining rooms or combinations thereof, shall be provided with windows conforming to Subsection 9.7.1.

7.1.5.2. Insect Screens

1) All openable windows in a dwelling unit shall be screened to protect against the entry of insects.

7.1.6. Appliances in Sleeping Rooms

7.1.6.1. General

1) Cooking appliances installed in a sleeping room shall be of the electrical type.

Section 7.2. Plumbing Facilities

7.2.1. General

7.2.1.1. Conformance with Regulations

1) Every plumbing system and private sewage disposal system shall be designed and installed in conformance with the plumbing and drainage regulations made pursuant to the Safety Codes Act.

7.2.1.2. Plumbing Systems and Fixtures

1) Every building shall be provided with, or have accessible to its occupants, a supply of potable water, a sanitary drainage system and plumbing fixtures.

2) If the installation of a sanitary drainage system as required in Sentence (1) is not possible because of the absence of a water supply, outdoor privies complying with Subsection 7.2.3., chemical toilets or other means for the disposal of human waste shall be provided.

3) A building shall have piping for cold water connected to every
   a) water closet, and
   b) urinal.

4) Where a piped water supply is available, a building shall have piping for hot and cold water connected to every
   a) kitchen sink,
   b) lavatory,
   c) bathtub,
   d) shower,
   e) slop sink, and
   f) laundry area.

5) Where a piped water supply is available, a suite of residential occupancy shall have
   a) a supply of hot water, and
   b) at least one
      i) kitchen sink,
      ii) bathtub or shower,
      iii) lavatory, and
      iv) water closet.

6) Sentences (3) and (4) do not apply to a building of low human occupancy. (See Appendix A-7.2.1.2.(6).)

7) Every plumbing fixture shall be piped to the plumbing system.
8) Non-potable water shall not be connected to plumbing fixtures that provide water for human consumption, cooking, cleaning, showering or bathing.

9) Except for dwelling units and day care facilities, a building of residential occupancy or care or detention occupancy shall have available to its occupants at least one bath or shower, water closet and lavatory.
9.10.12.3. Exterior Walls Meeting at an Angle

1) Except as provided in Articles 9.9.4.5. and 9.10.14.5., and in sprinklered buildings, where exterior walls of a building meet at an external angle of 135° or less, the horizontal distance from an opening in one wall to an opening in the other wall shall be not less than 1.2 m, if the openings are in different fire compartments.

2) The exterior wall of each fire compartment referred to in Sentence (1) within the 1.2 m distance shall have a fire-resistance rating not less than that required for the interior vertical fire separation between the compartment and the remainder of the building.

9.10.12.4. Protection of Soffits

1) This Article applies to the portion of any soffit enclosing a projection that is
   a) less than 2.5 m vertically above a window or door, and
   b) less than 1.2 m from either side of the window or door.
   (See Appendix A.)

2) Except as provided in Sentences (4) and (5), the construction described in Sentence (1) shall have no unprotected openings and shall be protected in accordance with Sentence (3), where the soffit encloses
   a) a common attic or roof space that spans more than 2 suites of residential occupancy and projects beyond the exterior wall of the building,
   b) a floor space where an upper storey projects beyond the exterior wall of a lower storey and a fire separation is required at the floor between the two, or
   c) a floor space where an upper storey projects beyond the exterior wall of a lower storey, and the projection is continuous across a vertical fire separation separating two suites.

3) Protection required by Sentence (2) shall be provided by
   a) noncombustible material having a minimum thickness of 0.38 mm and a melting point not below 650°C,
   b) not less than 12.7 mm thick gypsum soffit board or gypsum wallboard installed according to ASTM C 840, “Application and Finishing of Gypsum Board,”
   c) not less than 11 mm thick plywood,
   d) not less than 12.5 mm thick OSB or waferboard, or
   e) not less than 11 mm thick lumber.
   (See Appendix A.)

4) In the case of a soffit described in Sentence (1) that is at the edge of an attic or roof space and completely separated from the remainder of that attic or roof space by fire stopping, the requirements in Sentence (2) do not apply.

5) Where all suites spanned by a common attic or roof space or situated above or below the projecting floor are sprinklered, the requirements of Sentence (2) do not apply, provided that all rooms, including closets and bathrooms, having openings in the wall beneath the soffit are sprinklered, notwithstanding any exceptions in the sprinkler standards referenced in Article 3.2.5.13.

9.10.12.5. Protection of Balconies

(See Appendix A.)

1) This Article applies to buildings that
   a) contain more than 2 suites of residential occupancy,
   b) are not less than 2 storeys in building height,
   c) have dwelling units located in whole or in part above other dwelling units, and
   d) are not sprinklered throughout.

2) The protection required by Sentences (3) and (4) shall be provided by cladding that conforms to
   a) Subsection 9.27.8. or 9.27.12.,
   b) Section 9.28., or
   c) one of the methods described in Clause 3.2.3.7.(3)(c) or (d).
3) Balcony walls shall be protected by one of the methods mentioned in Sentence (2) from the floor level of the balcony to the underside of the balcony or roof assembly above for:
   a) the full width and depth of the balcony, and
   b) 1.2 m on either side of the balcony.

4) Ceiling and roof assemblies above balconies mentioned in Sentence (3) shall be protected by one of the methods mentioned in Sentence (2).

9.10.13. Doors, Dampers and Other Closures in Fire Separations

9.10.13.1. Closures

1) Except as provided in Article 9.10.13.2., openings in required fire separations shall be protected with a closure conforming to Table 9.10.13.1. and shall be installed in conformance with Chapters 2 to 14 of NFPA 80, “Fire Doors and Fire Windows,” unless otherwise specified herein. (See also Article 9.10.3.1.)
Table 9.10.13.1.
Fire-Protection Ratings for Closures
Forming Part of Sentence 9.10.13.1.(1)

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<tr>
<th>Required Fire-Resistance Rating of Fire Separation</th>
<th>Minimum Fire-Protection Rating of Closure</th>
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<td>30 or 45 min</td>
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<td>1 h</td>
<td>45 min(1)</td>
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<tr>
<td>1.5 h</td>
<td>1 h</td>
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<td>2 h</td>
<td>1.5 h</td>
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<tr>
<td>3 h</td>
<td>2 h</td>
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<tr>
<td>4 h</td>
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</tr>
</tbody>
</table>

Notes to Table 9.10.13.1.:
(1) See Article 9.10.13.2.

9.10.13.2. **Solid Core Wood Door as a Closure**

1) A 45 mm thick solid core wood door is permitted to be used where a minimum fire-protection rating of 20 min is permitted or between a public corridor and a suite provided that the door conforms to CAN4-S113, “Wood Core Doors Meeting the Performance Required by CAN4-S104-77 for Twenty Minute Fire Rated Closure Assemblies.” (See Appendix A.)

2) Doors described in Sentence (1) shall have not more than a 6 mm clearance beneath and not more than 3 mm at the sides and top.

9.10.13.3. **Unrated Wood Door Frames**

1) Doors required to provide a 20 min fire-protection rating or permitted to be 45 mm solid core wood shall be mounted in a wood frame of not less than 38 mm thickness where the frame has not been tested and rated.

9.10.13.4. **Doors as a Means of Egress**

1) Doors forming part of an exit or a public means of egress shall conform to Subsection 9.9.6. in addition to this Subsection.

9.10.13.5. **Wired Glass as a Closure**

1) Wired glass conforming to Article 9.7.3.1. which has not been tested in accordance with Article 9.10.3.1. is permitted as a closure in a vertical fire separation required to have a fire-resistance rating of not more than 1 h provided such glass is not less than 6 mm thick and is mounted in conformance with Sentence (2).

2) Wired glass described in Sentence (1) shall be mounted in fixed steel frames having a metal thickness of not less than 1.35 mm and a glazing stop of not less than 20 mm on each side of the glass.

3) Individual panes of glass described in Sentence (1) shall not exceed 0.8 m² in area or 1.4 m in height or width, and the area of glass not structurally supported by mullions shall not exceed 7.5 m².

9.10.13.6. **Steel Door Frames**

1) Steel door frames forming part of a closure in a fire separation, including anchorage requirements, shall conform to CAN4-S105-M, “Fire Door Frames Meeting the Performance Required by CAN4-S104.”

9.10.13.7. **Glass Block as a Closure**

1) Glass block that has not been tested in accordance with Article 9.10.3.1. is permitted as a closure in a fire separation required to have a fire-resistance rating of not more than 1 h. (See Sentence 9.10.14.4.(2) and Article 9.20.9.6.)
9.10.13.8. **Maximum Size of Opening**

1) The size of an opening in an interior fire separation, even where protected with a closure, shall not exceed 11 m², with no dimension greater than 3.7 m, when the fire compartments on both sides of the fire separation are not sprinklered.

2) The size of an opening in an interior fire separation, even where protected with a closure, shall not exceed 22 m², with no dimension greater than 6 m, when the fire compartments on both sides of the fire separation are sprinklered.

9.10.13.9. **Door Latch**

1) Every swing type door in a fire separation shall be equipped with a latch.

9.10.13.10. **Self-closing Device**

1) Except as described in Sentence (2), every door in a fire separation shall have a self-closing device.

2) Self-closing doors are not required between public corridors and suites in business and personal services occupancies, except in dead-end corridors.

9.10.13.11. **Hold-Open Devices**

1) Where hold-open devices are used on doors in required fire separations, they shall be installed in accordance with Article 3.1.8.12.

2) Doors located in firewalls in residential occupancies shall be equipped with acceptable hold-open devices installed in accordance with Sentence (1).

9.10.13.12. **Service Room Doors**

1) Swing-type doors shall open into service rooms containing fuel-fired equipment where such doors lead to public corridors or rooms used for assembly but shall swing outward from such rooms in all other cases.

9.10.13.13. **Fire Dampers**

1) Except as permitted by Sentences (2) to (5) and Sentence 9.10.5.1.(4), a duct that penetrates an assembly required to be a fire separation with a fire-resistance rating shall be equipped with a fire damper in conformance with Articles 3.1.8.4. and 3.1.8.9.

2) A fire damper is not required where a noncombustible branch duct pierces a required fire separation provided the duct
   a) has a melting point not below 760°C,
   b) has a cross-sectional area less than 130 cm², and
   c) supplies only air-conditioning units or combined air-conditioning and heating units discharging air at not more than 1.2 m above the floor.

3) A fire damper is not required where a noncombustible branch duct pierces a required fire separation around an exhaust duct riser in which the airflow is upward provided
   a) the melting point of the branch duct is not below 760°C,
   b) the branch duct is carried up inside the riser not less than 500 mm, and
   c) the exhaust duct is under negative pressure as described in Article 9.10.9.18.

4) Noncombustible ducts that penetrate a fire separation separating a vertical service space from the remainder of the building need not be equipped with a fire damper at the fire separation provided
   a) the ducts have a melting point above 760°C, and
   b) each individual duct exhausts directly to the outside at the top of the vertical service space.

5) A duct serving commercial cooking equipment and piercing a required fire separation need not be equipped with a fire damper at the fire separation. (See also Article 6.2.2.6.)
9.10.13.14. Fire Stop Flaps

1) Fire stop flaps in ceiling membranes required in Sentence 9.10.5.1.(4) shall be constructed in conformance with Appendix D, Fire-Performance Ratings.

9.10.13.15. Doors between Garages and Dwelling Units

1) A door between an attached or built-in garage and a dwelling unit shall be tight fitting and weather-stripped to provide an effective barrier against the passage of gas and exhaust fumes and shall be fitted with a self-closing device.

2) A doorway between an attached or built-in garage and a dwelling unit shall not be located in a room intended for sleeping.

9.10.13.16. Door Stops

1) Where a door is installed so that it may damage the integrity of a fire separation if its swing is unrestricted, door stops shall be installed to prevent such damage.


9.10.14.1. Application

1) This Subsection applies to buildings other than those to which Subsection 9.10.15. applies.

9.10.14.2. Area and Location of Exposing Building Face

1) The area of an exposing building face shall be
   a) taken as the exterior wall area facing in one direction on any side of a building, and
   b) calculated as
      i) the total area measured from the finished ground level to the uppermost ceiling, or
      ii) the area for each fire compartment, where a building is divided into fire compartments by fire separations with fire-resistance ratings not less than 45 min.

2) For the purpose of using Table 9.10.14.4.A. to determine the maximum aggregate area of unprotected openings in an irregularly shaped or skewed exterior wall, the location of the exposing building face shall be taken as a vertical plane located so that there are no unprotected openings between the vertical plane and the line to which the limiting distance is measured. (See A-3.2.3.1.(4) in Appendix A.)

3) For the purpose of using Table 9.10.14.5. to determine the required type of construction, cladding and fire-resistance rating for an irregularly shaped or skewed exterior wall,
   a) the location of the exposing building face shall be taken as a vertical plane located so that no portion of the actual exposing building face is between the vertical plane and the line to which the limiting distance is measured, and
   b) the value for the maximum area of unprotected openings (see second column of Table 9.10.14.5.) shall be determined using the limiting distance measured from the location described in Clause (a). (See A-3.2.3.1.(4) in Appendix A.)

4) The limiting distance for an exposing building face that includes projections such as bow windows, bay windows or flue chases of combustible construction shall be measured from the face of the projection nearest the line to which the limiting distance is measured.
9.10.14.3. Limiting Distance where Firefighting Facilities are Inadequate

1) Except for the purpose of applying Sentences 9.10.14.4.(2), (8) and (9), and Sentence 9.10.14.5.(8), a limiting distance equal to half the actual limiting distance shall be used as input to the requirements of this Subsection, where:

a) the time from receipt of notification of a fire by the fire department until the first fire department vehicle capable of beginning suppression activities arrives at the building is greater than 10 minutes in not less than 10% of all calls to the building, and

b) any storey in the building is not sprinklered.

(See A-3.2.3.1. and A-3.2.3.1.(8) in Appendix A.)

9.10.14.4. Openings in Exposing Building Face

1) Except as provided in Sentences (6) to (9), the maximum aggregate area of unprotected openings in an exposing building face shall

a) conform to Table 9.10.14.4.A.,

b) conform to Subsection 3.2.3., or

c) where the limiting distance is not less than 1.2 m, be equal to or less than

i) the limiting distance squared, for residential occupancies, business and personal services occupancies and low-hazard industrial occupancies, and

ii) half the limiting distance squared, for mercantile occupancies and medium-hazard industrial occupancies.

Table 9.10.14.4.A.
Maximum Aggregate Area of Unprotected Openings in Exterior Walls
Forming Part of Sentence 9.10.14.4.(1)

<table>
<thead>
<tr>
<th>Occupancy Classification of Building</th>
<th>Maximum Total Area of Exposing Building Face, m²</th>
<th>Maximum Aggregate Area of Unprotected Openings, % of Exposing Building Face Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limiting Distance, m</td>
<td>Less than 1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Residential, business and personal services, and low-hazard industrial</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Over 100</td>
<td>0</td>
</tr>
<tr>
<td>Mercantile and medium-hazard industrial</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Over 100</td>
<td>0</td>
</tr>
</tbody>
</table>

2) Openings in a wall having a limiting distance of less than 1.2 m shall be protected by closures, of other than wired glass or glass block, whose fire-protection rating is in conformance with the fire-resistance rating required for the wall. (See Table 9.10.13.1.)

3) Individual unprotected openings in an exposing building face shall have a projected area that is not more than the value determined in accordance with Table 9.10.14.4.B., unless:

a) the building is sprinklered throughout, or

b) the limiting distance is more than 2 m.
Table 9.10.14.4.B.
Maximum Concentrated Area of Unprotected Openings
Forming Part of Sentence 9.10.14.4.(3)

<table>
<thead>
<tr>
<th>Limiting Distance, m</th>
<th>Maximum Area of Individual Unprotected Openings, m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1.2</td>
<td>0</td>
</tr>
<tr>
<td>1.2</td>
<td>0.35</td>
</tr>
<tr>
<td>1.5</td>
<td>0.78</td>
</tr>
<tr>
<td>2.0</td>
<td>1.88</td>
</tr>
</tbody>
</table>

4) An individual unprotected opening described in Sentence (3) shall be separated by not less than 2 m horizontally and 2 m vertically from any other unprotected opening that is located on the same exposing building face and within the same fire compartment. (See A-3.2.3.1.(6) in Appendix A.)

5) For the purposes of Sentence (4),
   a) two adjacent spaces are permitted to be considered as separate fire compartments where there is a full height wall extending not less than 1.5 m from the interior face of the exterior wall, finished in accordance with Subsection 9.29.4. or 9.29.5., and
   b) two stacked spaces shall be considered to be a single room or space where the spaces are on the same storey.

6) The maximum aggregate area of unprotected openings shall be not more than twice the area determined according to Sentence (1), where the unprotected openings are glazed with
   a) wired glass in steel frames, as described in Article 9.10.13.5., or
   b) glass blocks, as described in Article 9.10.13.7.

7) Where the building is sprinklered, the maximum aggregate area of unprotected openings shall be not more than twice the area determined according to Sentence (1), provided all rooms, including closets and bathrooms, that are adjacent to the exposing building face and that have unprotected openings are sprinklered, notwithstanding any exemptions in the sprinkler standards referenced in Article 3.2.5.13.

8) The maximum aggregate area of unprotected openings in an exposing building face of a storage garage need not comply with Sentence (1), where
   a) all storeys are constructed as open-air storeys, and
   b) the storage garage has a limiting distance of not less than 3 m.

9) The maximum aggregate area of unprotected openings in an exposing building face of a storey that faces a street and is at the same level as the street need not comply with Sentence (1), where the limiting distance is not less than 9 m.

9.10.14.5. Construction of Exposing Building Face and Walls above Exposing Building Face

1) Except as permitted in Sentences (2) to (9), each exposing building face and any exterior wall located above an exposing building face that encloses an attic or roof space shall be constructed in conformance with Table 9.10.14.5. (See also Subsection 9.10.8.) (See Appendix A.)
## Table 9.10.14.5
Minimum Construction Requirements for Exposing Building Faces
Forming Part of Sentence 9.10.14.5.(1)

<table>
<thead>
<tr>
<th>Occupancy Classification of Building or Fire Compartment</th>
<th>Maximum Area of Unprotected Openings Permitted, % of Exposing Building Face Area</th>
<th>Minimum Required Fire-Resistance Rating</th>
<th>Type of Construction Required</th>
<th>Type of Cladding Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential, business and personal services, and low-hazard industrial</td>
<td>0 - 10</td>
<td>1 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>&gt; 10 - 25</td>
<td>1 h</td>
<td>Combustible</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>&gt; 25 - 50</td>
<td>45 min</td>
<td>Combustible</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>&gt; 50 - &lt; 100</td>
<td>45 min</td>
<td>Combustible</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>Mercantile, and medium-hazard industrial</td>
<td>0 - 10</td>
<td>2 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>&gt; 10 - 25</td>
<td>2 h</td>
<td>Combustible</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>&gt; 25 - 50</td>
<td>1 h</td>
<td>Combustible</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>&gt; 50 - &lt; 100</td>
<td>1 h</td>
<td>Combustible</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
</tbody>
</table>

### Notes to Table 9.10.14.5.:

1. See Sentence (2).
2. See Sentence (3).
3. Except as provided in Sentence (3), cladding on exposing building faces and any exterior wall above an exposing building face that encloses an attic or roof space for buildings or fire compartments where the maximum aggregate area of unprotected openings is more than 10% of the exposing building face need not be noncombustible where the wall assembly satisfies the criteria of Sentences 3.1.5.5.(2) and (3) when subjected to testing in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”

4. Cladding on exposing building faces and on any exterior wall located above an exposing building face that encloses an attic or roof space for buildings or fire compartments where the maximum aggregate area of unprotected openings is more than 25% but not more than 50% of the exposing building face need not be noncombustible where:
   a) the limiting distance is not less than 5 m,
   b) the building or fire compartment is sprinklered throughout, or
   c) the cladding conforms to Clause 3.2.3.7.(3)(c) or (d).

5. Combustible projections on the exterior of a wall that are more than 1 m above ground level and that could expose an adjacent building to fire spread shall not be permitted within:
   a) 1.2 m of a property line or the centre line of a public way, or
   b) 2.4 m of a combustible projection on another building on the same property.

6. Where the limiting distance is not more than 0.45 m, projecting roof soffits shall not be constructed above the exposing building face.

7. Where the limiting distance is more than 0.45 m, the face of roof soffits above the exposing building face are permitted to project to not less than 0.45 m from a property line.

8. Where roof soffits project closer than 1.2 m from a property line, they shall...
a) have no openings, and  
b) be protected by one of the materials listed in Clause 3.2.3.6.(5)(b).

8) Heavy timber and steel columns need not conform to the requirements of Sentence (1), provided the *limiting distance* is not less than 3 m.

9) Non-loadbearing wall components need not have a minimum fire‐resistance rating, where the building  
am) is 1 storey in building height,  
b) is of noncombustible construction,  
c) is classified as a low‐hazard industrial occupancy and used only for low fire load occupancies, such as power‐generating plants or plants for the manufacture or storage of noncombustible materials, and  
d) has a *limiting distance* of 3 m or more.

### 9.10.15. Spatial Separation Between Houses

#### 9.10.15.1. Application

1) This Subsection applies to  
a) buildings that contain only *dwelling units* and have no *dwelling unit* above another *dwelling unit*,  
b) buildings that contain a detached garage or accessory building facing a *dwelling unit* where  
   i) the detached garage or accessory building serves only one *dwelling unit* or a primary *dwelling unit* with a secondary suite,  
   ii) the detached garage or accessory building is located on the same property as that *dwelling unit*,  
   iii) the *dwelling unit* served by the detached garage or accessory building is the only major occupancy on the property, and  
c) buildings that contain one *dwelling unit* located in whole or in part above another *dwelling unit*, provided the buildings contain  
   i) not more than 2 *dwelling units*, and  
   ii) not more than 3 *storeys*, including any *basements*.

(See Appendix A.)

2) This Subsection does not apply to hotels or motels.

#### 9.10.15.2. Area and Location of Exposing Building Face

1) The area of an exposing building face shall be  
a) taken as the exterior wall area facing in one direction on any side of a building, and  
b) calculated as  
   i) the total area measured from the finished ground level to the uppermost ceiling,  
   ii) the area for each fire compartment, where a building is divided into fire compartments by fire separations with fire‐resistance ratings not less than 45 min, or  
   iii) the area of any number of individual vertical portions of the wall measured from the finished ground level to uppermost ceiling where Table 9.10.15.4. is used to determine the maximum aggregate area of glazed openings if the *limiting distance* is 2 m or more. (See A-9.10.15.4.(2) in Appendix A.)

2) For the purpose of using Table 9.10.15.4. to determine the maximum permitted area of glazed openings in an irregularly shaped or skewed exterior wall, the location of the exposing building face shall be taken as a vertical plane located so that there are no glazed openings between the vertical plane and the line to which the *limiting distance* is measured. (See A-3.2.3.1.(4) in Appendix A.)
3) For the purpose of using Table 9.10.15.5. to determine the required type of construction, cladding and fire-resistance rating for an irregularly shaped or skewed exterior wall,
   a) the location of the exposing building face shall be taken as a vertical plane located so that no portion of the actual exposing building face is between the vertical plane and the line to which the limiting distance is measured, and
   b) the value for the maximum aggregate area of glazed openings (see first column of Table 9.10.15.5.) shall be determined using the limiting distance measured from the location described in Clause (a). (See A-3.2.3.1.(4) in Appendix A.)

4) The limiting distance for an exposing building face that includes projections such as bow windows, bay windows or flue chases of combustible construction, shall be measured from the face of the projection nearest the line to which the limiting distance is measured.

9.10.15.3. Limiting Distance where Firefighting Facilities are Inadequate

1) Except for the purpose of applying Sentence 9.10.15.5.(11), a limiting distance equal to half the actual limiting distance shall be used as input to the requirements of this Subsection, where
   a) the time from receipt of notification of a fire by the fire department until the first fire department vehicle capable of beginning suppression activities arrives at the building is greater than 10 minutes in not less than 10% of all calls to the building, and
   b) any storey in the building is not sprinklered.
(See A-3.2.3.1. and A-3.2.3.1.(8) in Appendix A.)

9.10.15.4. Glazed Openings in Exposing Building Face

1) Except as provided in Sentence (6), the maximum aggregate area of glazed openings in an exposing building face shall
   a) conform to Table 9.10.15.4.,
   b) conform to Subsection 3.2.3., or
   c) be equal to or less than the limiting distance squared, where the limiting distance is not less than 1.2 m.

<table>
<thead>
<tr>
<th>Maximum Total Area of Exposing Building Face, m²</th>
<th>Maximum Aggregate Area of Glazed Openings, % of Exposing Building Face Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Limiting Distance, m</td>
</tr>
<tr>
<td></td>
<td>Less than 1.2</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Over 100</td>
<td>0</td>
</tr>
</tbody>
</table>

2) Where the limits on the area of glazed openings are determined for individual portions of the exterior wall, as described in Subclause 9.10.15.2.(1)(b)(iii), the maximum aggregate area of glazed openings for any portion shall conform to the values in the row of Table 9.10.15.4. corresponding to the maximum total area of exposing building face (see column 1 of the Table) that is equal to the sum of all portions of the exposing building face. (See Appendix A.)
3) Individual glazed openings in an exposing building face shall have a projected area that is not more than 50% of the maximum allowable aggregate area of glazed openings determined in Sentence (1), unless
   a) the building is sprinklered throughout, or
   b) the limiting distance is more than 2 m.

4) An individual glazed opening described in Sentence (3) shall be separated by not less than 2 m horizontally and 2 m vertically from any other glazed opening that is located on the same exposing building face and within the same fire compartment. (See A-3.2.3.1.(6) in Appendix A.)

5) For the purposes of Sentence (4),
   a) two adjacent spaces are permitted to be considered as separate fire compartments where there is a full height wall extending not less than 1.5 m from the interior face of the exterior wall, finished in accordance with Subsection 9.29.4. or 9.29.5., and
   b) two stacked spaces shall be considered to be a single room or space where the spaces are on the same storey.

6) The limits on the area of glazed openings shall not apply to the exposing building face of a dwelling unit facing a detached garage or accessory building, where
   a) the detached garage or accessory building serves only one dwelling unit or a primary dwelling unit with a secondary suite,
   b) the detached garage or accessory building is located on the same property as that dwelling unit, and
   c) the dwelling unit served by the detached garage or accessory building is the only major occupancy on the property.

9.10.15.5. Construction of Exposing Building Face of Houses

1) Except as provided in Sentences (4) and (6), each exposing building face and any exterior wall located above an exposing building face that encloses an attic or roof space shall be constructed in conformance with Sentence (2) or (3)
   a) for the exposing building face as a whole, or
   b) for any number of separate portions of the exposing building face (see Subclause 9.10.15.2.(1)(b)(iii), Sentence 9.10.15.4.(2), and Appendix Note A-9.10.15.4.(2) in Appendix A).
   (See also Subsection 9.10.8.)

2) Except as provided in Sentence (4), where the limiting distance is less than 0.6 m, the exposing building face and any exterior wall located above the exposing building face that encloses an attic or roof space shall have a fire-resistance rating of not less than 45 min, and
   a) the cladding shall
      i) be of a noncombustible material conforming to Section 9.20., 9.27. or 9.28. (see A-9.10.14.5.(1) in Appendix A.), or
      ii) conform to Clause 3.2.3.7.(3)(d), or
   b) the wall assembly shall satisfy the criteria of Sentences 3.1.5.5.(2) and (3) when subjected to testing in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”

3) Except as provided in Sentence (4), where the limiting distance is not less than 0.6 m and less than 1.2 m, the exposing building face and any exterior wall located above the exposing building face that encloses an attic or roof space shall have a fire-resistance rating of not less than 45 min, and
   a) the cladding shall
      i) be of a noncombustible material conforming to Section 9.20., 9.27. or 9.28. (see A-9.10.14.5.(1) in Appendix A.), or
      ii) conform to Clause 3.2.3.7.(3)(c) or (d), or
   b) the wall assembly shall satisfy the criteria of Sentences 3.1.5.5.(2) and (3) when subjected to testing in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”
4) The requirements regarding fire-resistance rating and type of cladding-sheathing assemblies shall not apply to an exposing building face or to a projection from an exposing building face, where
   a) the exposing building face or projection is part of a dwelling unit and faces a detached garage or accessory building, or is part of a garage or accessory building and faces a dwelling unit,
   b) the detached garage or accessory building serves only one dwelling unit or a primary dwelling unit with a secondary suite,
   c) the detached garage or accessory building is located on the same property as that dwelling unit, and
   d) the dwelling unit served by the detached garage or accessory building is the only major occupancy on the property.

5) Except as provided in Sentence (6), combustible projections on the exterior of a wall that are more than 1 m above ground level and that could expose an adjacent building to fire spread shall not be permitted within
   a) 1.2 m of a property line or the centre line of a public way, or
   b) 2.4 m of a combustible projection on another building on the same property.

6) Sentence (5) shall not apply to
   a) buildings containing 1 or 2 dwelling units only, and
   b) detached garages or accessory buildings, where
      i) the detached garage or accessory building serves only one dwelling unit or a primary dwelling unit with a secondary suite,
      ii) the detached garage or accessory building is located on the same property as that dwelling unit, and
      iii) the dwelling unit served by the detached garage or accessory building is the only major occupancy on the property.

(See Appendix A.)

7) Where combustible projections from an exposing building face are permitted by Sentence (6) and are totally enclosed and constructed with solid faces, such as for fireplaces and chimneys, and extend within 1.2 m of a property line,
   a) the construction of the face of the projection shall comply with the corresponding requirements for exposing building faces for limiting distances less than 1.2 m in Sentence (2) or (3),
   b) the construction required for the face of the projection shall also apply to the sides of the projection, and
   c) the underside of the projection shall be protected by one of the materials listed in Clause 3.2.3.6.(5)(b), if it is more than 0.6 m above finished ground level.

(See Appendix A.)

8) Where the limiting distance is not more than 0.45 m, projecting roof soffits shall not be constructed above the exposing building face.

9) Where the limiting distance is more than 0.45 m, the face of roof soffits above the exposing building face are permitted to project to not less than 0.45 m from a property line.

10) Where roof soffits project closer than 1.2 m from a property line, they shall
    a) have no openings, and
    b) be protected by one of the materials listed in Clause 3.2.3.6.(5)(b).

11) Heavy timber and steel columns need not conform to the requirements of Sentence (1), provided the limiting distance is not less than 3 m.

9.10.16. Fire Stops

9.10.16.1. Required Fire Stops in Concealed Spaces

1) Vertical concealed spaces in interior walls and exterior walls shall be separated by fire stops
   a) one from the other, and
   b) from horizontal concealed spaces.
2) Horizontal concealed spaces in attics, roof spaces, ceilings, floors, and crawl spaces shall be separated by fire stops
   a) one from the other, and
   b) from vertical concealed spaces.

3) Fire stops shall be provided at all interconnections between concealed vertical and horizontal spaces in interior coved ceilings, drop ceilings and soffits where the exposed construction materials within the concealed spaces have a surface flame-spread rating greater than 25.

4) Fire stops shall be provided at the top and bottom of each run of stairs where they pass through a floor containing concealed space in which the exposed construction materials within the space have a surface flame-spread rating greater than 25.

5) In unsprinklered buildings of combustible construction, every concealed space created by a ceiling, roof space or unoccupied attic space shall be separated by fire stops into compartments
   a) not more than 60 m in greatest dimension, and
   b) where such space contains exposed construction materials having a surface flame-spread rating greater than 25, not more than 300 m² in area.

6) No dimension of the concealed space described in Clause (5)(b) shall exceed 20 m.

7) Concealed spaces in mansard or gambrel style roofs, exterior cornices, balconies and canopies of combustible construction in which the exposed construction materials within the space have a surface flame-spread rating exceeding 25 shall have vertical fire stops at intervals of not more than 20 m and at points where such concealed spaces extend across the ends of required vertical fire separations.
9.10.16.2. Required Fire Stops in Wall Assemblies

1) Except as permitted in Sentence (2), fire stops shall be provided to block off concealed spaces within wall assemblies, including spaces created by furring,
   a) at each floor level,
   b) at each ceiling level where the ceiling contributes to part of the required fire-resistance rating, and
   c) at other locations within the wall, so that the distance between fire stops does not exceed 20 m horizontally and 3 m vertically.

2) Fire stops described in Sentence (1) are not required provided
   a) the width of the concealed wall space does not exceed 25 mm,
   b) the exposed construction materials within the space are noncombustible,
   c) the exposed construction materials within the space, including insulation, but not including wiring, piping or similar services, have a flame-spread rating of not more than 25, or
   d) the concealed wall space is filled with insulation.

9.10.16.3. Fire Stop Materials

1) Except as permitted by Sentence (2), fire stops shall be constructed of not less than
   a) 0.38 mm sheet steel,
   b) 6 mm asbestos board conforming to Subsection 9.27.8.,
   c) 12.7 mm gypsum wallboard,
   d) 12.5 mm plywood, OSB or waferboard, with joints having continuous supports,
   e) 2 layers of 19 mm lumber with joints staggered,
   f) 38 mm lumber, or
   g) materials conforming to Sentence 3.1.11.7.(1).

2) In a building permitted to be of combustible construction, semi-rigid fibre insulation board produced from glass, rock or slag is permitted to be used to block the vertical space in a double-frame wall assembly formed at the intersection of the floor assembly and the walls, provided the width of the vertical space does not exceed 25 mm and the insulation board
   a) has a density not less than 45 kg/m³,
   b) is securely fastened to one set of studs,
   c) extends from below the bottom of the top plates in the lower storey to above the top of the bottom plate in the upper storey, and
   d) completely fills the portion of the vertical space between the headers and between the wall plates.
   (See A-3.1.11.7.(7) in Appendix A.)

9.10.16.4. Penetration of Fire Stops

1) Where fire stops are pierced by pipes, ducts or other elements, the effectiveness of the fire stops shall be maintained around such elements.

9.10.17. Flame Spread Limits

9.10.17.1. Flame Spread Rating of Interior Surfaces

1) Except as otherwise provided in this Subsection, the exposed surface of every interior wall and ceiling, including skylights and glazing, shall have a surface flame-spread rating of not more than 150.

2) Except as permitted in Sentence (3), doors need not conform to Sentence (1) provided they have a surface flame-spread rating of not more than 200.

3) Doors within dwelling units, other than garage doors, need not conform to Sentences (1) and (2).
9.10.17.2. Ceilings in Exits or Public Corridors

1) At least 90% of the exposed surface of every ceiling in an exit or unsprinklered ceiling in a public corridor shall have a surface flame-spread rating of not more than 25. (See Article 9.10.17.6.)

9.10.17.3. Walls in Exits

1) Except as provided in Sentence (2), at least 90% of the exposed surfaces of every wall in an exit shall have a surface flame-spread rating of not more than 25. (See Article 9.10.17.6.)

2) At least 75% of the wall surface of a lobby used as an exit in Article 9.9.8.5. shall have a surface flame-spread rating of not more than 25. (See Article 9.10.17.6.)

9.10.17.4. Exterior Exit Passageways

1) Where an exterior exit passageway provides the only means of egress from the rooms or suites it serves, the wall and ceiling finishes of that passageway, including the soffit beneath and the guard on the passageway, shall have a surface flame-spread rating of not more than 25, except that up to 10% of the total wall area and 10% of the total ceiling area is permitted to have a surface flame-spread rating of not more than 150.

9.10.17.5. Walls in Public Corridors

1) At least 90% of the total wall surface in any unsprinklered public corridor shall have a surface flame-spread rating of not more than 75, or at least 90% of the upper half of such walls shall have a surface flame-spread rating of not more than 25. (See Article 9.10.17.6.)

9.10.17.6. Calculation of Wall and Ceiling Areas

1) Skylights, glazing, combustible doors, and combustible light diffusers and lenses shall not be considered in the calculation of wall and ceiling areas in this Subsection.

9.10.17.7. Corridors Containing an Occupancy

1) Where a public corridor or a corridor used by the public contains an occupancy, the interior finish materials used on the walls or ceiling of such occupancy, shall have a surface flame-spread rating in conformance with that required for public corridors.

9.10.17.8. Light Diffusers and Lenses

1) Light diffusers and lenses having flame-spread ratings that exceed those permitted for the ceiling finish, shall conform to the requirements of Sentence 3.1.13.4.(1).

9.10.17.9. Combustible Skylights

1) Individual combustible skylights in corridors required to be separated from the remainder of the building by fire separations shall not exceed 1 m² in area and shall be spaced not less than 1.2 m apart.
Table 9.34.2.7.
Lighting for Public Areas
Forming Part of Sentences 9.34.2.7.(2) and (3)

<table>
<thead>
<tr>
<th>Room or Space</th>
<th>Minimum Illumination, lx</th>
<th>Minimum Lighting Power Density, W/m² of floor area (incandescent lighting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage rooms</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Service rooms and laundry areas</td>
<td>200</td>
<td>20</td>
</tr>
<tr>
<td>Garages</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Public water closet rooms</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Service hallways and stairways</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Recreation rooms</td>
<td>100</td>
<td>10</td>
</tr>
</tbody>
</table>

9.34.3. Emergency Lighting

9.34.3.1. Criteria for Emergency Lighting

1) Emergency lighting shall conform to Subsection 9.9.11.

Section 9.35. Garages and Carports

9.35.1. Scope

9.35.1.1. Application

1) This Section applies to garages and carports serving not more than one dwelling unit or a dwelling unit with a secondary suite.

9.35.1.2. Construction Requirements

1) The construction of a garage or carport shall conform to the requirements for other buildings in this Part except as provided in this Section.

9.35.2. General

9.35.2.1. Carport Considered to be Garage

1) Where a roofed enclosure used for the storage or parking of motor vehicles has more than 60% of the total perimeter enclosed by walls, doors or windows, the enclosure shall be considered a garage.

9.35.2.2. Garage Floor

1) Where an attached or built-in garage is provided, the garage floor shall be sloped to the outdoors.

9.35.3. Foundations

9.35.3.1. Foundation Required

1) Except as permitted in this Subsection, foundations conforming to Sections 9.12 and 9.15. shall be provided for the support of carport and garage super-structures, including that portion beneath garage doors.
9.35.3.2. **Protection from Damage due to Soil Movement**

1) In clay-type soils subject to significant movement with a change in soil moisture content, the foundation depth of carports or garages connected to a dwelling unit directly or by a breezeway shall be approximately the same depth as the main building foundation.

2) Where slab-on-ground construction is used, a construction joint shall be provided between the main building slab and a slab serving an attached garage, breezeway or carport.

3) Except as provided in Section 9.12., foundations for attached unheated garages or carports shall be below frost level.

9.35.3.3. **Small Garages**

1) Detached garages of less than 55 m² floor area and not more than 1 storey in height are permitted to be supported on wood mud sills or a 100 mm thick concrete floor slab provided the garage is not of masonry or masonry veneer construction.

9.35.3.4. **Column Piers**

1) Piers for the support of carport columns shall extend not less than 150 mm above ground level.

2) Piers referred to in Sentence (1) shall project not less than 25 mm beyond the base of the column but in no case be less than 190 mm by 190 mm in size.

9.35.4. **Walls, Columns and Ceilings**

9.35.4.1. **Interior Finish**

1) Except as required by Sentence (2), interior finish need not be applied to garage and carport walls.

2) The walls and ceilings of an attached garage shall have an interior finish consisting of:
   a) not less than 12.7 mm thick gypsum board conforming to Subsection 9.29.5.,
   b) lath and plaster conforming to Subsection 9.29.4., or
   c) any material that can be shown to remain in place and prevent the passage of flames for not less than 15 min when subjected to the standard fire exposure in CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials.”

9.35.4.2. **Columns**

1) Columns for garages and carports shall conform to Section 9.17., except that 89 mm by 89 mm wood columns may be used.

9.35.4.3. **Anchorage**

1) Garage or carport walls and columns shall be anchored to the foundation to resist wind uplift in conformance with Subsection 9.23.6., except that where a garage is supported on the surface of the ground, ground anchors shall be provided to resist wind uplift.

9.35.4.4. **Thermal Insulation**

1) The walls and ceilings of an attached garage shall be provided with thermal insulation conforming to Subsection 9.25.2.

Section 9.36. **Log Construction**

9.36.1. **General**

9.36.1.1. **Design Standards**
Division B

9.37.1.1.  

1) Full log, interlocking, scribe-fit construction shall be designed on the basis of
   a) structural analysis,
   b) accepted tests, or
   c) standards such as
      i) ILBA, “Log Building Standards for Residential, Handcrafted Interlocking,
         Scribe-fit Construction,” and
      ii) ILBA, “Log Span Tables for Floor Joists, Beams, and Roof Support
         Systems.”

2) Manufactured log building systems shall be constructed in accordance with the
   manufacturer’s instructions and recommendations.

9.36.1.2. Materials

1) Logs used in log construction shall be sound and free of rot or other such defects.

2) The portion of any log coming into contact with masonry or concrete at or below
   ground level, or with soil, shall be treated with preservative.

3) Logs shall be seasoned to a moisture content not exceeding 19% before
   installation.

9.36.2. Walls

9.36.2.1. Horizontal Log Walls

1) Walls made of logs placed horizontally shall
   a) have interlocking intersections that will prevent the collection of water in the
      joints, or
   b) butt against and be firmly attached to a vertical corner post.

2) Joints in exterior horizontal log walls shall be constructed to be
   a) self draining or gasketted, and
   b) resistant to water, air or insect infiltration.

9.36.2.2. Fastening to Bearer

1) Each horizontal log shall be scribed to fit as closely as possible to its bearer and
   fastened to the bearer in at least 3 places throughout its length, by dowels, continuous
   machined joints, vertical framing members or interlocking sections, or any combination
   of these, and the distance between fastenings shall not exceed 1.8 m.

9.36.2.3. Vertical Log Walls

1) Each log in a wall built of vertical logs shall be scribed to fit as closely as possible
   to the adjacent logs.

9.36.2.4. End Plates

1) Logs used in a vertical position shall have plates at the top and at the bottom that
   are at least as wide as the largest end diameter of any of the logs.

Section 9.37. Secondary Suites

(See Appendix A.)

9.37.1. Application

9.37.1.1. General

1) This Section applies to
   a) the construction of a secondary suite in a dwelling unit that will result in a total of
      not more than two dwelling units, and
   b) the alteration of an existing dwelling unit to accommodate a new secondary suite.
9.37.2. **Construction**

9.37.2.1. **Height of Rooms and Spaces**

1) The height of rooms or spaces in a *secondary suite* over the required minimum area in accordance with Table 9.5.3.1. shall be not less than 1.95 m.

9.37.2.2. **Door Heights**

1) Except where the height of rooms or spaces in a *secondary suite* is less than the minimum height listed in Table 9.6.3.1., doors within *dwelling units* shall conform to Subsection 9.6.3.

9.37.2.3. **Bedroom Windows**

1) Except as permitted in Sentence 9.7.1.2.(1), each bedroom within a *secondary suite* shall have at least one outside window that meets the requirements of Articles 9.7.1.2. and 9.7.1.3.

9.37.2.4. **Exit Stairs**

1) Exit stairs shall have a clear width of not less than 860 mm.

9.37.2.5. **Landings**

1) Landings for stairs shall be at least as wide as the stairs and not less than 900 mm in length.

9.37.2.6. **Handrails and Guards**

1) Handrails and *guards* shall conform to the requirements of Subsections 9.8.7. and 9.8.8.

9.37.2.7. **Public and Exit Corridor Width**

1) The clear width of every *public corridor* and *exit corridor* shall be not less than 860 mm.

9.37.2.8. **Unenclosed Exterior Stair or Ramp**

1) Where an unenclosed exterior *exit stair* or ramp provides the only *means of egress* from a *secondary suite* and is exposed to the hazards of fire from *unprotected openings* in the exterior wall of the primary *dwelling unit*, the openings shall be protected in conformance with Articles 9.10.13.5. and 9.10.13.7.

9.37.2.9. **Exit Doors**

1) Every *exit door* or door that provides *access to exit* from a *secondary suite* shall be
   a) not less than 1980 mm high,
   b) not less than 810 mm wide, and
   c) permitted to swing inward.

9.37.2.10. **Travel Limit**

1) The travel limit from a floor level in a *dwelling unit* to an *exit* or egress door may exceed 1 *storey* where that floor level is served by an openable window conforming to Sentence 9.9.9.1.(2).

9.37.2.11. **Means of Egress**

1) Except as permitted in Sentence (2), each *dwelling unit* shall be provided with at least one *exit* that leads directly to the outside.

2) *Dwelling units* may share a common *exit* meeting the requirements of Article 9.37.2.13.
9.37.2.12. **Shared Egress Facilities**

1) A *dwelling unit* need not be provided with a second and separate *means of egress* referred to in Article 9.9.9.3. where the *dwelling unit* is provided with not less than one *exit* as required by Article 9.37.2.11.

9.37.2.13. **Protection of Exits**

1) Every *exit*, other than an *exit doorway*, shall be separated from adjacent *floor areas* by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on each side of the walls. (See Appendix A.)

9.37.2.14. **Exit Signs**

1) *Exit signs* referred to in Subsection 9.9.10. are not required within a *building* that contains a *secondary suite*.

9.37.2.15. **Emergency Lighting**

1) Emergency lighting referred to in Subsection 9.9.11. is not required within a *building* that contains a *secondary suite*.

9.37.2.16. **Dwelling Unit Separations**

1) *Dwelling units* shall be separated from each other by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on the ceiling and on each side of the walls. (See A-9.37.2.13.(1) in Appendix A.)

2) Table 9.10.8.1. does not apply to a *dwelling unit* within a *building* that contains a *secondary suite*.

9.37.2.17. **Protection of Public Corridors**

1) A *public corridor* shall be separated from the remainder of the *building* by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on each side of the walls. (See A-9.37.2.13.(1) in Appendix A.)

9.37.2.18. **Furnace Room Separations**

1) A *furnace room* shall be separated from the remainder of the *building* by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on the ceiling and on each side of the walls. (See A-9.37.2.13.(1) in Appendix A.)

2) A door shall be provided to each *furnace room*.

9.37.2.19. **Heating and Ventilation Systems**

1) Each *dwelling unit* shall have an independent heating and ventilation system complying with Sections 9.32. and 9.33. (See Appendix A.)

9.37.2.20. **Smoke Alarms**

1) *Smoke alarms* conforming to CAN/ULC-S531, “Smoke Alarms,” installed in accordance with Subsection 9.10.19. shall be provided in each *dwelling unit*.

2) *Smoke alarms* shall be installed by permanent connections to an electrical circuit and wired so that activation of one *smoke alarm* will cause all alarms within both *dwelling units* to sound.

3) *Smoke alarms* shall be installed in areas that are common to both *dwelling units* and connected in conformance with Sentence (2).

9.37.2.21. **Solid Blocking**

1) Solid blocking may be omitted for doors described in Sentence 9.6.8.9.(1), where the interior wall finish adjacent to the door is in place prior to the construction of the *secondary suite*. 
9.37.2.22. **Sound Control**

1) Section 9.11. does not apply to a building that contains a secondary suite.

9.37.2.23. **Garages and Carports**

1) Section 9.35. applies to garages and carports serving a building that contains a secondary suite.

2) The requirements regarding fire-resistance rating, type of construction and type of cladding shall not apply to the exposing building face of a building that contains a secondary suite facing a detached garage or accessory building, where

   a) the detached garage or accessory building is located on the same property as that building, and

   b) the building served by the detached garage or accessory building is the only other building on the property.

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**Section 9.38. Objectives and Functional Statements**

9.38.1. **Objectives and Functional Statements**

9.38.1.1. **Attribution to Acceptable Solutions**

1) For the purposes of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Subsection 4.2.7. of Division A. (See A-4.1.2.1.(1) in Appendix A of Division A.)
**Figure A-3.1.11.(7)**  
Fire stopping

**A-3.1.13.2.(2) Folding Partition.** Folding partitions used to divide a space into separate rooms are not considered as doors for the purposes of this Sentence.

**A-3.2.1.1.(3)(a) Mezzanine Area.** The permitted area of the mezzanine for the purposes of determining the allowable percentage is to be based on the open area of the floor of the space in which the mezzanine is located. The Code does not restrict the enclosing of space below the mezzanine but the enclosed area must be deducted from the area of the overall space before applying the percentage allowance.

**A-3.2.1.1.(8) Accessible Service Space.** These service spaces are often referred to as interstitial spaces and are designed to allow service personnel to enter and undertake maintenance or installation within the space. Catwalks or flooring are usually included to provide a walking or access surface. Even when flooring is included, it is not intended that the interstitial space should be considered as a storey for the purposes of the Code unless the space is used for purposes other than servicing or the storage of materials and equipment to be used for building services within that space.

**A-3.2.2.2.(1) Special and Unusual Structures.** Examples of structures which cannot be identified with the descriptions of buildings in Articles 3.2.2.20. to 3.2.2.83. include grain elevators, refineries and towers. Publications that may be consulted to establish good engineering practice for the purposes of Article 3.2.2.2. include the NFPA Fire Protection Handbook, Factory Mutual Data Sheets, and publications of the Society for Fire Protection Engineering.
**A-3.2.2.18.(2) Sprinkler Extent.** A literal interpretation of Article 3.2.2.6. and Sentences 3.2.2.4.(1) and (2) could require installation of an automatic sprinkler system throughout all storeys of a building regardless of options in Articles 3.2.2.20. to 3.2.2.83. to construct one or more storeys without installation of sprinklers. It is the intent of the Code that all storeys below a storey in which an automatic sprinkler system is installed should also be protected by an automatic sprinkler system to ensure that a fire in a lower storey does not incapacitate the automatic sprinkler system or overwhelm an automatic sprinkler system in an upper storey. Persons in an upper storey in which waivers or reductions of other fire safety systems are permitted would be exposed to an increased risk from a fire on a lower storey. This concept also applies to situations in which an automatic sprinkler system has been installed within a floor area in order to modify other safety requirements applying within the floor area. If the uppermost storey or storeys of a building can be constructed without the installation of an automatic sprinkler system it is not necessary that an automatic sprinkler system required in a lower storey be extended into the upper storey or storeys.

**A-3.2.2.35.(4) Sprinkler Requirements.** Spaces in a building of Group A, Division 4 occupancy that are intended to be equipped with sprinklers include, but are not limited to, dressing and changing rooms, concession stands and areas, toilet rooms, locker rooms, storage areas, service rooms, offices and other spaces that provide service to the building. The enclosure of seating areas with glazing needs special consideration in determining the requirements for sprinklers. For example, if the enclosed area is used for the consumption of food and beverages, it should be classified as Group A, Division 2 and the appropriate requirements of that classification applied. Enclosure of limited spaces above seating areas for press and media purposes is not considered to require the installation of sprinklers.

**A-3.2.3.1. Fire Protection Related to Limiting Distance versus Separation Between Buildings.** Requirements in the Code for protection against fire spread from building to building are related to the limiting distance for a building, measured to a property line, the centre line of a street or an imaginary line between buildings, rather than the distance between adjacent buildings. (See definition for limiting distance.) The Code does not provide requirements based on the distance between buildings, for buildings on separate properties, since this would result in situations where the design and construction of a building on one property would affect the design and construction of a building on an adjacent property.

The Code requirements for reducing the probability of building-to-building fire spread were originally developed based on an assumption that the exposing building faces of adjacent buildings are of similar size and configuration, and are placed equidistant from the property line. Where buildings are different sizes, the smaller building may be subject to higher heat flux in the case of a fire compared to the larger building. Where buildings are closely spaced and not equidistant from property lines, the construction of the building with the greater limiting distance does not recognize the proximity of the building with the lesser limiting distance.

At lesser limiting distances, the Code has more stringent requirements for maximum area and spacing of unprotected openings, and for construction, cladding and fire resistance of walls. This recognizes that fire hazard is greater where buildings are closer together and that adjacent buildings may have exposing building faces of different sizes, configurations or limiting distances, which could further increase the hazard.

Limiting distances may also be addressed by the authority having jurisdiction through legal agreements where the parties agree that the limiting distance be measured to a line that is not the property line. Such agreements would normally be registered with the titles of both properties.

**A-3.2.3.1.(4) Spatial Separation Design.** In the application of Sentences 3.2.3.1.(3) and (4) it is intended that Sentence (3) be used first to establish the basic requirements for the exterior wall in terms of fire-resistance rating, type of construction and type of cladding. The percentage of unprotected openings determined from the application of Sentence (3) would be unnecessarily restrictive if the actual unprotected openings occur in a plane that is set back from the front of the building face.

Sentence (4) applies to the calculation of the allowable percentage of unprotected openings based upon projection onto a plane that is in front of all unprotected openings. The application of these two Sentences is shown in Figure A-3.2.3.1.(4). The modifications permitted by Article 3.2.3.12. would be applied, if applicable, to the area of unprotected openings derived from Sentence (4).
A-3.2.3.1.(6) Spacing between Individual Unprotected Openings. The spacing values of 2 m horizontally and 2 m vertically given in Sentences 3.2.3.1.(6), 9.10.14.4.(4) and 9.10.15.4.(4) are not meant to apply at distances from the unprotected openings greater than 2 m. Figure A-3.2.3.1.(6) illustrates the area around an individual unprotected opening that would be considered “off-limits” for another unprotected opening. Other individual unprotected openings would be permitted, for example, directly above the window shown, provided the second window is more than 2 m above the first window.

A-3.2.3.1.(8) Intervention Time and Limiting Distance. The total time from the start of a fire until fire suppression by the fire department begins depends on the times taken for a series of actions. Sentence 3.2.3.1.(8) is concerned only with the time from receipt of notification of a fire by the fire department until the first fire department vehicle arrives at the building. Sentence 3.2.3.1.(8) specifies a 10 minute time limit that must be met in at least 90% of the calls to the building served by the fire department.

This reliability rate and provision for flexibility is essentially consistent with NFPA 1710, “Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special
A-3.2.3.1.(8)  

Operations to the Public by Career Fire Departments.” While providing some guidance, NFPA 1710 does not cover all situations.

NFPA 1710 establishes “time objectives” for fire incidents as follows:

- 1 minute (60 seconds) for turn-out of responders after receipt of notification of a fire, and
- 4 minutes (240 seconds) or less for arrival of the first arriving engine company at a fire suppression incident and/or 8 minutes (480 seconds) or less for the deployment of a full first alarm assignment at a fire suppression incident. (1)

The standard requires that the fire department establish a “performance objective” of not less than 90% for each response time objective. This reliability level is referred to in NFPA 1710 as a “performance objective.”

Where the 10 minute limit cannot be met by the fire department at least 90% of the time, Sentence 3.2.3.1.(8) specifies that requirements that depend on limiting distance to define other criteria are to use a value that is half of the actual limiting distance.

The same applies in Part 9 as stated in Sentences 9.10.14.3.(1) and 9.10.15.3.(1).

A-3.2.3.8.(3) Noncombustible Cladding. The requirement for the exterior protection of foamed plastic insulation in an exposing building face is intended to limit the exposure of the insulation to flames, thereby reducing the possibility of increased radiation to an exposed building. The permission to use combustible cladding systems conforming to Article 3.1.5.5. does not waive the requirements for noncombustible construction or noncombustible cladding in Sentence 3.2.3.7.(1).

A-3.2.3.14.(1) Wall Exposed to Another Wall. The requirements of this Article are to ensure that the control of fire spread by the interior fire separations between fire compartments is not defeated through the spread of fire by thermal radiation outside the building. Minimum spatial separations are specified between the openings in separate fire compartments where the exterior faces of these compartments are deemed to expose each other to a thermal radiation hazard. This situation may arise where the angle, $\theta$, between the intersecting planes of the exposing building faces is $135^\circ$ or less. Examples are shown in Figures A-3.2.3.14.(1)-A, A-3.2.3.14.(1)-B and A-3.2.3.14.(1)-C of situations which would be addressed by this Article.

![Diagram A-3.2.3.14.(1)-A](EC01201A)

**Figure A-3.2.3.14.(1)-A**
Openings in walls at a right-angle corner

![Diagram A-3.2.3.14.(1)-B](EC01202A)

**Figure A-3.2.3.14.(1)-B**
Openings in walls that are parallel to one another
A-3.2.4. Fire Alarm System. The term “fire alarm system” used in this Subsection applies to fire alarm systems with or without voice communication capability.

A-3.2.4.1.(1) Determination of Requirement for a Fire Alarm System. The intent for requiring a fire alarm system to be installed whenever a sprinkler system is installed is related in part to Article 3.2.4.7. That Article requires that a sprinkler system have some method of detecting water flow and transmitting a signal to the fire department notifying them of the potential of a fire and the possibility of water damage due to sustained flow if no action is taken.

Sentences 3.2.4.1.(3) to (5) exempt small residential buildings from the need to install a fire alarm system. Sentence 3.2.4.2.(4) allows small subdivided buildings to be considered as individual portions in the application of Subsection 3.2.4. For most of these types of buildings, a complete fire alarm system is often impracticable, and to install a system solely based on the presence of an automatic sprinkler system is not considered to be necessary. Small apartment buildings, row housing complexes and small strip malls are examples of typical buildings to which this applies.

Sprinkler systems can be designed to accommodate notification of the fire department without the need to install a complete fire alarm system in the building. This type of design and technology is readily available and cost effective for building owners.

A-3.2.4.4.(1) Single Stage Fire Alarm System. This requirement, in combination with Article 3.2.4.21., is intended to allow for the provision of voice communication capability as an integral part of a single stage fire alarm system.

A-3.2.4.4.(2)(c) Fire Alarm Alert Signal. In a 2 stage fire alarm system described in Sentence 3.2.4.4.(2), the alert signal may be transmitted to audible signal devices in designated locations or to audible signal devices throughout the building. If actuated, the second stage alarm signal in a 2 stage fire alarm system may sound throughout all zones in the building. All manual station key switches would typically initiate the alarm signal.

Sentence 3.2.4.4.(2) also allows the implementation of a “zoned 2-stage” sequence of operation, whereby the alarm signal sounds in the zone of key switch actuation (and perhaps in the adjacent zones, which may be the storey above and the storey below) and the alert signal sounds throughout the rest of the building. This sequencing would be created automatically by the fire alarm control unit.

The key or special device referred to in Clause 3.2.4.4.(2)(c) should be immediately available to all persons on duty who have been given authority to sound an alarm signal.

A-3.2.4.4.(2) Two Stage Fire Alarm System. Sentence 3.2.4.4.(2), in combination with Article 3.2.4.21., is intended to allow for the provision of voice communication capability as an integral part of a 2 stage fire alarm system.
**Figure A-9.10.3.1.-B**

**Double layer butt joint details**

**Notes to Figure A-9.10.3.1.-B:**

1. Figure is for illustration purposes only and is not to scale.
2. The structural member can be any one of the types described in the Table.
3. Base layer butt ends can be attached to a single resilient channel using regular Type S screws.
4. Type G screws measuring a minimum of 32 mm in length and located a minimum of 38 mm from the butt end are to be used to fasten the butt ends of the face layer to the base layer.

**A-9.10.4.1.(4) Mezzanines Not Considered as Storeys.** Mezzanines increase the occupant load and the fire load of the storey of which they are part. To take the added occupant load into account for the purpose of evaluating other requirements that are dependent on this criteria, their floor area is added to the floor area of the storey.

**A-9.10.9.6.(1) Penetration of Fire-Rated Assemblies by Service Equipment.** This Sentence, together with Article 3.1.9.1., is intended to ensure that the integrity of fire-rated assemblies is maintained where they are penetrated by various types of service equipment.

For buildings regulated by the requirements in Part 3, fire stop materials used to seal openings around building services, such as pipes, ducts and electrical outlet boxes, must meet a minimum level of performance demonstrated by standard test criteria.

This is different from the approach in Part 9. Because of the type of construction normally used for buildings regulated by the requirements in Part 9, it is assumed that this requirement is satisfied by the use of generic fire stop materials such as mineral wool, gypsum plaster or Portland cement mortar.

**A-9.10.9.16.(4) Separation between Dwelling Units and Storage or Repair Garages.** The gas-tight barrier between a dwelling unit and an attached garage is intended to provide protection against the entry of carbon monoxide and gasoline fumes into the dwelling unit. Building assemblies incorporating an air barrier system will perform adequately with respect to gas tightness, provided all joints in the airtight material are sealed and reasonable care is exercised where the wall or ceiling is pierced by building services.

Where a garage is open to the adjacent attic space above the dwelling unit it serves, a gas-tight barrier in the ceiling of the dwelling unit will also provide protection. Unit masonry walls forming the separation between a dwelling unit and an adjacent garage should be provided with two coats of sealer or plaster, or covered with gypsum wallboard on the side of the wall exposed to the garage. All joints must be sealed to ensure continuity of the barrier. (See also Sentences 9.25.3.3.(3) to (8).)

Figure A-9.10.12.4.(1)
Protection of overhang of common roof space

A-9.10.12.4.(3) Protection at Soffits. The materials required by this Sentence to be used as protection for soffit spaces in certain locations do not necessarily have to be the finish materials. They can be installed either behind the finishes chosen for the soffits or in lieu of these.

A-9.10.12.5. Protection of Balconies. This Article is intended to apply only to multi-family, multi-storey residential occupancies and multi-storey hotels or motels. It would not be appropriate to apply the requirements of this Article to row housing or single-family dwellings with or without secondary suites.

The popularity of exterior balconies as a place to smoke or barbecue, combined with combustible furnishings, propane, increased use of combustible cladding such as vinyl siding and lack of balcony sprinkler protection, has contributed to the potential for high-intensity residential fires.

Provided that the fire department is notified in an appropriate time frame, protecting the exterior wall assembly with some form of fire-resistant construction (either noncombustible cladding or a fire-resistant sheathing material) around the entire balcony will decrease the likelihood of a balcony fire propagating into the interior of a building or into a concealed space within the building prior to the arrival of firefighting personnel. Extending the protection 1.2 m on either side of the balcony should ensure that any flame extension from a balcony fire is not able to compromise the protection provided under windy conditions that pull the flame around the edge of a balcony or further down the side of the wall.

A-9.10.13.2.(1) Wood Doors in Fire Separations. CAN4-S113 provides construction details to enable manufacturers to build wood core doors that will provide a 20 min fire-protection rating without the need for testing. The standard requires each door to be marked with
(1) the manufacturer’s or vendor’s name or identifying symbol,
(2) the words “Fire Door,” and
(3) a reference to the fire-protection rating of 20 min.

A-9.10.14.5.(1) Minor Combustible Cladding Elements. Where the cladding is required to be noncombustible, minor elements are permitted to be of combustible material. These elements are intended to be distributed over the building face and not concentrated in one area.

A-9.10.15.1.(1) Application of Subsection 9.10.15. Subsection 9.10.15. applies to the spatial separation between buildings of residential occupancy, not including hotels or motels, where there is not more than one dwelling unit above another dwelling unit. Such buildings include detached houses, semi-detached houses (duplexes), and row houses.

Any building that contains a dwelling unit above another dwelling unit must contain no more than 2 dwelling units and be 3 storeys or less in building height, including any basements. If the building contains more than 2 dwelling units or is more than 3 storeys in height, Subsection 9.10.14. applies.

A-9.10.15.4.(2) Staggered or Skewed Exposing Building Faces of Houses. Studies at the National Fire Laboratory of the National Research Council have shown that, where an exposing building face is stepped back from the property line or is at an angle to the property line, it is possible to increase the percentage
of glazing in those portions of the exposing building face further from the property line without increasing the amount of radiated energy that would reach the property line in the event of a fire in such a building. Figures A-9.10.15.4.(2)-A, A-9.10.15.4.(2)-B and A-9.10.15.4.(2)-C show how Sentences 9.10.15.4.(1) and (2), and 9.10.15.5.(1) and (3) can be applied to exposing building faces that are stepped back from or not parallel to the property line. The following procedure can be used to establish the maximum permitted area of glazed openings for such facades:

1. Calculate the total area of the exposing building face, i.e. facade of the fire compartment, as described in the definition of exposing building face.
2. Identify the portions into which the exposing building face is to be divided. It can be divided in any number of portions, not necessarily of equal size.
3. Measure the limiting distance for each portion. The limiting distance is measured along a line perpendicular to the wall surface from the point closest to the property line.
4. Establish the line in Table 9.10.15.4. from which the maximum permitted percentage area of glazed openings will be read. The selection of the line depends on the maximum area of exposing building face for the whole fire compartment, including all portions, as determined in Step 1.
5. On that line, read the maximum percentage area of glazed openings permitted in each portion of the exposing building face according to the limiting distance for that portion.
6. Calculate the maximum area of glazed openings permitted in each portion. The area is calculated from the percentage found applied to the area of that portion.

Table 9.10.15.4. is used to read the maximum area of glazed openings: this means that the opaque portion of doors does not have to be counted as for other types of buildings.

Table 9.10.15.4.

<table>
<thead>
<tr>
<th>Limiting Distance</th>
<th>0.4 m</th>
<th>1.2 m</th>
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<tr>
<td>Percentage Area</td>
<td>0%</td>
<td>7%</td>
<td>11%</td>
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<td>Permitted Area</td>
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<td>3 x 2.4 x 0.07 = 0.50 m²</td>
<td>6 x 2.4 x 0.11 = 1.58 m²</td>
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</table>

Figure A-9.10.15.4.(2)-A
Example of determination of criteria for the exposing building face of a staggered wall of a house
Figure A-9.10.15.4.(2)-B

Example of determination of criteria for the exposing building face of a skewed wall of a house with some arbitrary division of the wall

Note to Figure A-9.10.15.4.(2)-B:

(1) To simplify the calculations, choose the column for the lesser limiting distance nearest to the actual limiting distance. Interpolation for limiting distance is also acceptable and may result in a slightly larger permitted area of glazed openings. Interpolation can only be used for limiting distances greater than 1.2 m.
Permitted Projections. The definition of exposing building face provided in Sentence 1.4.1.2.(1) of Division A refers to “that part of the exterior wall of a building … or, where a building is divided into fire compartments, the exterior wall of a fire compartment ….” Because exposing building face is defined with respect to the exterior wall, projections from exposing building faces are elements that do not incorporate exterior walls. Depending on their specific configurations, examples of constructions that would normally be permitted by Sentence 9.10.15.5.(6) are balconies, platforms, canopies, eave projections and stairs. However, if a balcony, platform or stair is enclosed, its exterior wall would become part of an exposing building face and the construction could not be considered to be a projection from the exposing building face.

Protection at Projections. Sentence 9.10.15.5.(6) permits certain projections from exposing building faces where the constructions do not have exterior walls and thus clearly do not constitute part of the exposing building face. Sentence 9.10.15.5.(7) refers to other types of projections from the exposing building face, such as for fireplaces and chimneys. It is recognized that these present more vertical surface area compared to platforms, canopies and eave projections, and may be enclosed by constructions that are essentially the same as exterior walls. These constructions, however, do not enclose habitable space, are of limited width and may not extend a full storey in height. Consequently, Sentence 9.10.15.5.(7) allows these projections beyond the exposing building face of buildings identified in Sentence 9.10.15.5.(6) provided additional fire protection is installed on the projection.

Figure A-9.10.15.5.(7) illustrates projections that extend within 0.6 m or 1.2 m of the property line where additional protection must be provided. Where a projection extends within 0.6 m of the property line, it must be protected to the same degree as an exposing building face that has a limiting distance of less than 0.6 m. Where a projection extends within 1.2 m but not within 0.6 m of the property line, it must be protected to the same degree as an exposing building face that has a limiting distance of less than 1.2 m.
Protection is also required on the under-side of the projection where the projection is more than 0.6 m above finished ground level, measured at the exposing building face.

A-9.10.18.6.(1) Fire Alarm, Fire Detection and Smoke Detection Devices and Systems. A number of provisions captured by the cross-reference to Subsection 3.2.4. address issues already addressed in Subsection 9.10.18. and so are not applicable to Part 9 buildings. For example, Articles 9.10.18.2. and 9.10.18.8. identify the Part 9 buildings where fire alarm systems are required, so Article 3.2.4.1. does not apply.

Note that, because the cross-reference relating to sprinkler systems in Sentence 9.10.1.2.(8) refers only to Subsection 3.2.5., the requirements of Subsection 3.2.4. regarding electrical supervision and monitoring do not normally apply to sprinkler systems in Part 9 buildings. However, where a sprinkler system is installed in lieu of heat and smoke detectors according to Sentence 9.10.18.3.(3), electrical supervision and monitoring of the sprinkler system must comply with the provisions in Subsection 3.2.4.

A-9.10.19.2.(1) Location of Smoke Alarms. There are two important points to bear in mind when considering where to locate smoke alarms in dwelling units:

- The most frequent point of origin for fires in dwelling units is the living area.
- The main concern in locating smoke alarms is to provide warning to people asleep in bedrooms.

Thus a smoke alarm located in the living area and wired so as to sound another smoke alarm located near the bedrooms is the ideal solution. However, it is difficult to define exactly what is meant by “living area.” It is felt to be too stringent to require a smoke alarm in every part of a dwelling unit that could conceivably be considered a “living area” (living room, family room, study, etc.). Sentence 9.10.19.2.(1) therefore addresses these issues by requiring at least one smoke alarm on every storey and setting a maximum distance that any point on a floor level can be from a smoke alarm. Thus, in a dwelling unit complying with Sentence 9.10.19.2.(1), every living area will probably be located within a reasonable distance of a smoke alarm. Nevertheless, where a choice arises as to where on a storey to locate the required smoke alarm or alarms, one should be located as close as possible to a living area, provided the requirement for proximity to bedrooms is also satisfied.

Regarding location of smoke alarms in bedroom areas, generally the most economical choice will be to locate one alarm in a hallway serving several bedrooms. However, in a small dwelling where the bedrooms may be close to cooking areas, placing one alarm inside each bedroom may be a better choice as it makes them less prone to false alarms.
A-9.10.20.3.(1) **Fire Department Access Route Modification.** In addition to other considerations taken into account in the planning of fire department access routes, special variations could be permitted for a house or residential building that is protected with an automatic sprinkler system. The sprinkler system must be designed in accordance with the appropriate NFPA standard and there must be assurance that water supply pressure and quantity are unlikely to fail. These considerations could apply to buildings that are located on the sides of hills and are not conveniently accessible by roads designed for firefighting equipment and also to infill housing units that are located behind other buildings on a given property.

**A-9.10.22. Clearances from Gas, Propane and Electric Ranges.** The electrical regulations made pursuant to the Safety Codes Act, referenced in Article 9.34.1.1., and the gas regulations made pursuant to the Safety Codes Act, referenced in Article 9.10.22.1., address clearances directly above, in front of, behind and beside the appliance. Where side clearances are zero, the regulations do not address clearances to building elements located both above the level of the range elements or burners and to the side of the appliance. Through reference to the electrical regulations and the gas regulations and the requirements in Articles 9.10.22.2. and 9.10.22.3., the Alberta Building Code addresses all clearances. Where clearances are addressed by the Alberta Building Code and the electrical regulations or the gas regulations, conformance with all relevant criteria is achieved by compliance with the most stringent criteria.
Division C
Division C

SCHEDULE A-2

Confirmation of Commitment by Owner and by Registered Professional of Record

See Subsection 2.4.3. of Division C of the Alberta Building Code

To: The authority having jurisdiction

Date: ____________________________

Address

Postal Code

Re: Design and Field Review of Construction for the following project

Name of project

Address

Legal description

The owner has retained a registered professional of record to coordinate the design work and field reviews required for this project for:

☐ architecture  ☐ structural engineering  ☐ mechanical engineering
☐ electrical engineering  ☐ geotechnical engineering

The registered professional of record shall coordinate the design work and field review for that component of the project for which the professional of record is responsible in order to ensure the design will comply with the Alberta Building Code (ABC).

The owner and the registered professional of record have read and understand Part 1 of Division A and Part 2 of Division C, especially Subsection 2.4.3. of Division C, of the ABC.

The owner and the registered professional of record acknowledge their responsibility to notify the authority having jurisdiction should the registered professional cease to be retained by the owner.

The owner understands that should the registered professional of record cease to be retained at any time during construction, work on the portion of the project for which the registered professional is responsible will cease until such time as a new registered professional of record is retained, and a new letter in the form set out in Schedule A-2 is filed with the authority having jurisdiction.

The registered professional of record is a registered professional as defined in the ABC.
Schedule A-2 - Continued

<table>
<thead>
<tr>
<th>Registered Professional of Record</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

Signature  
Date  

Note: affix seals over signatures

I, _____________________, have signed on behalf of I, ______________________, have signed on behalf of

Firm  
Name  
Address  
Postal Code

<table>
<thead>
<tr>
<th>Firm</th>
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</table>

Note:  
1. This letter must be submitted before issuance of a building permit.  
2. In this letter the words in italics are defined in the Alberta Building Code.  
3. This letter must be signed by the owner and the registered professional. If signed by an agent, a letter of appointment must be attached. If the owner is a corporation, the letter must be signed by a signing officer of the corporation and the signing officer must set forth their position in the corporation.  
4. The term substantially comply is used in field review because a registered professional does not supervise the actual construction.  
5. The constructor is responsible for safety of the public and workers at the project site.

The Alberta Building Code defines a registered professional to mean  
a) a person who is registered or licensed to practice as an architect under the Architects Act, or  
b) a person who is registered or licensed to practice as a professional engineer under the Engineering, Geological and Geophysical Professions Act.