

Section 9.10. Fire Protection

9.10.1. Definitions and Application

9.10.1.1. Sloped Roofs

- 1) For the purposes of this Section, roofs with slopes of 60° or more to the horizontal that are adjacent to a room or space intended for *occupancy* shall be considered as a wall.

9.10.1.2. Testing of Integrated Fire Protection and Life Safety Systems

- 1) Where life safety and fire protection systems and systems with fire protection and life safety functions are integrated with each other, they shall be tested as a whole in accordance with CAN/ULC-S1001, “Integrated Systems Testing of Fire Protection and Life Safety Systems,” and the Fire By-law, to verify that they have been properly integrated. (See Note A-3.2.9.1.(1).)

9.10.1.3. Items under Part 3 Jurisdiction

- 1) Tents, *air-supported structures*, transformer vaults, *walkways*, elevators and escalators shall conform to Part 3.
- 2) Where rooms or spaces are intended for an *assembly occupancy*, such rooms or spaces shall conform to Part 3.
- 3) *Basements* containing more than 1 *storey* or exceeding 600 m² in area shall conform to Part 3.
- 4) Where rooms or spaces are intended for the storage, manufacture or use of hazardous or explosive material, such rooms or spaces shall conform to Part 3. (See Note A-3.3.1.2.(1).)
- 5) Except as provided in Article 3.3.5.8., facilities for the dispensing of fuel shall not be installed in any *building*.
- 6) Openings through floors that are not protected by shafts or *closures* shall be protected in conformance with Subsection 3.2.8. (See also Sentence 9.9.4.7.(1).)
- 7) Chutes and shafts shall conform to Subsection 3.6.3. except where they are entirely contained within a *dwelling unit*.
- 8) Sprinkler systems shall be designed, constructed and installed in conformance with Articles 3.2.5.12. to 3.2.5.15. and 3.2.5.17.
- 9) Standpipe and hose systems shall be designed, constructed and installed in conformance with Articles 3.2.5.8. to 3.2.5.11. and 3.2.5.17.
- 10) Fire pumps shall be installed in conformance with Articles 3.2.5.17. and 3.2.5.18.
- 11) Where fuel-fired *appliances* are installed on a roof, such *appliances* shall be installed in conformance with Article 3.6.1.5.

9.10.1.4. Items under Part 6 Jurisdiction

- 1) In kitchens containing commercial cooking equipment used in processes producing grease-laden vapours, the equipment shall be designed and installed in conformance with Article 6.3.1.7. (See Note A-9.10.1.4.(1).)

9.10.2. Occupancy Classification

9.10.2.1. Occupancy Classification

- 1) Except as provided in Article 9.10.2.2., every *building* or part thereof shall be classified according to its *major occupancy* as belonging to one of the groups or divisions described in Table 9.10.2.1.

Table 9.10.2.1.
Occupancy Classifications
 Forming Part of Sentence 9.10.2.1.(1)

Group	Division	Description of <i>Major Occupancies</i> ⁽¹⁾
C	–	Residential <i>occupancies</i>
D	–	Business and personal services <i>occupancies</i>
E	–	Mercantile <i>occupancies</i>
F	2	Medium-hazard industrial <i>occupancies</i>
F	3	Low-hazard industrial <i>occupancies</i> (Does not include <i>storage garages</i> serving individual <i>dwelling units</i>)

Notes to Table 9.10.2.1.:

(1) See Note A-3.1.2.1.(1).

9.10.2.2. Custodial, Convalescent and Residential Care Homes

1) Children's custodial homes and convalescent homes for ambulatory occupants living as a single housekeeping unit in a *dwelling unit* with sleeping accommodation for not more than 10 persons are permitted to be classified as *residential occupancies*.

2) A care facility accepted for residential use pursuant to provincial legislation is permitted to be classified as a *residential occupancy*, provided

- a) occupants live as a single housekeeping unit in a *dwelling unit* with sleeping accommodation for not more than 10 persons,
- b) *smoke alarms* are installed in conformance with Subsection 9.10.19.,
- c) emergency lighting is provided in conformance with Article 9.9.12.3., and
- d) the *building* is *sprinklered* throughout.

9.10.2.3. Group A, Division 2, Low Occupant Load

1) This Part may apply to a Group A, Division 2 *assembly occupancy* that is permitted by Article 3.1.2.6. to be classified as a Group D, *business and personal services occupancy*, provided the *building* in which the *assembly occupancy* is located complies with Sentence 1.3.3.3.(1) of Division A.

(See Note A-3.1.2.6.)

9.10.2.4. Major Occupancies above Other Major Occupancies

1) Except as permitted in Article 9.10.2.4., in any *building* containing more than one *major occupancy* in which one *major occupancy* is located entirely above another, the requirements of Article 9.10.8.1. for each portion of the *building* containing a *major occupancy* shall be applied to that portion as if the entire *building* was of that *major occupancy*.

9.10.2.5. Buildings Containing More Than One Major Occupancy

1) In a *building* containing more than one *major occupancy*, where the aggregate area of all *major occupancies* in a particular group or division does not exceed 10% of the *floor area* on the *storey* on which they are located, they need not be considered as *major occupancies* for the purposes of Articles 9.10.8.1. and 9.10.2.3. provided they are not classified as Group F, Division 2 *occupancies*.

9.10.3. Ratings

9.10.3.1. Fire-Resistance and Fire-Protection Ratings

1) Where a *fire-resistance rating* or a *fire-protection rating* is required in this Section for an element of a *building*, such rating shall be determined in conformance with

- a) the test methods described in Part 3,
- b) the calculation method presented in Appendix D, or

- c) the construction specifications presented in Tables 9.10.3.1.-A and 9.10.3.1.-B.

2) Deleted.

3) Deleted.

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9.10.3.2. Flame-Spread Ratings

- 1) Where a *flame-spread rating* is required in this Section for an element of a *building*, such rating shall be determined in accordance with the test methods described in Part 3, or in accordance with Appendix D.
- 2) Unless the *flame-spread rating* is referred to herein as a “surface *flame-spread rating*,” it shall apply to any surface of the element being considered that would be exposed by cutting through it as well as to the exposed surface of the element.

9.10.3.3. Fire Exposure

- 1) Floor, roof and ceiling assemblies shall be rated for exposure to fire on the underside.
- 2) Exterior walls shall be rated for exposure to fire from inside the *building*, except that such walls need not comply with the temperature rise limitations required by the standard tests referred to in Article 9.10.3.1. if such walls have a *limiting distance* of not less than 1.2 m, and due allowance is made for the effects of heat radiation in accordance with the requirements in Part 3.
- 3) Interior vertical *fire separations* required to have *fire-resistance ratings* shall be rated for exposure to fire on each side.

9.10.3.4. Suspended Membrane Ceilings

- 1) Where a ceiling construction has a suspended membrane ceiling with lay-in panels or tiles which contribute to the required *fire-resistance rating*, hold down clips or other means shall be provided to prevent the lifting of such panels or tiles in the event of a fire.

9.10.4. Building Size Determination

9.10.4.1. Mezzanines not Considered as Storeys

- 1) Except as required by Sentences (2) and 9.10.4.2.(1), the space above a *mezzanine* is permitted to be excluded from the calculation of *building height*, provided
 - a) the aggregate area of *mezzanines* that are not superimposed does not exceed 10% of the *floor area* of the *building* in which they are located, and
 - b) the area of *mezzanine* in a *suite* does not exceed 10% of the area of that *suite* on the *storey* on which it is located.
- 2) Except as required by Sentence 9.10.4.2.(1), the space above a *mezzanine* need not be considered as a *storey* in calculating the *building height*, provided
 - a) not less than 60% of the horizontal plane separating the *mezzanine* from the room or floor space in which it is located is open, and
 - b) except from within enclosed spaces described in Sentence (3), the space above the *mezzanine* is used as an open area without *partitions* or subdividing walls higher than 1 070 mm above the *mezzanine* floor.

(See also Note A-3.2.1.1.(3).)
- 3) The space above a *mezzanine* conforming to Sentence (2) is permitted to include an enclosed space whose area does not exceed 10% of the open area of the room in which the *mezzanine* is located, provided the enclosed space does not obstruct visual communication between the open space above the *mezzanine* and the room in which it is located.
- 4) For the purpose of determining *occupant load*, the areas of *mezzanines* that are not considered as *storeys* shall be added to the *floor area* of the *storey* on which they are located. (See Note A-9.10.4.1.(4).)
- 5) Platforms and catwalks intended solely for periodic inspection and maintenance need not be considered as floor assemblies or *mezzanines* for the purpose of calculating *building height*, provided
 - a) they are not used for storage, and
 - b) they are constructed with *noncombustible* materials, unless the *building* is permitted to be of *combustible construction*.

9.10.4.2. More Than One Level of Mezzanine

1) Each level of *mezzanine* that is partly or wholly superimposed above the first level of *mezzanine* shall be considered as a *storey* in calculating the *building height*.

9.10.4.3. Basement Storage Garages

1) Where a *basement* is used primarily as a *storage garage*, the *basement* is permitted to be considered as a separate *building* for the purposes of this Section provided the floor above the *basement* and the exterior walls of the *basement* above the adjoining ground level are constructed as *fire separations* of masonry or concrete having a *fire-resistance rating* of not less than 2 h, except as permitted by Sentences 3.2.1.2.(2) and (3).

9.10.4.4. Roof-Top Enclosures

1) A roof-top enclosure shall not be considered as a *storey* in calculating the *building height* if the roof-top enclosure is **provided for**

- a) **elevator machinery,**
- b) **a service room,**
- c) **a stairway used for no purpose other than for access or egress,**
- d) **an elevator lobby used for no purpose other than for access or egress, or**
- e) **a combination thereof.**

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9.10.5. Permitted Openings in Wall and Ceiling Membranes**9.10.5.1. Permitted Openings in Wall and Ceiling Membranes**

1) Except as permitted in Sentences (2) and (4), a membrane forming part of an assembly required to have a *fire-resistance rating* shall not be pierced by openings into the assembly unless the assembly has been tested and rated for such openings.

2) A wall or ceiling membrane forming part of an assembly required to have a *fire-resistance rating* is permitted to be pierced by openings for electrical and similar service outlet boxes provided such outlet boxes are tightly fitted.

3) Where boxes referred to in Sentence (2) are located on both sides of walls required to provide a *fire-resistance rating*, they shall be offset where necessary to maintain the integrity of the *fire separation*.

4) A membrane ceiling forming part of an assembly assigned a *fire-resistance rating* on the basis of Table 9.10.3.1.-B or Appendix D is permitted to be pierced by openings leading to ducts within the ceiling space provided the ducts, the amount of openings and their protection conform to the requirements of Appendix D.

9.10.6. Construction Types**9.10.6.1. Combustible Elements in Noncombustible Construction**

1) Where a *building* or part of a *building* is required to be of *noncombustible construction*, *combustible* elements shall be limited in conformance with the requirements in Subsection 3.1.5.

9.10.6.2. Heavy Timber Construction

1) *Heavy timber construction* shall be considered to have a 45 min *fire-resistance rating* when it is constructed in accordance with the requirements for *heavy timber construction* in Article 3.1.4.7.

9.10.7. Steel Members**9.10.7.1. Protection of Steel Members**

1) Except as permitted in Article 3.2.2.3., structural steel members used in construction required to have a *fire-resistance rating* shall be protected to provide the required *fire-resistance rating*.

9.10.8. Fire Resistance and Combustibility in Relation to Occupancy, Height and Supported Elements

9.10.8.1. Fire-Resistance Ratings for Floors and Roofs

1) Except as otherwise provided in this Subsection, the *fire-resistance ratings* of floors and roofs shall conform to Table 9.10.8.1. (See Subsection 9.10.2. for mixed *occupancies* and Subsection 9.10.21. for construction camps.)

Table 9.10.8.1.
Fire-Resistance Ratings for Structural Members and Assemblies
Forming Part of Sentence 9.10.8.1.(1)

Major Occupancy	Maximum Building Height, storeys	Minimum Fire-Resistance Rating by Building Element, min		
		Floors Except Floors over Crawl Spaces	Mezzanine Floors	Roofs
Residential (Group C)	3	45	45	–
All other <i>occupancies</i>	2	45	–	–
	3	45	45	45

9.10.8.2. Fire-Resistance Ratings in Sprinklered Buildings

1) The requirements in Table 9.10.8.1. for roof assemblies to have a *fire-resistance rating* are permitted to be waived in *sprinklered buildings* where

- a) the sprinkler system is electrically supervised in conformance with Sentence 3.2.4.9.(3), and
- b) the operation of the sprinkler system will cause a signal to be transmitted to the fire department in conformance with Sentence 3.2.4.7.(4).

9.10.8.3. Fire-Resistance Ratings for Walls, Columns and Arches

1) Except as otherwise provided in this Subsection, all *loadbearing* walls, columns and arches in the *storey* immediately below a floor or roof assembly shall have a *fire-resistance rating* of not less than that required for the supported floor or roof assembly.

2) **Reserved.**

9.10.8.4. Support of Noncombustible Construction

1) Where an assembly is required to be of *noncombustible construction* and to have a *fire-resistance rating*, it shall be supported by *noncombustible construction*.

9.10.8.5. Service Rooms

1) *Construction* supporting a *service room* need not conform to Article 9.10.8.3.

9.10.8.6. Mezzanines

1) *Mezzanines* required to be counted as *storeys* in Articles 9.10.4.1. and 9.10.4.2. shall be constructed in conformance with the requirements for “Floors Except Floors over Crawl Spaces” in Table 9.10.8.1.

9.10.8.7. Roofs Supporting an Occupancy

1) Where a portion of a roof supports an *occupancy*, that portion shall be constructed as a *fire separation* having a *fire-resistance rating* conforming to the rating for “Floors Except Floors over Crawl Spaces” in Table 9.10.8.1.

9.10.8.8. Floors of Exterior Passageways

1) Except as provided in Sentences (2) and (3), the floor assembly of every exterior passageway used as part of a *means of egress* shall have a *fire-resistance rating* of not less than 45 min or be of *noncombustible construction*.

2) No *fire-resistance rating* is required for floors of exterior passageways serving *buildings* of Group D, E or F *major occupancy* that are not more than 2 *storeys* in *building height*.

- 3) No *fire-resistance rating* is required for floors of exterior passageways serving
 - a) **reserved**,
 - b) a *single dwelling unit* where no *suite* is located above or below the *dwelling unit* (see also Sentence 9.9.9.3.(2)).

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9.10.8.9. Crawl Spaces

- 1) Where a crawl space exceeds 1.8 m in height or is used for any *occupancy* or as a *plenum* in *combustible construction* or for the passage of *flue pipes*, it shall be considered as a *basement* in applying the requirements in Article 9.10.8.1.

9.10.8.10. Application to Houses

- 1) Table 9.10.8.1. does not apply to
 - a) a *dwelling unit* that has no other *dwelling unit* above or below it,
 - b) **deleted**, or
 - c) a *dwelling unit* that is not above or below another *major occupancy*.

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9.10.8.11. Part 3 as an Alternative

- 1) The *fire-resistance ratings* of floors, roofs, *loadbearing* walls, columns and arches need not conform to this Subsection if such assemblies conform in all respects to the appropriate requirements in Section 3.2.

9.10.9. Fire Separations between Rooms and Spaces within Buildings

9.10.9.1. Application

- 1) This Subsection applies to
 - a) *fire separations* required between rooms and spaces in *buildings*, except between rooms and spaces within a *dwelling unit*, and
 - b) **reserved**.

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9.10.9.2. Continuous Barrier

- 1) Except as permitted in Article 9.10.9.3., a wall or floor assembly required to be a *fire separation* shall be constructed as a continuous barrier against the spread of fire and retard the passage of smoke.
- 2) **Reserved.**
- 3) The continuity of a *fire separation* shall be maintained where it abuts another *fire separation*, a floor, a ceiling, a roof, or an exterior wall assembly. (See Note A-3.1.8.3.(4).)
- 4) All gypsum board joints in the assemblies described in Sentence (1) shall conform to CSA A82.31-M, "Gypsum Board Application," and penetrations in these assemblies shall be sealed using flexible sealant or tape to maintain the integrity over the entire surface.

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9.10.9.3. Openings to be Protected with Closures

- 1) Except as permitted in Articles 9.10.9.5., 9.10.9.6. and 9.10.9.7., openings in required *fire separations* shall be protected with *closures* conforming to Subsection 9.10.13.

2) **Deleted.**

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9.10.9.4. Floor Assemblies

- 1) Except as permitted in Sentences (2) to (4), all floor assemblies shall be constructed as *fire separations*.
- 2) Floor assemblies contained within *dwelling units* need not be constructed as *fire separations*.
- 3) Floor assemblies for which no *fire-resistance rating* is required by Subsection 9.10.8. and floors of *mezzanines* not required to be counted as *storeys* in Articles 9.10.4.1. and 9.10.4.2. need not be constructed as *fire separations*.
- 4) Where a crawl space is not required by Article 9.10.8.9. to be constructed as a *basement*, the floor above it need not be constructed as a *fire separation*.

9.10.9.5. Interconnected Floor Spaces

- 1) *Interconnected floor spaces* shall conform to Subsection 3.2.8.

9.10.9.6. Penetration of Fire Separations

(See Note A-3.1.9.)

1) Piping, tubing, ducts, *chimneys*, wiring, conduit, electrical outlet boxes and other similar service equipment that penetrate a required *fire separation* shall be tightly fitted or fire stopped to maintain the integrity of the separation. (See Note A-9.10.9.6.(1).)

2) Penetrations of a *firewall* shall be sealed at the penetration by a *fire stop* that, when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems,” has an FT rating not less than the *fire-resistance rating* for the *fire separation*.

3) Except as provided in Sentences (4) to (12) and Article 9.10.9.7., pipes, ducts, electrical boxes, totally enclosed raceways or other similar service equipment that partly or wholly penetrate an assembly required to have a *fire-resistance rating* shall be *noncombustible* unless the assembly has been tested incorporating such equipment. (See Note A-3.1.9.2.(1).)

4) Electrical wires or similar wiring enclosed in *noncombustible* totally enclosed raceways are permitted to partly or wholly penetrate an assembly required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required in Sentence (3).

5) Single conductor metal-sheathed cables with *combustible* jacketing that are more than 25 mm in overall diameter are permitted to penetrate a *fire separation* required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required in Sentence (3), provided the cables are not grouped and are spaced a minimum of 300 mm apart.

6) Electrical wires or cables, single or grouped, with *combustible* insulation or jacketing that is not totally enclosed in raceways of *noncombustible* material, are permitted to partly or wholly penetrate an assembly required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required in Sentence (3), provided the overall diameter of the wiring is not more than 25 mm.

7) *Combustible* totally enclosed raceways which are embedded in a concrete floor slab are permitted in an assembly required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required in Sentence (3), where the concrete provides not less than 50 mm of cover between the raceway and the bottom of the slab.

8) *Combustible* outlet boxes are permitted in an assembly required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required in Sentence (3), provided the opening through the membrane into the box does not exceed 160 cm².

9) *Combustible* water distribution piping is permitted to partly or wholly penetrate a *fire separation* that is required to have a *fire-resistance rating* without being incorporated in the assembly at the time of testing as required in Sentence (3), provided the piping is protected with a *fire stop* in conformance with Sentence 3.1.9.5.(4).

10) *Combustible* sprinkler piping is permitted to penetrate a *fire separation* provided the *fire compartments* on each side of the *fire separation* are *sprinklered*.

11) Sprinklers are permitted to penetrate a *fire separation* or a membrane forming part of an assembly required to have a *fire-resistance rating* without having to meet the *fire stop* requirements of Sentence (1), provided the annular space created by the penetration of a fire sprinkler is covered by a metal escutcheon plate in accordance with NFPA 13, “Installation of Sprinkler Systems.”

12) *Combustible* piping for central vacuum systems is permitted to penetrate a *fire separation* provided the installation conforms to the requirements that apply to *combustible* drain, waste and vent piping specified in Sentences 9.10.9.7.(2) to (6).

13) *Fire dampers* are permitted to penetrate a *fire separation* or a membrane forming part of an assembly required to have a *fire-resistance rating* without having to meet the *fire stop* requirements of Sentence (1), provided the *fire damper* is

- a) installed in conformance with NFPA 80, “Fire Doors and Other Opening Protectives,” or
- b) specifically designed with a *fire stop*.

9.10.9.7. Combustible Drain, Waste and Vent Piping

(See Note A-3.1.9.)

- 1) Except as permitted in Sentences (2) to (6), *combustible* piping shall not be used in any part of a drain, waste and vent piping system where any part of that system partly or wholly penetrates a *fire separation* required to have a *fire-resistance rating* or penetrates a membrane that contributes to the required *fire-resistance rating* of an assembly.
- 2) *Combustible* drain, waste and vent piping not located in a vertical shaft is permitted to penetrate a *fire separation* required to have a *fire-resistance rating* or a membrane that forms part of an assembly required to have a *fire-resistance rating* provided the piping is sealed at the penetration by a *fire stop* that has an F rating not less than the *fire-resistance rating* required for the *fire separation*.
- 3) The rating referred to in Sentence (2) shall be based on CAN/ULC-S115, “Fire Tests of Firestop Systems,” with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side.
- 4) *Combustible* drain piping is permitted to penetrate a horizontal *fire separation* or a membrane that contributes to the required *fire-resistance rating* of a horizontal *fire separation*, provided it leads directly from a *noncombustible* watercloset through a concrete floor slab.
- 5) *Combustible* drain, waste and vent piping is permitted on one side of a vertical *fire separation* provided it is not located in a vertical shaft.
- 6) In *buildings* containing 2 *dwelling units* only, *combustible* drain, waste and vent piping is permitted on one side of a horizontal *fire separation*.

9.10.9.8. Collapse of Combustible Construction

- 1) *Combustible construction* that abuts on or is supported by a *noncombustible fire separation* shall be constructed so that its collapse under fire conditions will not cause collapse of the *fire separation*.

9.10.9.9. Reduction in Thickness of Fire Separation by Beams and Joists

- 1) Where pockets for the support of beams or joists are formed in masonry or concrete *fire separation*, the remaining total thickness of masonry and/or grout and/or concrete shall be not less than the required equivalent thickness shown for Type S monolithic concrete in Table D-2.1.1. in Appendix D for the required *fire-resistance rating*.

9.10.9.10. Concealed Spaces above Fire Separations

- 1) Except as provided in Sentence (2), a *horizontal service space* or other concealed space located above a required vertical *fire separation* shall be divided at the *fire separation* by an equivalent *fire separation* within the space.
- 2) Where a *horizontal service space* or other concealed space is located above a required vertical *fire separation* other than a vertical shaft, such space need not be divided as required in Sentence (1) provided the construction between such space and the space below is constructed as a *fire separation* having a *fire-resistance rating* not less than that required for the vertical *fire separation*, except that where the vertical *fire separation* is not required to have a *fire-resistance rating* greater than 45 min, the *fire-resistance rating* of the ceiling may be reduced to 30 min.

9.10.9.11. Separation of Residential Occupancies

- 1) Except as provided in Sentence (2), *residential occupancies* shall be separated from all other *major occupancies* by a *fire separation* having a *fire-resistance rating* of not less than 1 h.
- 2) Except as provided in Sentence (3), a *major occupancy* classified as a *residential occupancy* shall be separated from other *major occupancies* classified as *mercantile* or *medium-hazard industrial occupancies* by a *fire separation* having a *fire-resistance rating* of not less than 2 h.
- 3) Where not more than 2 *dwelling units* are located in a *building* containing a *mercantile occupancy*, such *mercantile occupancy* shall be separated from the *dwelling units* by a *fire separation* having not less than 1 h *fire-resistance rating*.

9.10.9.12. Residential Suites in Industrial Buildings

- 1) Not more than one *suite* of *residential occupancy* shall be contained within a *building* classified as a Group F, Division 2 *major occupancy*.

9.10.9.13. Separation of Suites

- 1) Except as required in Article 9.10.9.14. and as permitted by Sentences (2) and (3), a *suite* shall be separated from adjoining *suites* by a *fire separation* having a *fire-resistance rating* of not less than 45 min.
- 2) In *sprinklered buildings*, *suites of business and personal services occupancy* and *mercantile occupancy* that are served by *public corridors* conforming with Clause 3.3.1.4.(4)(b) are not required to be separated from each other by *fire separations*.
- 3) No *fire separation* is required between *suites of business and personal services occupancy*.

9.10.9.14. Separation of Residential Suites

- 1) Except as provided in Sentences (2) and (3) and Article 9.10.21.2., *suites in residential occupancies* shall be separated from adjacent rooms and *suites* by a *fire separation* having a *fire-resistance rating* of not less than 45 min.
- 2) Sleeping rooms in boarding and lodging houses where sleeping accommodation is provided for not more than 8 boarders or lodgers need not be separated from the remainder of the *floor area* as required in Sentence (1) where the sleeping rooms form part of the proprietor's residence and do not contain cooking facilities.
- 3) *Dwelling units* that contain 2 or more *storeys* including *basements* shall be separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* of not less than 1 h. (See Note A-3.3.4.4.(1).)

4) **Deleted.**

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9.10.9.15. Separation of Public Corridors

- 1) Except as provided in Sentences (2) and (3), *public corridors* shall be separated from the remainder of the *building* by a *fire separation* having not less than a 45 min *fire-resistance rating*.
- 2) In other than *residential occupancies*, no *fire-resistance rating* is required for *fire separations* between a *public corridor* and the remainder of the *building* if
 - a) the *floor area* is *sprinklered*,
 - b) the sprinkler system is electrically supervised in conformance with Sentence 3.2.4.9.(3), and
 - c) the operation of the sprinkler system will cause a signal to be transmitted to the fire department in conformance with Sentence 3.2.4.7.(4).
- 3) In other than *residential occupancies*, no *fire separation* is required between a *public corridor* and the remainder of the *building* if
 - a) the *floor area* is *sprinklered*,
 - b) the sprinkler system is electrically supervised in conformance with Sentence 3.2.4.9.(3),
 - c) the operation of the sprinkler system will cause a signal to be transmitted to the fire department in conformance with Sentence 3.2.4.7.(4), and
 - d) the corridor exceeds 5 m in width.

4) **Deleted.**

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9.10.9.16. Separation of Storage Garages

- 1) Except as provided in Sentences (2) and (3), a *storage garage* shall be separated from other *occupancies* by a *fire separation* having not less than a 1.5 h *fire-resistance rating*.
 - 2) Except as permitted in Sentence (3), *storage garages* containing 5 motor vehicles or fewer shall be separated from other *occupancies* by a *fire separation* of not less than 1 h.
 - 3) Where a *storage garage serves only the dwelling unit* to which it is attached or in which it is built, it shall be considered as part of that *dwelling unit* and the *fire separation* required in Sentence (2) need not be provided between the garage and the *dwelling unit*.
 - 4) Except as provided in Sentence (5), where a *storage garage* is attached to or built into a *building of residential occupancy*,
 - a) an *air barrier system* conforming to Subsection 9.25.3. shall be installed between the garage and the remainder of the *building* to provide an effective barrier to gas and exhaust fumes, and
 - b) every door between the garage and the remainder of the *building* shall conform to Article 9.10.13.15.
- (See Note A-9.10.9.16.(4).)

5) Where membrane materials are used to provide the required airtightness in the *air barrier system*, all joints shall be sealed and structurally supported.

9.10.9.17. Separation of Repair Garages

1) Except as provided in Sentences (2) and (3), a *repair garage* shall be separated from other *occupancies* by a *fire separation* having a *fire-resistance rating* of not less than 2 h.

2) Ancillary spaces directly serving a *repair garage*, including waiting rooms, reception rooms, tool and parts storage areas and supervisory office space, need not be separated from the *repair garage* but shall be separated from other *occupancies* as required in Sentence (1).

3) The *fire separation* referred to in Sentence (1) shall have a *fire-resistance rating* of not less than 1 h, where

- a) the *building* is not more than one *storey* in *building height*,
- b) the *building* is operated as a single *suite*, and
- c) the only *occupancy* other than the *repair garage* is a *mercantile occupancy*.

4) Except as provided in Sentence (5), where a *building* containing a *repair garage* also contains a *dwelling unit*, an *air barrier system* conforming to Subsection 9.25.3. shall be installed between the *dwelling unit* and the *suite* containing the garage to provide an effective barrier to gas and exhaust fumes. (See Note A-9.10.9.16.(4).)

5) Where membrane materials are used to provide the required airtightness in the *air barrier system*, all joints shall be sealed and structurally supported.

9.10.9.18. Exhaust Ducts Serving More Than One Fire Compartment

1) Where a *vertical service space* contains an *exhaust duct* that serves more than one *fire compartment*, the duct shall have a fan located at or near the exhaust outlet to ensure that the duct is under negative pressure.

2) Individual *fire compartments* referred to in Sentence (1) shall not have fans that exhaust directly into the duct in the *vertical service space*.

9.10.9.19. Central Vacuum Systems

1) A central vacuum system shall serve not more than one *suite*.

9.10.9.20. Multiple Tenant Self Storage Warehouses

1) Multiple tenant self-storage warehouses shall comply with Article 3.3.5.9.

9.10.10. Service Rooms

9.10.10.1. Application

1) This Subsection applies to *service rooms* in all *buildings* except rooms located within a *dwelling unit*.

9.10.10.2. Service Room Floors

1) The *fire-resistance rating* requirements in this Subsection do not apply to the floor assembly immediately below a *service room*.

9.10.10.3. Separation of Service Rooms

1) Except as provided in Sentence (2) and Articles 9.10.10.5. and 9.10.10.6., *service rooms* shall be separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* of not less than 1 h when the *floor area* containing the *service room* is not *sprinklered*.

2) Where a room contains a limited quantity of service equipment and the service equipment does not constitute a fire hazard, the requirements in Sentence (1) shall not apply.

9.10.10.4. Location of Fuel-Fired Appliances

1) Except as provided in Sentences (2) and (3) and Article 9.10.10.5., fuel-fired *appliances* shall be located in a *service room* separated from the remainder of the *building* by a *fire separation* having not less than a 1 h *fire-resistance rating*.

2) Except as required in the *appliance* installation standards referenced in Sentences 6.2.1.5.(1), 9.33.5.2.(1) and 9.33.5.3.(1), fuel-fired *space-heating appliances*, *space-cooling appliances*, *service water heaters* and *laundry appliances* need not be separated from the remainder of the *building* as required in Sentence (1),

- a) where the *appliances* serve
 - i) not more than one room or *suite*, or
 - ii) a *building* with a *building area* of not more than 400 m² and a *building height* of not more than 2 storeys, or
 - b) where the *appliances*
 - i) serve a *principal dwelling unit*, ancillary residential unit, or their common spaces, and
 - ii) are located in a *service room* separated from the *dwelling units* or their common spaces by a *fire separation* having a *fire-resistance rating* not less than the *fire-resistance rating* required for the *fire separation* between the *dwelling units* or common spaces.
- 3) Sentence (1) does not apply to fireplaces and cooking *appliances*.

9.10.10.5. Incinerators

- 1) *Service rooms* containing incinerators shall be separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* of not less than 2 h.
- 2) The design, construction, installation and *alteration* of each indoor incinerator shall conform to NFPA 82, “Incinerators and Waste and Linen Handling Systems and Equipment.”
- 3) Every incinerator shall be connected to a *chimney flue* conforming to the requirements in Section 9.21. and serving no other *appliance*.
- 4) An incinerator shall not be located in a room with other fuel-fired *appliances*.

9.10.10.6. Storage Rooms

- 1) Rooms for the temporary storage of *combustible* refuse in all *occupancies* or for public storage in *residential occupancies* shall be separated from the remainder of the *building* by a *fire separation* having not less than a 1 h *fire-resistance rating*, except that a 45 min *fire separation* is permitted where the *fire-resistance rating* of the floor assembly is not required to exceed 45 min, or where such rooms are *sprinklered*.

9.10.11. Firewalls

9.10.11.1. Required Firewalls

- 1) Except as provided in Article 9.10.11.2., a *party wall* on a property line shall be constructed as a *firewall*. (See Note A-3.2.3.4.(1).)

9.10.11.2. Firewalls Not Required

1) A *party wall* on a property line of a *building* of *residential occupancy* need not be constructed as a *firewall*, provided it is constructed as a *fire separation* having not less than a 1 h *fire-resistance rating*, where the *party wall* separates

- a) two *dwelling units* where there is no *dwelling unit* above another *dwelling unit*,
- b) a *dwelling unit* and a house with a *secondary suite* including their common spaces, or
- c) two houses with a *secondary suite* including their common spaces.

2) **Reserved.**

3) The wall described in Sentence (1) shall provide continuous protection from the top of the footings to the underside of the roof deck.

4) Any space between the top of the wall described in Sentence (1) and the roof deck shall be tightly filled with mineral wool or *noncombustible* material.

9.10.11.3. Construction of Firewalls

- 1) Where *firewalls* are used, the requirements in Part 3 shall apply.

9.10.12. Prevention of Fire Spread at Exterior Walls and between Storeys

9.10.12.1. Termination of Floors or Mezzanines

- 1) Except as provided in Sentence (2) and in Articles 9.10.1.3. and 9.10.9.5., the portions of a *floor area* or *mezzanine* that do not terminate at an exterior wall, a *firewall* or a vertical shaft, shall terminate at a vertical *fire separation* having a *fire-resistance rating* not less than that required for the floor assembly that terminates at the separation.
- 2) A *mezzanine* need not terminate at a vertical *fire separation* where the *mezzanine* is not required to be considered as a *storey* in Articles 9.10.4.1. and 9.10.4.2.

9.10.12.2. Location of Skylights

- 1) Where a wall in a *building* is exposed to a fire hazard from an adjoining roof of a separate unsprinklered *fire compartment* in the same *building*, the roof shall contain no skylights within a horizontal distance of 5 m of the windows in the exposed wall.

9.10.12.3. Exterior Walls Meeting at an Angle

- 1) Except as provided in Article 9.9.4.5., where exterior walls of a *building* meet at an external angle of 135° or less, the horizontal distance from an *unprotected opening* in one exterior wall to an *unprotected opening* in the other exterior wall shall be not less than 1.2 m, where these openings are
 - a) in different *fire compartments*, or
 - b) in different *dwelling units*.
- 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*.
- 3) **Reserved.**

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 Note A-9.10.12.4.(1).)
- 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
 - i) a *fire separation* is required at the floor between the two,
 - ii) **reserved**, or
 - c) a floor space where an upper *storey* projects beyond the exterior wall of a lower *storey*, and the projection is continuous across
 - i) a vertical *fire separation* separating two *suites*, or
 - ii) **reserved**.
- 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 board installed according to CSA A82.31-M, "Gypsum Board Application,"
 - 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 Note A-9.10.12.4.(3).)

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 blocks*, 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 3.2.5.12.

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 Other Opening Protectives,” 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)

Required Fire-Resistance Rating of Fire Separation	Minimum Fire-Protection Rating of Closure
30 or 45 min	20 min ⁽¹⁾
1 h	45 min ⁽¹⁾
1.5 h	1 h
2 h	1.5 h
3 h	2 h
4 h	3 h

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, between an *ancillary residential unit* and its *principal dwelling unit*, or between a *public corridor* and a *suite provided that the door conforms to CAN/ULC-S113, “Wood Core Doors Meeting the Performance Required by CAN/ULC-S104 for Twenty Minute Fire Rated Closure Assemblies.”* (See Note A-9.10.13.2.(1).)

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 9.6.1.2. 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 CAN/ULC-S105, “Fire Door Frames Meeting the Performance Required by CAN/ULC-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 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 3.1.8.14.

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 3.1.8.10.

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 6.3.1.7.)

9.10.13.14. Fire Stop Flaps

- 1) *Fire stop flaps* in ceiling membranes referred to in Sentence 9.10.5.1.(4) shall
 - a) conform to CAN/ULC-S112.2, “Fire Test of Ceiling Firestop Flap Assemblies,” and
 - b) activate at a temperature approximately 30°C above the normal maximum temperature that occurs in the ducts, whether the air duct system is operating or shut down.

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. Spatial Separation Between Buildings

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) Except as permitted by Sentence (2), 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 the total area measured from the finished ground level to the uppermost ceiling.
- 2) If a *building* is divided by *fire separations* into *fire compartments*, the area of *exposing building face* is permitted to be calculated for each *fire compartment*, provided the *fire separations* have a *fire-resistance rating* not less than 45 min.
- 3) 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 Note A-3.2.3.1.(4).)
- 4) For the purpose of using Table 9.10.14.5.-A 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.-A) shall be determined using the *limiting distance* measured from the location described in Clause (a). (See Note A-3.2.3.1.(4).)

9.10.14.3. Limiting Distance and Fire Department Response

- 1) Except for the purpose of applying Sentences 9.10.14.4.(2), (3), (8) and (9), and Sentences 9.10.14.5.(3), (8) and (13), 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 arrives at the *building* exceeds 10 min in 10% or more of all calls to the *building*, and

- b) any storey in the *building* is not *sprinklered*.
(See Notes A-3.2.3. and A-3.2.3.1.(8).)

9.10.14.4. Openings in Exposing Building Face

- 1) Except as provided in Sentences (6) to (10), the maximum aggregate area of *unprotected openings* in an *exposing building face* shall
- conform to Table 9.10.14.4.-A,
 - conform to Subsection 3.2.3., or
 - where the *limiting distance* is not less than 1.2 m, be equal to or less than
 - the *limiting distance* squared, for *residential occupancies, business and personal services occupancies* and *low-hazard industrial occupancies*, and
 - 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⁽¹⁾
Forming Part of Sentence 9.10.14.4.(1)

Occupancy Classification of Building	Maximum Total Area of Exposing Building Face, m ²	Maximum Aggregate Area of Unprotected Openings, % of Exposing Building Face Area											
		Limiting Distance, m											
		Less than 1.2	1.2	1.5	2.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
<i>Residential, business and personal services, and low-hazard industrial</i>	30	0	7	9	12	39	88	100	–	–	–	–	–
	40	0	7	8	11	32	69	100	–	–	–	–	–
	50	0	7	8	10	28	57	100	–	–	–	–	–
	100	0	7	8	9	18	34	56	84	100	–	–	–
	Over 100	0	7	7	8	12	19	28	40	55	92	100	–
<i>Mercantile and medium-hazard industrial</i>	30	0	4	4	6	20	44	80	100	–	–	–	–
	40	0	4	4	6	16	34	61	97	100	–	–	–
	50	0	4	4	5	14	29	50	79	100	–	–	–
	100	0	4	4	4	9	17	28	42	60	100	–	–
	Over 100	0	4	4	4	6	10	14	20	27	46	70	100

Notes to Table 9.10.14.4.-A:

- (1) See also Sentences (6) and (7) to calculate the maximum permitted area of *unprotected openings* in sprinklered buildings or where wired glass or glass blocks are used.

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) Except for *buildings* that are *sprinklered* and for openable windows having an unobstructed opening equal to 0.35 m² installed in accordance with Sentences 9.9.10.1.(1) and (2), where the *limiting distance* is 2 m or less, individual *unprotected openings* shall be no greater than

- the area stated in Table 9.10.14.4.-B, or
- where the *limiting distance* is equal to or greater than 1.2 m, the area calculated by

$$\text{Area} = 0.24 (2 \times \text{LD} - 1.2)^2$$

where

Area = area of the *unprotected opening*, and
LD = *limiting distance*.

Table 9.10.14.4.-B
Maximum Concentrated Area of Unprotected Openings
 Forming Part of Sentence 9.10.14.4.(3)

<i>Limiting Distance, m</i>	<i>Maximum Area of Individual Unprotected Openings, m²</i>
1.2	0.35
1.5	0.78
2.0	1.88

- 4)** The spacing between individual *unprotected openings* described in Sentence (3) that serve a single room or space described in Sentence (5) shall be not less than
- a) 2 m horizontally of another *unprotected opening* that is on the same *exposing building face* and serves the single room or space, or
 - b) 2 m vertically of another *unprotected opening* that serves the single room or space, or another room or space on the same *storey*.
- 5)** For the purpose of Sentence (4), “single room or space” shall mean
- a) two or more adjacent spaces having a full-height separating wall extending less than 1.5 m from the interior face of the exterior wall, or
 - b) two or more stacked spaces that are on the same *storey*.
- 6)** If a *building* is not *sprinklered*, 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
- i) wired glass in steel frames, as described in Article 9.10.13.5., or
 - ii) 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 3.2.5.12.
- 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) **Deleted,**
 - 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.
- 10)** Except as provided in Sentence (11), for garages or accessory *buildings* that serve a single *dwelling unit* only and are detached from any *building*, the maximum aggregate area of glazed openings shall comply with the requirements for *unprotected openings*.
- 11)** The limits on the area of glazed openings stated in Sentence (10) need not apply to the *exposing building face* of a detached garage or accessory *building* facing a *dwelling unit*, where
- a) the detached garage or accessory *building* serves only one *dwelling unit*,
 - 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.
- 12)** Where a *building* of *residential occupancy* is *sprinklered* and the *limiting distance* is less than 1.2 m but no less than 1 m, the maximum percentage of *unprotected openings* may be 10% provided
- a) the windows are glazed with tempered, wired or laminated glass, or glass block, and
 - b) the *exposing building face* is constructed according to Article 9.10.14.5.

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

1) Except as permitted in Sentences (3) to (15), 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.-A. (See Note A-9.10.14.5.(1).) (See also Subsection 9.10.8.)

Table 9.10.14.5.-A
Minimum Construction Requirements for Exposing Building Faces
 Forming Part of Sentence 9.10.14.5.(1)

Occupancy Classification of Building or Fire Compartment	Maximum Area of <i>Unprotected Openings</i> Permitted, % of <i>Exposing Building Face Area</i>	Minimum Required <i>Fire-Resistance Rating</i>	Type of Construction Required	Type of Cladding Required
<i>Residential, business and personal services, and low-hazard industrial</i>	0 to 10	1 h	<i>Noncombustible</i>	<i>Noncombustible</i>
	> 10 to 25	1 h	<i>Combustible or noncombustible</i>	<i>Noncombustible</i>
	> 25 to 50	45 min	<i>Combustible or noncombustible</i>	<i>Noncombustible</i>
	> 50 to < 100	45 min	<i>Combustible or noncombustible</i>	<i>Combustible or noncombustible</i>
<i>Mercantile and medium-hazard industrial</i>	0 to 10	2 h	<i>Noncombustible</i>	<i>Noncombustible</i>
	> 10 to 25	2 h	<i>Combustible or noncombustible</i>	<i>Noncombustible</i>
	> 25 to 50	1 h	<i>Combustible or noncombustible</i>	<i>Noncombustible</i>
	> 50 to < 100	1 h	<i>Combustible or noncombustible</i>	<i>Combustible or noncombustible</i>

2) Except as provided in Sentences (3) to (8), cladding on *exposing building faces* and exterior walls located above *exposing building faces* that enclose an *attic or roof space*, for *buildings* or *fire compartments* where the maximum permitted area of *unprotected openings* is more than 10% of the *exposing building face*, need not be *noncombustible* where the wall assembly complies with the requirements of Clause 3.1.5.5.(1)(b) when tested in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”

3) Except as provided in Sentences (4) to (8) and permitted by Sentence (9), cladding on *exposing building faces* and on exterior walls located above *exposing building faces* of *buildings* or *fire compartments* where the maximum permitted 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 greater than 5.0 m,
- b) the *limiting distance* is greater than 2.5 m where the area and width-to-height ratio of the *exposing building face* conform to Table 9.10.14.5.-B,
- c) the *building or fire compartment* is *sprinklered*,
- d) the cladding
 - i) conforms to Subsections 9.27.6., 9.27.7., 9.27.8. or 9.27.9.,
 - ii) is installed without furring members, or on furring not more than 25 mm thick, over gypsum sheathing at least 12.7 mm thick or over masonry, and
 - iii) after conditioning in conformance with ASTM D 2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing,” has a *flame-spread rating* not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2), or
- e) the cladding
 - i) conforms to Subsection 9.27.12.,
 - ii) is installed with or without furring members over a gypsum sheathing at least 12.7 mm thick or over masonry,
 - iii) has a *flame-spread rating* not greater 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.

Table 9.10.14.5.-B
Maximum Allowable Area and Ratio of Width to Height of Exposing Building Face
 Forming Part of Sentence 9.10.14.5.(3)

Maximum Ratio of Width to Height of <i>Exposing Building Face</i>	Maximum Area of <i>Exposing Building Face</i> , m ²
1:1	88
2:1	102
3:1	129
4:1	161
5:1	195

- 4)** Except as provided in Sentence (5), if a detached garage or accessory *building* serves one *dwelling unit*; or if a detached garage serves both units in a *building* containing not more than two *principal dwelling units* and has a continuous internal *fire separation*, with a 45 minute *fire resistance rating* from the floor slab to the roof sheathing separating the parking spaces for each unit, the *exposing building face*
- a) need not conform to the minimum required *fire-resistance rating* stated in Table 9.10.14.5.-A, where the *limiting distance* is 0.6 m or more,
 - b) shall have a *fire-resistance rating* of not less than 45 min, where the *limiting distance* is less than 0.6 m, and
 - c) need not conform to the type of cladding required by Table 9.10.14.5.-A, regardless of the *limiting distance*.
- 5)** The requirements regarding *fire-resistance rating*, type of construction and type of cladding need not apply to the *exposing building face* of a detached garage or accessory *building* conforming to Sentence 9.10.14.5.(4) facing a building containing not more than two *principal dwelling units*, where
- a) the detached garage or accessory *building* serves only a building containing not more than two *principal dwelling units*,
 - b) the detached garage or accessory *building* is located on the same property as that *building* containing not more than two *principal dwelling units*, and
 - c) the *building* containing not more than two *principal dwelling units* served by the detached garage or accessory *building* is the only *major occupancy* on the property.
- 6)** Except as provided in Sentence (7), *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.
- 7)** Except as provided in Sentences (9) to (12), Sentence (6) shall not apply to
- a) *buildings* containing not more than two *principal dwelling units* only, and
 - b) detached garages or accessory *buildings*, where
 - i) the detached garage or accessory *building* conforming to Sentence 9.10.14.5.(4) serves only a *building* containing not more than two *principal dwelling units*,
 - ii) the detached garage or accessory *building* conforming to Sentence 9.10.14.5.(4) is located on the same property as that building containing not more than two *principal dwelling units*, and
 - iii) the building containing not more than two *principal dwelling units* served by the detached garage or accessory *building* is the only *major occupancy* on the property.
- (See Note A-9.10.14.5.(7).)
- 8)** Where *combustible* projections on an *exposing building face* are permitted by Sentence (7), 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 and sides of the projection shall comply with the corresponding requirements for *exposing building faces* for *limiting distances* less than 1.2 m as stated in Sentence (2) or (3), and
 - b) where the underside of the projection is more than 0.6 m above finished ground level, it shall be protected by
 - i) not less than 0.38 mm thick *noncombustible* material,

- 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 soffit board or gypsum ceiling board installed according to CSA A82.31-M, “Gypsum Board Application,”
- iv) not less than 11 mm thick plywood,
- v) not less than 12.5 mm thick OSB or waferboard, or
- vi) not less than 11 mm thick lumber.

(See Note A-9.10.14.5.(8).)

9) Except as provided in Sentence (11), where the *exposing building face* has a *limiting distance* of not more than 0.45 m, projecting roof soffits shall not be constructed above the *exposing building face*. (See Note A-3.2.3.6.(2).)

10) Except as provided in Sentence (11), where the *exposing building face* has a *limiting distance* of more than 0.45 m, the face of roof soffits shall not project to less than 0.45 m from the property line. (See Note A-3.2.3.6.(2).)

11) The face of a roof soffit is permitted to project to the property line, where it faces a *street*, lane or public thoroughfare. (See Note A-9.10.14.5.(11) and 9.10.15.5.(10).)

12) Where roof soffits project to less than 1.2 m from the property line, the centre line of a lane or public thoroughfare, or an imaginary line between two *buildings or fire compartments* on the same property, they shall

- a) have no openings, and
- b) be protected by
 - i) not less than 0.38 mm thick sheet steel,
 - 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 soffit board or gypsum ceiling board installed according to CSA A82.31-M, “Gypsum Board Application,”
 - iv) not less than 11 mm thick plywood,
 - v) not less than 12.5 mm thick OSB or waferboard, or
 - vi) not less than 11 mm thick lumber.

(See Note A-3.2.3.6.(2).)

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

14) Non-loadbearing wall components need not have a minimum *fire-resistance rating*, where the *building*

- a) 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.

15) Where a *residential building* is *sprinklered*, and Table 9.10.14.5.A requires *non-combustible construction*, the *exposing building faces* may use a wood stud wall assembly having a 1 hour *fire-resistance rating* provided the *limiting distance* is at least 1.0 m and the wall assembly is of *non-combustible* construction throughout excepting structural elements and sheathing.

9.10.15. Spatial Separation Between Residential Buildings

(See Note A-9.10.15.)

9.10.15.1. Application

- 1)** This Subsection applies to
 - a) residential *buildings* containing not more than two principal *dwelling units* where no principal *dwelling unit*, including their contained *ancillary residential unit*, is above another *dwelling unit or occupancy*.
 - b) accessory *buildings* that serve a *building* described in Clause (a).

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9.10.15.2. Area and Location of Exposing Building Face

- 1) Except as permitted by Sentences (2) and (3), 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) **reserved**, or
 - iii) except as provided in Sentence (3), where Table 9.10.15.4. is used to determine the maximum aggregate area of *unprotected openings*, the area of any number of individual vertical portions of the wall measured from the finished ground level to the uppermost ceiling. (See Note A-9.10.15.4.(2).)
- 2) If a *building* is divided by *fire separations* into *fire compartments*, the area of *exposing building face* is permitted to be calculated for each *fire compartment* provided the *fire separations* have a *fire-resistance ratings* not less than 45 min.
- 3) Where the *exposing building face* of any section of an exterior wall enclosing a single room or space, or combination room and space, has a *limiting distance* of 2 m or less, that section of the *exposing building face* serving the room or space shall not be divided into portions for the purpose of calculating area of *exposing building face*. (See Sentence 9.10.15.4.(5) and Note A-9.10.15.4.(2).)
- 4) For the purpose of using Table 9.10.15.4. to determine the maximum permitted 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 Note A-3.2.3.1.(4).)
- 5) In determining the required cladding-sheathing assembly and *fire-resistance rating* for an irregularly shaped or skewed exterior wall, 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. (See Article 9.10.15.5. and Note A-3.2.3.1.(4).)

9.10.15.3. Limiting Distance and Fire Department Response

- 1) Except for the purpose of applying Sentences 9.10.15.2.(2), 9.10.15.4.(3) and 9.10.15.5.(13), 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 arrives at the *building* exceeds 10 min in 10% or more of all calls to the *building*, and
 - b) any *storey* in the *building* is not *sprinklered*.
- (See Notes A-3.2.3. and A-3.2.3.1.(8).)

9.10.15.4. Unprotected Openings in Exposing Building Face

- 1) Except as provided in Sentences (6), (7) and (8), the maximum aggregate area of glazed openings in an *exposing building face* shall
 - a) conform to Table 9.10.15.4.,
 - b) in a building which conforms to Sentence (8), comply with Subsection 3.2.3., or
 - c) where the *limiting distance* is not less than 1.2 m, be equal to or less than the *limiting distance* squared.
- 2) Where the limits on the area of *unprotected openings* glazed openings are determined for individual portions of the exterior wall, as described in Sentence 9.10.15.2.(3), the maximum aggregate area of *unprotected openings* 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 Note A-9.10.15.4.(2).)
- 3) Except for *buildings* that are *sprinklered* and for openable windows having an unobstructed opening equal to 0.35 m² installed in accordance with Sentences 9.9.10.1.(1) and (2), where the *limiting distance* is 2 m or less, individual *unprotected openings* glazed openings or a group of *unprotected openings* glazed openings in an *exposing building face* shall not exceed 50% of the maximum allowable aggregate area *unprotected openings* of glazed openings determined in Sentence (1).

- 4) The spacing between individual *unprotected openings* described in Sentence (3) serving a single room or space described in Sentence (5) shall be not less than
- 2 m horizontally of another *unprotected openings* that is on the same *exposing building face* and serves the single room or space, or
 - 2 m vertically of another *unprotected openings* that serves the single room or space, or another room or space on the same *storey*.
- 5) For the purpose of Sentence (4), “single room or space” shall mean
- two or more adjacent spaces having a full-height separating wall extending less than 1.5 m from the interior face of the exterior wall, or
 - two or more stacked spaces that are on the same *storey*.
- 6) The limits on the area of *unprotected openings* shall not apply to the *exposing building face* of a *building* containing not more than two principal *dwelling units* facing a detached garage or accessory *building*, where
- the detached garage or accessory *building* conforming to Sentence 9.10.15.5.(4) serves only one *building* containing not more than two principal *dwelling units*,
 - the detached garage or accessory *building* conforming to Sentence 9.10.15.5.(4) is located on the same property as that *building* containing not more than two principal *dwelling units*, and
 - the *building* containing not more than two principal *dwelling units* served by the detached garage or accessory *building* conforming to Sentence 9.10.15.5.(4) is the only *major occupancy* on the property.
- 7) If a *building* is *sprinklered* and the *limiting distance* is less than 1.2 m but not less than 1 m, the maximum percentage of *unprotected openings* shall be 10% provided
- the windows are glazed with tempered, wired, or laminated glass or glass block, and
 - the *exposing building face* is constructed according to Sentence 9.10.15.5.(14).
- 8) If a *building* is *sprinklered*, the maximum aggregate area of *unprotected openings* may be no more than twice the area as determined in Table 9.10.15.4. provided all rooms, including closets and bathrooms, that are adjacent to the *exposing building face* and that have *unprotected openings* shall be *sprinklered*, notwithstanding any exemptions in the sprinkler standards referenced in Article 3.2.5.12.
- 9) If a *storage garage* has a *limiting distance* of no less than 3 m, the *exposing building face* of such *storage garage* may have unlimited *unprotected openings*.

Table 9.10.15.4.
Maximum Area of Unprotected Openings in Exterior Walls of Houses
 Forming Part of Sentences 9.10.15.4.(1) and (2)

Maximum Total Area of Exposing Building Face, m ²	Maximum Aggregate Area of Unprotected Openings, % of Exposing Building Face Area											
	Limiting Distance, m											
	Less than 1.2	1.2	1.5	2.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0	25.0
30	0	7	9	12	39	88	100	—	—	—	—	—
40	0	7	8	11	32	69	100	—	—	—	—	—
50	0	7	8	10	28	57	100	—	—	—	—	—
100	0	7	8	9	18	34	56	84	100	—	—	—
Over 100	0	7	7	8	12	19	28	40	55	92	100	—

9.10.15.5. Construction of Exposing Building Face of Houses

1) Except as provided in Sentences (4), (13) and (14), 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 Sentences (2) and (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 Note A-9.10.15.4.(2)).

(See also Subsection 9.10.8.)

2) Except as provided in Sentences (4) and (5), where the *limiting distance* is less than 0.6 m, the *exposing building face* and exterior walls located above the *exposing building face* that enclose an *attic or roof space* shall have a *fire-resistance rating* of not less than 45 min, and

- a) the cladding shall be metal or *noncombustible* cladding installed in accordance with Section 9.20., 9.27. or 9.28. (See Note A-9.10.14.5.(1)),
- b) the cladding shall
 - i) conform to Subsection 9.27.12.,
 - ii) be installed without furring members over gypsum sheathing at least 12.7 mm thick or over masonry,
 - iii) have a *flame-spread rating* not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2), and
 - iv) not exceed 2 mm in thickness exclusive of fasteners, joints and local reinforcements, or
- c) the wall assembly shall comply with Clause 3.1.5.5.(1)(b) when tested in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”

3) Except as provided in Sentence (4), where the *limiting distance* is equal to or greater 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 be metal or *noncombustible* cladding installed in accordance with Section 9.20., or 9.28. (See Note A-9.10.14.5.(1)),
- b) the cladding shall
 - i) conform to Subsection 9.27.6., 9.27.7., 9.27.8., 9.27.9., or 9.27.10.,
 - ii) be installed without furring members, or on furring not more than 25 mm thick, over gypsum sheathing at least 12.7 mm thick or over masonry, and
 - iii) after conditioning in conformance with ASTM D 2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing,” have a *flame-spread rating* not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2),
- c) the cladding shall
 - i) conform to Subsection 9.27.12.,
 - ii) be installed with or without furring members over gypsum sheathing at least 12.7 mm thick or over masonry,
 - iii) have a *flame-spread rating* not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2), and
 - iv) not exceed 2 mm in thickness exclusive of fasteners, joints and local reinforcements, or
- d) the wall assembly shall comply with Clause 3.1.5.5.(1)(b) when tested in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies.”

4) The requirements regarding *fire-resistance rating* and type of cladding-sheathing assembly shall not apply to the *exposing building face* or projections from an *exposing building face* of a *dwelling unit* facing a detached garage or accessory *building*, or a garage or accessory *building* facing a *dwelling unit*, where

- a) the detached garage or accessory *building* serves only one *dwelling unit*,
- 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.

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) Except as provided in Sentences (8) to (11), 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*,
 - 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 Note A-9.10.14.5.(7).)

7) Where *combustible* projections on an *exposing building face* are permitted by Sentence (6), 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 and sides of the projection shall comply with the corresponding requirements for *exposing building faces* for *limiting distances* less than 1.2 m as stated in Sentence (2) or (3), and
- b) where the underside of the projection is more than 0.6 m above finished ground level, it shall be protected by
 - i) not less than 0.38 mm thick *noncombustible* material,
 - 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 soffit board or gypsum ceiling board installed according to CSA A82.31-M, “Gypsum Board Application,”
 - iv) not less than 11 mm thick plywood,
 - v) not less than 12.5 mm thick OSB or waferboard, or
 - vi) not less than 11 mm thick lumber.

(See Note A-9.10.14.5.(8).)

8) Except as provided in Sentence (10), where the *exposing building face* has a *limiting distance* of not more than 0.45 m, projecting roof soffits shall not be constructed above the *exposing building face*. (See Note A-3.2.3.6.(2).)

9) Except as provided in Sentence (10), where the *exposing building face* has a *limiting distance* of more than 0.45 m, the face of roof soffits shall not project to less than 0.45 m from the property line. (See Note A-3.2.3.6.(2).)

10) The face of a roof soffit is permitted to project to the property line, where it faces a *street*, lane or public thoroughfare. (See Note A-9.10.14.5.(11) and 9.10.15.5.(10).)

11) Where roof soffits project to less than 1.2 m from the property line, the centre line of a *public way*, or an imaginary line between two *buildings* or *fire compartments* on the same property, they shall

- a) have no openings, and
- b) be protected by
 - i) not less than 0.38 mm thick sheet steel,
 - 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 soffit board or gypsum ceiling board installed according to CSA A82.31-M, “Gypsum Board Application,”
 - iv) not less than 11 mm thick plywood,
 - v) not less than 12.5 mm thick OSB or waferboard, or
 - vi) not less than 11 mm thick lumber.

(See Note A-3.2.3.6.(2).)

12) For *buildings* of *combustible* construction, materials installed to provide the required protection for soffits may be covered with a *combustible* or *noncombustible* finish material.

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

- 14)** If a *building* is *sprinklered*, and the maximum percentage of *unprotected openings* complies with Sentence 9.10.15.4.(7), the *exposing building faces* may be constructed with a wood stud wall assembly provided
- a) the *exposing building face* has a one hour *fire-resistance rating*,
 - b) the wall assembly is of *non-combustible* construction throughout excepting structural elements and sheathing, and
 - c) the wall assembly is clad with *non-combustible* cladding.

9.10.16. Fire Blocks

9.10.16.1. Required Fire Blocks in Concealed Spaces

- 1)** Vertical concealed spaces in interior walls and exterior walls shall be separated by *fire blocks*
 - 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 blocks*
 - a) one from the other, and
 - b) from vertical concealed spaces.
- 3)** *Fire blocks* 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 blocks* 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)** Unsprinklered concealed spaces of *combustible construction* created by a ceiling, roof space or unoccupied attic space shall be separated by *fire blocks* 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 blocks* 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 Blocks in Wall Assemblies

- 1)** Except as permitted in Sentence (2), *fire blocks* 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 blocks* does not exceed 20 m horizontally and 3 m vertically.
- 2)** *Fire blocks* described in Sentence (1) are not required, provided
 - a) the insulated wall assembly contains not more than one concealed air space whose horizontal thickness is not more than 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 Block Materials

1) Except as permitted by Sentences (2) and (3), *fire blocks* shall be constructed of materials that will 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.”

2) *Fire blocks* are deemed to comply with Sentence (1) if they are constructed of not less than

- a) 0.38 mm sheet steel,
- b) 12.7 mm gypsum board,
- c) 12.5 mm plywood, OSB or waferboard, with joints having continuous supports,
- d) 2 layers of 19 mm lumber with joints staggered, or
- e) 38 mm lumber.

3) 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 Note A-3.1.11.7.(8).)

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9.10.16.4. Penetration of Fire Blocks

1) Where *fire blocks* are pierced by pipes, ducts or other elements, the effectiveness of the *fire blocks* 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.

9.10.17.10. Protection of Foamed Plastics

(See Note A-3.1.4.2.)

1) Except as provided in Sentences (2) and (3), foamed plastics that form part of a wall or ceiling assembly shall be protected from adjacent space in the *building*, other than adjacent concealed spaces within *attic or roof spaces*, crawl spaces, wall assemblies and ceiling assemblies

- a) by one of the interior finishes described in Subsections 9.29.4. to 9.29.9.,
 - i) provided the *building* does not contain a Group C *major occupancy*, by sheet metal that
 - ii) is mechanically fastened to the supporting assembly independent of the insulation,
 - iii) is not less than 0.38 mm thick, and
- b) has a melting point not less than 650°C, or
- c) by any thermal barrier that meets the requirements of Sentence 3.1.5.15.(2).

(See Note A-3.1.4.2.(1)(c).)

2) A walk-in cooler or freezer consisting of factory-assembled wall, floor or ceiling panels containing foamed plastics is permitted to be used, provided the panels

- a) are protected on both sides by sheet metal not less than 0.38 mm thick having a melting point not less than 650°C,
- b) do not contain an air space, and
- c) have a *flame-spread rating*, determined by subjecting a sample panel with an assembled joint typical of field installation to the applicable test described in Subsection 3.1.12., that is not more than that permitted for the room or space in which they are located or that they bound.

3) Thermosetting foamed plastic insulation having a *flame-spread rating* of not more than 200 is permitted to be used in factory-assembled doors in *storage garages* serving single *dwelling units* provided that

- a) the insulation is covered on the interior with a metallic foil,
- b) the assembly has a *flame-spread rating* of not more than 200, and
- c) the assembly incorporates no air spaces.

9.10.17.11. Walls and Ceilings in Bathrooms

1) The interior finish of walls and ceilings in bathrooms within *suites* of *residential occupancy* shall have a surface *flame-spread rating* of not more than 200.

9.10.17.12. Coverings or Linings of Ducts

1) Where a covering or a lining is used with a duct, such lining or covering shall have a *flame-spread rating* conforming to Article 3.6.5.4. or 9.33.6.4.

9.10.18. Alarm and Detection Systems**9.10.18.1. Access Provided through a Firewall**

1) Where access is provided through a *firewall*, the requirements in this Subsection shall apply to the *floor areas* on both sides of the *firewall* as if they were in the same *building*.

9.10.18.2. Fire Alarm System Required

1) Except as permitted in Sentences (3) and (4), a fire alarm system shall be installed in *buildings* in which a sprinkler system is required by this Part.

2) Except as provided in Sentence (5), a fire alarm system shall be installed

- a) in every *building* that contains more than 3 *storeys*, including *storeys* below the *first storey*,
- b) where the total *occupant load* exceeds 300, or
- c) when the *occupant load* for any *major occupancy* in Table 9.10.18.2. is exceeded.

Table 9.10.18.2.
Maximum Occupant Load for Buildings without Fire Alarm Systems
Forming Part of Sentence 9.10.18.2.(2)

<i>Major Occupancy Classification</i>	<i>Occupant Load Above which a Fire Alarm System is Required</i>
<i>Residential</i>	10 (sleeping accommodation)
<i>Business and personal services, Mercantile</i>	150 above or below the <i>first storey</i>
<i>Low- or medium-hazard industrial</i>	75 above or below the <i>first storey</i>

3) In *buildings* in which a sprinkler system has been installed in accordance with NFPA 13D, “Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes,” a fire alarm system need not be installed.

4) In *buildings* that contain fewer than 9 sprinklers conforming to Sentence 3.2.5.12.(4), a fire alarm system need not be installed.

5) A fire alarm system is not required in a *residential occupancy* where an *exit* or *public corridor* serves not more than 4 *suites* or where each *suite* has direct access to an exterior *exit* facility leading to ground level.

9.10.18.3. Design and Installation Requirements

1) Except as stated in Sentence (2) and as required by this Subsection, where fire alarm, fire detection and smoke detection devices and systems are installed, these devices and systems and their installation shall conform to Subsection 3.2.4.

2) The following Articles in Subsection 3.2.4. regarding fire alarm systems do not apply to Part 9 *buildings*: Articles 3.2.4.1., 3.2.4.10., 3.2.4.11., 3.2.4.12., 3.2.4.13. and 3.2.4.22.

9.10.18.4. Rooms and Spaces Requiring Heat Detectors or Smoke Detectors

1) Where a fire alarm system is required, every *public corridor* in *buildings* of *residential occupancy* and every *exit* stair shaft shall be provided with *smoke detectors*.

2) Except as provided in Sentence (3), if a fire alarm system is required in a *building* that is not *sprinklered*, *fire detectors* shall be installed in the following spaces:

- a) storage rooms not within *dwelling units*,
- b) *service rooms* not within *dwelling units*,
- c) janitors' rooms
- d) rooms in which hazardous substances are to be used or stored (See Note A-3.3.1.2.(1)),
- e) elevator hoist ways, chutes and dumbwaiter shafts, and
- f) laundry rooms in *buildings of residential occupancy*, but not those within *dwelling units*.

3) Except as required in Sentence (4), *heat detectors* and *smoke detectors* described in Sentence (2) are not required in *dwelling units* or in *sprinklered buildings* in which the sprinkler system is electrically supervised and equipped with a water flow alarm.

4) *Heat detectors* or *smoke detectors* shall be installed in any elevator hoist way or dumbwaiter shaft which is not equipped with a *sprinkler system*.

9.10.18.5. Smoke Detectors in Recirculating Air-Handling Systems

1) Except for a recirculating air system serving not more than one *dwelling unit*, where a fire alarm system is required to be installed, every recirculating air-handling system shall be designed to prevent the circulation of smoke upon a signal from a duct-type *smoke detector* where such system supplies more than one *suite* on the same floor or serves more than 1 *storey*.

9.10.18.6. Portions of Buildings Considered as Separate Buildings

1) Except as provided in Sentence (2), where a vertical *fire separation* having a *fire-resistance rating* of not less than 1 h separates a portion of a *building* from the remainder of the *building* and there are no openings through the *fire separation* other than those for piping, tubing, wiring and conduit, the requirements for fire alarm and detection systems may be applied to each portion so separated as if it were a separate *building*.

2) The permission in Sentence (1) to consider separated portions of a *building* as separate *buildings* does not apply to *service rooms* and storage rooms.

9.10.18.7. Central Vacuum Systems

1) Central vacuum cleaning systems serving more than one *suite* or *storey* in *buildings* equipped with a fire alarm system shall be designed to shut down upon activation of the fire alarm system.

9.10.18.8. Open-Air Storage Garages

1) A fire alarm system is not required in a *storage garage* conforming to Article 3.2.2.90. provided there are no other *occupancies* in the *building*.

9.10.19. Smoke Alarms

9.10.19.1. Required Smoke Alarms

1) Except as permitted by Article 9.10.19.8., *smoke alarms* conforming to CAN/ULC-S531, "Standard for Smoke Alarms," shall be installed in

- a) each *dwelling unit*, and
- b) each sleeping room not within a *dwelling unit*, and
- c) **deleted.**

2) All *smoke alarms* installed in *dwelling units* in unsprinklered *buildings* shall be equipped with a battery powered back up system and a wired in manually operated device which is capable of silencing a *smoke alarm* signal for a period of not more than 10 minutes and re-sounding the signal if smoke levels in the vicinity trigger the *smoke alarm*.

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9.10.19.2. Sound Patterns of Smoke Alarms

- 1) The sound patterns of *smoke alarms* shall
 - a) meet the temporal patterns of *alarm signals* (See Note A-3.2.4.18.(2)), or
 - b) be a combination of temporal pattern and voice relay.

9.10.19.3. Location of Smoke Alarms

- 1) Within *dwelling units*, sufficient *smoke alarms* shall be installed so that
 - a) there is at least one *smoke alarm* installed on each *storey*, including *basements*, and
 - b) on any *storey* of a *dwelling unit* containing sleeping rooms, a *smoke alarm* is installed
 - i) in each sleeping room, and
 - ii) in a location between the sleeping rooms and the remainder of the *storey*, and if the sleeping rooms are served by a hallway, the *smoke alarm* shall be located in the hallway.

(See Note A-9.10.19.3.(1).)

2) A *smoke alarm* required by Sentence (1) shall be installed in conformance with CAN/ULC-S553, “Installation of Smoke Alarms.”

- 3) *Smoke alarms* required in Article 9.10.19.1. and Sentence (1) shall be installed on or near the ceiling.

9.10.19.4. Power Supply

- 1) Except as provided in Sentences (2) and (3), *smoke alarms* described in Sentence 9.10.19.1.(1) shall
 - a) be installed with permanent connections to an electrical circuit (See Note A-3.2.4.20.(7)(a)),
 - b) have no disconnect switch between the overcurrent device and the *smoke alarm*, and
 - c) in case the regular power supply to the *smoke alarm* is interrupted, be provided with a battery as an alternative power source that can continue to provide power to the *smoke alarm* for a period of no less than 7 days in the normal condition, followed by 4 minutes of alarm.
- 2) Where the *building* is not supplied with electrical power, *smoke alarms* are permitted to be battery-operated.
- 3) *Suites of residential occupancy* are permitted to be equipped with *smoke detectors* in lieu of *smoke alarms*, provided the *smoke detectors*
 - a) are capable of independently sounding audible signals within the individual *suites*,
 - b) except as permitted in Sentence (4), are installed in conformance with CAN/ULC-S524, “Installation of Fire Alarm Systems,” and
 - c) form part of the fire alarm system.

(See Note A-3.2.4.20.(8).)

4) *Smoke detectors* permitted to be installed in lieu of *smoke alarms* as stated in Sentence (3) are permitted to sound localized alarms within individual *suites*, and need not sound an alarm throughout the rest of the *building*.

9.10.19.5. Interconnection of Smoke Alarms

1) Where more than one *smoke alarm* is required in a *dwelling unit*, the *smoke alarms* shall be wired so that the activation of one alarm will cause all alarms within the *dwelling unit* to sound.

2) Deleted.

3) Deleted.

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9.10.19.6. Silencing of Smoke Alarms

1) Except as permitted in Sentence (2), a manually operated device shall be incorporated within the circuitry of a *smoke alarm* installed in a *dwelling unit* so that the signal emitted by the *smoke alarm* can be silenced for a period of not more than 10 min, after which the *smoke alarm* will reset and sound again if the level of smoke in the vicinity is sufficient to re-actuate it.

2) *Suites of residential occupancy* equipped with *smoke detectors* installed to CAN/ULC-S524, “Installation of Fire Alarm Systems,” which are part of the fire alarm system in lieu of *smoke alarms* as permitted in Sentence 9.10.19.4.(3), need not incorporate the manually operated device required in Sentence (1).

9.10.19.7. Instructions for Maintenance and Care

1) Where instructions are necessary to describe the maintenance and care required for *smoke alarms* to ensure continuing satisfactory performance, they shall be posted in a location where they will be readily available to the occupants for reference.

9.10.19.8. Residential Fire Warning Systems

1) Except where a fire alarm system is installed or required in a *building*, *smoke detectors* forming part of a residential fire warning system installed in conformance with CAN/ULC-S540, “Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance,” are permitted to be installed in lieu of all *smoke alarms* required by Articles 9.10.19.1. and 9.10.19.3., provided that the fire warning system

- a) is capable of sounding audible signals as stated in Articles 9.10.19.2. and 9.10.19.5.,
- b) is powered as stated in Article 9.10.19.4., and
- c) is equipped with a silencing device as stated in Article 9.10.19.6.

9.10.20. Firefighting**9.10.20.1. Windows or Access Panels Required**

1) Except as provided in Sentence (3), a window or access panel providing an opening not less than 1 100 mm high and 550 mm wide and having a sill height of not more than 900 mm above the floor shall be provided on the second and third *storeys* of every *building* in at least one wall facing on a *street* if such *storeys* are not *sprinklered*.

2) Access panels required in Sentence (1) shall be readily openable from both inside and outside or be glazed with plain glass.

3) Access panels required in Sentence (1) need not be provided in

- a) *buildings* containing only *dwelling units* where there is no *dwelling unit* above another *dwelling unit*, or
- b) **deleted.**

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9.10.20.2. Access to Basements

1) Except for *basements* serving not more than one *dwelling unit*, each unsprinklered *basement* exceeding 25 m in length or width shall be provided with direct access to the outdoors to at least one *street*.

2) Access required in Sentence (1) may be provided by a door, window or other means that provides an opening not less than 1 100 mm high and 550 mm wide, the sill height of which shall not be more than 900 mm above the floor.

3) Access required in Sentence (1) may also be provided by an interior stair accessible from the outdoors.

9.10.20.3. Fire Department Access to Buildings

1) Access for fire department vehicles and fire fighters path of travel shall be provided to each principal entrance of a *building* in accordance with Articles 3.2.5.4., 3.2.5.5. and 3.2.5.6. (See Notes A-9.10.20.3.(1) and A-3.2.5.6.(1).)

2) Where access to a *building* as required in Sentence (1) is provided by means of a roadway or yard, the design and location of such roadway or yard shall take into account connection with public thoroughfares, weight of firefighting equipment, width of roadway, radius of curves, overhead clearance, location of fire hydrants, location of fire department connections and vehicular parking.

3) Despite the provisions of Sentence (1), an unobstructed path of travel for firefighters shall be provided to an *ancillary residential building* and the path of travel shall:

- a) lead continuously from the *street* to the *lane*,
- b) have a travel distance of no more than 45 m from the *street* to the principal entrance of the *ancillary residential building*,
- c) be at least 900 mm wide,
- d) have an overhead clearance of at least 2 m, and
- e) consist of concrete, asphalt, or similar material.

4) An *ancillary residential building* shall have a strobe light installed and maintained outside the principal entrance, connected to an internal *smoke alarm* within the *ancillary residential building*.

5) Despite Clause 9.10.20.3.(3)(b) the path of travel for firefighters towards not more than one *ancillary residential building* on a parcel may exceed 45 m to a maximum of 70 m provided the principal entrance to that *ancillary residential building* is visible from the *street*.

6) If the principal *building* and the *ancillary residential building* are adjacent to a *lane*, the path of foot travel for firefighters to the *ancillary residential building* may be through the *lane* if

- a) the travel distance from the *street* to the principal entrance of the *ancillary residential building* is no more than 70 m,
- b) the path has an overhead clearance of at least 3 m,
- c) the path consists of concrete, asphalt, or similar material, and
- d) the principal entrance of the *ancillary residential building* is visible from the *street*.

7) Two adjacent parcels may have a single shared path of travel for firefighters over the common property line and the adjacent specified area to access both, provided

- a) each parcel contains an *ancillary residential building*,
- b) each parcel is subject to a covenant registered on title which prohibits construction upon or obstruction of the common property line and of a specified area adjacent to the property line; and
- c) the path of travel meets the requirements of Sentences (3), (4) and (5).

9.10.20.4. Portable Extinguishers

1) Portable extinguishers shall be installed in all *buildings*, except within *dwelling units*, in conformance with the Fire By-law.

9.10.20.5. Freeze Protection of Fire Protection Systems

1) Equipment forming part of a fire protection system that may be adversely affected by freezing temperatures and that is located in an unheated area shall be protected from freezing.

9.10.21. Fire Protection for Construction Camps

9.10.21.1. Requirements for Construction Camps

1) Except as provided in Articles 9.10.21.2. to 9.10.21.9., construction camps shall conform to Subsections 9.10.1. to 9.10.20.

9.10.21.2. Separation of Sleeping Rooms

1) Except for sleeping rooms within *dwelling units*, sleeping rooms in construction camps shall be separated from each other and from the remainder of the *building* by a *fire separation* having not less than a 30 min *fire-resistance rating*.

9.10.21.3. Floor Assemblies between the First and Second Storey

1) Except in a *dwelling unit*, a floor assembly in a construction camp *building* separating the *first storey* and the second *storey* shall be constructed as a *fire separation* having not less than a 30 min *fire-resistance rating*.

9.10.21.4. Walkways Connecting Buildings

1) *Walkways* of *combustible construction* connecting *buildings* shall be separated from each connected *building* by a *fire separation* having not less than a 45 min *fire-resistance rating*.

9.10.21.5. Spatial Separations

1) Construction camp *buildings* shall be separated from each other by a distance of not less than 10 m except as otherwise permitted in Subsections 9.10.14. and 9.10.15.

9.10.21.6. Flame-Spread Ratings

- 1) Except in *dwelling units* and except as provided in Sentence (2), the surface *flame-spread rating* of wall and ceiling surfaces in corridors and *walkways*, exclusive of doors, shall not exceed 25 over not less than 90% of the exposed surface area and not more than 150 over the remaining surface area.
- 2) Except within *dwelling units*, corridors that provide *access to exit* from sleeping rooms and that have a *fire-resistance rating* of not less than 45 min shall have a *flame-spread rating* conforming to the appropriate requirements in Subsection 9.10.17.

9.10.21.7. Smoke Detectors

- 1) Except in *dwelling units*, corridors providing *access to exit* from sleeping rooms in construction camp *buildings* with sleeping accommodation for more than 10 persons shall be provided with a *smoke detector* connected to the *building* alarm system.

9.10.21.8. Portable Fire Extinguishers

- 1) Each construction camp *building* shall be provided with portable fire extinguishers in conformance with the Fire By-law.

9.10.21.9. Hose Stations

- 1) Every construction camp *building* providing sleeping accommodation for more than 30 persons shall be provided with a hose station that is protected from freezing and is equipped with a hose of sufficient length so that every portion of the *building* is within reach of a hose stream.
- 2) Hose stations required in Sentence (1) shall be located near an *exit*.
- 3) Hoses referred to in Sentence (1) shall be not less than 19 mm inside diam and shall be connected to a central water supply or to a storage tank having a capacity of not less than 4 500 L with a pumping system capable of supplying a flow of not less than 5 L/s at a gauge pressure of 300 kPa.

9.10.22. Fire Protection for Gas, Propane and Electric Cooktops and Ovens

(See Note A-9.10.22.)

9.10.22.1. Installation of Cooktops and Ovens

- 1) Except as required in Sentence (2), natural gas and propane *cooktops* and ovens shall be installed in accordance with the Gas Safety Regulation. (See also Article 9.34.1.1.)
- 2) Clearances for and protection around gas, propane and electric ranges shall be not less than those provided in Articles 9.10.22.2. and 9.10.22.3.

9.10.22.2. Vertical Clearances above Cooktops

- 1) Except as provided in Sentence (2), framing, finishes and cabinetry installed directly above the location of the *cooktop* shall be not less than 750 mm above the level of *cooktop* burners or elements.
- 2) The vertical clearance described in Sentence (1) for framing, finishes and cabinets located directly above the location of the *cooktop* may be reduced to 600 mm above the level of the elements or burners, provided the framing, finishes and cabinets
 - a) are *noncombustible*, or
 - b) are protected by
 - i) non-combustible cementitious board not less than 6 mm thick, covered with sheet metal not less than 0.33 mm thick, or
 - ii) a metal hood with a 125 mm projection beyond the framing, finishes and cabinets.

9.10.22.3. Protection around Cooktops

- 1) Except as provided in Sentences (2) and (3), *combustible* wall framing, finishes or cabinets within 450 mm of the area where the *cooktop* is to be located shall be protected above the level of the heating elements or burners by material providing fire resistance at least equivalent to that provided by a 9.5 mm thickness of gypsum board.

- 2)** Counter-top splash boards or back plates that extend above the level of heating elements or burners need not be protected as described in Sentence (1).
- 3)** Except for cabinetry described in Article 9.10.22.2., cabinetry located not less than 450 mm above the level of the heating elements or burners need not be protected as described in Sentence (1).