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September 1, 2013

TO: BUILDING CODE USERS

The enclosed replacement pages to the 2012 Building Code Compendium Edition[1] reflect recent amendments to the Building Code (O. Reg. 332/12) and to several MMAH Supplementary Standards. In particular, the 2012 Building Code Compendium is amended by:

- O. Reg. 151/13 to enhance fire safety in retirement homes which comes into force on January 1, 2014.

- Minister's Ruling MR-13-S-24 which amends several editions of referenced standards in Table 1.3.1.2. of Division B, and amends Supplementary Standards SA-1, SB-5 and SB-12, all of which come into force on January 1, 2014.

ServiceOntario Publications is the official publisher and vendor of the 2012 Building Code Compendium and the amendment pages. You may contact ServiceOntario Publications by phone at 416-326-5300, 1-800-668-9938 (toll-free) or www.serviceontario.ca/publications.

For further information, please visit the Building Code website at www.ontario.ca/buildingcode.

Brenda Lewis
Director

Encl.

[1] The Compendium is not an official copy of the Act and Code. Official copies of the legislation can be accessed from www.e-laws.gov.on.ca.

2012 Building Code Compendium

Volume 1

September 1, 2013 update
(Containing O. Reg. 151/13 and
Minister's Ruling MR-13-S-24)

Issued September 1, 2013

COMMENCEMENT

Ontario Regulation 332/12 comes into force on the 1st day of January, 2014.

r_1 Amending Ontario Regulation 151/13 comes into force on the 1st day of January, 2014.

m_1 Ruling of the Minister of Municipal Affairs and Housing (Minister's Ruling) MR-13-S-24 comes into force on the 1st day of January 2014.

EDITORIAL

e_1 Editorial correction issued for January 1, 2014.

COVER PHOTO CREDITS

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Code Amendment History

The first Ontario Building Code was issued in 1975. The 1975 and subsequent editions of the Building Code have been issued as follows:

Building Code Edition	Date Filed	Effective Date
O. Reg. 925/75 (1975 Building Code)	November 24, 1975	December 31, 1975
O. Reg. 583/83 (1983 Building Code)	September 15, 1983	November 30, 1983
O. Reg. 419/86 (1986 Building Code)	July 18, 1986	October 20, 1986
O. Reg. 413/90 (1990 Building Code)	July 30, 1990	October 1, 1990
O. Reg. 403/97 (1997 Building Code)	November 3, 1997	April 6, 1998
O. Reg. 350/06 (2006 Building Code)	June 28, 2006	December 31, 2006
O. Reg. 332/12 (2012 Building Code)	November 2, 2012	January 1, 2014

The following Table lists the amendments to the 2012 Building Code made since the filing of O. Reg. 332/12.

Regulatory Amendments to the 2012 Building Code – Ontario Regulation 332/12			
Amendment	Date Filed	Effective Date	Nature of Amendment
O. Reg. 151/13	May 9, 2013	January 1, 2014	Sprinklering of retirement homes

The following Table lists Minister's Rulings that have been made to adopt amendments to codes, formulae, standards, guidelines or procedures referenced in the 2012 Building Code.

Minister's Rulings to adopt amendments to codes, formulae, standards, guidelines or procedures referenced in the 2012 Building Code			
Ruling Number	Date of Ruling	Effective Date	Nature of Amendment
MR-13-S-24	September 1, 2013	January 1, 2014	Revise Table 1.3.1.2. of Division B Revise Supplementary Standards SA-1, SB-5 and SB-12

(ii) if an inspection period is not prescribed under clause 7(e), a reasonable period of time after the notice was given did not elapse before the part was covered or enclosed; or

(e) the part has been constructed without a permit being issued. 2006, c. 19, Sched. O, s. 1(6).

Stop Work Order

14.(1) If an order made under section 12 or 13 is not complied with within the time specified in it, or where no time is specified, within a reasonable time, the chief building official or registered code agency, as the case may be, may order that all or any part of the construction or demolition cease. 1992, c. 23, s. 14(1); 2002, c. 9, s. 21(1).

Form of Order

(1.1) The prescribed form or the form approved by the Minister must be used for the order. 2002, c. 9, s. 21(2); 2006, c. 21, Sched. F, s. 104(8).

Service

(2) The order shall be served on such persons affected thereby as the chief building official or registered code agency determines and a copy shall be posted on the site of the construction or demolition. 1992, c. 23, s. 14(2); 2002, c. 9, s. 21(3).

Timing

(3) The order is effective from the time it is posted under subsection (2). 1992, c. 23, s. 14(3).

Effect of Order

(4) If an order to cease construction or demolition is made, no person shall perform any act in the construction or demolition of the building in respect of which the order is made other than work necessary to carry out the order made under section 12 or 13. 1992, c. 23, s. 14(4).

Referral to Chief Building Official

(5) When a registered code agency makes an order under this section, the agency shall refer the matter to the chief building official as soon as practicable. 2002, c. 9, s. 21(4).

Same

(6) The referral must be made in the prescribed manner. 2002, c. 9, s. 21(4).

Effect of Referral

(7) After making the referral, the registered code agency shall take no further steps in respect of the matter to which the order refers and the principal authority that issued the permit is responsible for the enforcement of this Act in respect of the matter. 2002, c. 9, s. 21(4).

Powers of Chief Building Official

(8) The chief building official may amend or rescind any order made by the registered code agency in respect of the matter. 2002, c. 9, s. 21(4).

15. REPEALED: 2002, c. 9, s. 22.

Property Standards

Municipal Property Standards

15.1(1) In sections 15.1 to 15.8 inclusive,

"committee" means a property standards committee established under section 15.6; ("comité")

"occupant" means any person or persons over the age of 18 years in possession of the property; ("occupant")

"owner" includes,

(a) the person for the time being managing or receiving the rent of the land or premises in connection with which the word is used, whether on the person's own account or as agent or trustee of any other person, or who would receive the rent if the land and premises were let, and

(b) a lessee or occupant of the property who, under the terms of a lease, is required to repair and maintain the property in accordance with the standards for the maintenance and occupancy of property; ("propriétaire")

"property" means a building or structure or part of a building or structure, and includes the lands and premises appurtenant thereto and all mobile homes, mobile buildings, mobile structures, outbuildings, fences and erections thereon whether heretofore or hereafter erected, and includes vacant property; ("bien")

"repair" includes the provision of facilities, the making of additions or alterations or the taking of any other action that may be required to ensure that a property conforms with the standards established in a by-law passed under this section. ("réparation") 1997, c. 24, s. 224(8).

Adoption of Policy

(2) Where there is no official plan in effect in a municipality, the council of a municipality may, by by-law approved by the Minister, adopt a policy statement containing provisions relating to property conditions. 1997, c. 24, s. 224(8).

Standards for Maintenance and Occupancy

(3) The council of a municipality may pass a by-law to do the following things if an official plan that includes provisions relating to property conditions is in effect in the municipality or if the council of the municipality has adopted a policy statement as mentioned in subsection (2):

1. Prescribing standards for the maintenance and occupancy of property within the municipality or within any defined area or areas and for prohibiting the occupancy or use of such property that does not conform with the standards.
2. Requiring property that does not conform with the standards to be repaired and maintained to conform with the standards or the site to be cleared of all buildings, structures, debris or refuse and left in graded and levelled condition. 1997, c. 24, s. 224(8).

No Distinction on the Basis of Relationship

(4) The authority to pass a by-law under subsection (3) does not include the authority to pass a by-law that sets out requirements, standards or prohibitions that have the effect of distinguishing between persons who are related and persons who are unrelated in respect of the occupancy or use of a property, including the occupancy or use as a single housekeeping unit. 1997, c. 24, s. 224(8).

Provision of No Effect

(5) A provision in a by-law is of no effect to the extent that it contravenes the restrictions described in subsection (4). 1997, c. 24, s. 224(8).

Inspection of Property Without Warrant

15.2(1) Where a by-law under section 15.1 is in effect, an officer may, upon producing proper identification, enter upon any property at any reasonable time without a warrant for the purpose of inspecting the property to determine,

(a) whether the property conforms with the standards prescribed in the by-law; or
(b) whether an order made under subsection (2) has been complied with. 1997, c. 24, s. 224(8).

Contents of Order

(2) An officer who finds that a property does not conform with any of the standards prescribed in a by-law passed under section 15.1 may make an order,

(a) stating the municipal address or the legal description of the property;
(b) giving reasonable particulars of the repairs to be made or stating that the site is to be cleared of all buildings, structures, debris or refuse and left in a graded and levelled condition;
(c) indicating the time for complying with the terms and conditions of the order and giving notice that, if the repair or clearance is not carried out within that time, the municipality may carry out the repair or clearance at the owner's expense; and
(d) indicating the final date for giving notice of appeal from the order. 1997, c. 24, s. 224(8).

Service and Posting of Order e_1

(3) The order shall be served on the owner of the property and such other persons affected by it as the officer determines and a copy of the order may be posted on the property. 1997, c. 24, s. 224(8).

Registration of Order

(4) The order may be registered in the proper land registry office and, upon such registration, any person acquiring any interest in the land subsequent to the registration of the order shall be deemed to have been served with the order on the day on which the order was served under subsection (3) and, when the requirements of the order have been satisfied, the clerk of the municipality shall forthwith register in the proper land registry office a certificate that such requirements have been satisfied, which shall operate as a discharge of the order. 1997, c. 24, s. 224(8).

Appeal of Order

15.3 (1) An owner or occupant who has been served with an order made under subsection 15.2(2) and who is not satisfied with the terms or conditions of the order may appeal to the committee by sending a notice of appeal by registered mail to the secretary of the committee within 14 days after being served with the order. 1997, c. 24, s. 224(8).

Confirmation of Order

(2) An order that is not appealed within the time referred to in subsection (1) shall be deemed to be confirmed. 1997, c. 24, s. 224(8).

Duty of Committee

(3) The committee shall hear the appeal. 2002, c. 9, s. 24.

Powers of Committee

(3.1) On an appeal, the committee has all the powers and functions of the officer who made the order and the committee may do any of the following things if, in the committee's opinion, doing so would maintain the general intent and purpose of the by-law and of the official plan or policy statement:

1. Confirm, modify or rescind the order to demolish or repair.
2. Extend the time for complying with the order. 2002, c. 9, s. 24.

Part 1
Compliance and General

Section 1.1. Organization and Application

1.1.1. Organization of this Code

1.1.1.1. Scope of Division A

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

1.1.1.2. Scope of Division B

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

1.1.1.3. Scope of Division C

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

1.1.1.4. Internal Cross-References

(1) If a provision of this Code contains a reference to another provision of this Code but no Division is specified, both provisions are in the same Division of this Code.

1.1.2. Application of Division B (See Appendix A.)

1.1.2.1. Application of Parts 1, 7 and 12

(1) Parts 1, 7 and 12 of Division B apply to all *buildings*.

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

(1) Subject to Articles 1.1.2.6. and 1.3.1.2., Parts 3, 5 and 6 of Division B apply to all *buildings*,

(a) used for *major occupancies* classified as,

(i) Group A, *assembly occupancies*,

r1 (ii) Group B, *care*, *care and treatment* or *detention occupancies*, or

(iii) Group F, Division 1, *high hazard industrial occupancies*, or

(b) exceeding 600 m^2 in *building area* or exceeding three *storeys* in *building height* and used for *major occupancies* classified as,

(i) Group C, *residential occupancies*,

(ii) Group D, *business and personal services occupancies*,

(iii) Group E, *mercantile occupancies*, or

(iv) Group F, Divisions 2 and 3, *medium hazard industrial occupancies* and *low hazard industrial occupancies*.

(2) Subject to Articles 1.1.2.6. and 1.3.1.2., Part 4 of Division B applies to,
(a) *post-disaster buildings*,
(b) *buildings* described in Sentence (1),
(c) a retaining wall exceeding 1 000 mm in exposed height adjacent to,
  (i) public property,
  (ii) access to a *building*, or
  (iii) private property to which the public is admitted,
(d) a pedestrian bridge appurtenant to a *building*,
(e) a crane runway,
(f) an exterior storage tank and its supporting structure that is not regulated by the *Technical Standards and Safety Act, 2000*,
(g) signs regulated by Section 3.15. of Division B that are not structurally supported by a *building*,
(h) a structure that supports a wind turbine generator having a rated output of more than 3 kW,
(i) an *outdoor pool* that has a water depth greater than 3.5 m at any point, and
(j) a *permanent solid nutrient storage facility* with supporting walls exceeding 1 000 mm in exposed height.

(3) Section 3.11. of Division B applies to *public pools*.

(4) Section 3.12. of Division B applies to *public spas*.

(5) Section 3.15. of Division B applies to signs.

1.1.2.3. Application of Part 8

(1) Part 8 of Division B applies to the design, *construction*, operation and maintenance of all *sewage systems* and to the *construction* of *buildings* in the vicinity of *sewage systems*.

1.1.2.4. Application of Part 9

(1) Subject to Articles 1.1.2.6. and 1.3.1.2., Part 9 of Division B applies to all *buildings*,
(a) of three or fewer *storeys* in *building height*,
(b) having a *building area* not exceeding 600 m^2, and
(c) used for *major occupancies* classified as,
  (i) Group C, *residential occupancies*,
  (ii) Group D, *business and personal services occupancies*,
  (iii) Group E, *mercantile occupancies*, or
  (iv) Group F, Divisions 2 and 3, *medium hazard industrial occupancies* and *low hazard industrial occupancies*.

1.1.2.5. Application of Part 10

(1) Part 10 of Division B applies to existing *buildings* requiring a permit under section 10 of the Act.

1.1.2.6. Application of Part 11

(1) Except as provided in Sentence (2), Part 11 of Division B applies to the design and *construction* of existing *buildings*, or parts of existing *buildings*, that have been in existence for at least five years.

(2) If a *building* has been in existence for at least five years but includes an addition that has been in existence for less than five years, Part 11 of Division B applies to the entire *building*.

Bathroom group means a group of plumbing *fixtures* installed in the same room, consisting of one domestic-type lavatory, one water closet and either one bathtub, with or without a shower, or one one-headed shower.

Bearing surface means the contact surface between a *foundation unit* and the *soil* or *rock* on which the *foundation unit* bears.

Boarding, lodging or rooming house means a *building*,

(a) that has a *building height* not exceeding three *storeys* and a *building area* not exceeding 600 m^2,
(b) in which lodging is provided for more than four persons in return for remuneration or for the provision of services or for both, and
(c) in which the lodging rooms do not have both bathrooms and kitchen facilities for the exclusive use of individual occupants.

Boiler means an *appliance* intended to supply hot water or steam for space heating, processing or power purposes.

Bottle trap means a *trap* that retains water in a closed chamber and that seals the water by submerging the inlet pipe in the liquids or by a partition submerged in the liquids.

Branch means a *soil* or *waste pipe* that is connected at its upstream end to the junction of two or more *soil* or *waste pipes* or to a *soil* or *waste stack* and that is connected at its downstream end to another *branch*, a sump, a *soil* or *waste stack* or a *building drain*.

Branch vent means a *vent pipe* that is connected at its lower end to the junction of two or more *vent pipes* and that, at its upper end, is connected to another *branch vent*, a *stack vent*, a *vent stack* or a *header*, or terminates in *open air*.

Breeching means a *flue pipe* or chamber for receiving *flue* gases from one or more *flue* connections and for discharging these gases through a single *flue* connection.

Building area means the greatest horizontal area of a *building* above *grade*,

(a) within the outside surface of exterior walls, or
(b) within the outside surface of exterior walls and the centre line of *firewalls*.

Building Code website means the website at www.ontario.ca/buildingcode.

Building control valve means the valve on a *water system* that controls the flow of *potable* water from the *water service pipe* to the *water distribution system*.

Building drain means the lowest horizontal piping, including any vertical *offset*, that conducts *sewage*, *clear water waste* or storm water by gravity to a *building sewer*.

Building height means the number of *storeys* contained between the roof and the floor of the *first storey*.

Building sewer means a *sanitary building sewer* or *storm building sewer*.

Building trap means a *trap* that is installed in a *sanitary building drain* or *sanitary building sewer* to prevent circulation of air between the *sanitary drainage system* and a public sewer.

Business and personal services occupancy means the *occupancy* or use of a *building* or part of a *building* for the transaction of business or the provision of professional or personal services.

Camp for housing of workers means a camp in which *buildings* or other structures or premises are used to accommodate five or more employees.

Campground means land or premises used as an overnight camping facility that is not a *recreational camp*.

Canopy means a roof-like structure projecting more than 300 mm from the exterior face of the *building*.

Carbon dioxide equivalent means a measure used to compare the impact of various greenhouse gases based on their global warming potential.

Care and treatment occupancy (Group B, Division 2) means an *occupancy* in which persons receive special care and treatment.

r_1 *Care occupancy* (Group B, Division 3) means an *occupancy* in which special care is provided by a facility, directly through its staff or indirectly through another provider, to residents of the facility,

(a) who require special care because of cognitive or physical limitations, and

(b) who, as a result of those limitations, would be incapable of evacuating the *occupancy*, if necessary, without the assistance of another person.

Cavity wall means a construction of masonry units laid with a cavity between the wythes, where the wythes are tied together with metal ties or bonding units and are relied on to act together in resisting lateral loads.

Certificate for the occupancy of a building described in Sentence 1.3.3.4.(3) of Division C means a certificate described in Sentence 3.7.4.3.(6) of Division C.

Certificate for the occupancy of a building not fully completed means a certificate described in Sentence 3.7.4.3.(5) of Division C.

Chamber means a structure that is constructed with an open bottom and that contains a pressurized *distribution pipe*.

Check valve means a valve that permits flow in only one direction and prevents a return flow.

Chimney means a shaft that is primarily vertical and that encloses at least one *flue* for conducting *flue* gases to the outdoors.

Chimney liner means a conduit containing a *chimney flue* used as a lining of a *masonry or concrete chimney*.

Circuit vent means a *vent pipe* that serves a number of *fixtures* and connects to the *fixture drain* of the most upstream *fixture*, and "*circuit vented*" has a corresponding meaning.

Class 1 fire sprinkler/standpipe system means an assembly of pipes and fittings that conveys water from the *water service pipe* or *fire service main* to the sprinkler/standpipe system's outlets, is *directly connected* to the public water supply main only, has no pumps or reservoirs and in which the sprinkler drains discharge to the atmosphere, to dry wells or to other safe outlets.

Class 2 fire sprinkler/standpipe system means a *Class 1 fire sprinkler/standpipe system* that includes a booster pump in its connection to the public water supply main.

Class 3 fire sprinkler/standpipe system means an assembly of pipes and fittings that conveys *potable* water from the *water service pipe* or *fire service main* to the sprinkler/standpipe system's outlets and that is *directly connected* to the public water supply main and to one or more of the following storage facilities, which are filled from the public water supply main only: elevated water storage, fire pumps supplying water from aboveground covered reservoirs or pressure tanks.

Class 4 fire sprinkler/standpipe system means an assembly of pipes and fittings that conveys water from the *water service pipe* or *fire service main* to the sprinkler/standpipe system's outlets and is *directly connected* to the public water supply main (similar to *Class 1* and *Class 2 fire sprinkler/standpipe systems*) and to an auxiliary water supply dedicated to fire department use that is located within 520 m of a pumper connection.

Class 5 fire sprinkler/standpipe system means an assembly of pipes and fittings that conveys water from the *water service pipe* or *fire service main* to the sprinkler/standpipe system's outlets, is *directly connected* to the public water supply main and is interconnected with an *auxiliary water supply*.

Class 6 fire sprinkler/standpipe system means an assembly of pipes and fittings that conveys water from the *water service pipe* or *fire service main* to the sprinkler/standpipe system's outlets and acts as a combined industrial water supply and fire protection system that is supplied from the public water supply main only, with or without gravity storage or pump suction tanks.

Cleanout means a fitting access in a *drainage system* or *venting system* that is installed to provide access for cleaning and inspection and that is provided with a readily replaceable air tight cover.

Clean water means water that has passed through a *recirculation system*.

Clear water waste means waste water containing no impurities or contaminants that are harmful to a person's health, plant or animal life or that impair the quality of the natural environment.

Closed container means a container so sealed by means of a lid or other device that neither liquid nor vapour will escape from it at ordinary temperatures.

Medium hazard industrial occupancy (Group F, Division 2) means an *industrial occupancy* in which the *combustible* content is more than 50 kg/m² or 1 200 MJ/m² of *floor area* and that is not classified as a *high hazard industrial occupancy*.

Mercantile occupancy means the *occupancy* or use of a *building* or part of a *building* for the displaying or selling of retail goods, wares or merchandise.

Mezzanine means an intermediate floor assembly between the floor and ceiling of any room or *storey* and includes an interior balcony.

Modified pool means a *public pool* that has a basin-shaped floor sloping downward and inward toward the interior from the rim.

Modified stack venting means a *stack venting* arrangement in which the *stack vent* above the connection of the highest *stack vented fixture* is reduced in diameter.

Municipal drinking water system has the same meaning as in subsection 2(1) of the *Safe Drinking Water Act, 2002*.

Nominally horizontal means at an angle of less than 45° with the horizontal.

Nominally vertical means at an angle of not more than 45° with the vertical.

Noncombustible means that a material meets the acceptance criteria of CAN/ULC-S114, "Test for Determination of Non-Combustibility in Building Materials".

Noncombustible construction means a type of construction in which a degree of fire safety is attained by the use of *noncombustible* materials for structural members and other building assemblies.

Objective means an objective set out in Article 2.2.1.1.

Occupancy means the use or intended use of a *building* or part of a *building* for the shelter or support of persons, animals or property.

Occupant load means the number of persons for which a *building* or part of a *building* is designed.

Offset means the piping that connects the ends of two pipes that are parallel.

Offset relief vent means a *relief vent* that provides additional air circulation upstream and downstream of an *offset* in a *soil* or *waste stack*.

Open air means the atmosphere outside a *building*.

Open-air storey means a *storey* in which at least 25 percent of the total area of its perimeter walls is open to the outdoors in a manner that will provide cross ventilation to the entire *storey*.

Outdoor pool means a *public pool* that is not an *indoor pool*.

Pail privy means a latrine in which the receptacle for human waste consists of a removable container surmounted by a superstructure.

Partition means an interior wall, one *storey* or part-*storey* in height, that is not *loadbearing*.

Party wall means a wall,

(a) that is jointly owned and jointly used by two parties under an easement agreement or by a right in law, and
(b) that is erected at or upon a line separating two parcels of land each of which is, or is capable of being, a separate real estate entity.

Perched groundwater means a free standing body of water in the ground extending to a limited depth.

Percolation time means the average time in minutes that is required for water to drop one centimetre during a percolation test or as determined by a *soil* evaluation or analysis.

Performance level means the level of performance under which all or part of an existing *building* functions with respect to its *building systems*.

Permanent solid nutrient storage facility has the same meaning as in subsection 1(1) of Ontario Regulation 267/03 (General) made under the *Nutrient Management Act, 2002*.

Pharmacy means the premises in a *building* or the part of the premises in which prescriptions are compounded and dispensed for the public or in which drugs are sold by retail.

Pile means a slender *deep foundation unit*,

(a) that is made of materials such as wood, steel or concrete or a combination of them, and
(b) that is either pre-manufactured and placed by driving, jacking, jetting or screwing, or cast-in-place in a hole formed by driving, excavating or boring.

Plenum means a chamber forming part of an air duct system.

Plumbing appliance means a receptacle or equipment that receives or collects water, liquids or *sewage* and discharges water, liquid or *sewage* directly or indirectly to a *plumbing system*.

Plumbing system means a system of connected piping, fittings, valves, equipment, *fixtures* and appurtenances contained in *plumbing*. (See Appendix A.)

Point of entry treatment unit has the same meaning as in subsection 1(1) of Ontario Regulation 170/03 (Drinking Water Systems) made under the *Safe Drinking Water Act, 2002*.

Pool deck means the area immediately surrounding a *public pool*.

Portable privy means a portable latrine in which the receptacle for human body waste and the superstructure are combined structurally into one unit.

Post-disaster building means a *building* that is essential to the provision of services in the event of a disaster, and includes,

(a) hospitals, emergency treatment facilities and blood banks,
(b) telephone exchanges,
(c) power generating stations and electrical substations,
(d) control centres for land transportation,
(e) public water treatment and storage facilities,
(f) water and sewage pumping stations,
(g) emergency response facilities,
(h) fire, rescue and police stations,
(i) storage facilities for vehicles or boats used for fire, rescue and police purposes, and
(j) communications facilities, including radio and television stations.

Potable means fit for human consumption.

Potable water system means the *plumbing* that conveys *potable* water.

Pressurized distribution system means a *leaching bed* in which the *effluent* is distributed through the use of pressurized *distribution pipes*.

Private sewage disposal system means a *sewage system* or a *sewage works* that is not owned and operated by the Crown, a municipality or an organization acceptable to the Director responsible for issuing an environmental compliance approval required under section 53 of the *Ontario Water Resources Act*.

Private sewer means a sewer other than a *building sewer* that,

(a) is not owned or operated by a municipality, the Ministry of the Environment or another public agency,
(b) receives drainage from more than one *sanitary building drain* either directly or through more than one *sanitary building sewer* or receives drainage from more than one *storm building drain* either directly or through one or more *storm building sewers*, and connects to a main sewer, or
(c) serves as a place of disposal on the property,

but does not include,

(d) a sewer that carries only the sanitary waste or *storm sewage* from two semi-detached dwelling units,
r1 (e) a sewer that carries only the sanitary waste or *storm sewage* from one main *building* that is of *care, care and treatment, detention*, commercial or *industrial occupancy* and one ancillary *building*, or
(f) a sewer that carries only the sanitary waste or *storm sewage* from a row housing complex having five or fewer single family residences.

Private use means, when applied to plumbing *fixtures*, *fixtures* in residences and apartments, in private bathrooms of hotels, and in similar installations in other *buildings* for a single household or an individual.

Private water supply means piping that serves as a source of supply on the property to more than one *water service pipe*.

Private water supply system means an assembly of pipes, fittings, valves, equipment and appurtenances that supplies water from a private source to a *potable water system*.

Privy vault means a latrine in which the receptacle for human waste consists of a constructed vault from which the waste is periodically removed.

Process plant means an *industrial occupancy* where materials, including *flammable liquids*, *combustible liquids* or gases, are produced or used in a process.

Professional engineer means a person who holds a licence or a temporary licence under the *Professional Engineers Act*.

Public corridor means a corridor that provides *access to exit* from more than one *suite*. (See Appendix A.)

Public heritage building means a *heritage building* where the *occupancy* in whole or in part includes viewing of the *building* by the public provided that displays in it are limited to those relevant to the heritage significance of the *building*. (See Appendix A.)

Public pool means a structure, basin, chamber or tank containing or intended to contain an artificial body of water for swimming, water sport, water recreation or entertainment, but does not include,

(a) pools operated in conjunction with less than six *dwelling units*, *suites* or single family residences or any combination of them,
(b) pools that are used only for commercial display and demonstration purposes,
(c) wading pools,
(d) hydro-massage pools, or
(e) pools that serve only as receiving basins for persons at the bottom of water slides.

Public spa means a hydro-massage pool that contains an artificial body of water, that is intended primarily for therapeutic or recreational use, that is not drained, cleaned or refilled before use by each individual and that utilizes hydrojet circulation, air induction bubbles, current flow or a combination of them over the majority of the pool area, but does not include,

(a) wading pools, or
(b) spas operated in conjunction with less than six *dwelling units*, *suites* or single family residences, or any combination of them, for the use of occupants or residents and their visitors.

Public use means, when applied to plumbing *fixtures*, *fixtures* in general washrooms of schools, gymnasiums, hotels, bars, public comfort stations and other installations in which *fixtures* are installed so that their use is unrestricted.

Public way means a sidewalk, *street*, highway, square or another open space to which the public has access, as of right or by invitation, expressed or implied.

Rainwater means *storm sewage* runoff that is collected from a roof or the ground, but not from accessible patios and driveways.

Recirculation system means a system,

(a) that maintains the circulation of water through a *public pool* by pumps, and
(b) that provides continuous treatment of the water, including filtration and chlorination or bromination and any other process that may be necessary for the treatment of the water.

Recreational camp means a camp for recreational activities consisting of one or more *buildings* or other structures established or maintained as living quarters, with or without charge, for the temporary *occupancy* of 10 or more persons for five or more days.

Relief vent means a *vent pipe* that is used in conjunction with a *circuit vent* to provide additional air circulation between a *drainage system* and a *venting system*.

Repair garage means a *building* or part of a *building* where facilities are provided for the repair or servicing of motor vehicles.

Residential full flow-through fire sprinkler/standpipe system means an assembly of pipes and fittings installed in the residential portions of a *building* containing one or two *dwelling units* that conveys water from the *water service pipe* to outlets in the sprinkler and standpipe systems and is fully integrated into the *potable water system* to ensure a regular flow of water through all parts of the sprinkler and standpipe systems.

r_1 *Residential occupancy* means an *occupancy* in which sleeping accommodation is provided to residents who are not harboured for the purpose of receiving special care or treatment and are not involuntarily detained.

Residential partial flow-through sprinkler/standpipe system means an assembly of pipes and fittings installed in the residential portions of a *building* containing one or two *dwelling units* that conveys water from the *water service pipe* to outlets in the sprinkler and standpipe systems and in which flow occurs during inactive periods of the sprinkler and standpipe systems only through the main header to the water closet located at the farthest point of the sprinkler and standpipe systems.

Return duct means a duct for conveying air from a space being heated, ventilated or air-conditioned back to the heating, ventilating or *air-conditioning appliance*.

Riser means a water *distributing pipe* that extends through at least one full *storey*, as defined in Part 7 of Division B.

Rock means a portion of the earth's crust that is consolidated, coherent and relatively hard and that is a naturally formed, solidly bonded, mass of mineral matter that cannot readily be broken by hand.

Roof drain means a fitting or device that is installed in the roof to permit *storm sewage* to discharge into a *leader*.

Roof gutter means an exterior channel installed at the base of a sloped roof to convey *storm sewage*.

Sanitary building drain means a *building drain* that conducts *sewage* to a *building sewer* from the most upstream *soil* or *waste stack*, *branch* or *fixture drain* serving a water closet.

Sanitary building sewer means a pipe that is connected to a *sanitary building drain* 1 000 mm outside a wall of a *building* and that conducts *sewage* to a public sewer or *private sewage disposal system*.

Sanitary drainage pipe means all piping that conveys *sanitary sewage* to a place of disposal, including the *sanitary building drain*, *sanitary building sewer*, *soil pipe*, *soil stack*, *waste stack* and *waste pipe* but not the main sewer or piping in a *sewage* treatment plant.

Sanitary drainage system means a *drainage system* that conducts *sanitary sewage*.

Sanitary sewage means,

(a) liquid or water borne waste,
  (i) of industrial or commercial origin, or
  (ii) of domestic origin, including human body waste, toilet or other bathroom waste, and shower, tub, culinary, sink and laundry waste, or
(b) liquid or water borne waste discharged from a *public pool* to a drain.

Sanitary sewer means a sewer that conducts *sewage*.

Sanitary unit means a water closet, urinal, bidet or bedpan washer.

Self-service storage building means a *building* that is used to provide individual storage spaces to the public and that is open to the public only for those purposes.

Septic tank means a watertight vault in which *sanitary sewage* is collected for the purpose of removing scum, grease and solids from the liquid without the addition of air and in which solids settling and anaerobic digestion of the *sanitary sewage* takes place.

Service room means a room provided in a *building* to contain equipment associated with *building* services. (See Appendix A.)

Service space means space provided in a *building* to facilitate or conceal the installation of building service facilities such as chutes, ducts, pipes, shafts or wires.

Service water heater means a device for heating water for *plumbing* services.

Table 1.4.2.1.
Symbols and Abbreviations
Forming Part of Sentence 1.4.2.1.(1)

Symbol or Abbreviation	Meaning
1 in 2	slope of 1 vertical to 2 horizontal
ASWG	American Steel Wire Gage
ABS	acrylonitrile-butadiene-styrene
Bq	becquerel(s)
$CBOD_5$	the five day carbonaceous biochemical oxygen demand
CO_2e	*carbon dioxide equivalent*
CFU	colony forming units
cm	centimetre(s)
cm^2	square centimetre(s)
CPVC	chlorinated poly (vinyl chloride)
dB(A)	A-weighted sound level
°	degree(s)
°C	Degree(s) Celsius
diam	diameter
DWV	drain, waste and vent
ft	foot (feet)
g	gram(s)
ga	gauge
gal	imperial gallon(s)
gal/min	imperial gallon(s) per minute
h	hour(s)
HVAC	heating, ventilating and air-conditioning
Hz	hertz
in.	inch(es)
J	joule(s)
kg	kilogram(s)
kg/m^2	kilograms per square metre
kN	kilonewton(s)
kPa	kilopascal(s)
kW	kilowatt(s)
L	litre(s)
L/min	litre(s) per minute
L/s	litre(s) per second
LPF	litres per flush
lx	lux
m	metre(s)
m^2	square metre(s)
m^3	cubic metre(s)
m/s	metre(s) per second
max.	maximum
Column 1	2

Table 1.4.2.1. (Cont'd)
Symbols and Abbreviations
Forming Part of Sentence 1.4.2.1.(1)

Symbol or Abbreviation	Meaning
mg/L	milligram(s) per litre
min	minute(s)
min.	minimum
MJ	megajoule(s)
mm	millimetre(s)
MPa	megapascal(s)
N	newton
N/A	not applicable
ng	nanogram(s)
No.	number(s)
nom.	nominal
o.c.	on centre
OSB	oriented strandboard
Pa	pascal(s)
PB	polybutylene
PE	polyethylene
PE/AL/PE	polyethylene/aluminum/polyethylene
PEX	crosslinked polyethylene
PEX/AL/PEX	crosslinked polyethylene/aluminum/crosslinked polyethylene
PVC	poly (vinyl chloride)
RSI	thermal resistance, International System of Units
s	second(s)
temp.	temperature
T&G	tongue and groove
W	watt(s)
wt	weight
%	percent
µg	microgram(s)
µm	micron
Column 1	2

e_1

Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document(1)	Code Reference
ASME	B16.26-2006	Cast Copper Alloy Fittings for Flared Copper Tubes	7.2.7.7.(1) 7.2.7.7.(2) Table 7.2.11.2.
ASME	B16.29-2007	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV	7.2.7.5.(1)
ASME	B18.6.1-1981	Wood Screws (Inch Series)	Table 5.10.1.1. 9.23.3.1.(2)
ASME/CSA	ASME A17.1-2007 / CSA B44-07	Safety Code for Elevators and Escalators	3.5.2.2.(1) Table 4.1.5.11. 7.4.3.6.(1)
ASME/CSA	ASME A112.18.1-2005 / CAN/CSA-B125.1-12	Plumbing Supply Fittings	7.2.10.6.(1) 7.6.5.2.(1)
ASME/CSA	ASME A112.18.2-2005 / CAN/CSA-B125.2-05	Plumbing Waste Fittings	7.2.3.3.(1) 7.2.10.6.(2)
ASME/CSA	ASME A112.19.1-08 / CAN/CSA-B45.2-08	Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures	7.2.2.2.(3) 7.2.2.2.(4)
ASME/CSA	ASME A112.19.2-08 / CAN/CSA-B45.1-08	Ceramic Plumbing Fixtures	7.2.2.2.(2)
ASME/CSA	ASME A112.19.3-08 / CAN/CSA-B45.4-08	Stainless Steel Plumbing Fixtures	7.2.2.2.(5)
ASPE	2005	Data Books	7.6.3.1.(2) 7.7.4.1.(1)
ASSE	ANSI/ASSE 1010-2004	Water Hammer Arresters	7.2.10.15.(1)
ASSE	1051-2009	Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems	7.2.10.16.(1)
ASTM	A53 / A53M-07	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless	7.2.6.7.(4)
ASTM	A123 / A123M-08	Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products	Table 5.10.1.1. Table 9.20.16.1.
ASTM	A153 / A153M-05	Zinc Coating (Hot-Dip) on Iron and Steel Hardware	Table 5.10.1.1. Table 9.20.16.1.
ASTM	A252-98	Welded and Seamless Steel Pipe Piles	4.2.3.8.(1)
ASTM	A283 / A283M-03	Low and Intermediate Tensile Strength Carbon Steel Plates	4.2.3.8.(1)
ASTM	A518 / A518M-99	Corrosion-Resistant High-Silicon Iron Castings	7.2.8.1.(1)
ASTM	A653 / A653M-08	Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process	Table 5.10.1.1. 9.3.3.2.(1)
ASTM	A792 / A792M-08	Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process	9.3.3.2.(1)
ASTM	A1008 / A1008M-09	Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable	4.2.3.8.(1)
ASTM	A1011 / A1011M-09a	Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength	4.2.3.8.(1)
ASTM	B32-08	Solder Metal	7.2.9.2.(2)
ASTM	B42-02e1	Seamless Copper Pipe, Standard Sizes	7.2.7.1.(1)
ASTM	B43-98	Seamless Red Brass Pipe, Standard Sizes	7.2.7.1.(2)
Column 1	2	3	4

Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document[1]	Code Reference
ASTM	B68-02	Seamless Copper Tube, Bright Annealed	7.2.7.4.(3)
ASTM	B88-03	Seamless Copper Water Tube	7.2.7.4.(1) Table 7.2.11.2.
ASTM	B306-02	Copper Drainage Tube (DWV)	7.2.7.4.(1)
ASTM	B813-00e1	Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy and Tube	7.2.9.2.(3)
ASTM	B828-02	Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings	7.3.2.4.(1)
ASTM	C4-04e1	Clay Drain Tile and Perforated Clay Drain Tile	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C27-98	Classification for Fire Clay and High-Alumina Refractory Brick	9.21.3.4.(1)
ASTM	C73-05	Calcium Silicate Brick (Sand-Lime Brick)	Table 5.10.1.1. 9.20.2.1.(1)
ASTM	C126-99	Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	Table 5.10.1.1. 9.20.2.1.(1)
ASTM	C212-00	Structural Clay Facing Tile	Table 5.10.1.1. 9.20.2.1.(1)
ASTM	C260-06	Air-Entraining Admixtures for Concrete	9.3.1.8.(1)
ASTM	C411-05	Hot-Surface Performance of High-Temperature Thermal Insulation	6.2.3.4.(3) 6.2.9.2.(2)
ASTM	C412M-05a	Concrete Drain Tile (Metric)	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C444M-03	Perforated Concrete Pipe (Metric)	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C494 / C494M-08	Chemical Admixtures for Concrete	9.3.1.8.(1)
ASTM	C553-02	Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications	Table 5.10.1.1.
ASTM	C612-04	Mineral Fiber Block and Board Thermal Insulation	Table 5.10.1.1.
ASTM	C700-07a	Vitrified Clay Pipe, Extra Strength, Standard Strength and Perforated	Table 5.10.1.1. 9.14.3.1.(1)
ASTM	C834-05	Latex Sealants	Table 5.10.1.1. 9.27.4.2.(2)
ASTM	C920-05	Elastomeric Joint Sealants	Table 5.10.1.1. 9.27.4.2.(2)
ASTM	C954-07	Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness	9.24.1.4.(1)
ASTM	C991-03	Flexible Fibrous Glass Insulation for Metal Buildings	Table 5.10.1.1.
ASTM	C1002-07	Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs	Table 5.10.1.1. 9.24.1.4.(1) 9.29.5.7.(1)
ASTM	C1053-00	Borosilicate Glass Pipe and Fittings for Drain, Waste and Vent (DWV) Applications	7.2.8.1.(1)
ASTM	C1177 / C1177M-08	Glass Mat Gypsum Substrate for Use as Sheathing	Table 5.10.1.1. Table 9.23.16.2.A.
Column 1	2	3	4

Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
Forming Part of Sentence 1.3.1.2.(1)

	Issuing Agency	Document Number	Title of Document(1)	Code Reference
	CSA	CAN/CSA-A220.0-06	Performance of Concrete Roof Tiles	Table 5.10.1.1.; 9.26.2.1.(1)
	CSA	CAN/CSA-A220.1-06	Installation of Concrete Roof Tiles	Table 5.10.1.1. 9.26.17.1.(1)
	CSA	CAN/CSA-A257 Series-03	Standards for Concrete Pipe and Manhole Sections	7.2.5.3.(1)
	CSA	A257.4-03	Precast Reinforced Circular Concrete Manhole Sections, Catch Basins, and Fittings	7.2.5.3.(5)
e_1	CSA	A277-08	Procedure for Factory Certification of Buildings	9.1.1.9.(1) 3.1.1.1.(2) of Division C 3.2.4.1.(3) of Division C
	CSA	CAN/CSA-A324-M88	Clay Flue Liners	9.21.3.3.(1)
	CSA	CAN/CSA-A371-04	Masonry Construction for Buildings	5.6.1.2.(2) Table 5.10.1.1. 9.15.2.2.(3) 9.20.3.2.(7) 9.20.15.2.(1)
	CSA	CAN/CSA-A405-M87	Design and Construction of Masonry Chimneys and Fireplaces	9.21.3.5.(1) 9.22.1.4.(7) 9.22.5.2.(2)
	CSA	AAMA/WDMA/CSA 101/I.S.2/A440-08	NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights	5.10.2.2.(1) Table 9.7.3.3. 9.7.4.1.(1) 9.7.4.2.(1); 9.7.4.3.(2) 9.7.5.1.(1); 9.7.5.3.(1)
	CSA	A440.2-09 / A440.3-09	Fenestration Energy Performance / User Guide to CSA A440.2-09, Fenestration Energy Performance	Table 9.7.3.3. 12.3.1.2.(1)
	CSA	CAN/CSA-A440.4-07	Window, Door and Skylight Installation	9.7.6.1.(1)
	CSA	A440S1-09	Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights	5.10.2.2.(1) 9.7.4.2.(1) 9.7.4.3.(1)
	CSA	CAN/CSA-A660-04	Certification of Manufacturers of Steel Building Systems	4.3.4.3.(1)
m_1	CSA	CAN/CSA-A3001-08	Cementitious Materials for Use in Concrete	Table 5.10.1.1. 9.3.1.2.(1); 9.28.2.1.(1)
	CSA	CAN/CSA-B45.0-02	General Requirements for Plumbing Fixtures	7.6.4.2.(1)
	CSA	CAN/CSA-B45.5-02	Plastic Plumbing Fixtures	7.2.2.2.(6)
	CSA	CAN/CSA-B45.9-02	Macerating Systems and Related Components	7.2.2.2.(8)
	CSA	CAN/CSA-B45.10-01	Hydromassage Bathtubs	7.2.2.2.(7)
	CSA	B52-05	Mechanical Refrigeration Code	6.2.2.4.(4)
	CSA	CAN/CSA-B64.0-07	Definitions, General Requirements, and Test Methods for Vacuum Breakers and Backflow Preventers	7.2.10.10.(1)
	CSA	CAN/CSA-B64.1.1-07	Atmospheric Vacuum Breakers (AVB)	7.2.10.10.(1)
	CSA	CAN/CSA-B64.1.2-07	Pressure Vacuum Breakers (PVB)	7.2.10.10.(1)
	CSA	CAN/CSA-B64.2-07	Hose Connection Vacuum Breakers (HCVB)	7.2.10.10.(1)
	Column 1	2	3	4

Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document[1]	Code Reference
CSA	CAN/CSA-B64.2.1-07	Hose Connection Vacuum Breakers (HCVB) with Manual Draining Feature	7.2.10.10.(1)
CSA	CAN/CSA-B64.2.2-07	Hose Connection Vacuum Breakers (HCVB) with Automatic Draining Feature	7.2.10.10.(1)
CSA	CAN/CSA-B64.3-07	Dual Check Valve Backflow Preventers with Atmospheric Port (DCAP)	7.2.10.10.(1) 7.6.2.5.(4)
CSA	CAN/CSA-B64.4-07	Reduced Pressure Principle Backflow Preventers (RP)	7.2.10.10.(1)
CSA	CAN/CSA-B64.4.1-07	Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)	7.6.2.4.(2) Table 7.6.2.4. 7.6.2.4.(4)
CSA	CAN/CSA-B64.5-07	Double Check Valve Backflow Preventers (DCVA)	7.2.10.10.(1)
CSA	CAN/CSA-B64.5.1-07	Double Check Valve Backflow Preventers for Fire Protection Systems (DCVAF)	7.6.2.4.(2) Table 7.6.2.4.
CSA	CAN/CSA-B64.6-07	Dual Check Valve Backflow Preventers (DuC)	7.2.10.10.(1) 7.6.2.6.(3) 7.7.1.1.(3)
CSA	CAN/CSA-B64.6.1-07	Dual Check Valve Backflow Preventers for Fire Protection Systems (DuCF)	7.6.4.2.(2) Table 7.6.2.4.
CSA	CAN/CSA-B64.7-07	Laboratory Faucet Vacuum Breakers (LFVB)	7.2.10.10.(1)
CSA	CAN/CSA-B64.8-07	Dual Check Valve Backflow Preventers with Intermediate Vent (DuCV)	7.2.10.10.(1)
CSA	CAN/CSA-B64.9-07	Single Check Valve Backflow Preventers for Fire Protection Systems (SCVAF)	7.6.2.4.(2) Table 7.6.2.4.
CSA	B64.10-07	Selection and Installation of Backflow Preventers	7.2.10.10.(1) 7.6.2.3.(1) Table 7.6.2.4. 7.6.2.6.(1)
CSA	B66-10	Design, Material, and Manufacturing Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks	8.2.2.2.(1) 8.2.2.2.(2) 8.2.2.2.(3) 8.2.2.3.(7) 8.2.2.3.(11)
CSA	B70-06	Cast Iron Soil Pipe, Fittings and Means of Joining	7.2.6.1.(1) 7.4.6.4.(2)
CSA	B111-1974	Wire Nails, Spikes and Staples	9.23.3.1.(1) 9.26.2.2.(1) 9.29.5.6.(1)
CSA	CAN/CSA-B125.3-12	Plumbing Fittings	7.2.10.6.(1) 7.2.10.10.(2) 7.6.5.2.(2)
CSA	CAN/CSA-B127.1-99	Asbestos Cement Drain, Waste and Vent Pipe and Pipe Fittings	7.2.5.1.(1) 7.2.6.2.(1)
CSA	B127.2-M1977	Components for Use in Asbestos Cement Building Sewer Systems	7.2.5.1.(2) 7.2.6.2.(1)
CSA	CAN/CSA-B128.1-06	Design and Installation of Non-Potable Water Systems	7.7.2.1.(2) 7.7.4.1.(1)
CSA	CAN/CSA-B137.1-05	Polyethylene (PE) Pipe, Tubing and Fittings for Cold Water Pressure Services	7.2.5.5.(1) Table 7.2.11.2.
Column 1	2	3	4

Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document(1)	Code Reference
CSA	CAN/CSA-B137.2-05	Polyvinylchloride (PVC) Injection-Moulded Gasketed Fittings for Pressure Applications	7.2.5.8.(1) 7.2.5.10.(1) Table 7.2.11.2.
CSA	CAN/CSA-B137.3-05	Rigid Polyvinylchloride (PVC) Pipe for Pressure Applications	7.2.5.8.(1) 7.2.5.10.(1) Table 7.2.11.2.
CSA	CAN/CSA-B137.5-05	Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications	7.2.5.7.(1) Table 7.2.11.2.
CSA	CAN/CSA-B137.6-05	Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems	7.2.5.9.(1) 7.2.5.9.(2) Table 7.2.11.2.
CSA	CAN/CSA-B137.9-05	Polyethylene/Aluminium/Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems	7.2.5.13.(1) Table 7.2.11.2.
CSA	CAN/CSA-B137.10-05	Crosslinked Polyethylene/Aluminum Crosslinked Polyethylene (PEX-AL-PEX) Composite Pressure-Pipe Systems	7.2.5.13.(4) 7.2.5.14.(1) Table 7.2.11.2.
CSA	CAN/CSA-B137.11-05	Polypropylene (PP-R) Pipe and Fittings for Pressure Applications	7.2.5.15.(1)
CSA	B158.1-1976	Cast Brass Solder Joint Drainage, Waste and Vent Fittings	7.2.7.5.(1) 7.2.10.1.(1)
CSA	CAN/CSA-B181.1-06	Acrylonitrile-Butadiene-Styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings	7.2.5.10.(1) 7.2.5.11.(1) 7.2.5.12.(1) 7.2.5.12.(2) 7.2.10.1.(2) 7.4.6.4.(2)
CSA	CAN/CSA-B181.2-06	Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings	7.2.5.10.(1) 7.2.5.11.(1) 7.2.5.12.(1) 7.2.5.12.(2) 7.2.10.1.(3) 7.4.6.4.(2)
CSA	CAN/CSA-B181.3-06	Polyolefin and Polyvinylidene Fluoride (PVDF) Laboratory Drainage Systems	7.2.8.1.(1)
CSA	CAN/CSA-B182.1-06	Plastic Drain and Sewer Pipe and Pipe Fittings	Table 5.10.1.1. 7.2.5.10.(1) 7.2.5.12.(2) 7.4.6.4.(2) 9.14.3.1.(1)
CSA	CAN/CSA-B182.2-06	PSM Type Polyvinylchloride (PVC) Sewer Pipe and Fittings	7.2.5.10.(1) 7.2.5.12.(2)
CSA	CAN/CSA-B182.4-06	Profile Polyvinylchloride (PVC) Sewer Pipe and Fittings	7.2.5.10.(1)
CSA	CAN/CSA-B182.6-06	Profile Polyethylene (PE) Sewer Pipe and Fittings for Leak-Proof Sewer Applications	7.2.5.10.(1)
CSA	CAN/CSA-B214-07	Installation Code for Hydronic Heating Systems	6.2.1.4.(6)
CSA	B242-05	Groove and Shoulder-Type Mechanical Pipe Couplings	7.2.10.4.(1)
CSA	CAN/CSA-B272-93	Prefabricated Self-Sealing Roof Vent Flashings	7.2.10.14.(2)
CSA	CAN/CSA-B355-00	Lifts for Persons with Physical Disabilities	3.8.3.5.(1)
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Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
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	Issuing Agency	Document Number	Title of Document(1)	Code Reference
	CSA	CAN/CSA-B356-00	Water Pressure Reducing Valves for Domestic Water Supply Systems	7.2.10.12.(1)
	CSA	CAN/CSA-B365-01	Installation Code for Solid-Fuel Burning Appliances and Equipment	6.2.1.4.(1) 6.2.1.4.(5) 9.21.1.3.(2) 9.22.10.2.(1) 9.33.1.2.(1)
	CSA	CAN/CSA-B366.1-11	Solid Fuel-Fired Central Heating Appliances	6.2.1.4.(2)
m1	CSA	CAN/CSA-B481.1-07	Testing and Rating of Grease Interceptors Using Lard	7.2.3.2.(3) 8.1.3.1.(8)
m1	CSA	CAN/CSA-B481.2-07	Testing and Rating of Grease Interceptors Using Oil	7.2.3.2.(3) 8.1.3.1.(8)
	CSA	CAN/CSA-B481.4-07	Maintenance of Grease Interceptors	8.9.3.3.(1)
	CSA	CAN/CSA-B483.1-07	Drinking Water Treatment Systems	7.2.10.17.(1)
	CSA	CAN/CSA-B602-05	Mechanical Couplings for Drain, Waste, and Vent Pipe and Sewer Pipe	7.2.5.3.(2) 7.2.10.4.(2)
	CSA	C22.2 No. 0.3-01	Test Methods for Electrical Wires and Cables	3.1.4.3.(1) 3.1.4.3.(2) 3.1.5.18.(1) 3.1.5.18.(2) 3.1.5.21.(1) 3.1.5.21.(2) 3.6.4.3.(1) 9.34.1.5.(1)
	CSA	C22.2 No.113-M1984	Fans and Ventilators	9.32.3.9.(6)
	CSA	C22.2 No. 141-10	Emergency Lighting Equipment	3.2.7.4.(2) 3.4.5.1.(3) 9.9.11.3(3) 9.9.12.3.(7)
	CSA	C22.2 No. 211.0-03	General Requirements and Methods of Testing for Nonmetallic Conduit	3.1.5.20.(1)
	CSA	CAN/CSA-C22.2 No. 262-04	Optical Fiber Cable and Communication Cable Raceway Systems	3.1.5.20.(1)
	CSA	CAN/CSA-C22.3 No. 1-2010	Overhead Systems	3.1.19.1.(2)
	CSA	CAN/CSA-C88-M90	Power Transformers and Reactors	3.6.2.7.(10)
	CSA	CAN/CSA-C260-M90	Rating for the Performance of Residential Mechanical Ventilating Equipment	9.32.3.9.(1) 9.32.3.9.(2) Table 9.32.3.9.
	CSA	CAN/CSA-C282-05	Emergency Electrical Power Supply for Buildings	3.2.7.5.(1)
	CSA	CAN/CSA-C439-00	Rating the Performance of Heat/Energy-Recovery Ventilators	6.2.1.6.(2) 9.32.3.11.(2)
	CSA	CAN/CSA-C448.1-02	Design and Installation of Earth Energy Systems for Commercial and Institutional Buildings	6.2.1.4.(4)
	CSA	CAN/CSA-C448.2-02	Design and Installation of Earth Energy Systems for Residential and Other Small Buildings	6.2.1.4.(3)
	CSA	CAN/CSA-F280-M90	Determining the Required Capacity of Residential Space Heating and Cooling Appliances	6.2.1.1.(1) 9.33.2.2.(3)
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Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
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Issuing Agency	Document Number	Title of Document(1)	Code Reference
CSA	CAN/CSA-F326-M91	Residential Mechanical Ventilation Systems	6.2.1.1.(1)
CSA	CAN/CSA-F379.1-09	Packaged Solar Domestic Hot Water Systems (Liquid-to-Liquid Heat Transfer)	7.2.10.13.(1) 7.6.2.5.(3) 7.6.2.5.(4)
CSA	F383-08	Installation of Packaged Solar Domestic Hot Water Systems	7.6.1.13.(1)
CSA	CAN/CSA-G30.18-M92	Billet Steel Bars for Concrete Reinforcement	9.3.1.1.(4) 9.39.1.3.(1)
CSA	G40.21-04	General Requirements for Rolled or Welded Structural Quality Steel	4.2.3.8.(1) Table 5.10.1.1. 9.23.4.3.(2)
CSA	CAN/CSA-G164-M92	Hot Dip Galvanising of Irregularly Shaped Articles	4.4.4.1.(4)
CSA	CAN/CSA-G401-07	Corrugated Steel Pipe Products	Table 5.10.1.1. 7.2.6.8.(1) 9.14.3.1.(1)
CSA	CAN/CSA-O80 Series-08	Wood Preservation	3.1.4.5.(1) 4.2.3.2.(1) 4.2.3.2.(2) Table 5.10.1.1.
CSA	CAN/CSA-O80.1-08	Specification of Treated Wood	9.3.2.9.(6)
CSA	CAN/CSA-O80.2-08	Processing and Treatment	4.2.3.2.(1)
CSA	CAN/CSA-O80.3-08	Preservative Formulations	4.2.3.2.(1)
CSA	O80.15-97	Preservative Treatment of Wood for Building Foundation Systems, Basements and Crawl Spaces by Pressure Processes	4.2.3.2.(1)
CSA	O86-09	Engineering Design in Wood	Table 4.1.8.9. 4.3.1.1.(1)
CSA	O115-M1982	Hardwood and Decorative Plywood	Table 5.10.1.1. 9.27.8.1.(1) 9.30.2.2.(1)
CSA	O118.1-08	Western Red Cedar Shakes and Shingles	Table 5.10.1.1. 9.26.2.1.(1) 9.27.7.1.(1)
CSA	O118.2-08	Eastern White Cedar Shingles	Table 5.10.1.1. 9.26.2.1.(1) 9.27.7.1.(1)
CSA	O121-08	Douglas Fir Plywood	Table 5.10.1.1. 9.23.14.2.(1) 9.23.15.2.(1) Table 9.23.16.2.A. 9.27.8.1.(1) 9.30.2.2.(1) Table A-13 Table A-14 Table A-15
CSA	CAN/CSA-O122-06	Structural Glued-Laminated Timber	Table A-11 Table A-16
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Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
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Issuing Agency	Document Number	Title of Document[1]	Code Reference
CSA	CAN/CSA-O132.2 Series-90	Wood Flush Doors	9.7.4.3.(4)
CSA	O141-05	Softwood Lumber	Table 5.10.1.1. 9.3.2.6.(1)
CSA	O151-09	Canadian Softwood Plywood	Table 5.10.1.1. 9.23.14.2.(1) 9.23.15.2.(1) Table 9.23.16.2.A. 9.27.8.1.(1) 9.30.2.2.(1) Table A-13 Table A-14 Table A-15
CSA	O153-M1980	Poplar Plywood	Table 5.10.1.1. 9.23.14.2.(1) 9.23.15.2.(1) Table 9.23.16.2.A. 9.27.8.1.(1) 9.30.2.2.(1)
CSA	O177-06	Qualification Code for Manufacturers of Structural Glued-Laminated Timber	4.3.1.2.(1) Table A-11 Table A-16
CSA	CAN/CSA-O325.0-07	Construction Sheathing	Table 5.10.1.1. 9.23.14.2.(1) 9.23.14.4.(2) Table 9.23.14.5.B. 9.23.15.2.(1) 9.23.15.3.(2) Table 9.23.15.7.B. Table 9.23.16.2.B. 9.29.9.1.(2) 9.29.9.2.(5) Table A-13 Table A-14 Table A-15
CSA	O437.0-93	OSB and Waferboard	Table 5.10.1.1. 9.23.14.2.(1) 9.23.14.4.(2) 9.23.15.2.(1) 9.23.15.3.(2) Table 9.23.16.2.A. 9.27.10.1.(1) 9.29.9.1.(2) 9.30.2.2.(1) Table A-13 Table A-14 Table A-15
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Documents Referenced in the Building Code
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	Issuing Agency	Document Number	Title of Document(1)	Code Reference
	CSA	S16-09	Design of Steel Structures	Table 4.1.8.9. 4.3.4.1.(1)
	CSA	CAN/CSA-S136-07	North American Specifications for the Design of Cold Formed Steel Structural Members (using the Appendix B provisions applicable to Canada)	Table 4.1.8.9. 4.3.4.2.(1)
	CSA	CAN/CSA-S157-05 / S157.1-05	Strength Design in Aluminum / Commentary on CSA S157-05, Strength Design in Aluminum	4.3.5.1.(1)
	CSA	S304.1-04	Design of Masonry Structures	Table 4.1.8.9. 4.3.2.1.(1)
	CSA	S307-M1980	Load Test Procedure for Wood Roof Trusses for Houses and Small Buildings	9.23.13.11.(5)
	CSA	S367-09	Air-, Cable-, and Frame-Membrane Supported Structures	4.4.1.1.(1)
	CSA	CAN/CSA-S406-92	Construction of Preserved Wood Foundations	9.13.2.8.(1) 9.15.2.4.(1) 9.16.5.1.(1)
	CSA	S413-07	Parking Structures	4.4.2.1.(1)
	CSA	S478-95	Guideline on Durability in Buildings	5.1.4.2.(3) Table 5.10.1.1.
	CSA	Z32-04	Electrical Safety and Essential Electrical Systems in Health Care Facilities	3.2.7.3.(4) 3.2.7.6.(1) 3.7.5.1.(1)
	CSA	CAN/CSA-Z91-02	Health and Safety Code for Suspended Equipment Operations	4.4.4.1.(1)
m_1	CSA	Z240.2.1-09	Structural Requirements for Manufactured Homes	9.1.1.9.(1) 9.12.2.2.(6) 9.15.1.3.(1)
m_1	CSA	Z240.10.1-08	Site Preparation, Foundation and Anchorage of Manufactured Homes	9.15.1.3.(1) 9.23.6.3.(1)
e_1	CSA	CAN/CSA-Z241 Series-03	Park Model Trailers	9.38.1.1.(1); 9.38.2.1.(1) 3.1.1.1.(2) of Division C 3.2.4.1.(3) of Division C
	CSA	CAN/CSA-Z317.2-01	Special Requirements for Heating, Ventilation and Air Conditioning (HVAC) Systems in Health Care Facilities	6.2.1.1.(1)
	CSA	Z662-07	Oil and Gas Pipeline Systems	3.2.3.21.(1)
	CSA	CAN/CSA-Z7396.1-06	Medical Gas Piping Systems - Part 1: Pipelines for Medical Gases and Vacuum	3.7.5.2.(1)
	CWC	2009	Engineering Guide for Wood Frame Construction	9.4.1.1.(1)
	DBR	Technical Paper No. 194, May 1965	Fire Endurance of Protected Steel Columns and Beams	Table 11.5.1.1.A. Table 11.5.1.1.B. Table 11.5.1.1.C. Table 11.5.1.1.D/E. Table 11.5.1.1.F.
	DBR	Technical Paper No. 207, October 1965	Fire Endurance of Unit Masonry Walls	Table 11.5.1.1.A. Table 11.5.1.1.B. Table 11.5.1.1.C. Table 11.5.1.1.D/E. Table 11.5.1.1.F.
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Issuing Agency	Document Number	Title of Document(1)	Code Reference
DBR	Technical Paper No. 222, June 1966	Fire Endurance of Light-Framed and Miscellaneous Assemblies	Table 11.5.1.1.A. Table 11.5.1.1.B. Table 11.5.1.1.C. Table 11.5.1.1.D/E. Table 11.5.1.1.F.
EPA	EPA/625/R-92/016	Radon Prevention in the Design and Construction of Schools and Other Large Buildings	6.2.1.1.(1)
FINA	2009	Rules and Regulations - FINA Facilities Rules 2009-2013 - FR5 Diving Facilities	3.11.4.1.(17)
HI	2005	Hydronics Institute Manuals	6.2.1.1.(1)
HRAI	2005	Digest	6.2.1.1.(1) 6.2.3.5.(1) 6.2.4.3.(13)
HUD	Rehabilitation Guidelines 2000	Guideline on Fire Ratings of Archaic Materials and Assemblies	Table 11.5.1.1.A. Table 11.5.1.1.B. Table 11.5.1.1.C. Table 11.5.1.1.D/E. Table 11.5.1.1.F.
HVI	HVI 915-2009	Procedure for Loudness Rating of Residential Fan Products	9.32.3.9.(2) Table 9.32.3.9.
HVI	HVI 916-2009	Airflow Test Procedure	9.32.3.9.(1)
ISO	3864-1: 2002	Graphical Symbols – Safety Colours and Safety Signs – Part 1: Design Principles for Safety Signs in Workplaces and Public Areas	3.4.5.1.(2) 9.9.11.3.(2)
ISO	7010: 2003	Graphical Symbols - Safety Colours and Safety Signs - Safety Signs Used in Workplaces and Public Areas	3.4.5.1.(2) 9.9.11.3.(2)
e_1 ISO	8201; 1987(E)	Acoustics - Audible Emergency Evacuation Signal	3.2.4.18.(2)
m_1 MMAH	Supplementary Standard SA-1, September 1, 2013	Objectives and Functional Statements Attributed to the Acceptable Solutions	1.2.1.1.(1) of Division A 1.2.1.1.(2) of Division A
MMAH	Supplementary Standard SB-1, September 14, 2012	Climatic and Seismic Data	1.1.2.1.(1) 1.1.2.1.(2) 3.2.6.2.(2) 3.3.1.7.(1) 5.2.1.1.(1) 5.2.1.1.(2) 6.2.1.1.(1) 6.2.1.7.(1) 7.4.10.4.(1) 9.4.1.1.(3) 9.4.2.2.(1) Table 9.25.5.2. Table 9.32.3.10.A. 9.33.3.2.(1)
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Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
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Issuing Agency	Document Number	Title of Document(1)	Code Reference
MMAH	Supplementary Standard SB-2, September 14, 2012	Fire Performance Ratings	3.1.5.23.(1) 3.1.7.1.(2) 3.1.8.14.(2) 3.1.9.5.(1) 3.1.9.5.(2) 3.1.12.1.(3) 3.2.3.12.(1) 3.2.3.13.(4) 3.13.2.1.(8) 3.13.3.5.(1) 3.13.3.6.(2) 3.13.4.2.(7) 9.10.3.1.(1) 9.10.3.2.(1) 9.10.5.1.(4) 9.10.9.9.(1) 9.10.13.14.(1)
MMAH	Supplementary Standard SB-3, September 14, 2012	Fire and Sound Resistance of Building Assemblies	9.10.3.1.(1) 9.10.5.1.(4) 9.11.2.1.(1) 9.11.2.1.(2)
MMAH	Supplementary Standard SB-4, September 14, 2012	Measures for Fire Safety in High Buildings	3.2.6.2.(1) 3.2.6.2.(6) 3.2.6.5.(3) 3.2.6.9.(1) 3.2.6.10.(2) 3.2.6.14.(1) Table 11.5.1.1.C. Table 11.5.1.1.D/E. Table 11.5.1.1.F.
MMAH	Supplementary Standard SB-5, September 1, 2013	Approved Sewage Treatment Units	8.6.2.2.(5)
MMAH	Supplementary Standard SB-6, September 14, 2012	Percolation Times and Soil Descriptions	8.2.1.2.(2)
MMAH	Supplementary Standard SB-7, September 14, 2012	Guards for Housing and Small Buildings	9.8.8.2.(5)
MMAH	Supplementary Standard SB-8, September 14, 2012	Design, Construction and Installation of Anchorage Systems for Fixed Access Ladders	3.6.1.5.(1)
MMAH	Supplementary Standard SB-9, September 14, 2012	Requirements for Soil Gas Control	9.13.4.1.(1) 9.13.4.2.(2) to (4)
MMAH	Supplementary Standard SB-10, September 14, 2012	Energy Efficiency Requirements	Table 9.7.3.3. 12.2.1.1.(2) 12.2.1.2.(2) 12.2.2.1.(1) 12.2.3.1.(1)
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Table 1.3.1.2. (Cont'd)
Documents Referenced in the Building Code
Forming Part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number	Title of Document[1]	Code Reference
MMAH	Supplementary Standard SB-11, September 14, 2012	Construction of Farm Buildings	1.3.1.2.(4) of Division A
MMAH	Supplementary Standard SB-12, September 1, 2013	Energy Efficiency for Housing	Table 9.7.3.3. Table 11.5.1.1.C. 12.2.1.1.(3) 12.2.1.2.(3)
MMAH	Supplementary Standard SB-13, September 14, 2012	Glass in Guards	3.1.20.1.(1)
MMAH	Supplementary Standard SC-1, September 14, 2012	Code of Conduct for Registered Code Agencies	3.7.4.1.(2) of Division C
MOE	PIBS 6879 2008	Design Guidelines for Sewage Works	7.1.5.5.(2)
MOE	PIBS 6881e 2008	Design Guidelines for Drinking-Water Systems	7.1.5.5.(1)
NFPA	2011 Publication	National Fire Codes	6.2.1.1.(1)
NFPA	13-2007	Installation of Sprinkler Systems	3.1.9.1.(4) 3.2.4.9.(2) 3.2.4.17.(1) 3.2.5.13.(1) 3.2.8.4.(7) 3.3.2.12.(3) 3.15.1.1.(3) 3.15.1.1.(4) 3.15.1.5.(2) 3.15.1.6.(2) 3.15.2.1.(1) 3.15.2.2.(1) 3.15.3.1.(1) 9.10.9.6.(11)
NFPA	13D-2007	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	3.2.5.13.(3)
NFPA	13R-2007	Installation of Sprinkler Systems in Residential Occupancies up to and including Four Stories in Height	3.2.5.13.(2)
NFPA	14-2007	Installation of Standpipe and Hose Systems	3.2.9.2.(1)
NFPA	20-2007	Installation of Stationary Pumps for Fire Protection	3.2.4.10.(4) 3.2.5.19.(1)
NFPA	24-2010	Installation of Fire Service Mains and Their Appurtenances	7.2.11.1.(1)
NFPA	68-2007	Explosion Protection by Deflagration Venting	3.3.6.3.(1) 3.3.6.4.(2) 3.3.6.4.(4)
NFPA	80-2007	Fire Doors and Other Opening Protectives	3.1.8.5.(2) 3.1.8.10.(2) 3.1.8.14.(1) 3.1.9.1.(5) 3.13.3.1.(2) 9.10.9.6.(13) 9.10.13.1.(1)
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Part 3

Fire Protection, Occupant Safety and Accessibility

(a) gypsum board not less than 12.7 mm thick, mechanically fastened to a supporting assembly independent of the insulation and with all joints either backed or taped and filled,
(b) lath and plaster, mechanically fastened to a supporting assembly independent of the insulation,
(c) masonry or concrete not less than 25 mm thick, or
(d) any thermal barrier that, when tested in conformance with CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials", will not develop an average temperature rise more than 140°C or a maximum temperature rise more than 180°C at any point on its unexposed face within 10 min.

(4) *Combustible* insulation having a *flame-spread rating* more than 25 but not more than 500 on any exposed surface, or any surface that would be exposed by cutting through the material in any direction, is permitted in the interior walls, within ceilings and within roof assemblies of a *building* required to be of *noncombustible construction*, provided the insulation is protected from adjacent space in the *building*, other than adjacent concealed spaces within wall assemblies, by a thermal barrier as described in Sentence (2), except that in a *building* that is not *sprinklered* and is more than 18 m high, measured between *grade* and the floor level of the top *storey*, or in a *building* that is not *sprinklered* and is regulated by the provisions of Subsection 3.2.6., the insulation shall be protected by a thermal barrier consisting of,
(a) Type X gypsum board not less than 15.9 mm thick, mechanically fastened to a supporting assembly independent of the insulation and with all joints either backed or taped and filled, conforming to,
  (i) ASTM C1396 / C1396M, "Gypsum Board", or
  (ii) CAN/CSA-A82.27-M, "Gypsum Board",
(b) non-*loadbearing* masonry or concrete not less than 50 mm thick,
(c) *loadbearing* masonry or concrete not less than 75 mm thick, or
(d) any thermal barrier that, when tested in conformance with CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials",
  (i) will not develop an average temperature rise more than 140°C or a maximum temperature rise more than 180°C at any point on its unexposed face within 20 min, and
  (ii) will remain in place for not less than 40 min.

(5) *Combustible* insulation, including foamed plastics, installed above roof decks, outside of *foundation walls* below ground level and beneath concrete slabs-on-ground is permitted to be used in a *building* required to be of *noncombustible construction*.

(6) Thermosetting foamed plastic insulation having a *flame-spread rating* not more than 500 that forms part of a factory-assembled exterior wall panel that does not incorporate an air space is permitted to be used in a *building* required to be of *noncombustible construction* provided,
(a) the foamed plastic is protected on both sides by sheet steel not less than 0.38 mm thick that will remain in place for not less than 10 min when the wall panel is tested in conformance with CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials",
(b) the *flame-spread rating* of the wall panel, determined by subjecting a sample including an assembled joint to the appropriate test described in Subsection 3.1.12., is not more than the *flame-spread rating* permitted for the room or space that it bounds,
(c) the *building* does not contain a Group B or Group C *major occupancy*, and
(d) the *building* is not more than 18 m high, measured between *grade* and the floor level of the top *storey*.

(7) A factory-assembled non-*loadbearing* interior or exterior wall or ceiling panel containing foamed plastic insulation having a *flame-spread rating* of not more than 500 is permitted to be used in a *building* required to be of *noncombustible construction* provided,
(a) the *building* is *sprinklered*,
(b) the *building* is not more than 18 m high, measured between *grade* and the floor level of the uppermost *storey*,
(c) the *building* does not contain a Group A, Group B or Group C *major occupancy*,
(d) the panel does not contain an air space,
(e) the panel, when tested in conformance with CAN/ULC-S138, "Test for Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration", meets the criteria defined in the document, and
(f) the *flame-spread rating* of a panel, determined by subjecting a sample, including an assembled joint typical of field installation, to the appropriate test described in Subsection 3.1.12., is not more than the *flame-spread rating* permitted for the room or space that it bounds.

3.1.5.13. Combustible Elements in Partitions

(1) Except as permitted by Sentence (2), solid lumber *partitions* not less than 38 mm thick and wood framing in *partitions* located in a *fire compartment* not more than 600 m^2 in area are permitted to be used in a *building* required to be of *noncombustible construction* in a *floor area* that is not *sprinklered* provided the *partitions*,

(a) are not required *fire separations*, and

r_1 (b) are not located in a *care*, *care and treatment* or *detention occupancy*.

(2) *Partitions* installed in a *building* of *noncombustible construction* are permitted to contain wood framing provided,

(a) the *building* is not more than 3 *storeys* in *building height*,

r_1 (b) the *partitions* are not located in a *care*, *care and treatment* or *detention occupancy*, and

(c) the *partitions* are not installed as enclosures for *exits* or *vertical service spaces*.

(3) Solid lumber *partitions* not less than 38 mm thick and *partitions* that contain wood framing are permitted to be used in a *building* required to be of *noncombustible construction* provided,

(a) the *floor area* containing the *partitions* is *sprinklered*, and

(b) the *partitions* are not,

r_1 (i) located in a *care*, *care and treatment* or *detention occupancy*,

(ii) installed as enclosures for *exits* or *vertical service spaces*, or

(iii) used to satisfy the requirements of Clause 3.2.8.1.(1)(a).

3.1.5.14. Storage Lockers in Residential Buildings

(1) Storage lockers in storage rooms are permitted to be constructed of wood in a *building* of *residential occupancy* required to be of *noncombustible construction*.

3.1.5.15. Combustible Ducts

(1) Except as required by Sentence 3.6.4.3.(1), *combustible* ducts, including *plenums* and duct connectors, are permitted to be used in a *building* required to be of *noncombustible construction* provided these ducts and duct connectors are used only in horizontal runs.

(2) *Combustible* duct linings, duct coverings, duct insulation, vibration isolation connectors, duct tape, pipe insulation and pipe coverings are permitted to be used in a *building* required to be of *noncombustible construction* provided they conform to the appropriate requirements of Part 6.

(3) In a *building* required to be of *noncombustible construction*, *combustible* ducts need not comply with the requirements of Part 6 provided the ducts are,

(a) part of a duct system conveying only ventilation air, and

(b) contained entirely within a *dwelling unit*.

3.1.5.16. Combustible Piping Materials

(1) Except as permitted by Sentences (2) and (3) and by Clause 3.1.5.2.(1)(d) and Article 3.1.5.22., *combustible* piping and tubing and associated adhesives are permitted to be used in a *building* required to be of *noncombustible construction* provided that, except when concealed in a wall or concrete floor slab, they,

(a) have a *flame-spread rating* not more than 25, and

(b) if used in a *building* described in Subsection 3.2.6., have a smoke developed classification not more than 50.

(2) *Combustible* sprinkler piping is permitted to be used within a *sprinklered floor area* in a *building* required to be of *noncombustible construction*.

Table 3.1.8.4.
Fire-Protection Rating of Closure
Forming Part of Sentence 3.1.8.4.(2) and Clause 3.1.9.1.(1)(a)

Fire-Resistance Rating of Fire Separation	Required *Fire-Protection Rating of Closure*
30 min	20 min
45 min	45 min
1 h	45 min
1.5 h	1 h
2 h	1.5 h
3 h	2 h
4 h	3 h
Column 1	2

3.1.8.5. Installation of Closures

(1) Except where *fire dampers*, window assemblies and glass block are used as *closures*, *closures* of the same *fire-protection rating* installed on opposite sides of the same opening are deemed to have a *fire-protection rating* equal to the sum of the *fire-protection ratings* of the *closures.*

(2) Except as otherwise specified in this Part, every door, window assembly or glass block used as a *closure* in a required *fire separation,*
(a) shall be installed in conformance with NFPA 80, "Fire Doors and Other Opening Protectives", and
(b) where required to have a *fire-protection rating*, shall have labels or classification marks to identify the testing laboratory.

(3) If a door is installed so that it could damage the integrity of a *fire separation* if its swing is unrestricted, door stops shall be installed to prevent the damage.

3.1.8.6. Maximum Openings

(1) The size of an opening in an interior *fire separation* required to be protected with a *closure* shall be not more than 11 m^2, with no dimension more than 3.7 m, if a *fire compartment* on either side of the *fire separation* is not *sprinklered.*

(2) The size of an opening in an interior *fire separation* required to be protected with a *closure* shall be not more than 22 m^2, with no dimension more than 6 m, provided the *fire compartments* on both sides of the *fire separation* are *sprinklered.*

3.1.8.7. Fire Dampers

(1) Except as permitted by Article 3.1.8.8., a duct that penetrates an assembly required to be a *fire separation* shall be equipped with a *fire damper*.

3.1.8.8. Fire Dampers Waived

(1) *Fire dampers* need not be provided in *noncombustible* branch ducts that have a melting point above 760°C and that penetrate a required *fire separation* provided the ducts,
(a) serve only *air-conditioning* units or combined *air-conditioning* and heating units discharging air not more than 1 200 mm above the floor and have a cross-sectional area not more than 130 cm^2, or
(b) are connected to *exhaust duct* risers that are under negative pressure and in which the air flow is upward as required by Article 3.6.3.4. and are carried up inside the riser not less than 500 mm.

(2) A continuous *noncombustible* duct penetrating a vertical *fire separation* not required to have a *fire-resistance rating* need not be equipped with a *fire damper* at the *fire separation*.

(3) A *noncombustible* duct that penetrates a horizontal *fire separation* not required to have a *fire-resistance rating* need not be equipped with a *fire damper* at the *fire separation*.

(4) A *noncombustible* duct that penetrates a *fire separation* that separates 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 duct has a melting point above 760°C, and
(b) each individual duct exhausts directly to the outside at the top of the *vertical service space*.

r_1 **(5)** A continuous *noncombustible* duct having a melting point above 760°C that penetrates a vertical *fire separation* as required by Sentence 3.3.1.1.(1) between *suites* of other than *care*, *care and treatment*, *detention* or *residential occupancy* need not be equipped with a *fire damper* at the *fire separation*.

(6) A duct that serves commercial cooking equipment and penetrates a required *fire separation* shall be,
(a) enclosed in a *vertical service space* that conforms to Sentence 3.6.3.1.(1),
(b) enclosed in a *horizontal service space* that conforms to Sentence 3.6.4.2.(1), or
(c) equipped with a *fire damper*, specifically designed for such use, at the *fire separation*.

(7) In elementary and secondary schools, a continuous *noncombustible* duct having a melting point above 760°C that pierces a *fire separation* having a *fire-resistance rating* of 30 min need not be equipped with a *fire damper* at the *fire separation*.

(8) In a Group B, Division 3 *occupancy* that contains sleeping accommodation for not more than 10 persons and not more than six occupants require assistance in evacuation in case of an emergency and which is equipped with a fire-alarm system, a duct need not be provided with a *fire damper* at a *fire separation* provided duct-type *smoke detectors* have been installed to control smoke circulation as described in Article 3.2.4.13.

3.1.8.9. Installation of Fire Dampers

(1) A *fire damper* shall be arranged to close automatically upon the operation of a fusible link conforming to ULC-S505, "Fusible Links for Fire Protection Service", or other heat-actuated or smoke-actuated device.

(2) A heat-actuated device referred to in Sentence (1) shall,
(a) be located where it is readily affected by an abnormal rise of temperature in the duct, and
(b) have a temperature rating approximately 30°C above the maximum temperature that would exist in the system either with the system in operation or shut down.

(3) A *fire damper* shall be installed in the plane of the *fire separation* so as to stay in place should the duct be dislodged during a fire.

(4) A *fire damper* tested in the vertical or horizontal position shall be installed in the manner in which it was tested.

(5) A tightly fitted access door shall be installed for each *fire damper* to provide access for the inspection of the damper and the resetting of the release device. (See Appendix A.)

3.1.8.10. Twenty-Minute Closures

(1) A door assembly having a *fire-protection rating* not less than 20 min is permitted to be used as a *closure* in,
(a) a *fire separation* not required to have a *fire-resistance rating* more than 1 h, located between,
  (i) a *public corridor* and a *suite*,
  (ii) a corridor and adjacent sleeping rooms, or
  (iii) a corridor and adjacent classrooms, offices and libraries in Group A, Division 2 *major occupancies*, or
(b) a *fire separation* not required to have a *fire-resistance rating* more than 45 min, located in a *building* not more than 3 *storeys* in *building height*.

(2) The requirements for *noncombustible* sills and *combustible* floor coverings in NFPA 80, "Fire Doors and Other Opening Protectives", do not apply to a door described in Sentence (1).

(3) A door described in Sentence (1) shall have a clearance not more than 6 mm at the bottom and not more than 3 mm at the sides and top.

(4) In elementary and secondary schools, a door assembly conforming to Articles 9.10.13.2. and 9.10.13.3. is permitted to be used as a *closure* in a *fire separation* having a *fire-resistance rating* of 30 min.

3.1.8.11. Self-Closing Devices

(1) Except as provided in Sentences (2) to (5) and 3.3.3.2.(5), every door in a *fire separation* shall be equipped with a self-closing device designed to return the door to the closed position after each use.

(2) Self-closing devices need not be provided on doors to freight elevators and dumbwaiters.

(3) In a *building* that is not more than 3 *storeys* in *building height*, a self-closing device is not required on a door that is located between a classroom and a corridor providing *access to exit* from the classroom, except that a self-closing device is required on a door between a *hazardous classroom* and the corridor in an elementary or secondary school.

(4) In a *building* that is not more than 3 *storeys* in *building height*, a self-closing device is not required on a door between a *public corridor* and an adjacent room or *suite* of *business and personal services occupancy* if the door is not located in,
(a) a dead-end portion of the corridor, or
(b) a corridor that serves a *hotel*.

(5) Within a *fire compartment* in a hospital or long-term care home that complies with the requirements of Article 3.3.3.5., a self-closing device is not required on a door that is located between,
(a) a patient's or resident's sleeping room and a corridor serving the patient's or resident's sleeping room, or
(b) a patient's or resident's sleeping room and an adjacent room that serves the patient's or resident's sleeping room.

3.1.8.12. Hold-Open Devices

(1) A hold-open device is permitted on a door in a required *fire separation*, other than an *exit* stair door in a *building* more than 3 *storeys* in *building height*, and on a door for a vestibule required by Article 3.3.5.7., provided the device is designed to release the door in conformance with Sentences (2) to (7).

(2) Except as required by Sentences (3), (5), (6) and (7), a hold-open device permitted by Sentence (1) shall be designed to release by a signal from,
(a) an automatic sprinkler system,
(b) a heat-actuated device,
(c) fusible link, or
(d) a *smoke detector* located as described in CAN/ULC-S524, "Installation of Fire Alarm Systems".

(3) Except as required by Sentences (4), (5), (6) and (7), a hold-open device permitted by Sentence (1) shall be designed to release upon a signal from a *smoke detector* located as described in CAN/ULC-S524, "Installation of Fire Alarm Systems", if used on,

(a) an *exit* door,
(b) a door opening into a *public corridor*,
(c) an egress door referred to in Sentence 3.4.2.4.(2),
r1 (d) a door serving,
  (i) an *assembly occupancy*,
  (ii) a *care occupancy*,
  (iii) a *care and treatment occupancy*,
  (iv) a *detention occupancy*, or
  (v) a *residential occupancy*, or
(e) a door required to function as part of a smoke control system.

(4) Except as required by Sentences (5), (6) and (7), a hold-open device permitted by Sentence (1) shall be designed to release upon a signal from the *building* fire alarm system if a fire alarm system is provided, except that this requirement does not apply to,

(a) a hold-open device on a door located between a corridor used by the public and an adjacent sleeping room in a hospital or long-term care home, or
(b) a hold-open device that is designed to release by a heat-actuated device or a fusible link in conformance with Sentence (2).

(5) Sentences (2) and (3) do not apply in a hospital or long-term care home to,

(a) a door located between a corridor used by the public and an adjacent sleeping room, or
(b) paired doors described in Sentence 3.3.3.3.(4).

(6) A hold-open device on a door in Clause (5)(a) shall be designed to release the door upon a signal from,

(a) a *smoke detector* as required by Sentence 3.2.4.12.(1) for sleeping rooms in Group B *occupancies*, and
(b) the fire alarm system when an *alert signal* is initiated within the same *fire compartment* in Sentence 3.3.3.5.(2).

(7) A hold-open device on a door in Clause (5)(b) shall be designed to release the door upon a signal from the fire alarm system when an *alert signal* is initiated within the same *fire compartment* in Sentence 3.3.3.5.(2).

(8) A rolling steel fire door installed as a *closure* in a *fire separation* shall be equipped with a hold-open device designed to release the shutter as described in Sentence (2).

3.1.8.13. Door Latches

(1) Except as permitted by Sentence 3.3.3.2.(5) and Article 3.3.3.5., a swing-type door in a *fire separation* shall be equipped with a positive latching mechanism designed to hold the door in the closed position after each use.

3.1.8.14. Wired Glass and Glass Block

(1) Except as permitted by Articles 3.1.8.16. and 3.1.8.17. for the separation of *exits*, an opening in a *fire separation* having a *fire-resistance rating* not more than 1 h is permitted to be protected with fixed wired glass assemblies or glass blocks installed in conformance with NFPA 80, "Fire Doors and Other Opening Protectives".

(2) Wired glass assemblies permitted by Sentence (1) and described in MMAH Supplementary Standard SB-2, "Fire Performance Ratings", are permitted to be used as *closures* in vertical *fire separations* without being tested in accordance with Sentence 3.1.8.4.(1).

(3) Glass blocks permitted by Sentence (1) shall be installed in accordance with Subsection 4.3.2. and reinforced with steel reinforcement in each horizontal joint.

3.1.8.15. Temperature Rise Limit for Doors

(1) Except as permitted by Article 3.1.8.17., the maximum temperature rise on the opaque portion of the unexposed side of a door used as a *closure* in a *fire separation* in a location shown in Table 3.1.8.15., shall conform to the Table when tested in conformance with Sentence 3.1.8.4.(1).

Table 3.1.8.15.
Restrictions on Temperature Rise and Glazing for Closures
Forming Part of Articles of 3.1.8.15. and 3.1.8.16.

Location	Minimum Required *Fire-Protection Rating* of Door	Maximum Temperature Rise on Opaque Portion of Unexposed Side of Door, °C	Maximum Area of Wired Glass in Door, m^2	Maximum Aggregate Area of Glass Block and Wired Glass Panels not in Door, m^2
Between a dead-end corridor and an adjacent *occupancy* where the corridor provides the only *access to exit* and is required to have a *fire-resistance rating*	Less than 45 min	No limit	No limit	No limit
	45 min	250 after 30 min	0.0645	0.0645
Between an *exit* enclosure and the remainder of the *floor area* in *buildings* not more than 3 *storeys* in *building height*	All ratings	No limit	0.8	0.8
Between an *exit* enclosure and the remainder of the *floor area* (except as permitted above)	45 min	250 after 30 min	0.0645	0.0645
	1.5 h	250 after 1 h	0.0645	0.0645
	2 h	250 after 1 h	0.0645	0.0645
In a *firewall*	1.5 h	250 after 30 min	0.0645	0
	3 h	250 after 1 h	0	0
Column 1	2	3	4	5

3.1.8.16. Area Limits for Wired Glass and Glass Block

(1) Except as permitted by Article 3.1.8.17., the maximum area of wired glass in a door used in the locations shown in Table 3.1.8.15. shall conform to the Table. (See Appendix A.)

(2) Except as permitted by Article 3.1.8.17., the maximum area of glass block and wired glass panels not in a door, used in the locations shown in Table 3.1.8.15., shall conform to the Table.

3.1.8.17. Temperature Rise and Area Limits Waived

(1) The temperature rise limits and glass area limits required by Articles 3.1.8.15. and 3.1.8.16. are waived for a *closure* between an *exit* enclosure and an enclosed vestibule or corridor provided,

(a) the vestibule or corridor is separated from the remainder of the *floor area* by a *fire separation* having a *fire-resistance rating* not less than 45 min,

(b) the *fire separation* required by Clause (a) contains no wired glass or glass block within 3 m of the *closure* into the *exit* enclosure, and

(c) the vestibule or corridor contains no *occupancy*.

(See Appendix A.)

3.1.8.18. Sprinkler Protected Glazed Wall Assembly

(1) A sprinkler protected glazed wall assembly shall be constructed in accordance with the requirements of ULC/ORD C263.1, "Sprinkler-Protected Windows Systems".

(2) A sprinkler protected glazed wall assembly shall not be installed in,
(a) *fire separa/tions* requiring a *fire resistance rating* of more than two hours,
(b) a *firewall*,
(c) a *high hazard industrial occupancy*, or
r1 (d) any part of an *exit* serving,
  (i) a *floor area* subject to the requirements of Subsection 3.2.6.,
  (ii) a *care occupancy*,
  (iii) a *care and treatment occupancy*,
  (iv) a *detention occupancy*, or
  (v) a *residential occupancy*.

(3) Where a sprinkler protected glazed wall assembly is installed in an *exit fire separation* permitted in Sentence (2),
(a) the *building* shall be *sprinklered*, and
(b) the *exits* protected with the sprinkler protected glazed wall assemblies shall not comprise more than one-half of the required number of *exits* from any *floor area*.

3.1.9. Penetrations in Fire Separations and Fire-Rated Assemblies (See Appendix A.)

3.1.9.1. Fire Stops

(1) Except as required by Sentences (2) and (3) and permitted by Sentences (4) and (5), penetrations of a *fire separation* or a membrane forming part of an assembly required to have a *fire-resistance rating* shall be,
(a) sealed by a *fire stop* that, when subjected to the fire test method in CAN/ULC-S115, "Fire Tests of Fire Stop Systems", has an F rating not less than the *fire-protection rating* required for *closures* in the *fire separation* in conformance with Table 3.1.8.4., or
(b) tightly fitted. (See Appendix A.)

(2) Penetrations of a *firewall* or a horizontal *fire separation* that is required to have a *fire-resistance rating* in conformance with Article 3.2.1.2. 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* required for the *fire separation*.

(3) Penetrations of a *fire separation* in conformance with Sentence 3.6.4.2.(2) shall be sealed 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* required for the *fire separation* of the assembly.

(4) 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), (2) or (3), 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".

(5) Unless specifically designed with a *fire stop, 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), (2) or (3), provided the *fire damper* is installed in conformance with NFPA 80, "Fire Doors and Other Opening Protectives".

(a) is designed for use in a relatively horizontal position with only its top surface exposed to air,
(b) cannot be tested in conformance with Sentence (1) without the use of supporting material that is not representative of the intended installation, or
(c) is thermoplastic.

(3) A material, assembly, or structural member is permitted to be assigned a *flame-spread rating* and smoke developed classification on the basis of MMAH Supplementary Standard SB-2, "Fire Performance Ratings".

3.1.13. Interior Finish

3.1.13.1. Interior Finish Description

(1) Interior finish material shall include any material that forms part of the interior surface of a floor, wall, *partition* or ceiling, including,
(a) interior cladding of plaster, wood or tile,
(b) surfacing of fabric, paint, plastic, veneer or wallpaper,
(c) doors, windows and trim,
(d) lighting elements, such as light diffusers and lenses forming part of the finished surface of the ceiling, and
(e) carpet material that overlies a floor that is not intended as the finished floor.

3.1.13.2. Flame-Spread Rating

(1) Except as otherwise required or permitted by this Subsection, the *flame-spread rating* of interior wall and ceiling finishes, including glazing and skylights, shall be not more than 150 and shall conform to Table 3.1.13.2.

(2) Except as permitted by Sentence (3), doors, other than those in Group A, Division 1 *occupancies*, need not conform to Sentence (1) provided they have a *flame-spread rating* not more than 200. (See Appendix A.)

Table 3.1.13.2.
Flame-Spread Ratings
Forming Part of Sentence 3.1.13.2.(1)

Occupancy, Location or Element	Maximum *Flame-Spread Rating* for Walls and Ceilings	
	Sprinklered	Not *Sprinklered*
Group A, Division 1 *occupancies*, including doors, skylights, glazing and light diffusers and lenses	150	75
Group B *occupancies*	150	75 (2)
Exits(1)	25	25
Lobbies described in Sentence 3.4.4.2.(2)	25	25
Covered vehicular passageways, except for roof assemblies of *heavy timber construction* in such passageways	25	25
Vertical service spaces	25	25
Column 1	2	3

Notes to Table 3.1.13.2.:
(1) See Articles 3.1.13.8. and 3.1.13.10.
(2) Group B *occupancies* are required to be *sprinklered*. See Part 11 for renovations of existing non-*sprinklered* Group B *occupancies*.

(3) Doors within a *dwelling unit* need not conform to Sentences (1) and (2).

(4) Up to 10% of the total wall area and 10% of the total ceiling area of a wall or ceiling finish that is required by Sentence (1) to have a *flame-spread rating* less than 150 is permitted to have a *flame-spread rating* not more than 150, except that up to 25% of the total wall area of lobbies described in Sentence 3.4.4.2.(2) is permitted to have a *flame-spread rating* not more than 150.

(5) Except in the case of Group A, Division 1 *occupancies*, *combustible* doors, skylights, glazing and light diffusers and lenses shall not be considered in the calculation of wall and ceiling areas described in Sentence (4).

3.1.13.3. Plumbing Fixtures and Bathrooms Finishes

(1) The *flame-spread rating* of interior wall and ceiling finishes for a bathroom in a *suite* of *residential occupancy* shall be not more than 200.

(2) *Plumbing fixtures* shall have a *flame-spread rating* not more than 200.

3.1.13.4. Light Diffusers and Lenses

(1) The *flame-spread rating* of *combustible* light diffusers and lenses in all *occupancies* other than Group A, Division 1 is permitted to be more than the *flame-spread rating* limits required elsewhere in this Subsection, provided the light diffusers and lenses,

(a) have a *flame-spread rating* not more than 250 and a smoke developed classification not more than 600 when tested in conformance with CAN/ULC-S102.2, "Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies",
(b) fall to the bottom of the test apparatus before igniting when tested in conformance with ULC-S102.3, "Fire Test of Light Diffusers and Lenses",
(c) are not prevented from falling from the ceiling by construction located beneath the elements, and
(d) are not used in a corridor that is required to be separated from the remainder of the *building* by a *fire separation* or in an *exit* shaft unless individual diffusers or lenses are not more than 1 m^2 in area and are not less than 1.2 m apart.

3.1.13.5. Skylights

(1) Individual *combustible* skylights in a corridor that is required to be separated from the remainder of the *storey* by a *fire separation* shall be not more than 1 m^2 in area and not less than 1.2 m apart.

3.1.13.6. Corridors

(1) Except as permitted by Sentences (2) and (3), the *flame-spread rating* shall be not more than 75 for the interior wall finish of,

(a) a *public corridor*,
(b) a corridor used by the public in,
  (i) an *assembly occupancy*, or
r1 (ii) a *care*, *care and treatment* or *detention occupancy*,
(c) a corridor serving classrooms, or
r1 (d) a corridor serving sleeping rooms in a *care*, *care and treatment* or *detention occupancy*.

(2) The *flame-spread rating* limit specified in Sentence (1) does not apply to corridors referred to in Sentence (1) provided the *flame-spread rating* is not more than,

(a) 25 on the upper half of the wall, and
(b) 150 on the lower half of the wall.

(3) The *flame-spread rating* limits specified in Sentences (1) and (2) for corridors referred to in Sentence (1) do not apply to a corridor in which the *flame-spread rating* is not more than 150 provided the *floor area* is *sprinklered*.

Table 3.1.17.1.
Occupant Load
Forming Part of Article 3.1.17.1.

Type of Use of *Building* or *Floor Area* or Part of *Floor Area*	Area per Person, m^2
Assembly uses	
space with fixed seats	See Clause (1)(a)
space with non-fixed seats	0.75
stages for theatrical performances	0.75
space with non-fixed seats and tables	0.95
standing space	0.40
stadia and grandstands	0.60
bowling alleys, pool and billiard rooms	9.30
classrooms	1.85
school shops and vocational rooms	9.30
reading or writing rooms or lounges	1.85
dining, alcoholic beverage and cafeteria space	1.10
laboratories in schools	4.60
exhibition halls other than those classified in Group E	2.80
Care, care and treatment or detention uses	
B-1 : detention quarters	11.60
B-2 : treatment and sleeping room areas	10.00
B-3 : sleeping room areas	10.00
(See also Article 3.7.1.3.)	
Residential uses	
dwelling units	See Clause (1)(b)
dormitories	4.60
Business and personal services uses	
personal service shops	4.60
offices	9.30
Mercantile uses	
basements and *first storeys*	3.70
second *storeys* having a principal entrance from a pedestrian thoroughfare or a parking area	3.70
dining, alcoholic beverage and cafeteria space	1.10
other *storeys*	5.60
Industrial uses	
manufacturing or process rooms	4.60
storage garages	46.00
storage spaces (warehouse)	28.00
aircraft hangars	46.00
Other uses	
cleaning and repair of goods	4.60
kitchens	9.30
storage	46.00
public corridors intended for *occupancies* in addition to pedestrian travel	3.70
Column 1	2

r1

3.1.17.2. Dance Floor

(1) The *occupant load* of a room in which a dance floor is situated shall be calculated in respect of that portion of the room that is not occupied by the dance floor.

3.1.17.3. Public Pools

(1) The *occupant load* of a *public pool*, except a *wave action pool*, shall be determined by the following formula:

$$\textit{occupant load} = \frac{D}{2.5} + \frac{S}{1.4}$$

where,

D = the water surface area in square metres of the part of the pool that is deeper than 1 350 mm; and

S = the water surface area in square metres of the part of the pool that is 1 350 mm in depth or less.

(2) The *occupant load* of a *wave action pool* shall be determined by the following formula:

$$\textit{occupant load} = \frac{D}{2.5} + \frac{S}{1.1}$$

where,

D = the water surface area in square metres of the part of the pool where the still water depth is greater than 1 000 mm; and

S = the water surface area in square metres of the part of the pool where the still water depth is 1 000 mm or less.

3.1.18. Drainage and Grades

3.1.18.1. Drainage

(1) The *building* shall be located and the *building* site graded so that water will not accumulate at or near the *building* and will not adversely affect any adjacent properties.

3.1.19. Above Ground Electrical Conductors

3.1.19.1. Clearance to Buildings

(1) A *building* shall not be located beneath existing above ground electrical conductors.

(2) The horizontal clearance measured from the maximum conductor swing to the *building*, including balconies, fire escapes, flat roofs or other accessible projections beyond the face of the *building*, shall,

(a) be not less than 1 m, for electrical conductors carrying voltages 750 V or less, except where necessary to connect to the electrical wiring of the *building*,
(b) be not less than 3 m, for electrical conductors carrying voltages greater than 750 V but not exceeding 46 kV,
(c) be not less than 3.7 m, for electrical conductors carrying voltages greater than 46 kV but not exceeding 69 kV, or
(d) conform to the requirements of CAN/CSA-C22.3 No.1, “Overhead Systems”, for electrical conductors carrying voltages greater than 69 kV.

(3) Where the swing of an above ground electrical conductor not owned or operated by an electrical supply authority is not known, a swing of not less than 1.8 m shall be used.

Table 3.2.2.44.
Maximum Building Area, Group C, up to 4 Storeys
Forming Part of Sentence 3.2.2.44.(1)

No. of *Storeys*	Maximum Area, m^2		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	not limited	not limited	not limited
2	6 000	not limited	not limited
3	4 000	5 000	6 000
4	3 000	3 750	4 500
Column 1	2	3	4

(3) In a *building* that contains *dwelling units* that have more than 1 *storey*, subject to the requirements of Sentence 3.3.4.2.(3), the floor assemblies, including floors over *basements*, which are entirely contained within these *dwelling units*, shall have a *fire-resistance rating* not less than 1 h but need not be constructed as *fire separations*.

(4) The *dwelling units* described in Subclause (1)(a)(ii) shall be separated by continuous vertical *fire separations* that extend through all *storeys* and *service spaces* of the separated portions.

r_1 **(5)** A retirement home regulated under the *Retirement Homes Act, 2010* shall be *sprinklered*.

3.2.2.45. Group C, up to 4 Storeys, Sprinklered

(1) A *building* classified as Group C is permitted to conform to Sentence (2) provided,
(a) except as permitted by Sentence 3.2.2.7.(1), the *building* is *sprinklered*,
(b) it is not more than 4 *storeys* in *building height*, and
(c) it has a *building area* not more than,
  (i) 7 200 m^2 if 1 *storey* in *building height*,
  (ii) 3 600 m^2 if 2 *storeys* in *building height*,
  (iii) 2 400 m^2 if 3 *storeys* in *building height*, or
  (iv) 1 800 m^2 if 4 *storeys* in *building height*.

(2) The *building* referred to in Sentence (1) is permitted to be of *combustible construction* or *noncombustible construction* used singly or in combination, and,
(a) except as permitted by Sentences (3) and (4), floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h,
(b) *mezzanines* shall have a *fire-resistance rating* not less than 1 h, and
(c) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

(3) In a *building* that contains *dwelling units* that have more than 1 *storey*, subject to the requirements of Sentence 3.3.4.2.(3), the floor assemblies, including floors over *basements*, that are entirely contained within these *dwelling units*, shall have a *fire-resistance rating* not less than 1 h but need not be constructed as *fire separations*.

(4) In a *building* in which there is no *dwelling unit* above another *dwelling unit*, the *fire-resistance rating* for floor assemblies entirely within the *dwelling unit* is waived.

3.2.2.46. Group C, up to 3 Storeys, Increased Area

(1) A *building* classified as Group C is permitted to conform to Sentence (2) provided,
(a) it is not more than 3 *storeys* in *building height*, and
(b) it has a *building area* not more than the value in Table 3.2.2.46.

Table 3.2.2.46.
Maximum Building Area, Group C up to 3 Storeys, Increased Area
Forming Part of Sentence 3.2.2.46.(1)

No. of *Storeys*	Maximum Area, m²		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	2 400	3 000	3 600
2	1 200	1 500	1 800
3	800	1 000	1 200
Column 1	2	3	4

(2) The *building* referred to in Sentence (1) is permitted to be of *combustible construction* or *noncombustible construction* used singly or in combination, and,

(a) except as permitted by Sentences (3) and (4), floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h,
(b) *mezzanines* shall have a *fire-resistance rating* not less than 1 h,
(c) roof assemblies shall have a *fire-resistance rating* not less than 1 h, and
(d) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

(3) In a *building* that contains *dwelling units* that have more than 1 *storey*, subject to the requirements of Sentence 3.3.4.2.(3), the floor assemblies, including floors over *basements*, that are entirely contained within these *dwelling units*, shall have a *fire-resistance rating* not less than 1 h but need not be constructed as *fire separations*.

(4) In a *building* in which there is no *dwelling unit* above another *dwelling unit*, the *fire-resistance rating* for floor assemblies entirely within the *dwelling unit* is waived.

r_1 **(5)** A retirement home regulated under the *Retirement Homes Act, 2010* shall be *sprinklered*.

3.2.2.47. Group C, up to 3 Storeys

(1) A *building* classified as Group C is permitted to conform to Sentence (2) provided,

(a) it is not more than 3 *storeys* in *building height*, and
(b) it has a *building area* not more than the value in Table 3.2.2.47.

Table 3.2.2.47.
Maximum Building Area, Group C, up to 3 Storeys
Forming Part of Sentence 3.2.2.47.(1)

No. of *Storeys*	Maximum Area, m²		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	1 800	2 250	2 700
2	900	1 125	1 350
3	600	750	900
Column 1	2	3	4

(2) The *building* referred to in Sentence (1) is permitted to be of *combustible construction* or *noncombustible construction* used singly or in combination, and,

(a) except as permitted by Sentences (3) and (4), floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min,
(b) *mezzanines* shall have, if of *combustible construction,* a *fire-resistance rating* not less than 45 min, and
(c) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

(3) In a *building* that contains *dwelling units* that have more than 1 *storey*, subject to the requirements of Sentence 3.3.4.2.(3), the floor assemblies, including floors over *basements*, that are entirely contained within these *dwelling units*, shall have a *fire-resistance rating* not less than 45 min but need not be constructed as *fire separations*.

(4) In a *building* in which there is no *dwelling unit* above another *dwelling unit*, the *fire-resistance rating* for floor assemblies entirely within the *dwelling unit* is waived.

r_1 **(5)** A retirement home regulated under the *Retirement Homes Act, 2010* shall be *sprinklered*.

3.2.2.48. Group C, up to 3 Storeys, Sprinklered

(1) A *building* classified as Group C is permitted to conform to Sentence (2) provided,
(a) except as permitted by Sentence 3.2.2.7.(1), the *building* is *sprinklered*,
(b) it is not more than 3 *storeys* in *building height*, and
(c) it has a *building area* not more than,
  (i) 5 400 m^2 if 1 *storey* in *building height*,
  (ii) 2 700 m^2 if 2 *storeys* in *building height*, or
  (iii) 1 800 m^2 if 3 *storeys* in *building height*.

(2) The *building* referred to in Sentence (1) is permitted to be of *combustible construction* or *noncombustible construction* used singly or in combination, and,
(a) except as permitted by Sentences (3) and (4), floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min,
(b) *mezzanines* shall have, if of *combustible construction* a *fire-resistance rating* not less than 45 min, and
(c) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

(3) In a *building* that contains *dwelling units* that have more than 1 *storey*, subject to the requirements of Sentence 3.3.4.2.(3), the floor assemblies, including floors over *basements*, that are entirely contained within these *dwelling units*, shall have a *fire-resistance rating* not less than 45 min but need not be constructed as *fire separations*.

(4) In a *building* in which there is no *dwelling unit* above another *dwelling unit*, the *fire-resistance rating* for floor assemblies entirely within the *dwelling unit* is waived.

3.2.2.49. Group D, Any Height, Any Area

(1) Except as permitted by Articles 3.2.2.50. to 3.2.2.56., a *building* classified as Group D shall conform to Sentence (2).

(2) Except as permitted by Article 3.2.2.16., the *building* referred to in Sentence (1) shall be of *noncombustible construction*, and,
(a) except as permitted by Sentence 3.2.2.7.(1), the *building* shall be *sprinklered* if it is regulated by Subsection 3.2.6.,
(b) floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 2 h,
(c) *mezzanines* shall have a *fire-resistance rating* not less 1 h,
(d) if the *building* is not *sprinklered*, roof assemblies shall have a *fire-resistance rating* not less than 1 h, except that in a *building* not more than 1 *storey* in *building height* this requirement is waived, and
(e) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

3.2.2.50. Group D, up to 6 Storeys

(1) A *building* classified as Group D is permitted to conform to Sentence (2) provided,
(a) it is not more than 6 *storeys* in *building height*, and
(b) it has a *building area* not more than the value in Table 3.2.2.50.

Table 3.2.2.50.
Maximum Building Area, Group D, up to 6 Storeys
Forming Part of Sentence 3.2.2.50.(1)

No. of *Storeys*	Maximum Area, m^2		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	not limited	not limited	not limited
2	7 200	not limited	not limited
3	4 800	6 000	7 200
4	3 600	4 500	5 400
5	2 800	3 600	4 320
6	2 400	3 000	3 600
Column 1	2	3	4

(2) The *building* referred to in Sentence (1) shall be of *noncombustible construction*, and,
(a) floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h,
(b) *mezzanines* shall have a *fire-resistance rating* not less than 1 h,
(c) roof assemblies shall have a *fire-resistance rating* not less than 1 h, except that in a *building* not more than 1 *storey* in *building height* this requirement is waived, and
(d) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

3.2.2.51. Group D, up to 6 Storeys, Sprinklered

(1) A *building* classified as Group D is permitted to conform to Sentence (2) provided,
(a) except as permitted by Sentence 3.2.2.7.(1), the *building* is *sprinklered*,
(b) it is not more than 6 *storeys* in *building height*, and
(c) it has a *building area*,
  (i) that is not limited if the *building* is not more than 2 *storeys* in *building height*,
  (ii) not more than 14 400 m^2 if 3 *storeys* in *building height*,
  (iii) not more than 10 800 m^2 if 4 *storeys* in *building height*,
  (iv) not more than 8 640 m^2 if 5 *storeys* in *building height*, or
  (v) not more than 7 200 m^2 if 6 *storeys* in *building height*.

(2) Except as permitted by Article 3.2.2.16., the *building* referred to in Sentence (1) shall be of *noncombustible construction*, and,
(a) floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h,
(b) *mezzanines* shall have a *fire-resistance rating* not less than 1 h, and
(c) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.

(4) A fire alarm system is not required in a *hotel* 3 *storeys* or less in *building height* provided each *suite* has direct access to an exterior *exit* facility leading to ground level.

(5) A fire alarm system is not required in a *storage garage* conforming to Article 3.2.2.83. provided there are no other *occupancies* in the *building*.

3.2.4.2. Continuity of Fire Alarm System

(1) Except as permitted by Sentence (6), if there are openings through a *firewall*, other than those for piping, tubing, wiring and totally enclosed *noncombustible* raceways, 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*.

(2) Except as permitted by Sentence (4), if a *building* contains more than one *major occupancy* and a fire alarm system is required, a single system shall serve all *occupancies*.

(3) Except as permitted by Sentence (4), if a fire alarm system is required in any portion of a *building*, it shall be installed throughout the *building*.

(4) Except as required by Sentence (5), the requirements in this Subsection are permitted to be applied to each portion of a *building* not more than 3 *storeys* in *building height*, in which a vertical *fire separation* having a *fire-resistance rating* not less than 1 h separates the portion from the remainder of the *building* as if it were a separate *building*, provided there are no openings through the *fire separation*, other than those for piping, tubing, wiring and totally enclosed *noncombustible* raceways.

(5) The permission in Sentence (4) to consider separated portions of a *building* as separate *buildings* does not apply to *service rooms* and storage rooms.

(6) *Buildings* interconnected by *walkways* permitted in Articles 3.2.3.19. and 3.2.3.20. or by vestibules provided in conformance with Article 3.2.6.3. shall be treated as separate *buildings* for the purpose of fire alarm installation required by this Subsection.

3.2.4.3. Types of Fire Alarm Systems

(1) A fire alarm system shall be,
(a) a single stage system in a Group F, Division 1 *occupancy*,
(b) a two stage system in a Group B *occupancy* other than those described in Clause (c),
(c) a single or two stage system in a *building* 3 *storeys* or less in *building height* that contains a Group B, Division 3 *occupancy*,
(d) a single stage system in elementary and secondary schools, except for a special needs facility, and
(e) a single or two stage system in all other cases.

3.2.4.4. Description of Fire Alarm Systems

(1) A single stage fire alarm system shall, upon the operation of any manual pull station or *fire detector*, cause an *alarm signal* to sound on all audible signal devices in the system. (See Appendix A.)

(2) A two stage fire alarm system shall,
(a) cause an *alert signal* to sound upon the operation of any manual pull station or *fire detector*,
(b) except for a Group B, Division 2 *occupancy*, automatically cause an *alarm signal* to sound if the *alert signal* is not acknowledged within 5 min of its initiation,
(c) have each manual pull station equipped so that the use of a key or other similar device causes an *alarm signal* to sound and continue to sound upon the removal of the key or similar device from the manual pull station, and (See Appendix A.)

(d) in a *building* containing a *hotel*,
  (i) cause an *alarm signal* to sound in the initiating fire zone in the *hotel*, and
  (ii) cause an *alert signal* to sound throughout the *hotel* and such parts of the *building* as is necessary to alert *hotel* staff.

(See Appendix A.)

(3) A two stage fire alarm system is permitted to be zone coded so that, upon the operation of any manual pull station or *fire detector*,
(a) a coded *alert signal* is sounded indicating the zone of alarm initiation,
(b) the coded *alert signal* is repeated in its entirety no fewer than four times, and
(c) a continuous *alert signal* is sounded upon completion of the coded signals referred to in Clause (b) and Sentence (4).

(4) If a second manual pull station or *fire detector* is operated in a fire alarm system with zone coding as permitted by Sentence (3), in a zone other than that for which the first *alert signal* was sounded, the coded *alert signal* for the first zone shall be completed before the coded *alert signal* for the second zone is repeated no fewer than four times.

3.2.4.5. Installation and Verification of Fire Alarm Systems

(1) Fire alarm systems, including those with voice communication capability, shall be installed in conformance with CAN/ULC-S524, "Installation of Fire Alarm Systems".

(2) A fire alarm system shall be verified in conformance with CAN/ULC-S537, "Verification of Fire Alarm Systems", to ensure satisfactory operation.

3.2.4.6. Commissioning of Life Safety and Fire Protection Systems

(1) Where life safety and fire protection systems are installed to comply with the provisions of this Code or the Fire Code made under the *Fire Protection and Prevention Act, 1997*, the commissioning of these integrated systems must be performed as a whole to ensure the proper operation and inter-relationship between the systems. (See Appendix A.)

3.2.4.7. Silencing of Alarm Signals

(1) Except as permitted by Sentence (3), a fire alarm system shall be designed so that when an *alarm signal* is actuated it cannot be silenced automatically before a period of time has elapsed that is not less than,
(a) 5 min for a *building* not required to be equipped with an annunciator, and
(b) 20 min for any other *building*.

(2) Except as permitted by Sentences 3.2.4.20.(9) and 3.2.4.23.(3) and (4), a fire alarm system shall not incorporate manual silencing switches other than those installed inside the fire alarm control unit. (See Appendix A.)

(3) Except as provided by Clause 3.2.4.23.(4)(a), in a *care and treatment occupancy* an *alert signal* is permitted to be silenced automatically after 1 min.

3.2.4.8. Signals to Fire Department

r_1 **(1)** If a fire alarm system is required to be installed and a single stage system is provided, the system shall be designed to notify the fire department in conformance with Sentence (4) that an *alarm signal* has been initiated in,
(a) a Group A *occupancy* having an *occupant load* more than 300,
(b) a Group B *occupancy*,
(c) a Group F, Division 1 *occupancy*,
(d) a *building* regulated by the provisions of Subsection 3.2.6.,
(e) a *building* containing *interconnected floor space* required to conform to Articles 3.2.8.3. to 3.2.8.11., or
(f) a retirement home regulated under the *Retirement Homes Act, 2010* that is a Group C *occupancy*.

(d) room in which hazardous substances are to be used or stored,
(e) elevator or dumbwaiter shaft,
(f) laundry room in a *building* of *residential occupancy*, but not one within a *dwelling unit*, and
(g) *hazardous classroom* and change room in an elementary or secondary school.

3.2.4.12. Smoke and Heat Detectors

(1) If a fire alarm system is required, *smoke detectors* shall be installed in,
(a) each sleeping room and each corridor serving as part of a *means of egress* from sleeping rooms in portions of a *building* classified as Group B *major occupancy*,
(b) each room in a *contained use area* and corridors serving those rooms,
(c) each corridor in portions of a *building* classified as Group A, Division 1 *major occupancy*,
(d) each *public corridor* in portions of a *building* classified as Group C *major occupancy*,
(e) each *exit* stair shaft,
(f) each corridor serving classrooms in elementary and secondary schools, and
(g) each elevator machine room or machinery space.
(See Appendix A.)

(2) Except as provided in Article 3.2.4.16., if a fire alarm system is required, *heat detectors* shall be installed in,
(a) every room in portions of *buildings* classified as Group A, Division 1,
(b) except in a *hotel*, in every *suite*, and every room not located within a *suite*, in portions of *buildings* classified as Group C *major occupancy* and more than 3 *storeys* in *building height*, and
(c) in a *floor area* containing a *hotel*, in every room in a *suite* and in every room not located in a *suite* other than washrooms within a *suite*, saunas, refrigerated areas and swimming pools.

r_1 **(3)** *Smoke detectors* required in sleeping rooms of *care*, *care and treatment* or *detention occupancy* shall upon actuation provide an audible and visible signal to staff serving those rooms so that the room or location containing the *smoke detector* can be easily identified. (See Appendix A.)

(4) *Smoke detectors* required by Clause (1)(g) shall, upon actuation, recall the elevators served by machinery located in the machine room or machinery space in which the *smoke detector* is installed.

(5) Except as permitted by Sentences (6) and (7), where a *building* is required to be equipped with a fire alarm system, a *smoke detector* shall be located near the entrance to,
(a) a *walkway* described in Articles 3.2.3.19. and 3.2.3.20., or
(b) a vestibule provided in conformance with Article 3.2.6.3.

(6) *Smoke detectors* installed at the entrance to a *walkway* in conformance with Article 3.1.8.12. are deemed to meet the requirements of Sentence (5).

(7) *Fire detectors* are permitted to be installed in lieu of the *smoke detectors* required by Sentence (5) in Group F *occupancies* where the s*moke detectors* may be subjected to false alarms due to the activities within the *building*.

3.2.4.13. Prevention of Smoke Circulation

(1) If a fire alarm system is installed, an air handling system shall be designed to prevent the circulation of smoke upon a signal from a duct-type *smoke detector* if the air handling system,
(a) serves more than 1 *storey*,
(b) serves more than one *suite* in a *storey*,
(c) serves more than one *fire compartment* required by Sentence 3.3.3.5.(2), or
(d) is not provided with *fire dampers* as permitted by Sentence 3.1.8.8.(8).

3.2.4.14. Vacuum Cleaning System Shutdown

(1) A central vacuum cleaning system serving more than one *suite* or *storey* in a *building* equipped with a fire alarm system shall be designed to shut down upon actuation of the fire alarm system.

3.2.4.15. Elevator Emergency Return

(1) Except as permitted by Sentence (3), in a *building* having elevators that serve *storeys* above the *first storey* and that are equipped with an automatic emergency recall feature, *smoke detectors* shall be installed in the elevator lobbies on the recall level so that when these *smoke detectors* are actuated, the elevators will automatically return directly to an alternate floor level.

(2) *Smoke detectors* required by Sentence (1) shall be designed as part of the *building* fire alarm system.

(3) The alternate floor recall feature required by Sentence (1) is not required if the *floor area* containing the recall level is *sprinklered*.

3.2.4.16. Sprinklers in Lieu of Fire Detectors

(1) *Fire detectors* required by Article 3.2.4.11. and *heat detectors* required by Sentence 3.2.4.12.(2) need not be provided within a *floor area* if the *floor area* is *sprinklered* and the sprinkler system is electrically supervised in conformance with Sentence 3.2.4.10.(3). (See Appendix A.)

3.2.4.17. System Monitoring

(1) An automatic sprinkler system shall be equipped with waterflow detecting devices and, if an annunciator is required by Article 3.2.4.9., shall be installed so that each device serves,
(a) not more than 1 *storey*, and
(b) an area on each *storey* that is not more than the system area limits as specified in NFPA 13, “Installation of Sprinkler Systems”.

(2) If a fire alarm system is provided, waterflow indicating devices required by Sentence (1) shall be connected to the fire alarm system so that on actuation an *alert signal* or an *alarm signal* is initiated.

3.2.4.18. Manual Pull Stations

(1) Except as permitted by Sentences (2) and (3), if a fire alarm system is installed, a manual pull station shall be installed,
(a) near the principal entrance to the *building*, and
(b) near every required *exit*.
(See Appendix A.)

(2) In a *building* that is *sprinklered*, a manual pull station is not required at an exterior egress doorway from a *suite* that does not lead to an interior shared *means of egress* in a *hotel* not more than 3 *storeys* in *building height*, provided each *suite* is served by an exterior *exit* facility leading directly to ground level.

(3) In a *building* that is *sprinklered*, a manual pull station is not required at an exterior egress doorway from a *dwelling unit* that does not lead to an interior shared *means of egress* in a *building* not more than 3 *storeys* in *building height* containing only *dwelling units*, provided each *dwelling unit* is served by an exterior *exit* facility leading directly to ground level.

(4) In a *building* referred to in Sentence (2) or (3), manual pull stations shall be installed near doorways leading from shared interior corridors to the exterior.

(d) the voice communication system referred to in Article 3.2.4.23. has a provision to override the automatic signal to allow the transmission of voice messages through silenced audible signal device circuits that serve the *dwelling units*.

(See Appendix A.)

(14) If a two stage fire alarm system has been installed with an automatic signal silence as described in Sentence (13), the system shall be designed so that any silenced audible signal devices serving *dwelling units* are reactuated whenever an *alarm signal* is required to be transmitted as part of the second stage.

3.2.4.21. Visual Signals

(1) Visual signal devices required by Sentences 3.2.4.19.(4) and 3.2.4.20.(7) and (8) shall be installed so that the signal from at least one device is visible throughout the *floor area* or portion of it in which they are installed. (See Appendix A.)

(2) Visual signal devices permitted by Sentence 3.2.4.19.(5) shall be installed so that the signal from at least one device is visible throughout the compartment in which they are installed. (See Appendix A.)

3.2.4.22. Smoke Alarms

r_1 **(1)** Except as permitted by Sentence (6), *smoke alarms* conforming to CAN/ULC-S531, "Smoke Alarms", shall be installed in each *dwelling unit* and, except for *care*, *care and treatment* or *detention occupancies* required to have a fire alarm system, in each sleeping room not within a *dwelling unit*.

(2) At least one *smoke alarm* shall be installed on each *storey* and *mezzanine* of a *dwelling unit*.

(3) On any *storey* of a *dwelling unit* containing sleeping rooms, a *smoke alarm* shall be installed in,

(a) each sleeping room, and

(b) 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.

(4) A *smoke alarm* shall be installed on or near the ceiling.

(5) Except as permitted by Sentence (6), *smoke alarms* required by Sentence (1) shall,

(a) be installed with permanent connections to an electrical circuit,

(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 not less than seven days in the normal condition, followed by 4 min of alarm.

(See Appendix A.)

(6) *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 provided by Sentence (7), are installed in conformance with CAN/ULC-S524, "Installation of Fire Alarm Systems", and verified in conformance with CAN/ULC-S537, "Verification of Fire Alarm Systems", and

(c) form part of the fire alarm system.

(7) *Smoke detectors* permitted to be installed in lieu of *smoke alarms* as provided in Sentence (6) are not required under Clause (6)(b) to sound an alarm throughout the rest of the *building*, provided they sound localized alarms within individual *suites* and otherwise meet the requirements of Clause (6)(b). (See Appendix A.)

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

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

(10) Except as permitted by Sentence (11), a manually operated silencing device shall be incorporated within the circuitry of a *smoke alarm* installed in a *dwelling unit* so that it will silence the signal emitted by the *smoke alarm* for a period of not more than 10 min, after which the *smoke alarm* will reset and again sound the alarm if the level of smoke in the vicinity is sufficient to reactuate the *smoke alarm*.

(11) *Suites* of *residential occupancy* equipped with *smoke detectors* installed in conformance with CAN/ULC-S524, "Installation of Fire Alarm Systems", as part of the fire alarm system in lieu of *smoke alarms* as permitted by Sentence (6), need not incorporate the manually operated silencing device required by Sentence (10).

(12) The sound patterns of *smoke alarms* shall,
(a) meet the temporal patterns of *alarm signals*, or
(b) be a combination of temporal pattern and voice relay.

3.2.4.23. Voice Communication Systems

(1) A voice communication system required by Sentences (7) to (10), Subsection 3.2.6. or Clause 3.3.2.4.(14)(f) shall consist of,
(a) a two-way means of communication with,
  (i) the central alarm and control facility, and
  (ii) the mechanical control centre from each *floor area*, and
(b) except as provided by Sentence (8), loudspeakers that are,
  (i) operated from the central alarm and control facility, and
  (ii) designed and located so that transmitted messages are audible and intelligible as required by Sentence (2) in all parts of the *building*, except in elevator cars.

(See Appendix A.)

(2) The voice communication system referred to in Clause (1)(b) shall be capable of broadcasting pre-recorded, synthesized or live messages with voice intelligibility meeting or exceeding the equivalent of a common intelligibility scale score of 0.70. (See Appendix A.)

(3) The voice communication system referred to in Sentence (1) shall include a means to silence the *alarm signal* in a single stage fire alarm system while voice messages are being transmitted, but only after the *alarm signal* has initially sounded for not less than 30 s.

(4) The voice communication system referred to in Sentence (1) shall include a means to silence the *alert signal* and the *alarm signal* in a two stage fire alarm system while voice messages are being transmitted, but only after the *alert signal* has initially sounded for not less than,
(a) 10 s in hospitals that have supervisory personnel on duty for twenty-four hours each day, or
(b) 30 s for all other *occupancies*.

(5) The voice communication system referred to in Clause (1)(b) shall be designed so that the *alarm signal* can be selectively transmitted to any zone or zones while maintaining an *alert signal* or selectively transmitting voice messages to any other zone or zones in the *building*.

(6) The voice communication system referred to in Clause (1)(a) shall be installed so that emergency communication devices are located in each *floor area* near *exit* stair shafts.

(7) Except for Group B, Division 1 and Group F, Division 1 *major occupancies*, a voice communication system shall be installed in a *building* where,
(a) a fire alarm system is required under Subsection 3.2.4.,
(b) a two stage fire alarm system is installed, and
(c) the *occupant load* of the *building* exceeds 1 000.

3.2.5.9. Reserved

3.2.5.10. Reserved

3.2.5.11. Reserved

3.2.5.12. Reserved

3.2.5.13. Automatic Sprinkler Systems

r_1 **(1)** Except as provided by Sentences (2) to (4), an automatic sprinkler system shall be designed, constructed, installed and tested in conformance with NFPA 13, "Installation of Sprinkler Systems". (See Appendix A.)

(2) NFPA 13R, "Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height", is permitted to be used for the design, construction, installation and testing of an automatic sprinkler system installed in a *building*,
(a) of *residential occupancy* that is not more than 4 *storeys* in *building height*, or
(b) of Group B, Division 3 *occupancy* that contains sleeping accommodation for not more than 10 persons and not more than six occupants require assistance in evacuation in case of an emergency.

r_1 **(3)** Except as required by Sentence (8), NFPA 13D, "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes", is permitted to be used for the design, construction, installation and testing of an automatic sprinkler system installed in a *building* of *residential occupancy* that contains not more than two *dwelling units*.

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

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

(6) Notwithstanding the requirements of the standards referenced in Sentences (1) and (2) for the installation of automatic sprinkler systems, sprinklers shall not be omitted in any room or closet in the *storey* immediately below a roof assembly if the *fire-resistance rating* of the roof assembly is waived as permitted by Article 3.2.2.17. (See Appendix A.)

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

r_1 **(8)** The sprinkler system described in Sentence (3) shall be provided with a minimum 20 min water supply when installed in a retirement home regulated under the *Retirement Homes Act, 2010*.

3.2.5.14. Combustible Sprinkler Piping

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

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

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

(d) a suspended membrane ceiling with,
  (i) steel suspension grids, and
  (ii) lay-in panels or tiles having a mass not less than 1.7 kg/m^2.

(4) Except as permitted by Sentence (5), *combustible* sprinkler piping may be located above a ceiling, provided that the distance between the edge of any ceiling opening that is not protected in conformance with Sentence (3) and the nearest sprinkler is not more than 300 mm.

(5) The protection required by Sentences (3) and (4) is permitted to be waived where *combustible* sprinkler piping has been tested in conformance with ULC/ORD-C199P, "Combustible Piping for Sprinkler Systems", and has been shown to meet the requirements in that document without additional protection.

3.2.5.15. Sprinklered Service Space

(1) An automatic sprinkler system shall be installed in a *service space* referred to in Sentence 3.2.1.1.(9) if flooring for access within the *service space* is other than catwalks.

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

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

(4) If a *building* is *sprinklered*, sprinkler protection need not be provided in the space below a raised floor in a *computer room*,
(a) if the optical fibre cables and electrical wires and cables in this space conform to the test requirements in Article 3.1.5.21.,
(b) if the *building* is of *noncombustible construction* and other *combustible* components are limited to those permitted in Subsection 3.1.5.,
(c) if this space is used to circulate conditioned air and the air handling system is designed to prevent the circulation of smoke upon a signal from a *smoke detector*,
(d) if all of this space is easily accessible by providing access sections or panels in the raised floor, and
(e) if the *computer room* is more than 2 000 m^2 and the annunciator has separate zone indicators of the actuation of *smoke detectors* located in this space so that the coverage for each zone is not more than 2 000 m^2.

(5) Where a room, chute or bin is required to be *sprinklered* as indicated in Sentence 3.3.4.3.(1), Article 3.6.2.5. and Sentence 3.6.3.3.(6), the sprinklers may be supplied with water from the fire standpipe system provided that,
(a) except for a chute, not more than eight sprinklers are required to protect any room or bin based on a maximum coverage of 12 m^2 per sprinkler,
(b) the standpipe riser is,
  (i) not less than 6 in. in diameter, or
  (ii) hydraulically designed to meet combined water supply as specified in Clause (c),
(c) the water supply for a standpipe system, pumping capability and water storage facility, if required, is increased to supply 95 L/min for each sprinkler over and above the requirements for the standpipe system up to maximum 760 L/min for sprinklers,
(d) a waterflow detecting device shall be installed in the sprinkler main adjacent to the point of connection to the standpipe riser, and
(e) the activation of each waterflow detecting device in Clause (d) shall be indicated separately on the fire alarm system annunciator.

3.2.5.16. Fire Department Connections

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

3.2.6.5. Elevator for Use by Firefighters

(1) At least one elevator shall be provided for use by firefighters in conformance with Sentences (2) to (6).

(2) The elevator referred to in Sentence (1) shall have a useable platform area not less than 2.2 m^2 and shall be capable of carrying a load of 900 kg to the top floor that it serves from a landing on the *storey* containing the entrance for firefighter access referred to in Articles 3.2.5.4. and 3.2.5.5. within 1 min.

(3) Except where Measure K of MMAH Supplementary Standard SB-4, "Measures for Fire Safety in High Buildings", is used, each elevator for use by firefighters shall,

(a) be provided with a *closure* at each shaft opening so that the interlock mechanism remains mechanically engaged and electrical continuity is maintained in the interlock circuits and associated wiring for a period of not less than 1 h when the assembly is subjected to the standard fire exposure described in CAN4-S104-M, "Fire Tests of Door Assemblies",

(b) be protected with a vestibule containing no *occupancy* and separated from the remainder of the *floor area* by a *fire separation* having a *fire-resistance rating* not less than 45 min, or

(c) be protected with a corridor containing no *occupancy* and separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* not less than 1 h.

(4) Except as permitted in Sentence (5), an elevator referred to in Sentence (1) shall be capable of providing transportation from the *storey* containing the entrance for firefighter access referred to in Articles 3.2.5.4. and 3.2.5.5. to every floor that is above *grade* in the *building* and that is normally served by the elevator system.

(5) If it is necessary to change elevators to reach any floor referred to in Sentence (4), the system shall be designed so that not more than one change of elevator is required when travelling to any floor in the *building* from the *storey* containing the entrance for firefighter access referred to in Articles 3.2.5.4. and 3.2.5.5.

(6) Electrical conductors for the operation of the elevator referred to in Sentence (1) shall be,

(a) installed in *service spaces* conforming to Section 3.6. that do not contain other *combustible* material, or

(b) protected against exposure to fire from the service entrance of the emergency power supply, or the normal service entrance of the normal power supply, to the equipment served, to ensure operation for a period of 1 h when subjected to the standard fire exposure described in CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials".

3.2.6.6. Venting to Aid Firefighting

(1) Means of venting each *floor area* to the outdoors shall be provided by windows, wall panels, smoke shafts or, except as provided by Sentence (5), the *building* exhaust system.

(2) Fixed glass windows shall not be used for the venting required by Sentence (1) if the breaking of the windows could endanger pedestrians below.

(3) Openable windows used for the venting required by Sentence (1) shall be permanently marked so that they are easily identifiable.

(4) Elevator hoistways shall not be designed for the venting required by Sentence (1).

(5) In a *building* that is not *sprinklered*, venting of *floor areas* required in Sentence (1) shall not be provided by the *building* exhaust system.

3.2.6.7. Central Alarm and Control Facility

(1) A central alarm and control facility shall be provided on the *storey* containing the entrance for firefighter access referred to in Articles 3.2.5.4. and 3.2.5.5. in a location that,

(a) is readily accessible to firefighters entering the *building*, and
(b) takes into account the effect of background noise likely to occur under fire emergency conditions, so that the facility can properly perform its required function under such conditions.

(2) The central alarm and control facility required in Sentence (1) shall include,
(a) means to control the voice communication system required by Article 3.2.6.8., so that messages can be sent to,
  (i) all loudspeakers simultaneously,
  (ii) individual *floor areas*, and
  (iii) *exit* stairwells,
(b) means to indicate audibly and visually *alert signals* and *alarm signals* and a switch to,
  (i) silence the audible portion of these signals, and
  (ii) indicate visually that the audible portion has been silenced,
(c) means to indicate visually that elevators are on emergency recall,
(d) an annunciator conforming to Article 3.2.4.9.,
(e) means to transmit *alert signals* and *alarm signals* to the fire department in conformance with Article 3.2.4.8.,
(f) means to release hold-open devices on doors to vestibules,
(g) means to manually actuate *alarm signals* in the *building* selectively to any zone or zones,
(h) means to silence the *alarm signals* referred to in Clause (g) in conformance with Sentences 3.2.4.23.(3) and (4),
(i) means, as appropriate to the measure for fire safety provided in the *building*, to,
  (i) actuate auxiliary equipment, or
  (ii) communicate with a continually staffed auxiliary equipment control centre,
(j) means for two-way communications with every elevator car,
(k) means to indicate visually, individual sprinkler system waterflow signals,
(l) means to indicate audibly and visually, sprinkler and standpipe system supervisory signals and trouble signals,
(m) a switch to silence the audible portion of a supervisory signal or a trouble signal, and
(n) visual indication that the audible portion of a supervisory signal or a trouble signal has been silenced.

3.2.6.8. Voice Communication System

r_1 **(1)** A voice communication system conforming to Article 3.2.4.23. shall be provided in a *building* if,
(a) the floor of the top *storey* is more than 36 m above *grade*,
(b) a *floor area* or part of a *floor area* located above the third *storey* is designed or intended for use as a Group B, Division 2 or 3 *occupancy*, or
(c) a *floor area* or part of a *floor area* located more than 18 m above *grade* is designed or intended for use as a retirement home regulated under the *Retirement Homes Act, 2010* that is a Group C *occupancy*.

3.2.6.9. Testing

(1) The systems for control of smoke movement and mechanical venting required by Articles 3.2.6.2. and 3.2.6.6. shall be tested to ensure satisfactory operation in accordance with the procedures described in MMAH Supplementary Standard SB-4, “Measures for Fire Safety in High Buildings”.

3.2.7. Lighting and Emergency Power Systems

3.2.7.1. Minimum Lighting Requirements

(1) An *exit*, a *public corridor*, a corridor providing *access to exit* for the public, a corridor serving patients or residents in a Group B, Division 2 or 3 *occupancy*, a corridor serving classrooms, an electrical equipment room, a transformer vault and a hoistway pit shall be equipped to provide illumination to an average level not less than 50 lx at floor or tread level and at all points such as angles and intersections at changes of level where there are stairs or ramps.

(2) The minimum value of the illumination required by Sentence (1) shall not be less than 10 1x.

(7) Two points of egress shall be provided for a *service space* referred to in Sentence 3.2.1.1.(9) if,
(a) the area is more than 200 m^2, or
(b) the travel distance measured from any point in the *service space* to a point of egress is more than 25 m.

(8) Except as required by Sentence 3.3.4.4.(8) and permitted by Sentences 3.3.4.4.(5) and (6), each *suite* in a *floor area* that contains more than one *suite* shall have,
(a) an exterior *exit* doorway, or
(b) a doorway,
  (i) into a *public corridor*, or
  (ii) to an exterior passageway.

(9) Except as permitted by this Section and by Sentence 3.4.2.1.(2), at the point where a doorway referred to in Sentence (8) opens onto a *public corridor* or exterior passageway, it shall be possible to go in opposite directions to each of two separate *exits.*

(10) *Means of egress* from a roof for personnel servicing roof top equipment or for a below ground *service room* that is not normally occupied, is permitted to be provided by stairways or fixed ladders.

3.3.1.4. Public Corridor Separations

(1) Except as otherwise required by this Part or as permitted by Sentence (4), a *public corridor* shall be separated from the remainder of the *storey* by a *fire separation*. (See Appendix A.)

(2) Except as permitted by Sentence (3) and Clauses (4)(a) and (b), the *fire separation* between a *public corridor* and the remainder of the *storey* shall have a *fire-resistance rating* not less than 45 min.

r_1 **(3)** If a *storey* is *sprinklered*, no *fire-resistance rating* is required for a *fire separation* between a *public corridor* and the remainder of the *storey* provided the corridor does not a *care, care and treatment, detention* or *residential occupancy*.

(4) No *fire separation* is required in a *sprinklered floor area* between a *public corridor* and,
(a) except as required by Sentences 3.3.3.5.(9) and 3.3.4.2.(1) and notwithstanding Sentences 3.4.2.4.(2), the remainder of a *storey* provided the travel distance from any part of the *floor area* to an *exit* is not more than 45 m.,
(b) a room or *suite* provided the *public corridor* complies with Sentence 3.3.1.9.(6) and Clause 3.4.2.5.(1)(d), or
(c) a space containing *plumbing fixtures* required by Subsection 3.7.4. provided the space and the *public corridor* are separated from the remainder of the *storey* by a *fire separation* that has a *fire-resistance rating* not less than that required between the *public corridor* and the remainder of the *storey*.

(5) The sprinkler system in Sentences (3) and (4) shall be electrically supervised in conformance with Sentence 3.2.4.10.(3) and, upon operation, shall cause a signal to be transmitted to the fire department in conformance with Sentence 3.2.4.8.(4) when the corridor serves a Group E or Group F, Division 1 or 2 *occupancy*.

3.3.1.5. Egress Doorways

(1) Except for *dwelling units*, a minimum of two egress doorways located so that one doorway could provide egress from the room or *suite* as required by Article 3.3.1.3. if the other doorway becomes inaccessible to the occupants due to a fire that originates in the room or *suite*, shall be provided for every room and every *suite*,
(a) whose area is more than 15 m^2 and is used for,
  (i) a *high hazard industrial occupancy*, or
  (ii) a *hazardous room*,
(b) intended for an *occupant load* more than 60,
(c) in a *floor area* that is not *sprinklered* if,
  (i) the area of a room or *suite* is more than the value in Table 3.3.1.5.A., or
  (ii) the travel distance within the room or *suite* to the nearest egress doorway, is more than the value in Table 3.3.1.5.A.,

(d) in a *floor area* that is *sprinklered* and does not contain a *high hazard industrial occupancy* if,
  (i) the travel distance to an egress doorway is more than 25 m, or
  (ii) the area of the room or *suite* is more than the value in Table 3.3.1.5.B., or
(e) where the area of the room is more than 100 m^2 and it is a *hazardous classroom* in elementary or secondary school.

(2) Where two egress doorways are required by Sentence (1), they shall be placed at a distance from one another equal to or greater than one-third of the maximum overall diagonal dimension of the room or *suite* to be served, measured as the shortest distance that smoke would have to travel between the nearest required egress doors.

Table 3.3.1.5.A.
Egress in Floor Area, not Sprinklered
Forming Part of Sentences 3.3.1.5.(1) and (3)

Occupancy of Room or *Suite*	Maximum Area of Room or *Suite*, m^2	Maximum Distance to Egress Doorway, m
Group A	150	15
Group C	150(1)	25(1)
Group D	200	25
Group E	200	25
Group F, Division 2	200	25
Group F, Division 3	200	25
Column 1	2	3

Notes to Table 3.3.1.5.A.:
(1) See Article 3.3.4.4. for *dwelling units*.

Table 3.3.1.5.B.
Egress in Sprinklered Floor Area
Forming Part of Sentences 3.3.1.5.(1) and (3)

Occupancy of Room or *Suite*	Maximum Area of Room or *Suite*, m^2
Group A	200
Group B, Division 1	100
Group B, Division 2 or 3 sleeping rooms other than sleeping rooms	 100 200
Group C	150(1)
Group D	300
Group E	200
Group F, Division 2	200
Group F, Division 3	300
Column 1	2

Notes to Table 3.3.1.5.B.:
(1) See Article 3.3.4.4. for *dwelling units*.

r1 3.3.3. Care, Care and Treatment or Detention Occupancy

3.3.3.1. Scope

r1 **(1)** This Subsection applies to *care occupancies*, *care and treatment occupancies* and *detention occupancies*. (See Appendix A.)

3.3.3.2. Fire Separations

r1 **(1)** The *fire separation* required by Sentence 3.3.5.5.(1) between a *care*, *care and treatment* or *detention occupancy* and a *repair garage* shall have no openings.

(2) Except as permitted by Sentence (4), in a Group B, Division 3 *occupancy*, walls between sleeping rooms and adjacent rooms shall be constructed as *fire separations* having a *fire-resistance rating* not less than 1 h, except that the *fire-resistance rating* need not be more than 45 min where the floor assembly is not required to be more than 45 min.

(3) Except as permitted by Sentence (4), in a Group B, Division 3 *occupancy*, walls separating corridors serving sleeping rooms from adjacent rooms shall be constructed as *fire separations* having a *fire-resistance rating* not less than 1 h, except that the *fire-resistance rating* need not be more than 45 min where the floor assembly is not required to be more than 45 min.

(4) The walls separating sleeping rooms from adjacent rooms and corridors in those parts of a *floor area* classified as a Group B, Division 3 *occupancy* shall be constructed as *fire separations* but are not required to have a *fire-resistance rating* if,
(a) those parts of the *floor area* contain sleeping accommodation for not more than 10 persons, and
(b) not more than six occupants require assistance in evacuation in case of an emergency.

(5) The door in the *fire-separation* required in Sentence (4) is permitted to be equipped with a roller latch and need not be provided with a self-closing device.

3.3.3.3. Corridors

(1) A corridor used by the public or serving patients or residents shall have no dead-end portion unless the area served by the dead-end portion has a second and separate *means of egress*.

(2) A corridor serving patients in a hospital shall be not less than 2 400 mm wide.

(3) Except as permitted in Sentence (5), a corridor serving residents who are not ambulatory in a Group B, Division 2 or 3 *occupancy* shall be not less than 1 650 mm wide.

(4) Paired doors in a corridor serving patients or residents shall,
(a) swing in opposite directions, the right hand door swinging in the direction of travel, and
(b) be not less than 1 100 mm wide.

(5) A corridor in a Group B, Division 3 *occupancy* that contains sleeping accommodation for not more than 10 persons and not more than six occupants require assistance in evacuation in case of an emergency need not comply with Sentence (3).

3.3.3.4. Doorway Width

(1) The minimum clear width of doorways serving patients or residents shall be 1 050 mm, except where, in a Group B, Division 2 or 3 *occupancy*, the door,
(a) serves a *service room*,
(b) serves an administrative area,

(c) will not be used by non-ambulatory outpatients,
(d) is located within a patient's or resident's sleeping room, or
(e) is in a long-term care home that will accommodate only ambulatory residents.
(See Appendix A.)

3.3.3.5. Hospitals and Long-Term Care Homes

(1) *Floor areas* containing patients' or residents' sleeping rooms in a hospital or long-term care home shall conform to Sentences (2) to (12). (See Appendix A.)

(2) Except as permitted by Sentence (3), a *floor area* containing patients' or residents' sleeping rooms in a hospital or long-term care home shall be divided into no fewer than two *fire compartments*, each not more than 1 000 m^2 in area.

(3) The *floor area* on either side of a *horizontal exit* conforming to Article 3.4.6.10. is permitted to be considered as a *fire compartment* in applying the requirements of this Article.

(4) Except as permitted by Sentence (5), *fire separations* separating *fire compartments* required by Sentence (2) shall have a *fire-resistance rating* not less than 1 h.

(5) The *fire-resistance rating* of a *fire separation* referred to in Sentence (4) is permitted to be less than 1 h but not less than 45 min provided the *fire-resistance rating* required by Subsection 3.2.2. is permitted to be less than 1 h for,
(a) the floor assembly above the *floor area*, or
(b) the floor assembly below the *floor area*, if there is no floor assembly above.

(6) A c*losure* in a *fire separation* between *fire compartments* referred to in Sentence (2) shall be weatherstripped or otherwise designed and installed to retard the passage of smoke. (See Appendix A.)

(7) The travel distance from any point within each *fire compartment* referred to in Sentence (2) to a door to an adjoining *fire compartment* shall be not more than 45 m.

(8) Each *fire compartment* referred to in Sentence (2) shall be capable of accommodating, in addition to its own occupants, the occupants of the largest adjacent *fire compartment* based on a clear floor space of 2.5 m^2 per patient or resident in the adjacent *fire compartment*.

(9) Except as permitted by Sentences (10) and (11), walls between patients' or residents' sleeping rooms and the remainder of the *floor area* shall be constructed as *fire separations* but are not required to have a *fire-resistance rating* unless a *fire-resistance rating* is required by other provisions in this Part.

(10) The *fire separation* requirements of Sentence (9) do not apply to walls within a group of intercommunicating patients' or residents' rooms, provided the group of rooms does not
(a) contain more than five patients or residents, or
(b) include storage, bathing or toilet facilities serving persons not occupying the group of rooms.
(See Appendix A.)

(11) A door in a *fire separation* required by Sentence (9) is permitted to be equipped with a roller latch.

(12) A *fire separation* required by Sentence (9) shall not contain any grilles, louvres or other openings.

3.3.3.6. Protection for Special Care and Treatment Facilities

(1) Compartments containing rooms such as operating rooms, recovery rooms, delivery rooms, intensive care units and critical care units, from which it is impracticable to move patients in an emergency, shall be,
(a) separated from adjacent spaces by *fire separations* having a *fire-resistance rating* not less than 1 h, and
(b) provided with a mechanical air supply so that during a period of 2 h after the start of a fire in another space, the compartments will not contain more than 1% by volume of contaminated air from the fire area.

3.4.2.5. Location of Exits

(1) Except as permitted by Sentences (2), 3.2.8.4.(4) and 3.3.2.4.(13) to (16), if more than one *exit* is required from a *floor area*, the *exits* shall be located so that the travel distance to at least one *exit* shall be not more than,

(a) 25 m in a *high hazard industrial occupancy*,
(b) 40 m in a *business and personal services occupancy*,
(c) 45 m in a *floor area* that contains an *occupancy* other than a *high hazard industrial occupancy*, provided it is *sprinklered*,
(d) 105 m in any *floor area*, served by a *public corridor*, in which rooms and *suites* are not separated from the remainder of the *floor area* by a *fire separation*, provided,
  (i) the *public corridor* is not less than 9 m wide,
  (ii) the ceiling height in the *public corridor* is not less than 4 m above all floor surfaces,
  (iii) the *building* is *sprinklered*, and
  (iv) not more than one-half of the required egress doorways from a room or *suite* open into the *public corridor* if the room or *suite* is required to have more than one egress doorway,
(e) 60 m in any *storage garage* that conforms to the requirements of Article 3.2.2.83., and
(f) 30 m in any *floor area* other than those referred to in Clauses (a) to (e).

(2) Except for a *high hazard industrial occupancy*, Sentence (1) need not apply if *exits* are placed along the perimeter of the *floor area* and are not more than 60 m apart, measured along the perimeter, provided each main aisle in the *floor area* leads directly to an *exit*.

(3) *Exits* shall be located and arranged so that they are clearly visible or their locations are clearly indicated and they are accessible at all times.

3.4.2.6. Principal Entrance

(1) For the purposes of this Section, at least one door at every principal entrance from ground level shall be designed in accordance with the requirements for *exits*.

3.4.3. Width and Height of Exits

3.4.3.1. Exit Width Based on Occupant Load

(1) For the purpose of determining the aggregate width of *exits*, the *occupant load* of every room or *floor area* shall be determined in conformance with Subsection 3.1.17.

(2) Except as permitted by Sentence 3.4.3.2.(4), the required *exit* width shall be cumulative if two or more *exits* converge.

3.4.3.2. Exit Width

(1) Except as permitted by Sentence (3), the minimum aggregate required width of *exits* serving *floor areas* intended for *assembly occupancies*, *residential occupancies*, *business and personal services occupancies*, *mercantile occupancies*, and *industrial occupancies* shall be determined by multiplying the *occupant load* of the area served by,

(a) 6.1 mm per person for ramps with a slope of not more than 1 in 8, doorways, corridors and passageways,
(b) 8 mm per person for a stair consisting of steps whose rise is not more than 180 mm and whose run is not less than 280 mm, or
(c) 9.2 mm per person for,
  (i) ramps with a slope of more than 1 in 8, or
  (ii) stairs, other than stairs conforming to Clause (b).

r_1 **(2)** The minimum aggregate width of *exits* serving *floor areas* intended for a *care*, *care and treatment* or *detention occupancy* shall be determined by multiplying the *occupant load* of the area served by 18.4 mm per person.

(3) The minimum aggregate width of *means of egress* serving a Group A, Division 4 *occupancy* shall be determined by multiplying the *occupant load* of the area served by,

(a) 1.8 mm per person for,
  (i) aisles,
  (ii) stairs other than *exit* stairs, and
  (iii) ramps and passageways in vomitories and *exits*, and
(b) 2.4 mm per person for *exit* stairs.

(4) Except as required by Sentence (5), the required *exit* width need not be cumulative in an *exit* serving two or more *floor areas* located one above the other.

(5) The required *exit* width for an *exit* stair in an assembly hall or *theatre* serving more than one balcony level shall conform to the appropriate requirements for stairs serving *interconnected floor spaces* in Article 3.2.8.4.

(6) If more than one *exit* is required, every *exit* shall be considered as contributing not more than one-half of the required *exit* width.

(7) The width of an *exit* shall be not less than,

(a) 1 100 mm for corridors and passageways,
(b) 1 100 mm for ramps not serving patients' or residents' sleeping rooms,
(c) 1 100 mm for stairs, not serving patients' or residents' sleeping rooms, that serve more than two *storeys* above the lowest *exit level* or more than one *storey* below the lowest *exit level*,
(d) 900 mm for stairs, not serving patients' or residents' sleeping rooms, that serve not more than two *storeys* above the lowest *exit level* or not more than one *storey* below the lowest *exit level*,
(e) 1 650 mm for stairs and ramps serving patients' or residents' sleeping rooms,
(f) 1 050 mm for doorways serving patients' or residents' sleeping rooms, and
(g) 790 mm for doorways not serving patients' or residents' sleeping rooms.

(See Appendix A.)

3.4.3.3. Exits from Interconnected Floor Space

(1) *Exit* stairs that serve *interconnected floor spaces* as provided in Articles 3.2.8.3. to 3.2.8.11. shall conform to the requirements in Article 3.2.8.4. and in this Section.

3.4.3.4. Exit Width Reduction (See Appendix A.)

(1) Except as permitted by Sentences (2) to (4), no fixture, turnstile or construction shall project into or be fixed within the required width of an *exit*.

(2) *Exit* doors shall be hung so that, when open, they shall neither diminish nor obstruct the required width of the *exit* by more than 50 mm for each door leaf.

(3) Swinging doors in their swing shall not reduce the required width of *exit* stairs or landings to less than 750 mm or reduce the width of an *exit* passageway to less than the minimum required width.

(4) Handrails and construction below handrails are permitted to project into the required width of *means of egress* but the projections shall be not more than 100 mm on each side of the required width.

(5) In an elementary or secondary school, where a stair lift is installed in an *exit* stair, an intermediate handrail shall be installed between the path of travel of the stair lift and the remainder of the stair to ensure that the stair lift will not reduce the required width of the *exit* stair.

(2) Where a doorway or stairway empties onto a ramp through a side wall, there shall be a level area extending across the full width of the ramp, and for a distance of 300 mm on either side of the wall opening, except one side if it abuts on an end wall.

(3) Where a doorway or stairway empties onto a ramp through an end wall, there shall be a level area extending across the full width of the ramp and along its length for not less than 900 mm.

(4) Where the direction of *exit* travel changes at a landing, the landing is permitted to be chamfered or curved in plan, provided the required width of the stair is maintained where measured perpendicular to the direction of *exit* travel across the landing.

3.4.6.5. Handrails

(1) A stairway shall have a handrail on at least one side, and if 1 100 mm or more in width, shall have handrails on both sides.

(2) If the required width of a ramp or flight of stairs is more than 2 200 mm, one or more intermediate handrails continuous between landings shall be provided, and located so that there will be not more than 1 650 mm between handrails.

(3) Handrails shall be continuously graspable along their entire length and shall have,
(a) a circular cross-section with an outside diameter not less than 30 mm and not more than 43 mm, or
(b) any non-circular shape with a graspable portion that has a perimeter not less than 100 mm and not more than 125 mm and whose largest cross-sectional dimension is not more than 45 mm.
(See Appendix A.)

(4) The height of handrails on stairs and ramps shall be measured vertically from the top of the handrail to,
(a) a straight line drawn tangent to the tread nosings of the stair served by the handrail, or
(b) the surface of the ramp, floor or landing served by the handrail.

(5) Except as provided by Sentences (6) and (7), the height of handrails on stairs and ramps shall be,
(a) not less than 865 mm, and
(b) not more than 965 mm.

(6) Handrails installed in addition to required handrails need not comply with Sentence (5).

(7) Where *guards* are required, handrails required on landings shall be not more than 1 070 mm in height.

(8) Except as required by Sentence (14) and except where interrupted by doorways or newels at changes in direction, at least one handrail shall be continuous throughout the length of a stairway or ramp, including landings.

(9) Handrails shall be terminated in a manner that will not obstruct pedestrian travel or create a hazard.

(10) At least one handrail shall,
(a) in the case of a stair,
  (i) extend horizontally at the required height, not less than 300 mm beyond the top riser, and
  (ii) continue to slope for a depth of one tread beyond the bottom riser followed by a 300 mm horizontal extension, and
(b) in the case of a ramp, extend horizontally at the required height, not less than 300 mm beyond the top and bottom edges of the incline.

(11) The clearance between a handrail and any surface behind it shall be not less than 50 mm.

(12) Handrails and their supports shall be designed and constructed to withstand the loading values obtained from the nonconcurrent application of,

(a) a concentrated load not less than 0.9 kN applied at any point and in any direction for all handrails, and
(b) a uniform load not less than 0.7 kN/m applied in any direction to handrails not located within *dwelling units*.

(13) A ramp shall have handrails on both sides.

(14) In a long-term care home and a Group B, Division 3 *occupancy*, a continuous handrail shall be provided on both sides of a stairway throughout the length of the stairway, including landings, except where a handrail is interrupted by doorways or newels at changes in direction.

3.4.6.6. Guards

(1) Every *exit* shall have a wall or a well-secured *guard* on each side.

(2) Except as required by Sentence (4), the height of *guards* for *exit* stairs shall be not less than 920 mm measured vertically to the top of the *guard* from a line drawn through the outside edges of the stair nosings and 1 070 mm around landings.

(3) *Exit* ramps and their landings shall be protected with *guards* not less than 1 070 mm measured vertically to the top of the *guard* from the ramp surface where the difference in elevation between the adjacent ground or floor level and the ramp is more than 600 mm.

(4) The height of *guards* for exterior stairs and landings more than 10 m above adjacent ground level shall be not less than 1 500 mm measured vertically to the top of the *guard* from the surface of the landing or a line drawn through the outside edges of the stair nosings.

(5) Except as provided in Sentence (6), openings through any *guard* that is required by Sentence (1) shall be of a size that will prevent the passage of a sphere having a diameter more than 100 mm unless it can be shown that the location and size of openings that exceed this limit do not represent a hazard.

(6) Openings through any *guard* that is required by Sentence (1) and that is installed in a *building* of *industrial occupancy* shall be of a size that will prevent the passage of a sphere having a diameter more than 200 mm unless it can be shown that the location and size of openings that exceed this limit do not represent a hazard.

(7) In a stairway, a window for which the distance measured vertically between the bottom of the window and a line drawn through the outside edges of the stair nosings is less than 900 mm, or a window that extends to less than 1 070 mm above the landing, shall,
(a) be protected by a *guard* that is,
  (i) located approximately 900 mm above a line drawn through the outside edges of the stair nosings, or
  (ii) not less than 1 070 mm high measured to the top of the *guard* from the surface of the landing, or
(b) be fixed in position and designed to resist the lateral design loads specified for *guards* and walls in Articles 4.1.5.14. and 4.1.5.16.

(8) Unless it can be shown that the location and size of openings do not present a hazard, a *guard* shall be designed so that no member, attachment or opening located between 140 mm and 900 mm above the level being protected by the *guard* will facilitate climbing.

3.4.6.7. Ramp Slope

(1) Except as required for aisles by Article 3.3.2.4., the maximum slope of a ramp shall be,
r_1 (a) 1 in 10 in any *assembly*, *care*, *care and treatment*, *detention* or *residential occupancy*,
(b) 1 in 6 in rooms or *floor areas* classified as *mercantile occupancy* or *industrial occupancy*,
(c) 1 in 8 in any other *floor area*, and
(d) 1 in 10 for an exterior ramp.

3.4.6.14. Sliding Doors

(1) Except as permitted by Sentence (2) an *exit* door leading directly to outdoors at ground level is permitted to be a sliding door provided it is released in conformance with Sentence 3.3.1.11.(1).

(2) An *exit* door serving a Group B, Division 1 *occupancy*, or an *impeded egress zone* in other *occupancies*, is permitted to be a sliding door that does not conform to Sentence 3.3.1.11.(1) provided it is designed to be released in conformance with Article 3.3.1.12.

3.4.6.15. Revolving Doors

(1) Except as permitted by Sentence (3), a revolving door, if used, shall,
(a) be collapsible,
(b) have hinged doors providing equivalent exiting capacity located adjacent to it,
(c) be used as an *exit* from the ground floor level only,
(d) be not less than 3 m from the foot of any stairway, and
(e) have all glass in door leaves and enclosure panels conforming to,
  (i) CAN/CGSB-12.1-M, "Tempered or Laminated Safety Glass", or
  (ii) CAN/CGSB-12.11-M, "Wired Safety Glass".

(2) Except as permitted by Sentence (3), a revolving door shall not be considered to have an exiting capacity for more than 45 persons.

(3) An electrically powered revolving door is not required to conform to Sentences (1) and (2) provided,
(a) the door leaves will collapse and stop automatic rotation of the door system and not obstruct the doorway if a force not more than that specified in Sentence 3.4.6.16.(2) is applied at the centre of a door leaf,
(b) the door leaves are capable of being opened from inside the *building* without requiring keys, special devices, or specialized knowledge of the door opening mechanism,
(c) the allowable exiting capacity is based on the clear width of passage through the door enclosure when the doors are fully collapsed,
(d) a permanent sign, whose centreline is between 1 000 mm and 1 500 mm above the floor, is placed on each face of each door leaf indicating the method for collapsing the door leaf in an emergency, and
(e) glass used for door leaves and enclosure panels is safety glass conforming to,
  (i) CAN/CGSB-12.1-M, "Tempered or Laminated Safety Glass", or
  (ii) CAN/CGSB-12.11-M, "Wired Safety Glass".

3.4.6.16. Door Release Hardware

(1) Except for *dwelling units*, except for devices on doors serving a *contained use area* or an *impeded egress zone* designed to be released in conformance with Article 3.3.1.12., and except as permitted by Sentence (4), locking, latching and other fastening devices on every *exit* door shall permit the door to be readily opened from the inside with not more than one releasing operation and without requiring keys, special devices or specialized knowledge of the door opening mechanism. (See Appendix A.)

(2) If a door is equipped with a latching mechanism, a device that will release the latch and allow the door to swing wide open when a force of not more than 90 N is applied to the device in the direction of travel to the *exit* shall be installed on,
(a) every *exit* door from a *floor area* containing an *assembly occupancy* having an *occupant load* more than 100,
(b) every door leading to an *exit* lobby from an *exit* stair shaft, and every exterior door leading from an *exit* stair shaft in a *building* having an *occupant load* more than 100, and
(c) every *exit* door from a *floor area* containing a *high hazard industrial occupancy*.

(3) Except as required by Sentence 3.8.3.3.(7), every *exit* door shall be designed and installed so that, when the latch is released, the door will open under a force of not more than 90 N, applied at the knob or other latch releasing device.

(4) Except as permitted by Sentence 3.3.1.12.(6), electromagnetic locks that do not incorporate latches, pins or other similar devices to keep the door in the closed position are permitted to be installed on *exit* doors other than doors described in Sentence (5) provided,

(a) the *building* is equipped with a fire alarm system conforming to Subsection 3.2.4.,

(b) the locking device, and all similar devices in the *access to exit* leading to the *exit* door, are installed as ancillary devices to the fire alarm system and release immediately upon activation of,

(i) the *alarm signal* where a single stage fire alarm system is installed,

(ii) except as provided in Subclause (iii), the *alarm signal* where a two stage fire alarm system is installed, or

r1 (iii) the *alarm signal* of a two stage fire alarm system installed in a *care*, *care and treatment* or *detention occupancy*,

(c) the locking device releases immediately upon loss of power to the fire alarm control panel or loss of power controlling the electromagnetic locking mechanism and its associated auxiliary controls,

(d) the locking device releases immediately upon actuation of a manually operated switch readily accessible only to authorized personnel and located near the main entrance of the *building* or in the central alarm and control facility of Sentence 3.2.6.7.(1),

(e) the locking device releases immediately upon a fault being detected in the electrical circuit between the fire alarm control panel and the controller of the locking device,

(f) the locking device releases immediately upon the operation of a manual pull station for the fire alarm system located on the wall not more than 600 mm from the door,

(g) a legible sign having the words **EMERGENCY EXIT UNLOCKED BY FIRE ALARM** is permanently mounted on the door,

(h) the lettering on the sign required in Clause (g) is at least 25 mm high with a 5 mm stroke,

(i) upon release, the locking device must be reset manually by the actuation of the switch referred to in Clause (d),

(j) the operation of any by-pass switch, where provided for testing of the fire alarm system, causes an audible signal and a visual signal to be indicated at the fire alarm annunciator panel and at the monitoring station referred to in Clause 3.2.4.8.(4) (a), and

(k) emergency lighting is provided at the doors.

(See Appendix A.)

(5) Except as permitted by Sentences (6) and (7), electromagnetic locks are not permitted to be installed on *exit* doors,

(a) described in Clause (2)(a), (b) or (c),

(b) serving an elementary or secondary school, or

(c) leading directly from a *high hazard industrial occupancy*.

(6) Electromagnetic locks are permitted to be installed on an exterior door leading from an *exit* stairway in a *building* serving only a Group B, Division 2 *major occupancy* or a Group B, Division 3 *major occupancy*.

(7) Electromagnetic locks are permitted to be installed on an *exit* door that serves only a *gaming premises* if,

(a) the *gaming premises* is located within a *sprinklered floor area*,

(b) *smoke detectors* are installed in each room and each corridor accessible to the public,

(c) a force of not more than 90 N applied to the door opening hardware initiates an irreversible process that will release the locking device within 15 s and not relock until the door has been opened, and

(d) a legible sign conforming with Clause (4)(h) is permanently mounted on the *exit* door to indicate that the locking device will release within 15 s of applying pressure to the door release hardware.

(8) Door hardware for the operation of the doors referred to in this Section shall be installed at a height not more than 1 200 mm above the finished floor.

3.4.6.17. Reserved

3.4.6.18. Emergency Access to Floor Areas

(1) In a *building* more than 6 *storeys* in *building height*,

(a) except as permitted by Sentence (3), doors providing access to *floor areas* from *exit* stairs shall not have locking devices to prevent entry into,

(i) any *floor area* designated as an area of refuge,
(ii) *floor areas* located at intervals of 5 *storeys* or less, and
(iii) at least one of the three highest *storeys*,

(b) doors referred to in Clause (a) that provide access into the *floor area* shall be identified by a sign on the stairway side to indicate that they are openable from that side, and

(c) a master key to fit all door locking devices that are intended to prevent entry into a *floor area* from an *exit* stair shall be provided in a designated location accessible to firefighters, or the door shall be provided with a wired glass panel not less than 0.0645 m^2 in area and located not more than 300 mm from the door opening hardware.

(2) If access to *floor areas* through unlocked doors is required by Clause (1)(a) or through electromagnetically locked doors as permitted by Sentence (3), it shall be possible for a person entering the *floor area* to have access through unlocked doors or through electromagnetically locked doors within the *floor area* to at least one other *exit*.

(3) Electromagnetic locking devices may be installed on the doors providing access to *floor areas* from *exit* stairs as required by Clause (1)(a), provided all locking device release and signage provisions in Sentence 3.4.6.16.(4) are installed on both sides of the doors.

(4) In a *building* not more than 6 *storeys* in *building height*, doors providing access from *exit* stairs to a *floor area* containing a *hotel* are permitted to have locking devices to prevent entry into the *floor area* provided the requirements in Clause (1)(c) are complied with.

3.4.6.19. Floor Numbering

(1) Arabic numerals indicating the assigned floor number shall,

(a) be mounted permanently on each side of doors to *exit* stair shafts,

(b) be not less than 60 mm high, raised approximately 0.7 mm above the surface,

(c) be located 1 500 mm from the finished floor, and

(d) be contrasting in colour with the surface to which they are applied. (See Appendix A.)

(2) Upper case letters indicating the designation assigned to each *exit* stair shaft shall be mounted permanently on each side of doors to the *exit* stair shaft and shall,

(a) be not less than 60 mm high, raised approximately 0.7 mm above the surface,

(b) be located 1 500 mm from the finished floor, and

(c) be contrasting in colour with the surface on which they are applied.

3.4.7. Fire Escapes

3.4.7.1. Scope

(1) Except as permitted by Sentence (2), fire escapes shall not be erected on a *building*.

(2) If it is impracticable to provide one or more of the *exit* facilities listed in Article 3.4.1.4., fire escapes conforming to Articles 3.4.7.2. to 3.4.7.7. are permitted to serve *floor areas* in an existing *building* provided the *floor areas* served are,

(a) not in an elementary or secondary school,

r_1 (b) not more than 2 *storeys* above ground level in *care*, *care and treatment* or *detention occupancies*, and

(c) not more than 5 *storeys* above ground level in other *occupancies*.

3.4.7.2. Fire Escape Construction

(1) Fire escapes shall be of metal or concrete, of the stair type extending to ground level, constructed throughout in a strong substantial manner and securely fixed to the *building*, except that wooden fire escapes are permitted to be used on *buildings* of *combustible construction* if all posts and brackets are not less than 89 mm in their least dimension and all other woodwork is not less than 38 mm in its least dimension.

3.4.7.3. Access to Fire Escapes

(1) Access to fire escapes shall be from corridors through doors at floor level, except that access from a *dwelling unit* is permitted to be through a casement window having an unobstructed opening not less than 1 100 mm high by 550 mm wide with a sill height of not more than 900 mm above the inside floor.

(2) The clear area of a fire escape balcony onto which a door opens, shall be not less than 1 m^2.

3.4.7.4. Protection of Fire Escapes

(1) If a fire escape serves any *storey* above the second, openings located in a zone described in Sentence (2), including access doorways in the exterior walls of the *building* to which the fire escape is attached, shall be protected by *closures* conforming to Subsection 3.1.8.

(2) The zone referred to in Sentence (1) extends from any balcony, platform or stairway of a fire escape to a distance,
(a) 3 m horizontally,
(b) 10 m below, and
(c) 1 800 mm above.

3.4.7.5. Stairs

(1) Stairs shall be inclined at an angle of not more than 45° with the horizontal, and their steps shall have risers not more than 210 mm high and treads not less than 220 mm wide exclusive of nosing.

(2) Stairway headroom shall be not less than 1 950 mm plus the height of one riser measured vertically above the nosing of any tread or platform.

(3) The width of a fire escape shall conform to Articles 3.4.3.1., 3.4.3.2. and 3.4.3.4., except that the width is permitted to be reduced to 550 mm provided the fire escape serves,
(a) not more than 3 *storeys*, and
(b) not more than 15 persons.

(4) If a flight of stairs leading to the ground at the foot of a fire escape is not fixed in position, it shall,
(a) be held in the raised position without a latch or locking device,
(b) be fitted with a counterbalancing device,
(c) be easily and quickly brought into position for use, and
(d) reach the ground in the lowered position.

3.4.7.6. Guards and Railings

(1) The open sides of every platform, balcony and stairway forming part of a fire escape shall be protected by *guards* not less than 920 mm high measured vertically above the nosing of any tread or platform.

(2) The top rail of a *guard* is permitted to serve as a handrail if it is free from obstructions that could break a handhold.

(3) A wall handrail shall be installed if the fire escape is more than 550 mm wide.

(4) Openings through any *guard* that is required by Sentence (1) shall be of a size that will prevent the passage of a sphere having a diameter more than 100 mm unless it can be shown that the location and size of openings that exceed this limit do not represent a hazard.

(5) Unless it can be shown that the location and size of openings do not present a hazard, a *guard* for a fire escape shall be designed so that no member, attachment or opening located between 140 mm and 900 mm above a platform or the nosing of any tread will facilitate climbing.

Table 3.7.4.3.I.
Plumbing Fixtures for a Child Care Facility
Forming Part of Sentence 3.7.4.3.(13)

Age of Children	Maximum Number of Children per Water Closet and Lavatory
under 2	10 without regard to number of each sex
2 to 5	10 without regard to number of each sex
6 to 9	15 for males; 15 for females
over 9	30 for males; 26 for females
Column 1	2

r_1 3.7.4.4. Plumbing Fixtures for Care, Care and Treatment or Detention Occupancies

(1) The number of water closets and lavatories required for Group B, Division 1 *occupancies* shall be determined on the basis of the special needs of these *occupancies*.

(2) In a Group B, Division 2 or 3 *occupancy*, washrooms shall be provided so that each washroom,
(a) serves not more than four patients or residents,
(b) is accessible from patients' or residents' sleeping rooms,
(c) contains one water closet, and
(d) contains one lavatory.

(3) The number of water closets required for employees in Group B, Division 2 or 3 *occupancies* shall conform to Table 3.7.4.4.

Table 3.7.4.4.
Water Closets in Group B, Division 2 or 3 Occupancies
Forming Part of Sentence 3.7.4.4.(3)

Number of Persons of Each Sex	Minimum Number of Water Closets for Each Sex
up to 9	1
10 to 24	2
25 to 49	3
50 to 74	4
75 to 100	5
over 100	6 plus 1 for each additional increment of 30 persons of each sex in excess of 100
Column 1	2

3.7.4.5. Plumbing Facilities for Dwelling Units

(1) A *dwelling unit* where a piped water supply is available shall be provided with a,
(a) kitchen sink,
(b) lavatory,
(c) water closet or drainless composting water closet, and
(d) bathtub or shower stall.

3.7.4.6. Plumbing Fixtures for Other Residential Occupancies

(1) Except for *dwelling units* and as provided in Sentence (2), the number of water closets required for *residential occupancies* shall conform to Table 3.7.4.6.

Table 3.7.4.6.
Water Closets For Residential Occupancies
Forming Part of Sentence 3.7.4.6.(1)

Number of Persons of Each Sex	Minimum Number of Water Closets for Each Sex
Up to 9	1
10 to 24	2
25 to 49	3
50 to 74	4
75 to 100	5
over 100	6 plus 1 for each additional increment of 30 persons of each sex in excess of 100
Column 1	2

(2) At least one water closet or privy shall be provided for every,
(a) 10 campers of each sex in a *recreational camp*, and
(b) 10 employees of each sex in a *camp for housing of workers*.

(3) In *recreational camps* and *camps for housing of workers*, no fewer than two lavatories or provision for a pail or other portable container of sound construction shall be provided for each of the water closets or privies required in Sentence (2).

(4) A *camp for housing of workers* shall include,
(a) at least one shower or other area of bathing, and
(b) provisions for at least one washing machine or laundry tub for every 15 beds.

3.7.4.7. Plumbing Fixtures for Business and Personal Services Occupancies

(1) Except as provided in Sentence (2), the number of water closets required for *business and personal services occupancies* shall conform to Table 3.7.4.7.

(2) Not more than one water closet to serve both sexes need be provided in a Group D *occupancy* having an *occupant load* of not more than 10 persons.

(15) Except as provided in Sentence 3.11.6.1.(7) for a *modified pool*, all fittings below the water surface that provide suction or gravity flow in a *public pool* shall,
(a) be provided with a minimum of two suction or gravity outlets interconnected to a full size manifold, and
(b) be separated by a clear distance of not less than 1 200 mm.

(16) Except as provided in Sentence 3.11.6.1.(7) for a *modified pool*, water in all *public pools* shall be capable of being emptied through the pool drains in 12 hours or less.

(17) Except as provided in Sentence 3.11.6.1.(7) for a *modified pool*, openings in suction or gravity fittings shall,
(a) be such that the flow of water does not exceed 0.45 m/s and the velocity is calculated assuming all possible sources of suction flow are present at one time, and
(b) be such that every suction fitting located within 1 000 mm of the water surface, except for skimmers and gutter fittings, contain openings with a minimum aggregate area of 0.2 m^2.

(18) Except for skimmers and gutters, all submerged suction and gravity fittings shall be clearly and permanently marked with a 50 mm wide band in a contrasting colour.

(19) Fittings returning water and/or air to the pool tank that are located within 300 mm of the water surface are permitted to have openings with one dimension more than 7 mm but shall contain no openings more than 25 mm in diameter.

(20) Submerged skimmer equalizer fittings and vacuum fittings are not permitted in *public pools*.

3.11.9. Dressing Rooms, Locker Facilities and Plumbing Facilities for All Public Pools

3.11.9.1. Dressing Rooms and Sanitary Facilities

(1) Except as otherwise permitted in Sentences (2) and (3), every *public pool* shall be equipped with dressing rooms, locker rooms, shower heads, water closets, urinals, lavatories and drinking fountains that shall be designed, constructed and equipped to comply with Sentences (4) to (14).

(2) Where a Class A pool is installed on the premises of a *recreational camp*, dressing rooms, locker rooms, shower heads, water closets, urinals, lavatories and drinking fountains are not required if,
(a) dressing, water closet and shower facilities are conveniently available for bathers elsewhere on the premises, and
(b) foot sprays are provided in accordance with Sentence 3.11.3.1.(17).

(3) Where a Class B pool is installed, dressing rooms, locker rooms, shower heads, lavatories, water closets, drinking fountains and urinals are not required if,
(a) dressing, water closet and shower facilities are conveniently available elsewhere on the premises for bathers when the pool is open for use, and
(b) foot sprays are provided in accordance with Sentence 3.11.3.1.(17).

(4) The minimum number of water closets, urinals and lavatories shall be determined from Article 3.7.4.3. and Table 3.7.4.3.C. for an *occupant load* based on,
(a) the formula in Sentence 3.1.17.3.(1) for all *public pools*, except a *wave action pool*, or
(b) the formula in Sentence 3.1.17.3.(2) for a *wave action pool*.

(5) A minimum of one shower head shall be provided for every 40 bathers.

(6) Where dressing and locker rooms, water closets and urinals are provided in conjunction with a *public pool*, they shall be located in such a manner that bathers, after using them, shall pass through or by a shower area to reach the *pool deck*.

(7) All shower heads shall be supplied with *potable* water at a pressure of at least 140 kPa.

(8) The shower water system shall have one or more tempering devices capable of being adjusted to ensure that water supplied to shower heads does not exceed 40°C.

(9) Floors in washrooms, shower areas and passageways used by bathers shall slope to waste drains at not less than 1% and shall be of hard surfaced materials that do not become slippery when wet.

(10) Joints between floors and walls shall be coved in areas described in Sentence (9) and in dressing and locker rooms.

e_1 **(11)** Hose bibbs shall be provided in safe locations convenient for flushing down the walls and floors in washrooms, shower areas and passageways used by bathers.

(12) *Partitions* or walls shall be provided to ensure privacy of dressing rooms, washrooms and shower areas.

(13) The bottom of interior *partitions* in dressing rooms and washrooms shall be between 250 mm and 350 mm above the floor.

(14) Dressing and locker room floors shall have non-slip surfaces that permit convenient and thorough cleaning and disinfecting.

3.11.10. Emergency Provisions for All Public Pools

3.11.10.1. Lighting and Emergency Provisions

(1) Except as provided in Sentences (2) and (3), rooms and spaces used by the public in conjunction with a *public pool* shall be capable of illumination to levels in compliance with Subsection 3.2.7.

(2) Dressing rooms, locker rooms, shower rooms, washrooms and passageways shall have an illumination level of at least 200 lx at floor level.

(3) An *indoor pool* or an *outdoor pool* that is intended to be open for use after sundown shall be equipped with a lighting system,

(a) that will maintain at any point on the *pool deck* and on the pool water surface an illumination level of at least,
  (i) 200 lx in the case of an *indoor pool*, and
  (ii) 100 lx in the case of an *outdoor pool*, and

(b) that makes the underwater areas of the pool clearly visible from any point on the *pool deck.*

(4) An *outdoor pool* that is intended to be open for use after sundown and an *indoor pool* shall be equipped with an independent emergency lighting system that automatically operates whenever the normal electrical power supply to a *public pool* lighting system fails.

(5) The independent emergency lighting system required in Sentence (4) shall be capable of illuminating the *pool deck*, washroom, shower, locker areas, pool water surface and all means of egress to a level of at least 10 lx.

(6) An emergency power supply for the emergency lighting system required in Sentence (4) shall comply with Sentences 3.2.7.4.(1) and 3.2.7.7.(1) and Article 3.2.7.5.

(7) An emergency telephone directly connected to an emergency service or to the local telephone utility shall be installed adjacent to the *pool deck* of every Class A pool.

(8) A telephone accessible for emergency use shall be installed for every Class B pool within 30 m of the pool.

(9) Every *wave action pool* shall have a public address system that shall be clearly audible in all portions of the pool.

(e) inserts shall be sized to support loads specified in Part 4,
(f) a clearly identified and easily accessible switch that will stop the conveyor shall be located at each at-level cross-over, and
(g) stairs approaching at-level conveyor cross-overs shall be marked to indicate that they are readily identifiable as part of the egress route.

3.16.2. Storage of Class I, II, III and IV Commodities

3.16.2.1. Application

(1) The requirements in this Subsection apply to a *shelf and rack storage system* intended for the storage of Class I, II, III and IV commodities as defined in NFPA 13, "Installation of Sprinkler Systems".

3.16.2.2. Construction

(1) Where the height of a *shelf and rack storage system*, measured from the floor supporting the system to the topmost portion of the shelf, exceeds 18 m,
(a) a fire alarm and detection system conforming to Subsection 3.2.4. shall be installed with,
  (i) pull stations located at all *exit* doors including *exit* doors serving elevated decks and walkways, and
  (ii) *smoke detectors* located, at the ceiling of all rooms and areas containing the *shelf and rack storage system*, within *exit* stair enclosures at the top, and at every third level of elevated deck or walkway, and
(b) the fire alarm and detection system required by Clause (a), shall be designed to notify the fire department upon activation, and
(c) the *shelf and rack storage system* shall be designed only for the storage of Class I, II and III commodities as defined in NFPA 13, "Installation of Sprinkler Systems".

3.16.3. Storage of Group A, B and C Plastics and Rubber Tires

3.16.3.1. Application

(1) The requirements in this Subsection apply to a *shelf and rack storage system* intended for the storage of Group A, B and C plastics and rubber tires as defined in NFPA 13, "Installation of Sprinkler Systems".

3.16.3.2. Construction

(1) A *shelf and rack storage system* intended for the storage of rubber tires shall conform to,
(a) Article 3.3.6.5., and
(b) the Fire Code made under the *Fire Protection and Prevention Act, 1997*.

(2) Platform and walkway levels shall not be of open construction.

(3) A *shelf and rack storage system* shall not exceed 7 m in height.

Section 3.17. Additional Requirements for Change of Use

3.17.1. Scope

3.17.1.1. Application

$\mathbf{r_1}$ **(1)** This Section applies where proposed *construction* in respect of an existing *building* will result in any of the following changes of use of all or part of the *building*:

(a) a change of the *major occupancy* of all or part of a *building* that is designated with a "Y" in Table 1.3.1.4. of Division C,
(b) a *suite* of a Group C *major occupancy* is converted into more than one *suite* of a Group C *major occupancy*,
(c) a *suite* or part of a *suite* of a Group A, Division 2 or a Group A, Division 4 *major occupancy* is converted to a *gaming premises*,
(d) a *farm building* or part of a *farm building* is changed to a *major occupancy*,
(e) a *building* or part of a *building* is changed to a *post-disaster building*,
(f) a *building* or part of a *building* is changed to a retirement home regulated under the *Retirement Homes Act 2010*, or
(g) the use of a *building* or part of a *building* is changed and the previous *major occupancy* of the *building* or part of the *building* cannot be determined.

$\mathbf{r_1}$ **(2)** For the purposes of this Section and Sentences 11.4.2.1.(1) and 11.4.2.5.(4), the changes of use set out in Clauses (1)(b) to (d) and (f) shall also be deemed to constitute a change in *major occupancy*.

(3) The requirements of this Section are in addition to the requirements of other Parts of this Division as they apply to the proposed *construction*.

3.17.2. Additional Construction

3.17.2.1. Change of Use and Compensating Construction

$\mathbf{r_1}$ **(1)** Where proposed *construction* will result in a change of use described in Clauses 3.17.1.1.(1)(a) to (d) and (f), additional *construction* shall be required in order that the *building* or part of a *building* subject to the change of use conforms to the requirements of Subsection 3.2.6. and Sections 3.7., 3.11. and 3.12. as they apply to the new *major occupancy* that the *building* or part of a *building* is to support.

(2) For the purposes of this Article, existing *buildings* shall be classified as to their *construction* and *occupancy* as provided for in Sentence 11.2.1.1.(1).

3.17.2.2. Performance Level and Compensating Construction

(1) The *performance level* of a *building* after *construction* shall not be less than the *performance level* of the *building* prior to *construction*.

(2) For the purposes of Sentence (1), reduction of *performance level* shall be determined in accordance with Articles 11.4.2.1., 11.4.2.3. and 11.4.2.5.

(3) Where proposed *construction* would reduce the *performance level* of an existing *building*, compensating *construction* shall be required in conformance with Articles 11.4.3.1., 11.4.3.2., 11.4.3.4. and 11.4.3.6.

(4) Section 11.5. applies in respect of the requirements of Sentences 11.4.3.4.(1), (3) and (4).

Table 4.1.2.1.B.
Importance Categories for Buildings
Forming Part of Sentence 4.1.2.1.(3)

Use and *Occupancy*	Importance Category
Buildings that represent a low direct or indirect hazard to human life in the event of failure, including: • low human-*occupancy buildings*, where it can be shown that collapse is not likely to cause injury or other serious consequences • minor storage *buildings*	Low(1)
All *buildings* except those listed in Importance Categories Low, High and Post-disaster	Normal
Buildings that are likely to be used as post-disaster shelters, including *buildings* whose primary use is: • as an elementary, middle or secondary school • as a community centre Manufacturing and storage facilities containing toxic, explosive or other hazardous substances in sufficient quantities to be dangerous to the public if released(1)	High
Post-disaster buildings	Post-disaster
Column 1	2

Notes to Table 4.1.2.1.B.:
(1) See Appendix A.

4.1.2.2. Loads Not Listed

(1) Where a *building* or structural member can be expected to be subjected to loads, forces or other effects not listed in Article 4.1.2.1., such effects shall be taken into account in the design based on the most appropriate information available.

4.1.3. Limit States Design (See Appendix A.)

4.1.3.1. Definitions

(1) In this Part, the term,
(a) "limit states" means those conditions of a *building* structure that result in the *building* ceasing to fulfill the function for which it was designed. (Those limit states concerning safety are called ultimate limit states (ULS) and include exceeding the load-carrying capacity, overturning, sliding and fracture; those limit states that restrict the intended use and *occupancy* of the *building* are called serviceability limit states (SLS) and include deflection, vibration, permanent deformation and local structural damage such as cracking; and those limit states that represent failure under repeated loading are called fatigue limit states),
(b) "specified loads (**C, D, E, H, L, P, S, T** and **W**)" mean those loads set out in Table 4.1.2.1.A.,
(c) "principal load" means the specified variable load or rare load that dominates in a given load combination,
(d) "companion load" means a specified variable load that accompanies the principal load in a given load combination,
(e) "service load" means a specified load used for the evaluation of a serviceability limit state,
(f) "principal-load factor" means a factor applied to the principal load in a load combination to account for the variability of the load and load pattern and the analysis of its effects,
(g) "companion-load factor" means a factor that, when applied to a companion load in the load combination, gives the probable magnitude of a companion load acting simultaneously with the factored principal load,
(h) "importance factor, I," means a factor applied in Subsections 4.1.6. to 4.1.8. to obtain the specified load and take into account the consequences of failure as related to the limit state and the use and *occupancy* of the *building*,
(i) "factored load" means the product of a specified load and its principal-load factor or companion-load factor,
(j) "effects" refers to forces, moments, deformations or vibrations that occur in the structure,
(k) "nominal resistance, R," of a member, connection or structure, is based on the geometry and on the specified properties of the structural materials,

(l) "resistance factor, Φ," means a factor applied to a specified material property or to the resistance of a member, connection or structure, and that, for the limit state under consideration, takes into account the variability of dimensions and material properties, workmanship, type of failure and uncertainty in the prediction of resistance, and
(m) "factored resistance, ΦR," means the product of nominal resistance and the applicable resistance factor.

4.1.3.2. Strength and Stability

(1) A *building* and its structural components shall be designed to have sufficient strength and stability so that the factored resistance, ΦR, is greater than or equal to the effect of factored loads, which shall be determined in accordance with Sentence (2).

(2) Except as provided in Sentence (3), the effect of factored loads for a *building* or structural component shall be determined in accordance with the requirements of this Article and the following load combination cases, the applicable combination being that which results in the most critical effect:
(a) for load cases without crane loads, the load combinations listed in Table 4.1.3.2.A., and
(b) for load cases with crane loads, the load combinations listed in Table 4.1.3.2.B.
(See Appendix A.)

(3) Other load combinations that must also be considered are the principal loads acting with the companion loads taken as zero.

$\mathbf{e_1}$ **(4)** Where the effects due to lateral earth pressure, **H**, restraint effects from pre-stress, **P**, and imposed deformation, **T**, affect the structural safety, they shall be taken into account in the calculations, with load factors of 1.5, 1.0 and 1.25 assigned to **H**, **P** and **T** respectively. (See Appendix A.)

(5) Except as provided in Sentence 4.1.8.16.(1), the counteracting factored *dead load*, 0.9**D** in load combination cases 2, 3 and 4 and 1.0**D** in load combination case 5 of Table 4.1.3.2.A. and 0.9**D** in load combination cases 1 to 5 and 1.0**D** in load combination case 6 of Table 4.1.3.2.B., shall be used when the *dead load* acts to resist overturning, uplift, sliding, failure due to stress reversal, and to determine anchorage requirements and the factored resistance of members. (See Appendix A.)

(6) The principal-load factor 1.5 for *live loads*, **L** in Table 4.1.3.2.A. and $\mathbf{L_{XC}}$ in Table 4.1.3.2.B. may be reduced to 1.25 for liquids in tanks.

(7) The companion-load factor 0.5 for *live loads*, **L** in Table 4.1.3.2.A. and $\mathbf{L_{XC}}$ in Table 4.1.3.2.B. shall be increased to 1.0 for storage areas and for equipment areas and *service rooms* referred to in Table 4.1.5.3.

(8) Except as provided in Sentence (9), the load factor 1.25 for *dead load*, **D**, for *soil*, superimposed earth, plants and trees given in Tables 4.1.3.2.A. and 4.1.3.2.B. shall be increased to 1.5, except that when the *soil* depth exceeds 1.2 m, the factor may be reduced to $1 + 0.6/h_s$ but not less than 1.25, where h_s is the depth of *soil* in metres supported by the structure.

(9) A principal-load factor of 1.5 shall be applied to the weight of saturated *soil* used in load combination case 1 of Table 4.1.3.2.A.

(10) Earthquake load, **E**, in load combination case 5 of Table 4.1.3.2.A. and case 6 of Table 4.1.3.2.B. includes horizontal earth pressure due to earthquake determined in accordance with Sentence 4.1.8.16.(4).

(11) Provision shall be made to ensure adequate stability of the structure as a whole and adequate lateral, torsional and local stability of all structural parts.

(12) Sway effects produced by vertical loads acting on the structure in its displaced configuration shall be taken into account in the design of *buildings* and their structural members.

(i) during the *construction* of all *deep foundation units* with all pertinent information recorded for each *foundation unit*,
(ii) during the installation and removal of retaining structures and related backfilling operations, and
(iii) during the placement of engineered *fills* that are to be used to support the *foundation units*, and

(b) as required, unless otherwise directed by the *chief building official*,
(i) in the *construction* of all *shallow foundation units*, and
(ii) in excavating, dewatering and other related works.

4.2.2.3. Altered Subsurface Condition

(1) If during *construction*, the *soil*, *rock* or *groundwater* is found not to be of the type or in the condition used in design, and as indicated on the drawings, the design shall be reassessed by the *designer*.

(2) If during *construction*, climatic or any other conditions have changed the properties of the *soil*, *rock* or *groundwater*, the design shall be reassessed by the *designer*.

4.2.3. Materials Used in Foundations

4.2.3.1. Wood

(1) Wood used in *foundation*s or in support of *soil* or *rock* shall conform to the appropriate requirements of Subsection 4.3.1.

4.2.3.2. Preservation Treatment of Wood

(1) Wood exposed to *soil* or air above the lowest anticipated *groundwater* table shall be treated with preservative in conformance with CAN/CSA-O80 Series, "Wood Preservation", and the requirements of the appropriate commodity standard as follows:
(a) CAN/CSA-O80.2, "Processing and Treatment",
(b) CAN/CSA-O80.3, "Preservative Formulations", or
(c) CSA O80.15, "Preservative Treatment of Wood for Building Foundation Systems, Basements and Crawl Spaces by Pressure Processes".

4.2.3.3. Plain and Reinforced Masonry

(1) Plain or reinforced masonry used in *foundation*s or in support of *soil* or *rock* shall conform to the requirements of Subsection 4.3.2.

4.2.3.4. Prevention of Deterioration of Masonry

(1) Where plain or reinforced masonry in *foundation*s or in structures supporting *soil* or *rock* may be subject to conditions conducive to deterioration, protection shall be provided to prevent such deterioration.

4.2.3.5. Concrete

(1) Plain, reinforced or prestressed concrete used in *foundation*s or in support of *soil* or *rock* shall conform to the requirements of Subsection 4.3.3.

4.2.3.6. Protection Against Chemical Attack

(1) Where concrete in *foundation*s may be subject to chemical attack, it shall be treated in conformance with the requirements in CSA A23.1, "Concrete Materials and Methods of Concrete Construction".

4.2.3.7. Steel

(1) Steel used in *foundation*s or in support of *soil* or *rock* shall conform with the appropriate requirements of Subsections 4.3.3. or 4.3.4., unless otherwise specified in this Section.

4.2.3.8. Steel Piles

(1) Where steel *piles* are used in *deep foundation*s and act as permanent load-carrying members, the steel shall conform with one of the following standards:

(a) ASTM A252, "Welded and Seamless Steel Pipe Piles",
(b) ASTM A283 / A283M, "Low and Intermediate Tensile Strength Carbon Steel Plates",
(c) ASTM A1008 / A1008M , "Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable",
(d) ASTM A1011 / A1011M, "Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength", or
e1 (e) CSA G40.21, "General Requirements for Rolled or Welded Structural Quality Steel".

4.2.3.9. High Strength Steel Tendons

(1) Where high strength steel is used for tendons in anchor systems used for the permanent support of a *foundation* or in the erection of temporary support of *soil* or *rock* adjacent to an *excavation*, it shall conform with the requirements of CSA A23.1, "Concrete Materials and Methods of Concrete Construction".

4.2.3.10. Corrosion of Steel

(1) Where conditions are corrosive to steel, adequate protection of exposed steel shall be provided.

4.2.4. Design Requirements

4.2.4.1. Design Basis

(1) The design of *foundation*s, *excavations* and *soil*- and *rock*-retaining structures shall be based on a *subsurface investigation* carried out by a person competent in this field of work, and on any of the following:

(a) application of generally accepted geotechnical and civil engineering principles by a person especially qualified in this field of work as provided in this Section and other Sections of this Part,
(b) established local practice where such practice includes successful experience both with *soil*s and *rock*s of similar type and condition and with a *foundation* or *excavation* of similar type, *construction* method, size and depth, or
(c) in situ testing of *foundation units* such as the load testing of *pile*s, anchors or footings carried out by a person competent in this field of work.

(See Appendix A.)

(2) The *foundations* of a *building* shall be capable of resisting all the loads stipulated in Section 4.1., in accordance with limit states design in Subsection 4.1.3.

(3) For the purpose of the application of the load combinations given in Table 4.1.3.2.A., the geotechnical components of loads and the factored geotechnical resistances at ULS shall be determined by a suitably qualified and experienced person. (See Appendix A.)

(4) Geotechnical components of service loads and geotechnical reactions for SLS shall be determined by a suitably qualified and experienced person.

Table 5.10.1.1. (Cont'd)
Standards Applicable to Environmental Separators and Assemblies Exposed to the Exterior
Forming Part of Sentence 5.10.1.1.(1)

Issuing Agency	Document Number	Title of Document
CGSB	CAN/CGSB-93.3-M	Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use
CGSB	CAN/CGSB-93.4	Galvanized Steel and Aluminum-Zinc Alloy Coated Steel Siding, Soffits and Fascia, Prefinished, Residential
CSA	A23.1	Concrete Materials and Methods of Concrete Construction
CSA	CAN/CSA-A82.1-M	Burned Clay Brick (Solid Masonry Units Made From Clay or Shale)
CSA	A82.4-M	Structural Clay Load-Bearing Wall Tile
CSA	A82.5-M	Structural Clay Non-Load-Bearing Tile
CSA	CAN3-A82.8-M	Hollow Clay Brick
CSA	CAN/CSA-A82.27-M	Gypsum Board
CSA	A82.30-M	Interior Furring, Lathing and Gypsum Plastering
CSA	A82.31-M	Gypsum Board Application
CSA	CAN3-A93-M	Natural Airflow Ventilators for Buildings
CSA	A123.1/123.5	Asphalt Shingles Made from Organic Felt and Surfaced with Mineral Granules / Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules
CSA	CAN/CSA-A123.2	Asphalt Coated Roofing Sheets
CSA	A123.3	Asphalt Saturated Organic Roofing Felt
CSA	CAN/CSA-A123.4	Asphalt for Constructing Built-Up Roof Coverings and Waterproofing Systems
CSA	A123.17	Asphalt Glass Felt Used in Roofing and Waterproofing
CSA	CAN3-A123.51-M	Asphalt Shingle Application on Roof Slopes 1:3 and Steeper
CSA	CAN3-A123.52-M	Asphalt Shingle Application on Roof Slopes 1:6 to Less than 1:3
CSA	CAN/CSA-A165.1	Concrete Block Masonry Units
CSA	CAN/CSA-A165.2	Concrete Brick Masonry Units
CSA	CAN/CSA-A165.3	Prefaced Concrete Masonry Units
CSA	CAN3-A165.4-M	Autoclaved Cellular Units
CSA	CAN/CSA-A179	Mortar and Grout for Unit Masonry
CSA	CAN/CSA-A220.0	Performance of Concrete Roof Tiles
CSA	CAN/CSA-A220.1	Installation of Concrete Roof Tiles
CSA	CAN/CSA-A371	Masonry Construction for Buildings
CSA	CAN/CSA-A3001	Cementitious Materials for Use in Concrete
CSA	CAN/CSA-B182.1	Plastic Drain and Sewer Pipe and Pipe Fittings
CSA	G40.21	General Requirements for Rolled or Welded Structural Quality Steel e_1
CSA	CAN/CSA-G401	Corrugated Steel Pipe Products
CSA	CAN/CSA-O80 Series	Wood Preservation
CSA	O115-M	Hardwood and Decorative Plywood
CSA	O118.1	Western Cedars Shakes and Shingles
CSA	O118.2	Eastern White Cedar Shingles
CSA	O121	Douglas Fir Plywood
CSA	O141	Softwood Lumber
CSA	O151	Canadian Softwood Plywood
CSA	O153-M	Poplar Plywood
CSA	CAN/CSA-O325.0	Construction Sheathing
CSA	O437.0	OSB and Waferboard
CSA	S478	Guideline on Durability in Buildings
Column 1	2	3

Table 5.10.1.1. (Cont'd)
Standards Applicable to Environmental Separators and Assemblies Exposed to the Exterior
Forming Part of Sentence 5.10.1.1.(1)

Issuing Agency	Document Number	Title of Document
ULC	CAN/ULC-S701	Thermal Insulation, Polystyrene, Boards and Pipe Covering
ULC	CAN/ULC-S702	Mineral Fibre Thermal Insulation for Buildings
ULC	CAN/ULC-S703	Cellulose Fibre Insulation (CFI) for Buildings
ULC	CAN/ULC-S704	Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced
ULC	CAN/ULC-S705.1	Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density - Material - Specification
ULC	CAN/ULC-S705.2	Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Installers's Responsibilities - Specification
ULC	CAN/ULC-S706	Wood Fibre Thermal Insulation for Buildings
Column 1	2	3

Notes to Table 5.10.1.1.:
(1) See Appendix A.

5.10.2. Windows, Doors and Skylights

5.10.2.1. General

(1) This Subsection applies to windows, doors and skylights, including their components, that separate,
(a) interior space from exterior space, or
(b) environmentally dissimilar interior spaces.

(2) For the purpose of this Subsection, the term "skylight" refers to unit skylights, roof windows and tubular daylighting devices.

(3) Where a wired glass assembly is installed in a required *fire separation*, it need not conform to the requirements of this Subsection. (See Appendix A.)

5.10.2.2. Applicable Standards (See Appendix A.)

(1) Windows, doors and skylights shall conform to the requirements in,
(a) AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights", and
(b) CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights".

(2) Performance grades for windows, doors and skylights shall be selected according to the Canadian Supplement referenced in Clause (1)(b) so as to be appropriate for the conditions and geographic location in which the window, door or skylight will be installed.

(3) Windows, doors and skylights shall conform to the performance grades selected under Sentence (2) when tested in accordance with the standard referenced in Clause (1)(a).

5.10.2.3. Structural Loads, Air Leakage and Water Penetration

(1) Windows, doors, skylights and their components shall be designed and constructed in accordance with,
(a) Article 5.10.2.2., where they are covered in the scope of the standards listed in Sentence 5.10.2.2.(1), or
(b) Article 5.1.4.1. and Sections 5.4. and 5.6., in other cases.

Table 7.4.9.3.(1)
Minimum Permitted Size of Fixture Outlet Pipe and Hydraulic Loads for Fixtures
Forming Part of Sentences 7.4.9.3.(1) and 7.4.10.2.(1)

	Fixture	Minimum *Size* of *Fixture Outlet Pipe*, in.	Hydraulic Load, *fixture units*
	Autopsy table	1½	2
	Bathroom group		
	(a) with flush tank		6
	(b) with direct flush valve		8
	Bathtub (with or without shower)	1½	1½
	Bath: foot, sitz or slab	1½	1½
	Bed pan washer	3	6
	Beer cabinet	1½	1½
	Bidet	1¼	1
	Chinese range	1½	3
	Clothes washer		
	(a) domestic	N/A	1½ with 2 in. *trap*
	(b) commercial	N/A	2 with 2 in. *trap*
e_1	Cup Sinks	1¼	½
	Dental unit or cuspidor	1¼	1
	Dishwasher		
	(a) domestic	1½	1 (no load if connected to garbage grinder or domestic sink)
	(b) commercial type	2	3
	Drinking fountain	1¼	½
	Fish tank or tray	1½	1½
	Floor drain	2	2 with 2 in. *trap*
			3 with 3 in. *trap*
	Garbage grinder, commercial type	2	3
	Icebox	1¼	1
	Laundry tray		
	(a) single or double units or 2 single units with common *trap*	1½	1½
	(b) 3 compartments	1½	2
	Lavatory		
	(a) barber or beauty parlor	1½	1½
	(b) dental	1¼	1
	(c) domestic type single, or 2 single with common *trap*	1¼	1 with 1¼ in. *trap*
			1½ with 1½ in. *trap*
	(d) multiple or industrial type	1½	3
	Macerating Toilet System	¾	4
	Potato Peeler	2	3
	Column 1	2	3

Table 7.4.9.3.(1) (Cont'd)
Minimum Permitted Size of Fixture Outlet Pipe and Hydraulic Loads for Fixtures
Forming Part of Sentences 7.4.9.3.(1) and 7.4.10.2.(1)

Fixture	Minimum *Size* of *Fixture Outlet Pipe*, in.	Hydraulic Load, *fixture units*
Shower drain		
(a) from 1 head	1½	1½
(b) from 2 or 3 heads	2	3
(c) from 4 to 6 heads	3	6
Sink		
(a) domestic and other small type with or without garbage grinders, single, double or 2 single with a common trap	1½	1½
(b) other sinks	1½	1½ with 1½ in. trap
		2 with 2 in. trap
		3 with 3 in. trap
Urinal		
(a) pedestal, siphon jet or blowout type	2	4
(b) stall, washout type	2	2
(c) wall		
(i) washout type	1½	1½
(ii) other types	2	3
Water closet		
(a) with flush tank	3	4
(b) with direct flush	3	6
Column 1	2	3

Notes to Table 7.4.9.3.:
(1) See Appendix A.

7.4.9.4. Minimum Size of Building Drains and Sewers

(1) Every *sanitary building drain* and every *sanitary building sewer* shall be at least 4 in. in *size*.

(2) Every *storm building drain* and every *storm building sewer* shall be at least 4 in. in *size*.

7.4.10. Hydraulic Loads

7.4.10.1. Total Load on a Pipe

(1) The hydraulic load on a pipe is the total load from,
(a) every *fixture* that is connected to the system upstream of the pipe,
(b) every *fixture* for which provision is made for future connection upstream of the pipe, and
(c) all roofs and paved surfaces that drain into the system upstream of the pipe.

7.4.10.2. Hydraulic Loads for Fixtures

(1) The hydraulic load from a *fixture* that is listed in Table 7.4.9.3. is the number of *fixture units* set forth in the Table.

Part 9

Housing and Small Buildings

Part 9

Housing and Small Buildings

Section 9.1. General

9.1.1. Application

9.1.1.1. Scope

(1) The scope of this Part shall be as described in Subsection 1.1.2. of Division A.

9.1.1.2. Signs

(1) Signs shall conform to the requirements in Section 3.15.

9.1.1.3. Self-Service Storage Buildings

(1) *Self-service storage buildings* shall conform to the requirements in Section 3.10.

9.1.1.4. Tents and Air-Supported Structures

(1) Tents shall conform to the requirements in Subsection 3.14.1.

(2) *Air-supported structures* shall conform to the requirements in Subsection 3.14.2.

9.1.1.5. Proximity to Existing Above Ground Electrical Conductors

(1) Where a *building* is constructed in close proximity to existing above ground electrical conductors, the requirements of Subsection 3.1.19. shall apply.

9.1.1.6. Food Premises

(1) The requirements of Subsection 3.7.6. apply to all *food premises.*

9.1.1.7. Radon

(1) In addition to all other requirements, a *building* in the following designated areas shall be designed and constructed so that the annual average concentration of radon 222 does not exceed 200 Bq/m^3 of air and the annual average concentration of the short lived daughters of radon 222 does not exceed 0.02 working levels inside the *building* for,

(a) the City of Elliot Lake in the Territorial District of Algoma,
(b) the Township of Faraday in the County of Hastings, and
(c) the geographic Township of Hyman in the Territorial District of Sudbury.

9.1.1.8. Building in Flood Plains

(1) *Buildings* constructed on flood plains shall,
(a) be designed and constructed in accordance with good engineering practice to withstand anticipated vertical and horizontal hydrostatic pressures acting on the structure, and
(b) incorporate floodproofing measures that will preserve the integrity of *exits* and *means of egress* during times of flooding.

9.1.1.9. Site Assembled and Factory-Built Buildings (See Appendix A.)

(1) Except as provided in Sentence (2), a manufactured *building* intended for *residential occupancy* is deemed to comply with this Code if it is designed and constructed in compliance with,
e1 (a) CSA Z240.2.1, "Structural Requirements for Manufactured Homes", if the *building* is constructed in sections not wider than 4.88 m, or
(b) CSA A277, "Procedures for Factory Certification of Buildings".

(2) The requirements of this Code shall apply to,
(a) *building* components designed and constructed outside the place of manufacture, and
(b) site installation of such *buildings.*

9.1.1.10. Public Pools and Public Spas

(1) *Public pools* shall conform to the requirements of Section 3.11. and *public spas* shall conform to the requirements of Section 3.12.

9.1.1.11. Shelf and Rack Storage Systems

(1) *Shelf and rack storage systems* shall conform to the requirements of Section 3.16.

Section 9.2. Reserved

Section 9.3. Materials, Systems and Equipment

9.3.1. Concrete

9.3.1.1. General

(1) Except as provided in Sentence (2), unreinforced and nominally reinforced concrete shall be designed, mixed, placed, cured and tested in accordance with the requirements for "R" class concrete stated in Clause 8.13 of CSA A23.1, "Concrete Materials and Methods of Concrete Construction".

(2) Unreinforced and nominally reinforced site-batched concrete shall be designed, mixed, placed and cured in accordance with Articles 9.3.1.2. to 9.3.1.9.

(3) Except as provided in Sentence (4), Subsection 9.15.4. and Section 9.39., reinforced concrete shall be designed to conform to the requirements of Part 4.

(a) the *suite* in which it is located, where there is more than one *suite* in the *storey*, or
(b) the *storey* in which it is located, in all other cases.

(2) *Mezzanines* shall not be considered as *storeys* for the purpose of determining *building height* where they occupy an aggregate area not exceeding 40% of the area of the room or the *storey* in which they are located provided the space above the *mezzanine* floor has no visual obstructions more than 1 070 mm above such floors.

9.10.4.2. More Than One Level of Mezzanine

(1) Where more than 1 level of *mezzanine* is provided in a *storey*, each level additional to the first shall be considered as a *storey*.

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.

9.10.4.4. Roof-Top Enclosures

(1) Roof-top enclosures provided for elevator machinery, stairways and *service rooms*, used for no purpose other than for service to the *building*, shall not be considered as a *storey* in calculating the *building height*.

9.10.5. Permitted Openings in Wall and Ceiling Assemblies

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 2 of MMAH Supplementary Standard SB-3, “Fire and Sound Resistance of Building Assemblies”, 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 in MMAH Supplementary Standard SB-2, “Fire Performance Ratings”.

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 Structural Steel Members

(1) Except as provided 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*.

r1 9.10.8. Fire-Resistance, Combustibility and Sprinklers 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.

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 *occupancies*	2	45	—	—
	3	45	45	45
Column 1	2	3	4	5

9.10.8.2. Fire-Resistance Ratings in Sprinklered Buildings

(1) Except for roofs that support an *occupancy*, 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 3.2.4.10.(3), and
(b) the operation of the sprinkler system will cause a signal to be transmitted to the fire department in conformance with Sentence 3.2.4.8.(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.

r1 9.10.8.4. Automatic Sprinkler Systems

(1) A retirement home regulated under the *Retirement Homes Act, 2010* shall be *sprinklered* in accordance with Sentence 9.10.1.3.(8).

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 single *dwelling unit* where no *suite* is located above or below the *dwelling unit*.

9.10.8.9. Crawl Spaces

(1) Where a crawl space exceeds 1 800 mm 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 *dwelling unit* that has no other *dwelling unit* above or below it or to a *dwelling unit* that is not above or below another *major occupancy*.

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 *fire separations* required between rooms and spaces in *buildings* except between rooms and spaces within a *dwelling unit*.

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.

(2) 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.

9.10.9.3. Openings to be Protected With Closures

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

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) Except as permitted in Article 9.9.4.7., *interconnected floor spaces* shall conform to the requirements of Subsection 3.2.8.

9.10.9.6. Penetration of Fire Separations

(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 Appendix A.)

(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 outlet 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.

(4) Electrical wires or other 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.

9.12.1.2. Standing Water

(1) *Excavations* shall be kept free of standing water.

9.12.1.3. Protection from Freezing

(1) The bottom of *excavations* shall be kept from freezing throughout the entire construction period.

9.12.1.4. Precautions During Excavation

(1) Every *excavation* shall be undertaken in such a manner to prevent damage to adjacent property, existing structures, utilities, roads and sidewalks at all stages of construction.

(2) Material shall not be placed nor shall equipment be operated or placed in or adjacent to an *excavation* in a manner that may endanger the integrity of the *excavation* or its supports.

9.12.2. Depth

9.12.2.1. Excavation to Undisturbed Soil

(1) *Excavations* for *foundations* shall extend to undisturbed *soil*.

9.12.2.2. Minimum Depth of Foundations

(1) Except as provided in Sentences (4) and (5), the minimum depth of *foundations* below finished ground level shall conform to Table 9.12.2.2.

Table 9.12.2.2.
Minimum Depths of Foundations
Forming Part of Sentence 9.12.2.2.(1)

Type of *Soil*	Minimum Depth of *Foundation* Containing Heated *Basement* or Crawl Space[1]		Minimum Depth of *Foundation* Containing no Heated Space[2]	
	Good *Soil* Drainage	Poor *Soil* Drainage	Good *Soil* Drainage	Poor *Soil* Drainage
Rock	No limit	No limit	No limit	No limit
Coarse grained *soils*	No limit	No limit	No limit	Below the depth of frost penetration
Silt	No limit	No limit	Below the depth of frost penetration[3]	Below the depth of frost penetration
Clay or *soils* not clearly defined[4]	1.2 m[3]	1.2 m	1.2 m but not less than the depth of frost penetration[3]	1.2 m but not less than the depth of frost penetration
Column 1	2	3	4	5

Notes to Table 9.12.2.2.:
(1) *Foundation* not insulated to reduce heat loss through the footings.
(2) Including *foundations* containing heated space insulated to reduce heat loss through the footings.
(3) Good *soil* drainage to not less than the depth of frost penetration.
(4) See Appendix A.

(2) Where a *foundation* is insulated in a manner that will reduce the heat flow to the *soil* beneath the footings, the *foundation* depth shall conform to that required for *foundations* containing no heated space. (See Appendix A.)

(3) The minimum depth of *foundation*s for exterior concrete steps with more than 2 risers shall conform to Sentences (1), (2) and (5).

(4) Concrete steps with 1 and 2 risers are permitted to be laid on ground level.

(5) The *foundation* depths required in Sentence (1) are permitted to be decreased where experience with local *soil* conditions shows that lesser depths are satisfactory, or where the *foundation* is designed for lesser depths.

(6) The *foundation* depths required in Sentence (1) do not apply to *foundation*s for,

(a) *buildings*,
  (i) that are not of masonry or masonry veneer construction, and
  (ii) whose superstructure conforms with the requirements of the deformation resistance test in CSA Z240.2.1, "Structural Requirements for Manufactured Homes", or

e1

(b) accessory *buildings*,
  (i) that are not of masonry or masonry veneer construction,
  (ii) not more than 1 *storey* in *building height*,
  (iii) not more than 55 m² in *building area*, and
  (iv) where the distance from the finished ground to the underside of the floor joists is not more than 600 mm.

(7) The *foundation* depths required in Sentence (1) do not apply to *foundations* for decks and other accessible exterior platforms,

(a) that are of not more than 1 *storey*,
(b) that are not more than 55 m² in area,
(c) where the distance from the finished ground to the underside of the floor joists is not more than 600 mm,
(d) that are not supporting a roof, and
(e) that are not attached to another structure, unless it can be demonstrated that differential movement will not adversely affect the performance of that structure.

9.12.3. Backfill

9.12.3.1. Placement of Backfill

(1) Backfill shall be placed to avoid damaging the *foundation* wall, the drainage tile, drainage layer, externally applied thermal insulation, waterproofing and dampproofing of the wall.

9.12.3.2. Grading of Backfill

(1) Backfill shall be graded to prevent drainage towards the *foundation* after settling.

9.12.3.3. Deleterious Debris and Boulders

(1) Backfill within 600 mm of the *foundation* shall be free of deleterious debris and boulders larger than 250 mm diam. (See Appendix A.)

(2) Except as permitted in Sentence (3), backfill shall not contain pyritic material or material that is susceptible to ice lensing in concentrations that will damage the *building* to a degree that would adversely affect its stability or the performance of assemblies separating dissimilar environments. (See A-9.4.4.4.(1) in Appendix A.)

9.14.4.4. Wet Site Conditions

(1) Where because of wet site conditions *soil* becomes mixed with the granular drainage material, sufficient additional granular material shall be provided so that the top 125 mm is kept free of *soil*.

9.14.5. Drainage Disposal

9.14.5.1. Drainage Disposal

(1) *Foundation* drains shall drain to a sewer, drainage ditch or dry well.

9.14.5.2. Sump Pits

(1) Where gravity drainage is not practical, a covered sump with an automatic pump shall be installed to discharge the water into a sewer, drainage ditch or dry well.

(2) Covers for sump pits shall be,
(a) designed to resist removal by children, and
(b) sealed in accordance with Sentence 9.25.3.3.(16).

9.14.5.3. Dry Wells

(1) Dry wells are permitted to be used only when located in areas where the natural *groundwater* level is below the bottom of the dry well.

(2) Dry wells shall be not less than 5 m from the *building foundation* and located so that drainage is away from the *building*.

9.14.6. Surface Drainage

9.14.6.1. Surface Drainage

(1) The *building* shall be located or the *building* site graded so that water will not accumulate at or near the *building* and will not adversely affect adjacent properties.

9.14.6.2. Drainage away from Wells or Leaching Beds

(1) Surface drainage shall be directed away from the location of a water supply well or *leaching bed*.

9.14.6.3. Window Wells

(1) Every window well shall be drained to the footing level or other suitable location.

9.14.6.4. Catch Basin

(1) Where runoff water from a driveway is likely to accumulate or enter a garage, a catch basin shall be installed to provide adequate drainage.

9.14.6.5. Downspouts

(1) Downspouts shall conform to Article 9.26.18.2.

Section 9.15. Footings and Foundations

9.15.1. Application

9.15.1.1. General (See Appendix A and A-9.4.4.6.)

(1) Except as provided in Articles 9.15.1.2. and 9.15.1.3., this Section applies to,
(a) concrete or unit masonry *foundation* walls and concrete footings not subject to surcharge,
  (i) on stable *soils* with an *allowable bearing pressure* of 75 kPa or greater, and
  (ii) for *buildings* of wood frame or masonry construction,
(b) wood frame *foundation* walls and wood or concrete footings not subject to surcharge,
  (i) on stable *soils* with an *allowable bearing pressure* of 75 kPa or greater, and
  (ii) for *buildings* of wood frame construction, and
(c) flat insulating concrete form *foundation* walls and concrete footings not subject to surcharge,
  (i) on stable *soils* with an *allowable bearing pressure* of 75 kPa or greater, and
  (ii) for *buildings* of light frame or flat insulating concrete form construction that are not more than 2 *storeys* in *building height*, with a maximum floor to floor height of 3 m, and containing only a single *dwelling unit*.

(See Appendix A.)

(2) *Foundations* for applications other than as described in Sentence (1) shall be designed in accordance with Section 9.4.

(3) Where a *foundation* is erected on filled ground, peat or sensitive clay, the footing sizes shall be designed in conformance with Section 4.2.

(4) For the purpose of Sentence (3), sensitive clay means the grain size of the majority of the particles is smaller than 0.002 mm, including leda clay.

9.15.1.2. Permafrost

(1) *Buildings* erected on permafrost shall have *foundations* designed by a *designer* competent in this field in accordance with the appropriate requirements of Part 4.

9.15.1.3. Foundations for Deformation Resistant Buildings

e_1 **(1)** Where the superstructure of a detached *building* conforms to the requirements of the deformation resistance test in CSA Z240.2.1, “Structural Requirements for Manufactured Homes”, the *foundation* shall be constructed in conformance with,
(a) this Section, or
(b) CSA Z240.10.1, “Site Preparation, Foundation, and Anchorage of Manufactured Homes”.

9.15.2. General

9.15.2.1. Concrete

(1) Concrete shall conform to Section 9.3.

(3) Where a *foundation* rests on gravel, sand or silt in which the water table level is less than the width of the footings below the *bearing surface*,

(a) the footing width for walls shall be not less than twice the width required by Sentences (1) and (2), and Articles 9.15.3.5. and 9.15.3.6., and

(b) the footing area for columns shall be not less than twice the area required by Sentences (1) and (2), and Article 9.15.3.7.

9.15.3.5. Adjustments to Footing Widths for Exterior Walls

(1) The strip footing widths for exterior walls shown in Table 9.15.3.4. shall be increased by,

(a) 65 mm for each *storey* of masonry veneer over wood frame construction supported by the *foundation* wall,

(b) 130 mm for each *storey* of masonry construction supported by the *foundation* wall, and

(c) 150 mm for each *storey* of flat insulating concrete form wall construction supported by the *foundation* wall.

9.15.3.6. Adjustments to Footing Widths for Interior Walls

(1) The minimum strip footing widths for interior *loadbearing* masonry walls shown in Table 9.15.3.4. shall be increased by 100 mm for each *storey* of masonry construction supported by the footing.

(2) Footings for interior non-*loadbearing* masonry walls shall be not less than 200 mm wide for walls up to 5.5 m high and the width shall be increased by 100 mm for each additional 2.7 m of height.

9.15.3.7. Adjustments to Footing Area for Columns

(1) The footing area for column spacings other than shown in Table 9.15.3.4. shall be adjusted in proportion to the distance between columns.

9.15.3.8. Footing Thickness

(1) Footing thickness shall be not less than the greater of,

(a) 100 mm, or

(b) the width of the projection of the footing beyond the supported element.

9.15.3.9. Step Footings

(1) Where step footings are used,

(a) the vertical rise between horizontal portions shall not exceed 600 mm, and

(b) the horizontal distance between risers shall be not less than 600 mm.

9.15.4. Foundation Walls

9.15.4.1. Permanent Form Material

(1) Insulating concrete form units shall be manufactured of polystyrene conforming to the performance requirements of CAN/ULC-S701, “Thermal Insulation, Polystyrene, Boards and Pipe Covering”, for Type 2, 3 or 4 polystyrene.

9.15.4.2. Foundation Wall Thickness and Required Lateral Support

(1) Except as required in Sentence (2), the thickness of *foundation* walls made of unreinforced concrete block or solid concrete and subject to lateral earth pressure shall conform to Table 9.15.4.2.A. for walls not exceeding 3.0 m in unsupported height.

Table 9.15.4.2.A.
Thickness of Solid Concrete and Unreinforced Concrete Block Foundation Walls
Forming Part of Sentence 9.15.4.2.(1)

Type of *Foundation* Wall	Minimum Wall Thickness, mm	Maximum Height of Finish Ground Above *Basement* Floor or Crawl Space Ground Cover, m			
		Height of *Foundation* Wall Laterally Unsupported at the Top[1][2]	Height of *Foundation* Wall Laterally Supported at the Top[1][2]		
		≤ 3.0 m	≤ 2.5 m	> 2.5 m and ≤ 2.75 m	> 2.75 m and ≤ 3.0 m
Solid concrete, 15 MPa min. strength	150	0.8	1.5	1.5	1.4
	200	1.2	2.15	2.15	2.1
	250	1.4	2.3	2.6	2.5
	300	1.5	2.3	2.6	2.85
Solid concrete, 20 MPa min. strength	150	0.8	1.8	1.6	1.6
	200	1.2	2.3	2.3	2.2
	250	1.4	2.3	2.6	2.85
	300	1.5	2.3	2.6	2.85
Unreinforced concrete block	140	0.6	0.8	—	—
	190	0.9	1.2	[3]	[3]
	240	1.2	1.8	[3]	[3]
	290	1.4	2.2	—	—
Column 1	2	3	4	5	6

e$_1$ Notes to Table 9.15.4.2.A.:
(1) See Article 9.15.4.3.
(2) See Article 9.15.4.6.
(3) See Table 9.15.4.2.B.

(2) The thickness of concrete in flat insulating concrete form *foundation* walls shall be not less than the greater of,
(a) 140 mm, or
(b) the thickness of the concrete in the wall above.

(3) *Foundation* walls made of flat insulating concrete form units shall be laterally supported at the top and at the bottom.

(4) The thickness and reinforcing of *foundation* walls made of reinforced concrete block and subject to lateral earth pressure shall conform to Table 9.15.4.2.B. and Sentences (5) to (8) where,
(a) the walls are laterally supported at the top,
(b) average stable *soils* are encountered, and
(c) wind loads on the exposed portion of the *foundation* are no greater than 0.70 kPa.

(5) For concrete block walls required to be reinforced, continuous vertical reinforcement shall,
(a) be provided at wall corners, wall ends, wall intersections, at changes in wall height, at the jambs of all openings and at movement joints,
(b) extend from the top of the footing to the top of the *foundation* wall, and
(c) where *foundation* walls are laterally supported at the top, have not less than 50 mm embedment into the footing, if the floor slab does not provide lateral support at the wall base.

9.23.4.2. Spans for Joists, Rafters and Beams (See Appendix A.)

(1) Except as required in Sentence (2) and Article 9.23.13.10., the spans for wood joists and rafters shall conform to the spans shown in Tables A-1 to A-7 for the uniform *live loads* shown in the Tables.

(2) Spans for floor joists that are not selected from Tables A-1 and A-2 and that are required to be designed for the same loading conditions, shall not exceed the design requirements for uniform loading and vibration criteria. (See Appendix A.)

(3) Spans for built-up wood and glued-laminated timber floor beams shall conform to the spans in Tables A-8 to A-11.

(4) Spans for roof ridge beams shall conform to the spans in Table A-12 for the uniform snow load shown.

9.23.4.3. Steel Beams

(1) The spans for steel beams with laterally supported top flanges shall conform to Table 9.23.4.3. for floors and Tables A-20 to A-29 for roofs and floors. (See Appendix A.)

e_1 **(2)** Beams described in Sentence (1) shall at least meet the requirements for Grade 350 W steel in CSA G40.21, "General Requirements for Rolled or Welded Structural Quality Steel".

(3) A beam may be considered to be laterally supported if,
(a) the wood joists bear on its top flange at intervals of 610 mm or less over its entire length,
(b) the load being applied to this beam is transmitted through the joists, and
(c) 19 mm by 38 mm wood strips in contact with the top flange are nailed on both sides of the beam to the bottom of the joist supported.

Table 9.23.4.3.
Maximum Spans for Steel Beams Supporting Floors in Dwelling Units(1)
Forming Part of Sentence 9.23.4.3.(1)

	Supported Joist Length, m (Half the sum of joist spans on both sides of the beam)						
	2.4	3.0	3.6	4.2	4.8	5.4	6.0
Section	One *Storey* Supported						
W150 × 22	5.5	5.2	4.9	4.8	4.6	4.5	4.3
W200 × 21	6.5	6.2	5.9	5.7	5.4	5.1	4.9
W200 × 27	7.3	6.9	6.6	6.3	6.1	5.9	5.8
W200 × 31	7.8	7.4	7.1	6.8	6.6	6.4	6.2
W250 × 24	8.1	7.6	7.3	7.0	6.6	6.2	5.9
W250 × 33	9.2	8.7	8.3	8.0	7.7	7.5	7.3
W250 × 39	10.0	9.4	9.0	8.6	8.4	8.1	7.9
W310 × 31	10.4	9.8	9.4	8.9	8.4	8.0	7.6
W310 × 39	11.4	10.7	10.2	9.8	9.5	9.2	9.0
Section	Two *Storeys* Supported						
W150 × 22	4.9	4.4	4.1	3.8	3.5	3.4	3.2
W200 × 21	5.6	5.1	4.6	4.3	4.1	3.8	3.7
W200 × 27	6.4	6.1	5.6	5.3	4.9	4.7	4.4
W200 × 31	6.9	6.5	6.2	5.8	5.4	5.1	4.9
W250 × 24	6.8	6.1	5.6	5.2	4.9	4.6	4.4
W250 × 33	8.2	7.7	7.0	6.5	6.1	5.8	5.5
W250 × 39	8.8	8.3	7.8	7.2	6.8	6.4	6.1
W310 × 31	8.7	7.8	7.2	6.7	6.2	5.9	5.6
W310 × 39	10.0	9.3	8.5	7.9	7.4	7.0	6.7
Column 1	2	3	4	5	6	7	8

Notes to Table 9.23.4.3.:
(1) See Appendix A.

9.23.4.4. Concrete Topping (See Appendix A.)

(1) Except as permitted in Sentence (2), where a floor is required to support a concrete topping, the joist spans shown in Table A-1 or the spacing of the members shall be reduced to allow for the loads due to the topping.

(2) Where a floor is required to support a concrete topping, joist spans are permitted to be selected from Table A-2 provided the concrete,
(a) is 38 to 51 mm thick,
(b) is normal weight,
(c) is placed directly on the subflooring, and
(d) has not less than 20 MPa compressive strength after 28 days.

(3) Where a floor is required to support a concrete topping not more than 51 mm thick, the beam spans shown in Tables A-8 to A-11 shall be multiplied by 0.8 or the supported length of the floor joists shall be reduced to allow for the loads due to the topping.

9.38.3.3. Foundations and Anchorage

(1) *Buildings* described in Article 9.38.1.1. shall be supported and anchored in conformance with the manufacturer's installation instructions.

9.38.3.4. Proximity to Above Ground Electrical Conductors

(1) *Buildings* described in Article 9.38.1.1. shall comply with Article 9.1.1.5.

Section 9.39. Reinforced Concrete Slabs (See Appendix A.)

9.39.1. Scope

9.39.1.1. Application

(1) This Section applies to,
(a) reinforced concrete slabs that are suspended over cold rooms in *basements*, and are supported by *foundation* walls along the perimeter of the slab with no additional interior supports, and
(b) slabs in which the clear span between supporting walls is not more than 2.5 m along the shortest dimension of the slab.

(2) Slabs for conditions other than described in Sentence (1) shall be designed in accordance with Part 4.

(3) This Section does not apply to reinforced concrete slabs intended to support motor vehicles.

9.39.1.2. Concrete

(1) Concrete shall conform to Section 9.3.

9.39.1.3. Reinforcing Steel

(1) Reinforcing steel shall conform to Grade 400 in CAN/CSA-G30.18-M, “Billet-Steel Bars for Concrete Reinforcement”.

9.39.1.4. Slab Construction

(1) Concrete shall be cast against form work in accordance with CSA A23.1, “Concrete Materials and Methods of Concrete Construction”.

(2) The slab shall be not less than 125 mm thick.

(3) The slab shall be reinforced with 10M bars spaced not more than 200 mm o.c. in each direction, with 30 mm clear cover from the bottom of the slab to the first layer of bars, and the second layer of bars laid directly on top of the lower layer in the opposite direction.

(4) The slab shall bear not less than 75 mm on the supporting *foundation* walls and be anchored to the walls with 600 mm × 600 mm 10M bent dowels spaced at not more than 600 mm o.c.

(5) Exposed slabs shall be sloped to effectively shed water away from the exterior wall.

Section 9.40. Additional Requirements for Change of Use

9.40.1. Scope

9.40.1.1. Application

r_1 **(1)** This Section applies where proposed *construction* in respect of an existing *building* will result in any of the following changes of use of all or part of the *building*:

(a) a change of the *major occupancy* of all or part of a *building* that is designated with a "Y" in Table 1.3.1.4. of Division C,

(b) a *suite* of a Group C *major occupancy* is converted into more than one *suite* of a Group C *major occupancy*,

(c) a *farm building* or part of a *farm building* is changed to a *major occupancy*,

(d) a *building* or part of a *building* is changed to a *post-disaster building*,

(e) a *building* or part of a *building* is changed to a retirement home regulated under the *Retirement Homes Act, 2010*, or

(f) the use of a *building* or part of a *building* is changed and the previous *major occupancy* of the *building* or part of the *building* cannot be determined.

r_1 **(2)** For the purposes of this Section and Sentences 11.4.2.1.(1) and 11.4.2.5.(4), the changes of use set out in Clauses (1)(b) to (f) are also deemed to constitute a change in *major occupancy*.

(3) The requirements of this Section are in addition to the requirements of other Parts of the Code as they apply to the proposed *construction*.

9.40.2. Additional Construction

9.40.2.1. Change of Use and Compensating Construction

r_1 **(1)** Where proposed *construction* will result in a change of use described in Clauses 9.40.1.1.(1)(a) to (e), additional *construction* shall be required in order that the *building* or part of a *building* subject to the change of use conforms to the requirements of Subsections 9.5.1. and 9.5.3. to 9.5.10., Section 9.6., Article 9.7.2.3. Sentences 9.7.5.1.(2) and 9.7.6.2.(1) and (3), Articles 9.8.8.1. and 9.9.10.1., Subsection 9.10.17. and Sections 9.31., 9.32. and 9.34. as they apply to the new *major occupancy* that the *building* or part of a *building* is to support.

(2) For the purposes of this Article, existing *buildings* shall be classified as to their *construction* and *occupancy* as provided for in Sentence 11.2.1.1.(1).

9.40.2.2. Performance Level Evaluation and Compensating Construction

(1) The *performance level* of a *building* after *construction* shall not be less than the *performance level* of the *building* prior to *construction*.

(2) For the purposes of Sentence (1), reduction of *performance level* shall be determined in accordance with Articles 11.4.2.1., 11.4.2.3. and 11.4.2.5.

(3) Where the proposed *construction* would reduce the *performance level* of an existing *building*, compensating *construction* shall be required in conformance with Articles 11.4.3.1., 11.4.3.2., 11.4.3.4. and 11.4.3.6.

(4) Section 11.5. applies in respect of the requirements of Sentences 11.4.3.4.(1), (3) and (4).

Part 10

Change of Use (See Appendix A.)

Section 10.1. General

10.1.1. Scope

10.1.1.1. Scope

(1) The scope of this Part shall be as described in Subsection 1.1.2. of Division A.

10.1.1.2. Change in Major Occupancy

r_1 **(1)** The following changes of use are also deemed to be a change in *major occupancy* for the purposes of this Part:
(a) a *suite* of a Group C *major occupancy* is converted into more than one *suite* of a Group C *major occupancy*,
(b) a *suite* or part of a *suite* of a Group A, Division 2 or Group A, Division 4 *major occupancy* is converted to a *gaming premises*,
(c) a *farm building* or part of a *farm building* is changed to a *major occupancy*,
(d) a *building* or part of a *building* is changed to a *post-disaster building*,
(e) a *building* or part of a *building* is changed to a retirement home regulated under the *Retirement Homes Act, 2010*, or
(f) the use of a *building* or part of a *building* is changed and the previous *major occupancy* of the *building* or part of the *building* cannot be determined.

Section 10.2. Classification of Existing Buildings

10.2.1. Classification

10.2.1.1. Classification of Major Occupancy

(1) Every existing *building* or part of it shall be classified according to its *major occupancy* in accordance with the requirements of Subsection 3.1.2.

10.2.1.2. Classification According to Construction and Occupancy

(1) For the purposes of this Part, existing *buildings* shall be classified as to their *construction* and *occupancy* as provided for in Sentence 11.2.1.1.(1).

10.2.1.3. Building Size and Construction

(1) The requirements of Articles 3.2.2.20. to 3.2.2.83. do not apply to this Part.

Section 10.3. Requirements

10.3.1. General

10.3.1.1. General

(1) Except as provided in Section 10.4., a *building* or part of a *building* subject to a change of *major occupancy* shall conform to the requirements of Subsection 3.2.6., Sections 3.7., 3.11. and 3.12., Sentences 6.2.2.1.(2), 6.2.3.9.(1) and 6.2.4.7.(1), Subsections 9.5.1. and 9.5.3. to 9.5.10., Sentences 9.6.1.4.(3), (4) and (7) to (9), Article 9.7.2.3., Sentences 9.8.8.1.(5) to (9) and 9.9.10.1.(1) to (7), Subsection 9.10.17., Sections 9.31. and 9.32., and Subsections 9.34.1. to 9.34.3. as they apply to the new *major occupancy* that the *building* or part of a *building* is to support.

10.3.2. Performance Level

10.3.2.1. General

(1) The *performance level* of a *building* after the change of *major occupancy* shall not be less than the *performance level* prior to the change of *major occupancy*.

(2) For the purposes of Sentence (1), reduction of *performance level* shall be determined in accordance with Article 10.3.2.2.

10.3.2.2. Reduction in Performance Level

(1) Except as provided in Sentence (2), the *performance level* of a *building* or part of a *building* is reduced where the existing structural floor and roof framing systems and their supporting members are not adequate to support the proposed *dead loads* and *live loads* of the new *major occupancy* that the *building* is to support.

(2) The inadequacy of the existing structural floor or roof framing system and its supporting members to support the proposed *dead loads* and *live loads* does not reduce the *performance level* of the *building* if the portion of the floor affected by the proposed loads is restricted to the loading it will support and signs stating the restrictions are posted.

(3) Except as provided in Section 10.4., the *performance level* of a *building* or part of a *building* is reduced where the early warning and evacuation systems requirements of the *building* do not meet the early warning and evacuation systems requirements set out in Table 10.3.2.2.A. for the new *major occupancy* that the *building* is to support.

(4) Except as provided in Sentence (5), the *performance level* of an existing *building* is reduced where a change in use will result in a change of the *major occupancy* of all or part of an existing *building* to another *major occupancy* of a greater *hazard index*.

(5) Except as provided in Sentence (6), if the *hazard index* of the new *major occupancy* is greater than the *hazard index* of the existing *major occupancy*, the *performance level* is not reduced where the *hazard index* of the new *major occupancy* is not greater than the *construction index* of the existing *building*.

(6) Small or medium sized existing *buildings* as determined in Tables 11.2.1.1.B. to 11.2.1.1.N. facing multiple *streets* may be assigned a *hazard index* credit of 1, which may be subtracted from the *hazard index* of the new *major occupancy* provided,

(a) the *building* does not contain a Group B, Division 1, a Group C, or a Group F, Division 1 *occupancy*, and
(b) firefighting access complying with Articles 3.2.5.1. to 3.2.5.5. or Subsection 9.10.20. is provided.

Table 10.3.2.2.A.
For Evaluation of Early Warning/Evacuation
Forming Part of Sentence 10.3.2.2.(3)

Early Warning / Evacuation Evaluation	*Compliance Alternative*(1)
Early Warning and Evacuation to be checked against (a) *access to exit* widths based on *occupant load* in Subsection 3.3.1. or 9.9.3.; (b) *exit* widths based on *occupant load* in Subsection 3.4.3. or 9.9.3.; (c) *exit* signs in Subsection 3.4.5. or 9.9.11.; (d) lighting of *exits*, lighting of *access to exits* and emergency lighting in Subsection 3.2.7. or 9.9.12.; (e) fire alarm system in Subsection 3.2.4. or 9.10.18.; (f) *smoke alarms* in Subsection 9.10.19.; (g) travel distance and number of *exits* in other Parts of this Division; (h) smoke control measures, and at least one elevator to permit transport of firefighters to all floors in *hotels* whose floor level is more than 18 m high, measured between *grade* and floor level of the top *storey* as per Subsection 3.2.6.; and (i) door release hardware requirements in Articles 3.3.1.12. and 3.4.6.16., and deficiencies shall be upgraded.	EARLY WARNING (a) *Compliance alternatives* as listed may be used. EVACUATION (b) *Compliance alternatives* as listed to *access to exit* and *exit* widths, number of *exits*, door release hardware, and travel distance may be used.
Column 1	2

Notes to Table 10.3.2.2.A.:
(1) See Tables 11.5.1.1.A., 11.5.1.1.B., 11.5.1.1.C., 11.5.1.1.D/E. and 11.5.1.1.F. for *compliance alternatives* that may be used.

(7) Except as provided in Sentence (8), the *performance level* of a *building* or part of a *building* is reduced in an existing *building* constructed of *combustible construction* where,
(a) the *occupancy* is changed to a *residential occupancy* in all or part of the *building*, and
(b) if the *building* was new, it would have been required to be constructed of *noncombustible construction*.

(8) A change in the *occupancy* of a *building* or part of a *building* to a *residential occupancy* does not reduce the *performance level* of the *building* or part of the *building* where,
(a) the *building* is *sprinklered*, and
(b) the *building* does not exceed 6 *storeys* in *building height*.

(9) The *performance level* of a *building* or part of a *building* is reduced where the new *major occupancy* in an existing *building* of multiple *occupancy* is not separated from adjoining *major occupancies* by *fire separations* having *fire-resistance ratings* conforming to Article 3.1.3.1., Subsection 9.10.9. or Table 10.3.2.2.B.

Table 10.3.2.2.B.(1)
Additional Upgrading for Multiple Major Occupancies
Forming Part of Sentence 10.3.2.2.(9)

New *Major Occupancy*	Code Requirements	*Compliance Alternative*	
All	Table 3.1.3.1. and Subsection 9.10.9. Where:	For Existing *Building* Reduce to	If *Sprinklered* Reduce to
	1 h rating required	45 min	30 min
	2 h rating required	1.5 h	1 h
	3 h rating required	2 h	1.5 h
Column 1	2	3	4

Notes to Table 10.3.2.2.B.:
(1) For *buildings* with multiple *major occupancies* only, where there is a change in *major occupancy*.

(10) The *performance level* of a *building* is reduced where the *building* after the change of *major occupancy* will not comply with Article 3.1.3.2. or 9.10.9.12.

(11) The *performance level* of a *building* or part of a *building* is reduced where, after a change of *major occupancy*,
(a) the total daily design *sanitary sewage* flow of the new *major occupancy*, calculated in accordance with Article 8.2.1.3., exceeds the capacity of any component of a *sewage system* serving the *building*, or
(b) the type or amount of *sanitary sewage* that will, under the new *major occupancy*, be discharged to a *sewage system* serving the *building* is prohibited by Article 8.1.3.1.

r_1 **(12)** The *performance level* of an existing *building* or part of an existing *building* is reduced where,
(a) the use of the *building* or part of the *building* is changed to a retirement home regulated under the *Retirement Homes Act, 2010*, and
(b) any of the following applies:
(i) the retirement home is not *sprinklered*,
(ii) Clause 3.2.6.8.(1)(b) or (c), as applicable, requires that a voice communication system conforming to Article 3.2.4.23. be provided in the *building* and such a system is not provided in the *building*, or
(iii) the retirement home contains one or more doors to *suites* or sleeping rooms not within *suites*, other than doors leading directly to the exterior, that are not equipped with self-closing devices.

Section 10.4. Compliance Alternatives

10.4.1. Compliance Alternatives

10.4.1.1. Substitution

(1) Except as provided in Sentence (3), a *compliance alternative* to a requirement contained in Part 3, 4, 6 or 8 that is shown in Tables 11.5.1.1.A., 11.5.1.1.B., 11.5.1.1.C., 11.5.1.1.D/E. or 11.5.1.1.F. may be substituted for the requirement where the *chief building official* is satisfied that compliance with the requirement is impracticable because,
(a) of structural or *construction* difficulties, or
(b) it is detrimental to the preservation of a *heritage building*.

(2) Except as provided in Sentence (3), a *compliance alternative* to a requirement contained in Part 9 or 12 shown in Tables 11.5.1.1.C., 11.5.1.1.D/E. or 11.5.1.1.F. may be substituted for the requirement without satisfying the *chief building official* that the requirement is impracticable.

(3) Where the *building* has been in existence for less than five years, *compliance alternatives* may only be used in respect of requirements of this Division that are referenced in Sentences 10.3.2.2.(3), (5) and Table 10.3.2.2.B.

Part 11

Renovation

materials or components, to retain the existing character, structural uniqueness, heritage value, or aesthetic appearance of all or part of the *building*, if the *construction* will not adversely affect the early warning and evacuation systems, *fire separations* or the structural adequacy or will not create an unhealthy environment in the *building*.

r_1 **(2)** *Construction* in respect of a *hotel*, a Group B, Division 3 *occupancy* or a retirement home regulated under the *Retirement Homes Act, 2010* that is a Group C *occupancy* may be carried out in accordance with Sentence (1) only if the *construction* will be in conformance with the Fire Code made under the *Fire Protection and Prevention Act, 1997*.

11.3.3.2. Extensive Renovation (See Appendix A.)

(1) Where existing interior walls or ceilings or floor assemblies or roof assemblies are substantially removed in an existing *building* and new interior walls, ceilings, floor assemblies or roof assemblies are installed in the *building*, structural and fire-resistance elements shall be constructed in compliance with the requirements of the other Parts.

(2) Except as provided in Section 11.5., the proposed *construction* within an existing *suite* shall comply with the requirements of Section 3.8. where,
(a) the existing interior walls or floor assemblies within the *suite* are substantially removed in an existing *building*,
(b) new interior walls or floor assemblies are installed,
(c) the *suite* has an area greater than 300 m^2, and
(d) the *suite* is located on,
  (i) a *floor area* where the existing difference in elevation between the adjacent ground level and the floor level is not more than 200 mm, or
  (ii) a normally occupied *floor area* which is accessible by a passenger type elevator or other platform equipped passenger elevating device from an entrance *storey* where the existing difference in elevation between the adjacent ground level and the entrance *storey* level is not more than 200 mm.

(3) Except as provided in Sentence (4), where existing interior walls or ceilings or floor assemblies or roof assemblies are substantially removed on any *storey* in an existing *building* and new interior walls, ceilings, floor assemblies or roof assemblies are installed, the *storey* shall be *sprinklered* if,
(a) the *storey* will contain a Group C *major occupancy*, and
(b) the *building* is over 3 *storeys* in *building height.*

(4) Sentence (3) does not apply where the *building*,
(a) conforms to Subclause 3.2.2.44.(1)(a)(ii), and
(b) contains *dwelling units* having *means of egress* conforming to Sentence 3.3.4.4.(8).

r_1 **(5)** Where existing interior walls or ceilings or floor assemblies or roof assemblies are substantially removed and new interior walls, ceilings, floor assemblies or roof assemblies are installed in an existing *building* or part of an existing *building* that is a retirement home regulated under the *Retirement Homes Act, 2010*, the following requirements apply:
(a) the retirement home shall be *sprinklered*,
(b) a voice communication system conforming to Article 3.2.4.23. shall be provided in the *building*, if Clause 3.2.6.8.(1)(b) or (c), as applicable, requires that such a voice communication system be provided in the *building*, and
(c) doors to *suites* and sleeping rooms not within *suites* in the retirement home, other than doors leading directly to the exterior, shall be equipped with self-closing devices.

11.3.4. Plumbing

11.3.4.1. Extension, Material Alteration or Repair

(1) Despite Subsections 11.3.1. to 11.3.3., when an existing *building* is extended or subject to material alteration or repair, Part 7 applies,
(a) to the design and *construction* of *plumbing* in the extensions and those parts of the *building* subject to material alteration and repair, and
(b) to *plumbing* which is adversely affected by the extension, alteration or repair.

11.3.5. Sewage Systems

11.3.5.1. Existing Septic Tanks

(1) Despite Subsections 11.3.1. to 11.3.3., where an existing *septic tank* is subject to material alteration, repair or replacement, the *construction* of the *septic tank* shall comply with Part 8.

Section 11.4. Performance Level Evaluation and Compensating Construction

11.4.1. General

11.4.1.1. Performance Level

(1) The *performance level* of a *building* after *construction* shall not be less than the *performance level* of the *building* prior to *construction*.

(2) For the purposes of Sentence (1), reduction of *performance level* shall be determined in accordance with Subsection 11.4.2.

(3) Where the proposed *construction* would reduce the *performance level* of an existing *building*, compensating *construction* shall be required in conformance with Subsection 11.4.3.

11.4.2. Reduction in Performance Level

11.4.2.1. Structural

(1) The *performance level* of an existing *building* is reduced where after proposed *construction* in all or part of an existing *building*,

(a) the *major occupancy* will change to a different *major occupancy*,
(b) the *occupant load* will increase by more than 15%, or
(c) the *live load* will increase due to change in use within the same *major occupancy*,

and the existing structural floor and roof framing systems and their supporting members after the *construction* are not adequate to support the proposed *dead loads* and *live loads*.

11.4.2.2. Increase in Occupant Load

(1) Except as provided in Sentences 11.4.2.5.(2) and (3), the *performance level* of an existing *building* is reduced where proposed *construction* will increase the *occupant load* of an existing *building* by more than 15%.

(2) The *performance level* of an existing *building* is reduced where proposed *construction* will increase the *occupant load* by 15% or less and the new *occupant load* will be more than 15% above the *occupant load* for which a fire alarm system is required under Sentence 3.2.4.1.(2).

(3) The *performance level* of an existing *building* is reduced where proposed *construction* will increase the *occupant load* by 15% or less and the new *occupant load* will be more than 15% above the existing *exit* capacity as required under Article 3.4.3.2.

11.4.2.3. Change of Major Occupancy

r_1 **(1)** Except as provided in Sentence 11.4.2.5.(4), the *performance level* of an existing *building* is reduced where proposed *construction* will result in,

(a) the change of the *major occupancy* of all or part of an existing *building* to another *major occupancy* of a greater *hazard index*,

(b) the conversion of a *suite* of a Group C *major occupancy* into more than one *suite* of Group C *major occupancy*,

(c) the conversion of a *suite* or part of a *suite* of a Group A, Division 2 or a Group A, Division 4 *major occupancy* into a *gaming premises*,

(d) the change of a *farm building* or part of a *farm building* to a *major occupancy*,

(e) the change of a *building* or part of a *building* to a *post-disaster building*,

(f) the change of a *building* or part of a *building* to a retirement home regulated under the *Retirement Homes Act, 2010*, or

(g) the change in use of a *building* or part of a *building* where the previous *major occupancy* of the *building* or part of the *building* cannot be determined.

r_1 **(2)** For the purpose of this Article and Sentences 11.4.2.1.(1) and 11.4.2.5.(4), the change of use set out in Clauses (1)(b) to (g) is also deemed to constitute a change in *major occupancy*.

(3) The *performance level* of an existing *building* is reduced where the early warning and evacuation systems requirements of other Parts for the proposed *major occupancy* exceed those of the existing *building*.

(4) The *performance level* of an existing *building* is reduced where the proposed *major occupancy* in the *building* is not separated from the adjoining *major occupancies* by *fire separations* having *fire-resistance ratings* conforming to Tables 3.1.3.1. and 11.4.3.4.B.

(5) The *performance level* of an existing *building* is reduced where the *occupancy* of all or part of an existing *building* of *combustible construction* is changed to a new *major occupancy* that would require the *building*, if it were a new *building*, to be *constructed* of *noncombustible construction*.

(6) Despite Clause (1)(a), the *performance level* of an existing *building* is reduced where proposed *construction* will result in the change of the *major occupancy* of all or part of an existing *building* to a Group C *major occupancy* in a *building* over 3 *storeys* in *building height*, except in a *building* conforming to Subclause 3.2.2.44.(1)(a)(ii) and having an egress facility conforming to Sentence 3.3.4.4.(8).

11.4.2.4. Plumbing

(1) The *performance level* of an existing *building* is reduced where the existing *building* is extended or subject to material alteration or repair, and *plumbing* in the existing *building* is adversely affected by the extension, alteration or repair.

11.4.2.5. Sewage Systems

(1) The *performance level* of an existing *building* is reduced where the existing *building* is extended or subject to material alteration or repair and a *sewage system* serving the existing *building* is adversely affected by the extension, alteration or repair of the existing *building*.

(2) Except as provided in Sentence (3), the *performance level* of an existing *building* is reduced where proposed *construction* will increase the *occupant load* of an existing *building*, and the new *occupant load* will result in the total daily design *sanitary sewage* flow of the *building*, calculated in accordance with Article 8.2.1.3., exceeding the capacity of any component of a *sewage system* serving the *building*.

(3) The *performance level* of an existing *dwelling unit* is reduced where *proposed construction* that,

(a) increases the number of bedrooms in the *dwelling unit*,

(b) exceeds 15% of the finished area of the *dwelling unit*, or
(c) adds new *plumbing fixtures* to the *dwelling unit*,

will result in the total daily design *sanitary sewage* flow of the *dwelling unit*, calculated in accordance with Article 8.2.1.3., exceeding the capacity of any component of a *sewage system* serving the *dwelling unit*.

(4) The *performance level* of an existing *building* is reduced where proposed *construction* will result in the change of a *major occupancy* of all or part of the existing *building* to another *major occupancy* and,
(a) the total daily design *sanitary sewage* flow of the proposed *major occupancy*, calculated in accordance with Article 8.2.1.3., exceeds the capacity of any component of a *sewage system* serving the *building*, or
(b) the type or amount of *sanitary sewage* which will, under the proposed *major occupancy*, be discharged to a *sewage system* serving the *building*, is prohibited by Article 8.1.3.1.

11.4.3. Compensating Construction

11.4.3.1. General (See Appendix A.)

(1) Where the *performance level* of an existing *building* is reduced under Subsection 11.4.2., compensating *construction* shall be carried out in accordance with this Subsection.

(2) Except as provided in Sentence (3), compensating *construction* required under this Subsection applies to the part of the *building* being altered and shall include,
(a) *fire separations*, with the required *fire-resistance ratings*, separating the part being altered from the *floor areas* immediately above and below and from the immediate adjacent areas, and
(b) *access to exits* and *exits* from the *building*, where the alteration adversely affects the *exit* system of the *building*.

(3) Compensating *construction* required under this Subsection applies to the existing *building systems* that are adversely affected by the proposed *construction*.

11.4.3.2. Structural

(1) Where the *performance level* of an existing *building* is reduced under Sentence 11.4.2.1.(1),
(a) remedial measures shall be taken to support the proposed loads, or
(b) the portion of the floor affected by the proposed loads shall be restricted to the loading it will support and signs stating the restrictions shall be posted.
(See Appendix A.)

11.4.3.3. Increase in Occupant Load (See Appendix A.)

(1) Where the *performance level* of an existing *building* is reduced under Sentence 11.4.2.2.(1), (2) or (3), the *building* shall be evaluated, and the early warning and evacuation systems shall be upgraded, in conformance with the applicable requirements of Table 11.4.3.3.

(2) Sentence (1) does not apply in a Group C *occupancy* where the new total *occupant load* is,
(a) 14 persons or fewer in a *boarding, lodging or rooming house*, except that where the *occupant load* is between 10 and 15 persons, an interconnected system of *smoke alarms* in corridors near stairways is required, or
(b) 16 persons or fewer in a *building* containing residential *suites* which are *dwelling units*, except that where the *occupant load* is between 10 and 17 persons, an interconnected system of *smoke alarms* in corridors near stairways is required.

(3) Where the *performance level* of an existing *building* is reduced under Sentence 11.4.2.2.(1), additional *construction* shall be required in order that the *building* or part of the *building* subject to the increase in *occupant load* conforms to the requirements of Sentence 6.2.2.1.(2), Subsection 3.7.4. and Article 9.31.1.1.

11.4.3.4. Change in Major Occupancy (See Appendix A.)

r_1 **(1)** Where the *performance level* of an existing *building* is reduced under Clause 11.4.2.3.(1)(a), (b), (c), (d), (e), or (g), additional upgrading shall be required in conformance with Table 11.4.3.4.A. and so that the *construction index* of the *building* is increased to at least equal the *hazard index* of the new *major occupancy* that the *building* is to support.

(2) A *building* or part of the *building* subject to a change of *major occupancy* shall conform to the requirements of Subsection 3.2.6., Sections 3.7., 3.11., 3.12., Sentences 6.2.2.1.(2), 6.2.3.9.(1) and 6.2.4.7.(10), Subsections 9.5.1. and 9.5.3. to 9.5.10., Section 9.7., Subsection 9.10.17., Sections 9.31. and 9.32., and Subsections 9.34.1. to 9.34.3. as they apply to the new *major occupancy* that the *building* or part of the *building* is to support.

(3) Where the *performance level* of an existing *building* is reduced under Sentence 11.4.2.3.(3), the *building* shall be evaluated, and the early warning and evacuation systems shall be upgraded, in conformance with the applicable requirements of Table 11.4.3.3.

(4) Where the *performance level* of an existing *building* is reduced under Sentence 11.4.2.3.(4), upgrading of the *fire separations* shall be required in conformance with the applicable requirements of Article 3.1.3.1. and Table 11.4.3.4.B.

(5) Where the *performance level* is reduced under Sentence 11.4.2.3.(5), the requirement for *noncombustible construction* is satisfied if the *building* is *sprinklered*.

(6) Where the *performance level* is reduced under Sentence 11.4.2.3.(6), the *storey* subject to the change shall be *sprinklered*.

r_1 **(7)** Where the *performance level* of an existing *building* is reduced under Clause 11.4.2.3.(1)(f), the following requirements apply:

(a) the retirement home shall be *sprinklered*,

(b) a voice communication system conforming to Article 3.2.4.23. shall be provided in the *building*, if Clause 3.2.6.8.(1)(b) or (c), as applicable, requires that such a voice communication system be provided in the *building*, and

(c) doors to *suites* and sleeping rooms not within *suites* in the retirement home, other than doors leading directly to the exterior, shall be equipped with self-closing devices.

11.4.3.5. Plumbing

(1) Where the *performance level* of an existing *building* is reduced under Sentence 11.4.2.4.(1), upgrading of *plumbing* in the existing *building* which is adversely affected by the extension, alteration or repair shall be required in conformance with Part 7.

11.4.3.6. Sewage Systems

(1) Where the *performance level* of an existing *building* is reduced under Article 11.4.2.5., upgrading of a *sewage system* which is adversely affected by the *construction*, increase in *occupant load*, increase in the total daily design *sanitary sewage* flow or change in amount or type of *sanitary sewage* shall be required in conformance with Part 8.

Section 11.5. Compliance Alternatives

11.5.1. Compliance Alternatives (See Appendix A.)

11.5.1.1. Compliance Alternatives

(1) A *compliance alternative* shown in Table 11.5.1.1.A., 11.5.1.1.B., 11.5.1.1.C., 11.5.1.1.D/E. or 11.5.1.1.F. may be substituted for a requirement contained in Part 3, 4, 6 or 8 where the *chief building official* is satisfied that compliance with the requirement is impracticable because,
(a) of structural or *construction* difficulties, or
(b) it is detrimental to the preservation of a *heritage building*.

(2) A *compliance alternative* shown in Table 11.5.1.1.A., 11.5.1.1.B., 11.5.1.1.C., 11.5.1.1.D/E. or 11.5.1.1.F. may be substituted for a requirement contained in Part 9 or 12 without satisfying the *chief building official* that compliance with the requirement is impracticable.

Table 11.2.1.1.A.
Construction Index
Forming Part of Sentence 11.2.1.1.(1)

Fire-Resistance Rating			Type of *Construction*	*C.I.*(2)
Floors over *Basement*	Other Floors	Roof		
3 h	3 h	1.5 h	*Noncombustible*	8(1)
2 h	2 h	1 h	*Noncombustible*	7
1 h	1 h	45 min	*Noncombustible*	6
45 min	45 min	0 h	*Noncombustible*	5
45 min	45 min	45 min	*Heavy Timber*	5
45 min	45 min	45 min	*Combustible*	5
45 min	0 h	0 h	*Noncombustible*	4
45 min	45 min	0 h	*Combustible*	4
30 min	0 h	0 h	*Noncombustible*	3
30 min	30 min	0 h	*Combustible*	3
0 h	30 min	0 h	*Combustible*	2
0 h	0 h	0 h	*Combustible*	1(1)
Column 1	2	3	4	5

Notes to Table 11.2.1.1.A.:
(1) *C.I.* of 1 is lowest fire protection *performance level* and *C.I.* of 8 is highest.
(2) Take highest rating for *C.I.* from Table 11.2.1.1.A. for existing *building*.

Table 11.5.1.1.A. (Cont'd)
Compliance Alternatives for Assembly Occupancies
Forming Part of Article 11.5.1.1.

NUMBER	PART 4 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
A77	4.1.8.	The requirements under this Subsection do not apply.
Column 1	2	3

NUMBER	PART 6 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
A78	6.2.2.1.(2)	Required outdoor air rates may be provided by mechanical, natural or combination of natural and mechanical means.
Column 1	2	3

NUMBER	PART 8 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
A79	8.2.1.4.	Existing clearances acceptable where a *sewage system* is replaced with another *sewage system* within the same class and the capacity of the replacement *sewage system* does not exceed the capacity of the existing *sewage system*.
A80	8.2.1.4.	Existing clearances are acceptable where a replacement *sewage system* requires lesser clearances than those required in Part 8 for the existing *sewage system.*
Column 1	2	3

r1

Table 11.5.1.1.B.
Compliance Alternatives for Care, Care and Treatment or Detention Occupancies
Forming Part of Article 11.5.1.1.

NUMBER	PART 3 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B1	3.1.5.2. to 3.1.5.4.; 3.1.5.6.	Existing acceptable.
B2	3.1.5.7. to 3.1.5.10.	Except for exposed foamed plastics, existing acceptable.
B3	3.1.5.15. to 3.1.5.17.; 3.1.5.21.; 3.1.5.23.	Existing acceptable.
B4	3.1.7.1.	*Fire-resistance ratings* may also be used where they are based on: 1. HUD Rehabilitation Guidelines, "Guideline on Fire Ratings of Archaic Materials and Assemblies". 2. DBR Technical Paper No. 194, "Fire Endurance of Protected Steel Columns and Beams". 3. DBR Technical Paper No. 207, "Fire Endurance of Unit Masonry Walls". 4. DBR Technical Paper No. 222, "Fire Endurance of Light-Framed and Miscellaneous Assemblies".
B5	3.1.7.5.(3)	Existing assemblies required to be of *noncombustible construction* may be supported by *combustible construction* having at least the same *fire-resistance rating* as that supported.
B6	3.1.8.5.(2)	(a) Existing functional and sound doors in existing *buildings* that are either hollow metal or kalamein and containing wired glass at least 6 mm thick and conforming to Sentence 3.1.8.14.(2) are permitted in lieu of doors not required to exceed 45 min, (b) all existing functional and sound hollow metal or kalamein doors which carry existing 1.5 h labels are acceptable in lieu of current 1.5 h labels and may contain wired glass panels not exceeding 0.0645 m², at least 6 mm thick and conforming to Sentence 3.1.8.14.(2), and (c) every fire door, window assembly or glass block used as a *closure* in a required *fire separation* shall be installed in conformance with good engineering practice.
B7	3.1.8.7. to 3.1.8.9.	*Fire dampers* or *fire stop flaps* are not required to be installed in existing ducts at penetrations of existing *fire separations*.
B8	3.1.8.10.(1)	For existing unlabelled doors in existing *buildings*, at least 45 mm solid core wood or metal clad are acceptable.
B9	3.1.8.11.(1)	Existing functionally operable self-closing devices acceptable, including devices with "pause" hardware.
B10	3.1.8.12.(1) and (2)	Between patient or inmate rooms, and corridors, existing "pause" type self-closing devices may be used as hold-open devices where functionally operable.
B11	3.1.8.13.	Existing functionally operable latching devices, excluding draw bolts, are acceptable.
B12	3.1.8.14.(1) and (2)	Except in zone or *exit fire separations* not required to be greater than 1 h, existing wired glass installations are acceptable provided they are set in steel or metal clad frames.
B13	3.1.8.14.(3)	Existing glass block acceptable.
B14	3.1.8.15. to 3.1.8.17.	Existing acceptable.
B15	3.1.9.5.(1) and (2)	Existing openings in existing ceiling membranes to remain. Existing openings may be moved to another location in the same ceiling provided the aggregate area of openings does not increase and are not cumulative, and the existing opening is blocked up to provide the same rating as the ceiling assembly.
Column 1	2	3

Table 11.5.1.1.B. (Cont'd)
r_1 Compliance Alternatives for Care, Care and Treatment or Detention Occupancies
Forming Part of Article 11.5.1.1.

NUMBER	PART 3 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B16	3.1.11.	Where the concealed space is being materially altered, provide smoke or heat detection in that space in lieu of *fire blocks* and tie into fire alarm system.
B17	3.1.14.; 3.1.15.	Existing roof assemblies and roof coverings acceptable.
B18	3.2.3.	Existing windows. (a) Existing windows in walls may be relocated to another part of the wall, provided the existing opening is blocked up to provide the same fire rating for the wall, and the projection of the new opening, at a right angle to the property line onto another *building*, lies no closer than 300 mm from a window in such other *building*, where the "opposite" window is less than 2 400 mm from the opposite new opening, and (b) except relocation of units, to be restricted to the same *fire compartment* and shall conform to the requirements of Article 3.2.3.14. or 9.10.12.3. where applicable, or (c) where a *building* does not satisfy the requirements of Subsection 3.2.3. for the amount of openings facing a yard or space that does not have sufficient *limiting distance*, such existing openings are allowed to be relocated provided: (i) such openings are not increased in size and they are protected with wired glass in steel frames conforming to Sentence 3.1.8.14.(2), or (ii) the *building* is *sprinklered*.
B19	3.2.3.6.(3)	Existing roof soffit projections acceptable.
B20	3.2.4.	(a) Existing fire alarm system may remain except that Article 3.2.4.5. does not apply where the fire safety plan (as described in the Fire Code made under the *Fire Protection and Prevention Act, 1997*) for the *building* addresses the intent of Subsection 3.2.4. (i.e. "stage" system, electrical supervision, detection as required, Fire Department connection and emergency power supply), and (b) extension of an existing system must ensure continuity and compatibility, and integrity of the system.
B21	3.2.4.9.(2)(e)	Does not apply to existing installations in *buildings*.
B22	3.2.4.10.(5)(c)	Does not apply to existing installations in *buildings*.
B23	3.2.5.1.; 3.2.5.2.	Existing access to an existing *occupancy* acceptable. Where the existing *building* is changed to a "B" *occupancy*, existing access are acceptable.
B24	3.2.5.3.(1)	Existing acceptable, except where a change in *occupancy* occurs to a "B1" or "B2" *occupancy*.
B25	3.2.5.3.(2)	Existing acceptable.
B26	3.2.5.4. to 3.2.5.6.	Existing access route to existing *occupancy* is acceptable if the *building* is *sprinklered*. Where existing *building* is changed to a "B" *occupancy*, access route shall be provided.
B27	3.2.5.7.; 3.2.5.18.	Does not apply except where a change in *occupancy* occurs to a "B1" or "B2" *occupancy*, where occupants are not normally evacuated from the *building*.
Column 1	2	3

Table 11.5.1.1.B. (Cont'd)
r_1 Compliance Alternatives for Care, Care and Treatment or Detention Occupancies
Forming Part of Article 11.5.1.1.

NUMBER	PART 3 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B28	3.2.5.13.	Existing sprinkler systems in existing *buildings* that do not conform to NFPA 13 may be altered, added to, or extended from the existing system without complying with NFPA 13, provided the system is operational and adequate with respect to coverage, water supply and controls, and provided the system is evaluated by a qualified designer.
B29	3.2.9.	Does not apply except where a change in *occupancy* occurs to a Group B *occupancy*, where occupants are not normally evacuated from the *building*.
B30	3.3.1.9.	Existing width of *public corridors* of not less than 914 mm is acceptable, except as provided in Sentence 3.3.3.3.(2).
B31	3.3.1.10.; 3.3.1.11.	Existing door swings may remain in *heritage buildings*, existing or being restored, with no change in *major occupancy* and with *occupant load* no greater than 100.
B32	3.3.1.12.	Existing doors acceptable.
B33	3.3.1.15.	Existing acceptable.
B34	3.3.1.16.	Existing non-conforming capacities of *access to exits* are acceptable, provided that the excessive capacity is no greater than 15% and, (a) corridor *fire separations* are rated to Code plus early warning system provided, or (b) there are sprinklers, plus *smoke alarms* in *suites*.
B35	3.3.1.17.	Existing acceptable.
B36	3.3.1.18.	Existing stained, etched, bevelled, leaded or figured glass acceptable.
B37	3.3.3.3.(1)	Existing dead end corridors acceptable with 30 min *fire separation* of corridor plus sprinklering of *floor area*, provided the *occupant load* is not greater than 10 persons and travel distance not greater than 6 m plus corridor width to "*exit* choice" point.
B38	3.3.3.7.	45 min *fire separation* acceptable.
B39	3.3.5.4.(1); 3.3.5.7.(3)	Need not comply where a gasketed door and self closer are provided in the existing *fire separation*.
B40	3.4.1.8.	Existing stained, etched, bevelled, leaded or figured glass acceptable.
B41	3.4.2.5.(1)	Existing travel distance acceptable where *floor area* is *sprinklered* and provided *fire separations* comply with Part 3.
B42	3.4.3.2.(7)	Existing acceptable provided there is no change in *occupancy* to a "B2" or "B3".
B43	3.4.3.4.	Existing acceptable.
B44	3.4.3.5.	Existing headroom clearance of not less than 1 980 mm is acceptable.
B45	3.4.5.1.(2) and (9)	Existing illuminated legible *exit* signs are acceptable.
B46	3.4.6.2.	Existing acceptable, if visually apparent.
B47	3.4.6.3.(1)	Existing acceptable with rise no greater than 3.7 m.
B48	3.4.6.4.(1)	Existing acceptable provided there is no change in *occupancy* to a "B2" or "B3".
B49	3.4.6.4.(2) to (4)	Existing acceptable.
B50	3.4.6.5.(2) to (11)	Existing acceptable.
Column 1	2	3

Table 11.5.1.1.B. (Cont'd)
r_1 Compliance Alternatives for Care, Care and Treatment or Detention Occupancies
Forming Part of Article 11.5.1.1.

NUMBER	PART 3 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B51	3.4.6.6.(2) to (5)	Existing acceptable.
B52	3.4.6.7.(1)	Existing acceptable.
B53	3.4.6.8.	Existing acceptable.
B54	3.4.6.9.	Existing acceptable where there is no change in *major occupancy* or increase in *occupant load* greater than 15%.
B55	3.4.6.11.(1), (2) and (4)	Existing acceptable.
B56	3.4.6.12.	Existing acceptable in *public heritage buildings*.
B57	3.4.6.16.(2) and (3)	Existing functionally operable panic hardware acceptable.
B58	3.4.6.18.(1)(c)	Existing access to existing *occupancy* is acceptable. Where the existing *building* is changed to a "B" *occupancy*, existing access is acceptable.
B59	3.4.7.2.	*Combustible* fire escapes which are protected from fire in accordance with Sentence 3.2.3.14.(2) are permitted or may be reconstructed or recreated (as in the case of a *heritage building*). Where serving non-ambulatory persons, minimum width shall be 1 100 mm.
B60	3.5.1.	Existing acceptable, except where *building* is classified under Subsection 3.2.6.
B61	3.6.2.1.(7)	45 min *fire separation* acceptable.
B62	3.6.2.6.	Existing acceptable.
B63	3.6.2.7.(1)	2 h *fire separation* acceptable.
B64	3.6.3.1.(1) to (5)	45 min *fire separation* acceptable.
B65	3.6.3.3.(1), (3), (4)(a), (5) and (10)	Existing acceptable.
B66	3.6.3.3.(2)(a)	45 min *fire separation* acceptable.
B67	3.6.4.	Existing acceptable, except where a change in *occupancy* occurs to a Group B *occupancy*.
B68	3.7.1.3.(1)	Existing acceptable.
B69	3.7.2.1.(2)	The minimum glass areas may be reduced by 50%.
B70	3.7.4.	Where the *occupant load* is increased by more than 15% above the capacity of the existing facilities, facilities to be added to accommodate the increase.
B71	3.8.1.2.	Existing accessible entrance acceptable. (See *C.A.* B75) Existing curb ramp conforming to Sentence 3.8.3.2.(3) is acceptable.
B72	3.8.1.3.(1)	Existing unobstructed width of 920 mm minimum is acceptable.
B73	3.8.1.3.(4)	Existing unobstructed space not less than 1 500 mm in width and 1 500 mm in length located not more than 30 m apart is acceptable.
B74	3.8.3.3.(1)	Existing doorway acceptable, provided not less than 810 mm wide.
B75	3.8.3.4.(1)(a)	Existing ramp acceptable, provided not less than 870 mm between handrails.
Column 1	2	3

Table 11.5.1.1.B. (Cont'd)
r_1 Compliance Alternatives for Care, Care and Treatment or Detention Occupancies
Forming Part of Article 11.5.1.1.

NUMBER	PART 3 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B76	3.8.3.8.(1)(d)(i)	Existing grab bar is acceptable.
B77	3.8.3.13.(1)(f)	Existing grab bar is acceptable.
Column 1	2	3

NUMBER	PART 4 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B78	4.1.8.	The requirements under this Subsection do not apply.
Column 1	2	3

NUMBER	PART 6 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B79	6.2.2.1.(2)	Required outdoor air rates may be provided by mechanical, natural or combination of natural and mechanical means.
Column 1	2	3

NUMBER	PART 8 REQUIREMENTS	PART 11 *COMPLIANCE ALTERNATIVE*
B80	8.2.1.4.	Existing clearances acceptable where a *sewage system* is replaced with another *sewage system* within the same class and the capacity of the replacement *sewage system* does not exceed the capacity of the existing *sewage system*.
B81	8.2.1.4.	Existing clearances are acceptable where a replacement *sewage system* requires lesser clearances than those required in Part 8 for the existing *sewage system.*
Column 1	2	3

Table 1.2.2.1.(4)
General Review
Forming Part of Sentence 1.2.2.1.(1)

	Building Classification by *Major Occupancy*	*Building* Description	General Review by:
	Assembly occupancy only	Every *building*	*Architect* and *professional engineer*(1)
	Assembly occupancy and any other *major occupancy* except *industrial*	Every *building*	*Architect* and *professional engineer*(1)
r_1	*Care, care and treatment* or *detention occupancy* only	Every *building*	*Architect* and *professional engineer*(1)
r_1	*Care, care and treatment* or *detention occupancy* and any other *major occupancy* except *industrial*	Every *building*	*Architect* and *professional engineer*(1)
	Residential occupancy only	Every *building* that exceeds 3 *storeys* in *building height*	*Architect* and *professional engineer*(1)
		Every *building* that exceeds 600 m^2 in *gross area* and that contains a *residential occupancy* other than a *dwelling unit* or *dwelling units*	*Architect*(2)
	Residential occupancy only	Every *building* that exceeds 600 m^2 in *gross area* and contains a *dwelling unit* above another *dwelling unit*	*Architect*(2)
		Every *building* that exceeds 600 m^2 in *building area*, contains 3 or more *dwelling units* and has no *dwelling unit* above another *dwelling unit*	*Architect*(2)
r_1	*Residential occupancy* and any other *major occupancy* except *assembly*, *care, care and treatment, detention* or *industrial occupancy*	Every *building* that exceeds 600 m^2 in *gross area* or 3 *storeys* in *building height*	*Architect* and *professional engineer*(1)
	Business and personal services occupancy only	Every *building* that exceeds 600 m^2 in *gross area* or 3 *storeys* in *building height*	*Architect* and *professional engineer*(1)
r_1	Business and personal services occupancy and any other major occupancy except *assembly, care*, *care and treatment*, *detention* or *industrial occupancy*	Every building that exceeds 600 m^2 in gross area or 3 storeys in building height	Architect and professional engineer(1)
	Mercantile occupancy only	Every *building* that exceeds 600 m^2 in *gross area* or 3 *storeys* in *building height*	*Architect* and *professional engineer*(1)
r_1	*Mercantile occupancy* and any other *major occupancy* except *assembly*, *care, care and treatment, detention* or *industrial occupancy*	Every *building* that exceeds 600 m^2 in *gross area* or 3 *storeys* in *building height*	*Architect* and *professional engineer*(1)
	Industrial occupancy only and where there are no subsidiary *occupancies*	Every *building* that exceeds 600 m^2 in *gross area* or 3 *storeys* in *building height*	*Architect* or *professional engineer*(3)
	Industrial occupancy and one or more other *major occupancies* where the portion of the area occupied by one of the other *major* or subsidiary *occupancies* exceeds 600 m^2	The non-industrial portion of every *building*	*Architect* and *professional engineer*(1)
		The industrial portion of every *building*	*Architect* or *professional engineer*(3)
	Industrial occupancy and one or more other *major occupancies* where no portion of the area occupied by one of the other *major* or subsidiary *occupancies* exceeds 600 m^2	Every *building* that exceeds 600 m^2 in *gross area* or 3 *storeys* in *building height*	*Architect* or *professional engineer*(3)
	Column 1	2	3

Notes to Table 1.2.2.1.:

(1) An *architect* shall provide general review services within the practice of architecture and a *professional engineer* shall provide general review services within the practice of professional engineering.
(2) An *architect* may engage a *professional engineer* to provide general review services within the practice of professional engineering.
(3) Only a *professional engineer* may provide general review services within the practice of professional engineering.
(4) Requirements for general review by an *architect* or *professional engineer* or both for the *construction*, including, for greater certainty, enlargement or alteration, of a *building* are set out in the *Architects Act* and the *Professional Engineers Act*.

1.2.2.2. Restriction for General Review

(1) Only an *architect* may carry out or provide the general review of the *construction* of a *building*,
(a) that is *constructed* in accordance with a design prepared or provided by an *architect*, or
(b) in relation to services that are provided by an *architect* in connection with the design in accordance with which the *building* is *constructed*.

(2) Only a *professional engineer* may carry out or provide the general review of the *construction* of a *building*,
(a) that is *constructed* in accordance with a design prepared or provided by a *professional engineer*, or
(b) in relation to services that are provided by a *professional engineer* in connection with the design in accordance with which the *building* is *constructed*.

1.2.2.3. Demolition of a Building

(1) The applicant for a permit respecting the *demolition* of a *building* shall retain a *professional engineer* to undertake the general review of the project during *demolition*, where,
(a) the *building* exceeds 3 *storeys* in *building height* or 600 m² in *building area*,
(b) the *building* structure includes pre-tensioned or post-tensioned members,
(c) it is proposed that the *demolition* will extend below the level of the footings of any adjacent *building* and occur within the angle of repose of the *soil*, as drawn from the bottom of such footings, or
(d) explosives or a laser are to be used during the course of *demolition*.

Section 1.3. Permits and Inspections

1.3.1. Permits

1.3.1.1. Requirement for Permits

(1) A person is exempt from the requirement to obtain a permit under section 8 of the Act,
(a) for the *demolition* of a *farm building* located on a farm,
(b) subject to Sentence (2), for the *construction* or *demolition* of a *building* in territory without municipal organization, or
(c) for the *construction* of a Class 1 *sewage system*.

(2) The exemption in Clause (1)(b) from the requirement to obtain a permit does not apply to the *construction* of a *sewage system* in territory without municipal organization.

(3) The application for a permit respecting the *demolition* of a *building* to which Sentence 1.2.2.3.(1) applies shall include descriptions of the structural design characteristics of the *building* and the method of *demolition* of the *building*.

(4) No person shall commence *demolition* of a *building* or any part of a *building* before the *building* has been vacated by the occupants except where the safety of the occupants is not affected.

(5) A tent or group of tents is exempt from the requirement to obtain a permit under section 8 of the Act and is exempt from compliance with the Code provided that the tent or group of tents are,
(a) not more than 60 m^2 in aggregate ground area,
(b) not attached to a *building*, and
(c) constructed more than 3 m from other structures.

1.3.1.4. Permits Under Section 10 of the Act

r_1 **(1)** Except as provided in Sentence (2), the following changes in use of a *building* or part of a *building* constitute an increase in hazard for the purposes of section 10 of the Act and require a permit under section 10 of the Act:

(a) a change of the *major occupancy* of all or part of a *building* that is designated with a "Y" in Table 1.3.1.4. takes place,
(b) a *suite* of a Group C *major occupancy* is converted into more than one *suite* of Group C *major occupancy*,
(c) a *suite* or part of a *suite* of a Group A, Division 2 or a Group A, Division 4 *major occupancy* is converted to a *gaming premises*,
(d) a *farm building* or part of a *farm building* is changed to a *major occupancy*,
(e) a *building* or part of a *building* is changed to a *post-disaster building*,
(f) a *building* or part of a *building* is changed to a retirement home regulated under the *Retirement Homes Act, 2010*, or
(g) the use of a *building* or part of a *building* is changed and the previous *major occupancy* of the *building* or part of the *building* cannot be determined.

(2) A person is exempt from the requirement to obtain a permit under section 10 of the Act where the change in use of the *building* or part of the *building* will result from proposed *construction* and a permit under section 8 of the Act has been issued in respect of such *construction*.

(3) A person is exempt from the requirement to obtain a permit under section 10 of the Act for the change of use of a *building* in unorganized territory.

Table 1.3.1.4.
Permit Required for Change of Use
Forming Part of Sentence 1.3.1.4.(1)(1)

		FROM(2)												
		A-1	A-2	A-3	A-4	B-1	B-2	B-3	C	D	E	F-1	F-2	F-3
TO(3)	A-1	N(5)	Y	Y	N(5)	Y	Y	Y	Y	Y	Y	Y	Y	Y
	A-2	Y	N(5)	Y	N(5)	Y	Y	Y	Y	Y	Y	Y	Y	Y
	A-3	Y	Y	N(5)	N(5)	Y	Y	Y	Y	Y	Y	Y	Y	Y
	A-4	Y	Y	Y	N(5)	Y	Y	Y	Y	Y	Y	Y	Y	Y
	B-1	Y	Y	Y	N(5)	N(5)	Y	Y	Y	Y	Y	Y	Y	Y
	B-2	Y	Y	Y	N(5)	Y	N(5)	Y	Y	Y	Y	Y	Y	Y
	B-3	Y	Y	Y	N(5)	Y	N(5)	N(5)	Y	Y	Y	Y	Y	Y
	C	Y	Y	Y	N(5)	Y	N(5)	N(5)	(4)	Y	Y	Y	Y	Y
	D	N(5)	N(5)	Y	N(5)	Y	N(5)	N(5)	Y	N(5)	Y	Y	N(5)	N(5)
	E	Y	Y	Y	N(5)	Y	Y	Y	Y	Y	N(5)	Y	Y	Y
	F-1	Y	Y	Y	N(5)	Y	Y	Y	Y	Y	Y	N(5)	Y	Y
	F-2	Y	Y	Y	N(5)	Y	Y	Y	Y	Y	Y	N(5)	N(5)	Y
	F-3	Y	N(5)	Y	N(5)	Y	Y	Y	Y	N(5)	N(5)	N(5)	N(5)	N(5)
Col. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Notes to Table 1.3.1.4.:

(1) See Clause 1.3.1.4.(1)(a) and Clauses 3.17.1.1.(1)(a) and 9.40.1.1.(1)(a) of Division B.
(2) *Major occupancy* of all or part of a *building* before change of use.
(3) *Major occupancy* of all or part of a *building* after change of use.
(4) See Clause 1.3.1.4.(1)(b) and Clauses 3.17.1.1.(1)(b), 9.40.1.1.(1)(b) and 11.4.2.3.(1)(b) of Division B.
(5) "N" is only applicable where the *major occupancy* of the entire *suite* is changed.

1.3.1.5. Conditional Permits

(1) The *chief building official* shall not issue a conditional permit for any stage of *construction* under subsection 8(3) of the Act unless compliance with the following applicable laws has been achieved in respect of the proposed *building* or *construction:*

(a) regulations made by a conservation authority under clause 28(1)(c) of the *Conservation Authorities Act* with respect to permission of the authority for the *construction* of a *building* or structure if, in the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development,
(b) section 5 of the *Environmental Assessment Act* with respect to the approval of the Minister or the Environmental Review Tribunal to proceed with an undertaking,
(c) subsection 24(3) of the *Niagara Escarpment Planning and Development Act,*
(d) subsection 27(3) of the *Ontario Heritage Act*,
(e) subsection 30(2) of the *Ontario Heritage Act* with respect to a consent of the council of a *municipality* to the alteration or *demolition* of a *building* where the council of the *municipality* has given a notice of intent to designate the *building* under subsection 29(3) of that Act,
(f) section 33 of the *Ontario Heritage Act* with respect to the consent of the council of a *municipality* for the alteration of property,
(g) section 34 of the *Ontario Heritage Act* with respect to the consent of the council of a *municipality* for the *demolition* of a *building*,
(h) section 34.5 of the *Ontario Heritage Act* with respect to the consent of the Minister to the alteration or *demolition* of a designated *building*,
(i) subsection 34.7(2) of the *Ontario Heritage Act* with respect to a consent of the Minister to the alteration or *demolition* of a *building* where the Minister has given a notice of intent to designate the *building* under section 34.6 of that Act,
(j) by-laws made under section 40.1 of the *Ontario Heritage Act*,
(k) section 42 of the *Ontario Heritage Act* with respect to the permit given by the council of a *municipality* for the erection, alteration or *demolition* of a *building*.

(2) For the purposes of issuing a conditional permit under subsection 8(3) of the Act, a person is exempt from the requirement in clause 8(3)(a) of the Act of compliance with by-laws passed under sections 34 and 38 of the *Planning Act* where,

(a) a committee of adjustment has made a decision under section 45 of the *Planning Act* authorizing one or more minor variances from the provisions of any by-laws made under sections 34 and 38 of that Act,
(b) such minor variance or variances result in the achievement of full compliance with such by-laws, and
(c) no person informed the committee of adjustment of objections to the minor variances either in writing or in person at the hearing of the application.

(3) For the purposes of issuing a conditional permit under subsection 8(3) of the Act, a person is exempt from the requirement in clause 8(3)(a) of the Act of compliance with by-laws passed under sections 34 and 38 of the *Planning Act* where the *construction* in respect of which the conditional permit is issued is required in order to comply with an order issued under subsection 21(1) of the *Fire Protection and Prevention Act, 1997* or under subsection 15.9(4) of the Act.

(4) A permit issued under subsection 8(3) of the Act shall indicate its conditional nature.

1.3.1.6. Information to be Given to Tarion Warranty Corporation

(1) This Article prescribes, for the purposes of subsection 8(8.1) of the Act, the information relating to permits issued under section 8 of the Act and the applications for those permits that the *chief building official* is required to give to *Tarion Warranty Corporation* and the time within which the information is required to be given.

(2) The *chief building official* shall give the following information to *Tarion Warranty Corporation* with respect to permits issued under section 8 of the Act in respect of the *construction* of *buildings* described in Sentence (4),

(a) the dates the permits are issued and the numbers or other identifying symbols for the permits, and

Part 3

Qualifications

Section 3.1. Qualifications for Chief Building Officials and Inspectors

3.1.1. Scope

3.1.1.1. Scope

(1) Except as provided in Sentence (2), this Section prescribes, for the purposes of subsections 15.11(1), (2) and (3) of the Act,

(a) the qualifications that a person must satisfy to be appointed and to remain appointed as,
  (i) a *chief building official* under the Act, or
  (ii) an *inspector* who has the same powers and duties as a *chief building official* in relation to *plumbing*,

(b) the qualifications that a person must satisfy to be appointed and to remain appointed as,
  (i) an *inspector* who has the same powers and duties as a *chief building official* in relation to *sewage systems*, or
  (ii) an *inspector* whose duties include plans review or inspection of *sewage systems* under the Act, and

(c) the qualifications that a person must satisfy to be appointed and to remain appointed as an *inspector* under the Act, other than an *inspector* described in Subclause (a)(ii) or (b)(i) or (ii).

(2) The qualification requirements for *chief building officials* and *inspectors* in Sentence (1) do not apply to plans review and inspection of,

(a) site services including,
  (i) surface drainage, and
  (ii) *plumbing* located underground either outside a *building* or under a *building*,

e1 (b) *construction* of a factory-built house certified to CSA A277, "Procedure for Factory Certification of Buildings",

e1 (c) *construction* of a mobile home conforming to CSA Z240 MH Series, "Manufactured Homes",

(d) *construction* of a park model trailer conforming to CAN/CSA-Z241 Series, "Park Model Trailers", or

(e) signs.

3.1.2. Chief Building Officials

3.1.2.1. Qualifications

(1) The following are prescribed as qualifications for a person to be appointed and to remain appointed under the Act as a *chief building official* or as an *inspector* who has the same powers and duties as a *chief building official* in relation to *sewage systems* or *plumbing*:

(a) the person shall successfully complete the examination program administered or authorized by the Ministry of Municipal Affairs and Housing relating to the person's knowledge of the Act and this Code and the powers and duties of *chief building officials*,

(b) if, under subsection 22(2) of the Act, the person will also exercise any of the powers or perform any of the duties of an *inspector*, the person shall also have the qualifications contained in Sentence 3.1.4.1.(1), and

(c) the person shall file the information set out in Sentence 3.1.6.1.(1) with the *director* in a form established by the *director*.

(2) A person who, on December 31, 2013, has the qualifications set out in Sentence 3.1.2.1.(1) of Ontario Regulation 350/06 (Building Code) is deemed to have the qualifications set out in Sentence (1).

3.1.3. Supervisors and Managers

3.1.3.1. Qualifications

(1) The following are prescribed as the qualifications for a person to be appointed and to remain appointed under the Act as an *inspector* whose duties are solely the supervision or management of *inspectors*:

(a) the person shall successfully complete the examination program administered or authorized by the Ministry of Municipal Affairs and Housing relating to the person's knowledge of the Act and this Code and the powers and duties of *chief building officials*,

(b) the person shall successfully complete the examination program administered or authorized by the Ministry of Municipal Affairs and Housing relating to the person's knowledge of the Act and this Code in any one category of qualification set out in Column 2 of Table 3.5.2.1., and

(c) the person shall file the information set out in Sentence 3.1.6.1.(1) with the *director* in a form established by the *director*.

(2) A person who, on December 31, 2013, has the qualifications set out in Sentence 3.1.3.1.(1) of Ontario Regulation 350/06 (Building Code) is deemed to have the qualifications set out in Sentence (1).

3.1.4. Inspectors

3.1.4.1. Qualifications

(1) Except as provided in Article 3.1.4.2. or 3.1.4.3., the following are prescribed as qualifications for a person to be appointed and to remain appointed under the Act as an *inspector* whose duties include plans review or inspection under the Act:

(a) the person shall successfully complete the examination program administered or authorized by the Ministry of Municipal Affairs and Housing relating to the person's knowledge of the Act and this Code in the category or categories of qualifications in Column 2 of Table 3.5.2.1. that correspond to the types of *buildings* set out in Column 3 of Table 3.5.2.1. in respect of which the person will exercise the powers or perform the duties of an *inspector* under the Act, and

(b) the person shall file the information set out in Sentence 3.1.6.1.(1) with the *director* in a form established by the *director*.

(2) A person who, on December 31, 2013, has the qualifications set out in Sentence 3.1.4.1.(1) of Ontario Regulation 350/06 (Building Code) is deemed to have the qualifications set out in Sentence (1).

3.1.4.2. Qualifications for Intern Inspectors

(1) A person may be appointed or remain appointed under the Act as an intern *inspector* whose duties include supervised plans review or inspection under the Act, even if the person does not have the qualifications set out in Articles 3.1.4.1. and 3.1.5.1., provided the person is enrolled in an internship program approved by the *Minister*.

(2) An intern *inspector* who is exempt under Sentence (1) shall be supervised by an *inspector* or *chief building official* who meets the category of qualification in respect of which the intern *inspector* will exercise the powers or perform the duties.

Index(1)

(1) Items contained in the Index are referenced to the numbering system used in this Code instead of to page numbers.

References occur in Division B unless noted as follows:
[A] - references occur in Division A
[C] - references occur in Division C

A

C

F

S

2012 Building Code Compendium

Volume 2

September 1, 2013 update

Issued September 1, 2013

COMMENCEMENT

Supplementary Standards SA-1, SB-1 to SB-13 and SC-1 come into force on the 1st day of January, 2014.

See "Code Amendment History" page in the Preface of Volume 1 for information concerning amendments to Supplementary Standards issued through Minister's Rulings.

a_1 Amendment made to Appendix A or B issued for January 1st, 2014.

EDITORIAL

e_1 Editorial correction issued for January 1st, 2014.

COVER PHOTO CREDITS

1	2	3	4
5	6	7	8

1. Stephen Hawking Centre at the Perimeter Institute of Theoretical Physics; Teeple Architects Inc.; Scott Norsworthy Photography
2. Lawren Harris House; Drew Mandel Architects; Tom Arban Photography Inc.
3. Sisters of St. Joseph Motherhouse; Teeple Architects Inc.; Shai Gil Photography
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- Application modifiers: expand or limit the application of a requirement without changing its intent (for example, Sentence 9.35.2.1.(1) of Division B, which expands the application of the requirements for garages to a carport with more than 60% of its perimeter enclosed);

- Exemptions: waive the application of a requirement (for example, Sentence 6.2.2.3.(6) of Division B, which exempts open-air storeys in a storage garage from the mechanical exhaust requirements of the remainder of Article 6.2.2.3.);

- Signpost: provides direction to another requirement which would in any event be applicable (for example, Sentence 3.13.5.1. of Division B, which directs the Code user to the requirements of Subsection 3.2.4. for fire alarm and detection systems in rapid transit stations);

- Classifications: categorize and sort requirements or aspects of requirements (for example, Sentence 8.1.2.1.(1) of Division B, which classifies the types of sewage systems)

- Clarifications: explain the intent of a requirement (for example, Sentence 5.2.2.1.(2) of Division B, which identifies the structural loads referenced in the remainder of Article 5.2.2.1.);

- Definitions: defining terms used in a requirement (for example, Sentence 7.1.3.1.(1) of Division B, which defines "storey" for the purpose of Part 7);

- Administrative provisions: specifies the use of, and determination of compliance with, requirements (for example, Sentence 9.7.4.3.(4) of Division B, which requires labelling of exterior wood doors to facilitate enforcement of the requirements of the remainder of Article 9.7.4.3.);

Requirements of Division B will often be dependent on other provisions of Division B to which objectives and functional statements have not been attributed.

For example, Sentence 3.2.4.1.(2) of Division B lists the conditions when a fire alarm system is required. Objective OS1.5 and functional statement F11 are attributed to this requirement. However, this sentence must also be examined in the context of Sentences 3.2.4.1.(3), (4) and (5), which are not characterized as requirements (and therefore have not been attributed objectives or functional statements) but are necessary to explain the context of that Sentence. In this instance, Sentences (3), (4) and (5) list exceptions and modifications to Sentence (2).

As a result, in evaluating the level of performance of an acceptable solution for the purposes of assessing an alternative solution, regard must be had both to requirements (to which objectives and functional statements have been attributed in this Standard) and to other provisions (to which objectives and functional statements have not been attributed in this Standard) related to the requirement.

A-1.4.1.2.(1) Defined Terms.

Exit

Exits include doors or doorways leading directly into an exit stair or directly to the outside. In the case of an exit leading to a separate building, exits also include vestibules, walkways, bridges and balconies.

Farm Building

Farm buildings as defined in Article 1.4.1.2. include but are not limited to produce storage and packing facilities, livestock and poultry housing, milking centres, manure storage facilities, grain bins, silos, feed preparation centres, farm workshops, greenhouses, farm retail centres, and horse riding, exercise and training facilities. Farm buildings may be classed as low or high human occupancy depending on the occupant load.

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

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

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

Fire Separation

A fire separation may or may not have a fire-resistance rating.

Heritage Building

This definition facilitates acknowledgement and acceptance of the significance of such a building through creditable means.

Plumbing System

"Plumbing" is defined in the *Building Code Act, 1992*. Each of the three systems (drainage, venting, water) appearing in the definition are further defined in Article 1.4.1.2., with the end result that a plumbing system encompasses all three elements.

Other piping systems as listed below are excluded from plumbing system since the definition of water system limits the system to the point of juncture with outlets, fixtures, etc. Similarly, a drainage system starts at the fixture or plumbing appliance it drains.

A plumbing system does not include,

e_1 (a) a system of piping,

(i) for space heating in which water is used as a medium to transfer heat,
(ii) in which liquids or vapours are circulated for the purpose of cooling or refrigeration,
(iii) through which air is passed for the purpose of controlling the temperature, humidity or motion of air passing through the system,
(iv) that conveys water for the purpose of providing water or nutrients to the soil,
(v) that conveys water for the purpose of landscaping or for the care of animals, birds or fish,
(vi) that transmits force by means of water or by means of a liquid other than water in which water is used for cooling,
(vii) that conveys liquids for the purpose of melting ice or snow, or
(viii) that uses water in the conveyance of flammable gas or fuel; or

(b) a well, a well pump installed for the purpose of conveying water from a well, a pressure tank and pump if the tank and pump are combined as a unit, the piping between any well pump and the well, the piping between a well pump and a pressure tank that is installed separate from the pump and the connection of the piping to such pressure tank, and when there is no well pump, any piping connected to the well for a distance of three feet from the outside of the well.

Public Corridor

A covered mall is considered to be a public corridor and, as such, is subject to the same requirements as a public corridor.

Public Heritage Building

This definition addresses smaller heritage buildings that are to be made available to the public for viewing as examples of an architectural period or periods in the past, depicting how our forebears lived, worked or played, and what artifacts, objects or clothing were in use at that time. These buildings are not considered museums as such, and therefore would not be subject to the more stringent requirements of assembly occupancies for that use.

MMAH Supplementary Standard SA-1

Objectives and Functional Statements Attributed to the Acceptable Solutions

September 1, 2013 update

Issued September 1, 2013

COMMENCEMENT

MMAH Supplementary Standard SA-1 comes into force on the 1st day of January, 2014.

m1 Ruling of the Minister of Municipal Affairs and Housing (Minister's Ruling) MR-13-S-24 takes effect on the 1st day of January, 2014.

Acceptable Solutions	Objectives and Functional Statements
(2) (Cont'd)	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction* ..." [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a) ... the *building* shall be *sprinklered*,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.37.	Group B, Division 1, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction* ..."
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction* ..."
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.38.	Group B, Division 2 or Division 3, Any Height, Any Area, Sprinklered
(1)	
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building referred* to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a) ... the *building* shall be *sprinklered,*"
	[F02-OS1.2] Applies to portion of Code text: "... the *building referred* to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a) ... the *building* shall be *sprinklered*,"
	(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(c) [F04-OP1.3]
	(c) [F04-OS1.3]
3.2.2.39.	Group B, Division 2 or Division 3, up to 3 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a)... the *building* is *sprinklered*,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a)... the *building* is *sprinklered,*"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.40.	Group B, Division 2 or Division 3, up to 2 Storeys, Sprinklered
(1)	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a)... the building is *sprinklered,*"
	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a)... the building is *sprinklered*,"
(2)	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.41.	Group B, Division 2 or Division 3, One Storey, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a) ... the building is *sprinklered*,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a) ... the building is *sprinklered*,"
3.2.2.42.	Group C, Any Height, Any Area, Sprinklered
(1)	

Acceptable Solutions	Objectives and Functional Statements
(2)	[F02-OP1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02,F04-OP1.2, OP1.3] Applies to portion of Code text: "...a) ...the *building* shall be *sprinklered*..."
	[F02,F04-OS1.2, OP1.3] Applies to portion of Code text: "...a) ...the *building* shall be *sprinklered*..."
	(b), (d) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(b), (d) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(c), (d) [F04-OP1.3]
	(c) ,(d) [F04-OS1.3]
(3)	
3.2.2.43.	Group C, up to 6 Storeys, Sprinklered
(1)	[F02,F04-OP1.2, OP1.3] Applies to portion of Code text: "...a) ...the *building* shall be *sprinklered*..."
	[F02,F04-OS1.2,OP1.3] Applies to portion of Code text: "...a) ...the *building* shall be *sprinklered*..."
(2)	[F02-OP1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	(a), (c) [F03-OP1.2] [F04-OP1.2, OP1.3]
	(a), (c) [F03-OS1.2] [F04-OS1.2, OS1.3]
	(b), (c) [F04-OP1.3]
	(b,) (c) [F04-OS1.3]
(3)	
3.2.2.44.	Group C, up to 4 Storeys, Noncombustible Construction
(1)	
(2)	[F02-OP1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "...the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with *a fire-resistance rating* not less than 1 h," and to Clause (d).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
	(b), (d) [F04-OP1.3]
	(b), (d) [F04-OS1.3]
	(c), (d) [F04-OP1.3]
	(c), (d) [F04-OS1.3]
e_1 (3), (4)	
m_1 (5)	[F02, F04 – OP1.2, OP1.3]
	[F02, F04 – OS1.2, OS1.3]
3.2.2.45.	Group C, up to 4 Storeys, Sprinklered
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*,"
(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with *a fire-resistance rating* not less than 1 h," and to Clause (c).
	[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (c).
	(b), (c) [F04-OP1.3]
	(b), (c) [F04-OS1.3]
e_1 (3), (4)	
3.2.2.46.	Group C, up to 3 Storeys, Increased Area
(1)	

	Acceptable Solutions	Objectives and Functional Statements
	(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: " a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
		[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: " a) ... floor assemblies shall be fire *separations* with a *fire-resistance rating* not less than 1 h," and to Clause (d).
		(b), (c), (d) [F04-OP1.3]
		(b), (c), (d) [F04-OS1.3]
e_1	(3), (4)	
m_1	(5)	[F02, F04 – OP1.2, OP1.3]
		[F02, F04 – OS1.2, OS1.3]
	3.2.2.47.	**Group C, up to 3 Storeys**
	(1)	
	(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "a)... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
		[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
		(b), (c) [F04-OP1.3]
		(b), (c) [F04-OS1.3]
e_1	(3), (4)	
m_1	(5)	[F02, F04 – OP1.2, OP1.3]
		[F02, F04 – OS1.2, OS1.3]
	3.2.2.48.	**Group C, up to 3 Storeys, Sprinklered**
	(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*,"
		[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*,"
	(2)	[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
		[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: "a) ... floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min," and to Clause (c).
		(b), (c) [F04-OP1.3]
		(b), (c) [F04–OS1.3]
e_1	(3), (4)	
	3.2.2.49.	**Group D, Any Height, Any Area**
	(1)	
	(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a)... the *building* shall be *sprinklered* ..."
		[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)... the *building* shall be *sprinklered* ..."
		(b), (d) [F03, F04-OP1.2] [F04-OP1.3]
		(b), (d) [F03, F04-OS1.2] [F04-OS1.3]
		(c) [F04-OP1.3]
		(c) [F04-OS1.3]
	3.2.2.50.	**Group D, up to 6 Storeys**
	(1)	
	(2)	[F02-OP1.2] Applies to portion of Code text: "The *building referred* to in Sentence (1) shall be of *noncombustible construction*," [F04-OP1.3] Applies to portion of Code text: "c) roof assemblies shall have a *fire-resistance rating* not less than 1 h," and to Clause (d).
		[F02-OS1.2] Applies to portion of Code text: "The *building* referred to in Sentence (1) shall be of *noncombustible construction*," [F04-OS1.3] Applies to portion of Code text: "c) roof assemblies shall have a *fire-resistance rating* not less than 1 h," and to Clause (d).
		(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
		(a), (d) [F03, F04-OS1.2] [F04-OS1.3]

Acceptable Solutions	Objectives and Functional Statements
(2) (Cont'd)	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.51.	**Group D, up to 6 Storeys, Sprinklered**
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a) ...the *building* is *sprinklered*,"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)... the *building* is *sprinklered*,"
(2)	[F02-OP1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction*,"
	[F02-OS1.2] Applies to portion of Code text: "... the *building* referred to in Sentence (1) shall be of *noncombustible construction,*"
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.52.	**Group D, up to 4 Storeys, Sprinklered**
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a)...the *building* is *sprinklered,*"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)...the *building* is *sprinklered,*"
(2)	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.53.	**Group D, up to 3 Storeys**
(1)	
(2)	[F04-OP1.3] Applies to portion of Code text: "c) roof assemblies shall have, if of *combustible construction,* a *fire-resistance rating* not less than 45 min,..." and to Clause (d).
	[F04-OS1.3] Applies to portion of Code text: "c) roof assemblies shall have, if of *combustible construction*, a *fire-resistance rating* not less than 45 min,..." and to Clause (d).
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
	(a), (d) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (d) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.54.	**Group D, up to 3 Storeys, Sprinklered**
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: " a)...the *building* is *sprinklered,*"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: " a)...the *building* is *sprinklered,*"
(2)	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
	(a), (c) [F03, F04-OP1.2] [F04-OP1.3]
	(a), (c) [F03, F04-OS1.2] [F04-OS1.3]
	(b) [F04-OP1.3]
	(b) [F04-OS1.3]
3.2.2.55.	**Group D, up to 2 Storeys**
(1)	
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]
	(a) [F03-OP1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
	(a) [F03-OS1.2] Applies to the requirement that *noncombustible* floor assemblies be *fire separations.*
3.2.2.56.	**Group D, up to 2 Storeys, Sprinklered**
(1)	[F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a) ...the *building* is *sprinklered,*"
	[F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a) ...the *building* is *sprinklered,*"
(2)	[F03, F04-OP1.2] [F04-OP1.3]
	[F03, F04-OS1.2] [F04-OS1.3]

	Acceptable Solutions	Objectives and Functional Statements
e_1	3.2.5.8. to 3.2.5.10.	Reserved
	3.2.5.11.	Reserved
	3.2.5.12.	Reserved
	3.2.5.13.	Automatic Sprinkler Systems
	(1)	[F02, F81, F82-OP1.2]
		[F02, F81, F82-OS1.2]
	(2)	[F02, F81, F82-OP1.2]
		[F02, F81, F82-OS1.2]
	(3)	[F02, F81, F82-OP1.2]
		[F02, F81, F82-OS1.2]
	(4)	[F02-OP1.2]
		[F02-OS1.2]
	(5)	[F81-OP1.2]
		[F81-OS1.2]
	(6)	[F02-OP1.2]
		[F02-OS1.2]
	(7)	[F81-OS3.3, OS3.6]
m_1	(8)	[F02, F04 – OP1.2, OP1.3]
		[F02, F04 – OS1.2, OS1.3]
	3.2.5.14.	Combustible Sprinkler Piping
	(1)	[F06-OP1.2]
		[F06-OS1.2]
	(2)	[F02, F81-OP1.2]
		[F02, F81-OS1.2]
	(3)	[F06-OP1.2]
		[F06-OS1.2]
	(4)	[F06-OP1.2]
		[F06-OS1.2]
	(5)	
	3.2.5.15.	Sprinklered Service Space
	(1)	[F02-OP1.2]
		[F02-OS1.2]
	(2)	[F12-OP1.2]
		[F12-OS1.2]
	(3)	[F12-OS1.2] [F11, F12-OS1.5]
		[F12-OP1.2]
	(4)	[F02-OP1.2]
		[F02-OS1.2]
	(5)	
	3.2.5.16.	Fire Department Connections
	(1)	[F12-OP1.2]
		[F12-OS1.2]
	(2)	[F12-OP1.2]
		[F12-OS1.2]
	(3)	[F12-OP1.2]
		[F12-OS1.2]
	3.2.5.17.	Portable Fire Extinguishers
	(1)	[F02, F12, F81-OP1.2]
		[F02, F12, F81-OS1.2]
	(2)	[F12-OP1.2]
		[F12-OS1.2]

Acceptable Solutions	Objectives and Functional Statements
3.2.5.18.	Protection from Freezing
(1)	[F81-OP1.2]
	[F81-OS1.2]
3.2.5.19.	Fire Pumps
(1)	[F02, F81-OP1.2]
	[F02, F81-OS1.2]
3.2.6.1.	Application
(1)	
3.2.6.2.	Limits to Smoke Movement
(1)	[F02-OP1.2]
	[F02-OS1.2, OS1.5]
(2)	[F06-OP1.2]
	[F06-OS1.2] [F05, F06-OS1.5]
(3)	[F06-OP1.2]
	[F06-OS1.2] [F05, F06-OS1.5]
(4)	[F03, F12-OP1.2]
	[F03 F12-OS1.2, OS1.5]
(5)	[F03-OP1.2]
	[F03-OS1.2, OS1.5]
(6)	[F02-OP1.2]
	[F02-OS1.2, OS1.5]
3.2.6.3.	Connected Buildings
(1)	[F03-OP1.2]
	[F03-OP3.1]
	[F03-OS1.2,OS1.5]
3.2.6.4.	Emergency Operation of Elevators
(1)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(3)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(4)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(5)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(6)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(7)	[F11-OS1.5]
3.2.6.5.	Elevator for Use by Firefighters
(1)	[F12,F06-OP1.2]
	[F12,F06-OS1.2, OS1.5]
(2)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(3)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]
(4)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(5)	[F12-OP1.2]
	[F12-OS1.2, OS1.5]
(6)	[F06-OP1.2]
	[F06-OS1.2, OS1.5]

	Acceptable Solution	Objectives and Functional Statements
	9.10.7.1.	Protection of Structural Steel Members
	(1)	[F03-OP1.2] [F04-OP1.3]
		[F03-OS1.2] [F04-OS1.3]
	9.10.8.1.	Fire-Resistance Ratings for Floors and Roofs
	(1)	[F03-OP1.2] [F04-OP1.2, OP1.3] Applies to portion of Code text: "Except as other wise provided in this Subsection, the *fire-resistance ratings* of floors and roofs shall conform to Table 9.10.8.1."
		[F03-OS1.2] [F04-OS1.2, OS1.3] Applies to portion of Code text: "Except as otherwise provided in this Subsection, the *fire-resistance ratings* of floors and roofs shall conform to Table 9.10.8.1."
	9.10.8.2.	Fire-Resistance Ratings in Sprinklered Buildings
	(1)	(a), (b) [F13-OP1.2] [F02, F82-OP1.3]
		(a), (b) [F13-OS1.2, OS1.5] [F02, F82-OS1.3]
	9.10.8.3.	Fire-Resistance Ratings for Walls, Columns and Arches
	(1)	[F04-OP1.2, OP1.3]
		[F04-OS1.2, OS1.3]
m_1	9.10.8.4.	Automatic Sprinkler Systems
	(1)	[F02, F04 – OP1.2, OP1.3]
		[F02, F04 – OS1.2, OS1.3]
	9.10.8.5.	Service Rooms
	(1)	
	9.10.8.6.	Mezzanines
	(1)	
	9.10.8.7.	Roofs Supporting an Occupancy
	(1)	[F03-OP1.2]
		[F03-OS1.2]
	9.10.8.8.	Floors of Exterior Passageways
	(1)	[F06-OP1.2] [F04-OP1.3]
		[F05-OS1.5] [F06-OS1.2, OS1.5]
	(2)	
	(3)	
	9.10.8.9.	Crawl Spaces
	(1)	
	9.10.8.10.	Application to Houses
	(1)	
	9.10.8.11.	Part 3 as an Alternative
	(1)	
	9.10.9.1.	Application
	(1)	
	9.10.9.2.	Continuous Barrier
	(1)	[F03-OP1.2]
		[F03-OS1.2]
	(2)	[F03-OP1.2]
		[F03-OS1.2]
	9.10.9.3.	Openings to be Protected With Closures
	(1)	[F03-OP1.2]
		[F03-OS1.2]
	9.10.9.4.	Floor Assemblies
	(1)	[F03-OP1.2]
		[F03-OS1.2]
e_1	(2) to (4)	
	9.10.9.5.	Interconnected Floor Spaces
	(1)	

Acceptable Solution	Objectives and Functional Statements
9.10.9.6.	Penetration of Fire Separations
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2] [F04-OP1.3] Applies to portion of Code text: "Except as provided in Sentence (3) to (9) 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* ..."
	[F03-OS1.2] [F04-OS1.3] Applies to portion of Code text: "Except as provided in Sentence (3) to (9) 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* ..."
(4)	
(5)	
(6)	
(7)	
(8)	
(9)	
(10)	
(11)	
(12)	
(13)	
9.10.9.7.	Combustible Piping
(1)	[F03-OP1.2] [F04-OP1.3]
	[F03-OS1.2] [F04-OS1.3]
(2)	
(3)	
(4)	
(5)	
(6)	
9.10.9.8.	Collapse of Combustible Construction
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.9.	Reduction in Thickness of Fire Separation by Beams and Joists
(1)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.10.	Concealed Spaces above Fire Separations
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
9.10.9.11.	Separation of Residential Occupancies
(1)	[F03-OP1.2]
	[F03-OS1.2]
(2)	[F03-OP1.2]
	[F03-OS1.2]
(3)	[F03-OP1.2]
	[F03-OS1.2]
(4)	
9.10.9.12.	Residential Suites, Live/Work Units and Industrial Buildings
(1)	[F02-OS1.2]
(2)	[F02, F03-OS1.2]

MMAH Supplementary Standard SB-5

Approved Sewage Treatment Units

September 1, 2013 update

Issued September 1, 2013

COMMENCEMENT

MMAH Supplementary Standard SB-5 comes into force on the 1st day of January, 2014.

m_1 Ruling of the Minister of Municipal Affairs and Housing (Minister's Ruling) MR-13-S-24 takes effect on the 1st day of January, 2014.

Norweco Singulair® Treatment Systems

m_1 Model 960-500-2000

This Norweco Singulair® Treatment Unit is designed for **daily design sanitary sewage flow of 1100 L to 2300 L**. It consists of a treatment unit with a 1.7 m^3 volume baffled pretreatment chamber, a 2.3 m^3 volume aeration chamber equipped with aspirator aerator rated at 1.42 L/s, a 0.95 m^3 settling chamber equipped with sludge return, and a Bio-Kinetic® flow equalization and micro-screening device discharging to a single pass free access sand filter or a dosing pump chamber.

Where the percolation rate of the native subsoil is between 50 min/cm and 125 min/cm, the treatment unit shall include a single pass sand filter consisting of a tank equipped with openings accessible from grade, 100 mm distribution piping, sand filter with an area of 3.4 m^2 and a depth of 450 mm (sand media with 0.4 mm to 1.5 mm dia. effective size with 3 uniformity coefficient); 150 mm pea gravel layer and 100 mm dia. slotted collection piping discharging the effluent by gravity to an effluent dosing chamber.

The dosing chamber consists of a precast concrete effluent dosing pump chamber with 3.5 m^3 volumetric capacity, a minimum 0.3 HP submersible pump, level switches, alarms and control panel and a forcemain discharging the effluent.

This approval is only for the treatment unit component of the sewage system and **the sewage system shall comply with the Building Code, as amended from time to time**.

It is the responsibility of the Norweco Equipment Company and/or its licensed agents to ensure that units meet all other applicable standards. Other standards may include those of the Canadian Standards Association, Ontario Ministry of Labour, Electrical Safety Authority, etc.

Model 960-750-3000

This Norweco Singulair® Treatment Unit is designed for **daily design sanitary sewage flow of 2000 L to 3000 L**. It consists of a treatment unit with a 2.1 m^3 volume baffled pretreatment chamber, a 2.8 m^3 volume aeration chamber equipped with aspirator aerator rated at 1.42 L/s, a 1.1 m^3 settling chamber equipped with sludge return, and a Bio-Kinetic® flow equalization and micro-screening device discharging to a single pass free access sand filter or a dosing pump chamber.

Where the percolation rate of the native subsoil is between 50 min/cm and 125 min/cm, the treatment unit shall include a single pass sand filter consisting of a tank equipped with openings accessible from grade, 100 mm distribution piping, sand filter with an area of 5.1 m^2 and a depth of 450 mm (sand media with 0.4 mm to 1.5 mm dia. effective size with 3 uniformity coefficient); 150 mm pea gravel layer and 100 mm dia. slotted collection piping discharging the effluent by gravity to an effluent dosing chamber.

The dosing chamber consists of a precast concrete effluent dosing pump chamber with 5.5 m^3 volumetric capacity, a minimum 0.3 HP submersible pump, level switches, alarms and control panel and a forcemain discharging the effluent.

This approval is only for the treatment unit component of the sewage system and **the sewage system shall comply with the Building Code, as amended from time to time**.

It is the responsibility of the Norweco Equipment Company and/or its licensed agents to ensure that units meet all other applicable standards. Other standards may include those of the Canadian Standards Association, Ontario Ministry of Labour, Electrical Safety Authority, etc.

Model 960-1000-4000

This Norweco Singulair® Treatment Unit is designed for **daily design sanitary sewage flow of 3000 L to 4000 L**. It consists of a treatment unit with a 3.8 m^3 volume baffled pretreatment chamber; a two (2) cell, 4 m^3 volume aeration chamber equipped with two (2) aspirator aerators, each rated at 1.42 L/s; a 1.0 m^3 settling chamber equipped with sludge return; and two (2) Bio-Kinetic® flow equalization and micro-screening devices discharging to a single pass free access sand filter or a dosing pump chamber.

Where the percolation rate of the native subsoil is between 50 min/cm and 125 min/cm, the treatment unit shall include a single pass sand filter consisting of a tank equipped with openings accessible from grade, 100 mm distribution piping, sand filter with an area of 6.8 m^2 and a depth of 450 mm (sand media with 0.4 mm to 1.5 mm dia. effective size with 3 uniformity coefficient); 150 mm pea gravel layer and 100 mm dia. slotted collection piping discharging the effluent by gravity to an effluent dosing chamber.

The dosing chamber consists of a precast concrete effluent dosing pump chamber with 7.0 m^3 volumetric capacity, a minimum 0.3 HP submersible pump, level switches, alarms and control panel and a forcemain discharging the effluent.

This approval is only for the treatment unit component of the sewage system and **the sewage system shall comply with the Building Code, as amended from time to time**.

It is the responsibility of the Norweco Equipment Company and/or its licensed agents to ensure that units meet all other applicable standards. Other standards may include those of the Canadian Standards Association, Ontario Ministry of Labour, Electrical Safety Authority, etc.

Model 960-1250-4750

This Norweco Singulair® Treatment Unit is designed for daily **design sanitary sewage flow of 4000 L to 4750 L**. It consists of a treatment unit with a 4.75 m^3 volume baffled pretreatment chamber; a two (2) cell, 4.9 m^3 volume aeration chamber equipped with two (2) aspirator aerators, each rated at 1.42 L/s; a 1.14 m^3 settling chamber equipped with two (2) sludge returns; and three (3) Bio-Kinetic® flow equalization and micro-screening devices discharging to a single pass free access sand filter or a dosing pump chamber.

Where the percolation rate of the native subsoil is between 50 min/cm and 125 min/cm, the treatment unit shall include a single pass sand filter consisting of a tank equipped with openings accessible from grade, 100 mm distribution piping, sand filter with an area of 8.1 m^2 and a depth of 450 mm (sand media with 0.4 mm to 1.5 mm dia. effective size with 3 uniformity coefficient); 150 mm pea gravel layer and 100 mm dia. slotted collection piping discharging the effluent by gravity to an effluent dosing chamber.

The dosing chamber consists of a precast concrete effluent dosing pump chamber with 8.3 m^3 volumetric capacity, a minimum 0.3 HP submersible pump, level switches, alarms and control panel and a forcemain discharging the effluent.

This approval is only for the treatment unit component of the sewage system and **the sewage system shall comply with the Building Code, as amended from time to time**.

It is the responsibility of the Norweco Equipment Company and/or its licensed agents to ensure that units meet all other applicable standards. Other standards may include those of the Canadian Standards Association, Ontario Ministry of Labour, Electrical Safety Authority, etc.

MMAH Supplementary Standard SB-12

Energy Efficiency For Housing

September 1, 2013 update

Issued September 1, 2013

COMMENCEMENT

MMAH Supplementary Standard SB-12 comes into force on the 1st day of January, 2014.

m_1 Ruling of the Minister of Municipal Affairs and Housing (Minister's Ruling) MR-13-S-24 takes effect on the 1st day of January, 2014.

m1 SB-12 Energy Efficiency of Housing

FOREWORD[1]

This Supplementary Standard has been included as a design option in Sentences 12.2.1.1.(3) and 12.2.1.2.(3) of the Building Code to recognize the needs of consumers and the building industry for a predictable prescriptive solution.

Sentence 12.2.1.1.(3) requires the energy efficiency design of a building or part of a building of residential occupancy within the scope of Part 9 that is intended to be occupied on a continuing basis during the winter months to comply with:

- Supplementary Standard SB-12 (Chapter 2); or
- Achieve a performance level equal to a rating of 80 or more when evaluated in accordance with the technical requirements of NRCan,"EnerGuide for New Houses: Administrative and Technical Procedures", January 2005.

Sentence 12.2.1.2.(3) which applies after December 31, 2016 requires the energy efficiency design of a building or part of a building of residential occupancy within the scope of Part 9 that is intended to be occupied on a continuing basis during the winter months to comply with:

- Supplementary Standard SB-12 (Chapter 3); or
- Achieve an energy efficiency performance level that exceeds the energy efficiency requirements of Sentence 12.2.1.1.(3) of the Building Code by 15%.

This Supplementary Standard provides prescriptive and performance compliance design options for construction for which a permit is applied for either before January 1, 2017 or after December 31, 2016. The prescriptive and performance options specifically prescribed in this Supplementary Standard, unless otherwise specified, do not require blower door testing to demonstrate compliance.

This Supplementary Standard also recognizes Energy Star as a viable design option for meeting the energy efficiency requirements of the Building Code.

This Supplementary Standard does not require labeling to demonstrate compliance with the Building Code.

[1] Unless otherwise indicated, all Building Code references in this foreword refer to provisions located in Division B of the Building Code.

SUMMARY OF THE CONTENTS OF SB-12

Chapter 1: General

This Chapter sets out the scope and application of this Supplementary Standard.

Chapter 2: Acceptable Solutions for Achieving Energy Efficiency Compliance Before January 1, 2017.

This Chapter contains acceptable solutions for achieving energy efficiency compliance with Clause 12.2.1.1.(3)(b) of Division B of the Building Code and applies to construction for which a permit has been applied for before January 1, 2017. Conformance with one of the prescriptive compliance packages in Subsection 2.1.1., the performance compliance method in Subsection 2.1.2. or Energy Star requirements as specified in Subsection 2.1.3. of this Supplementary Standard will achieve an energy efficiency performance level that is intended to meet or exceed, on a systemic basis, the level that would be met by model analogues evaluated against the EnerGuide Rating System.

Chapter 3: Acceptable Solutions for Achieving Energy Efficiency Compliance After December 31, 2016.

This Chapter contains sample acceptable solutions for achieving energy efficiency compliance with Clause 12.2.1.2.(3)(b) of Division B of the Building Code and applies to construction of buildings for which a permit has been applied for after December 31, 2016. Conformance with one of the prescriptive compliance packages in Subsection 3.1.1., the performance compliance method in Subsection 3.1.2. or Energy Star requirements as specified in Subsection 3.1.3. of this Supplementary Standard is intended to achieve, on a systemic basis, an energy efficiency performance level that exceeds the energy efficiency requirements of Sentence 12.2.1.1.(3) of Division B of the Building Code by 15%.

Chapter 1

General

Section 1.1. Scope

1.1.1. Energy Efficiency Compliance

1.1.1.1. Energy Efficiency

(1) Compliance with this Supplementary Standard shall be deemed to meet the energy efficiency requirements in accordance with Sentence 12.2.1.1.(3) of Division B of the *Building Code*.

(2) The energy efficiency of existing *buildings* shall comply with
(a) Part 10 of Division B of the *Building Code* with respect to change of use, or
(b) Part 11 of Division B of the *Building Code* for renovation.

1.1.1.2. Compliance Options Before January 1, 2017

(1) The energy efficiency of a *building* or part of a building of *residential occupancy* that is within the scope of Part 9 of Division B of the *Building Code* and is intended for occupancy on a continuing basis during the winter months shall comply with
(a) Subsection 2.1.1. (Prescriptive Compliance Packages) of Chapter 2,
(b) Subsection 2.1.2. (Performance Compliance) of Chapter 2, or
(c) Subsection 2.1.3. (Other Acceptable Compliance Methods) of Chapter 2.

(2) Factory built modular homes manufactured before January 1, 2012 in accordance with the *Building Code* as it read on December 31, 2011 shall be deemed to be in compliance with Sentence (1).

1.1.1.3. Compliance Options After December 31, 2016

(1) The energy efficiency of a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B of the *Building Code* and is intended for occupancy on a continuing basis during the winter months shall comply with
(a) Subsection 3.1.1. (Prescriptive Compliance Packages) of Chapter 3,
(b) Subsection 3.1.2. (Performance Compliance) of Chapter 3, or
(c) Subsection 3.1.3. (Other Acceptable Compliance Methods) of Chapter 3.

Section 1.2. Application

1.2.1. Application of Supplementary Standard SB-12

1.2.1.1. Energy Efficiency Design

(1) The energy efficiency of a *building* or part of a *building* of *residential occupancy* that is within the scope of Part 9 of Division B of the *Building Code* and is intended for occupancy on a continuing basis during the winter months shall comply with this Supplementary Standard in accordance with Subsection 12.2.1. of Division B of the *Building Code*.

Section 1.3. Terms and Abbreviations

1.3.1. Definitions of Words and Phrases

1.3.1.1. Non-Defined Terms

(1) Definitions of words and phrases used in this Supplementary Standard that are not included in the list of definitions in Articles 1.4.1.2. and 1.4.1.3. of Division A of the *Building Code* and are not defined in another provision of the Code shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.

1.3.1.2. Defined Terms

(1) Each of the words and terms in italics in this Supplementary Standard has the same meaning as in subsection 1(1) of the *Building Code Act, 1992* or Clause 1.4.1.2.(1)(b) of Division A of the *Building Code*.

1.3.2. Symbols and Other Abbreviations

1.3.2.1. Symbols and Other Abbreviations

(1) Where used in this Supplementary Standard, a symbol or abbreviation listed in Column 2 of Table 1.4.2.1. of Division A of the *Building Code* shall have the meaning listed opposite it in Column 3.

(2) The abbreviations listed in Column 2 of Table 1.3.2.1. shall also apply to this Supplementary Standard and shall have the meaning listed opposite it in Column 3.

Table 1.3.2.1.
Abbreviations
Forming Part of Sentence 1.3.2.1.(2)

Item	Abbreviation	Meaning
1	AFUE	annual fuel utilization efficiency
2	EF	energy factor
3	HRV	heat recovery ventilator
4	ICF	insulating concrete form
Column 1	2	3

Section 1.4. Referenced Documents and Organizations

1.4.1. Referenced Documents

1.4.1.1. Effective Date

(1) Except as provided in Sentence (2), and unless otherwise specified in this Supplementary Standard, the documents referenced in this Supplementary Standard shall include all amendments, revisions and supplements effective to October 31, 2011.

(2) All references to NRCan, "EnerGuide for New Houses: Administrative and Technical Procedures" in the *Building Code* shall be the 2005 edition with all amendments, revisions and supplements effective to May 31, 2006.

1.4.1.2. Applicable Editions

(1) Where documents are referenced in this Supplementary Standard, they shall be the editions designated in Column 2 of Table 1.4.1.2.

Table 1.4.1.2.
Referenced Documents
Forming Part of Sentence 1.4.1.2.(1)

Issuing Agency	Document Number	Title of Document	Supplementary Standard Reference
CSA	CAN/CSA-A440.2-09	Fenestration Energy Performance Evaluation of Windows and Sliding Glass Doors	2.1.1.8.(2); 3.1.1.8.(2)
CSA	B55.1-12	Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units	2.1.1.11.(3)
CSA	B55.2-12	Drain Water Heat Recovery Units	2.1.1.11.(2)
NFRC	NFRC 100-2010	Procedure for Determining Fenestration Product U-factors	2.1.1.8.(2); 3.1.1.8.(2)
NFRC	NFRC 200-2010	Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence	2.1.1.8.(2); 3.1.1.8.(2)
NRCan	NRCan January 2011	Energy Star for New Homes: Technical Specifications – Ontario	2.1.3.1.(1)
NRCan	NRCan January 2012	Energy Star for New Homes Standard Version 12.1	3.1.3.1.(1)
Column 1	2	3	4

Notes to Table 1.4.1.2.:
(1) NFRC refers to the National Fenestration Rating Council. (See Appendix A.)

1.4.2. Abbreviations

1.4.2.1. Abbreviations of Proper Names

(1) Where used in this Supplementary Standard, abbreviations of proper names listed in Column 1 of Table 1.3.2.1. of Division B of the *Building Code* shall have the meaning assigned opposite it in Column 2.

Chapter 2

Acceptable Solutions for Energy Efficiency Compliance Before January 1, 2017

(Applies to construction for which a permit has been applied for before January 1, 2017)

Section 2.1. Methods for Achieving Energy Efficiency Compliance

2.1.1. Prescriptive Compliance Packages (See Appendix A.)

2.1.1.1. Energy Efficiency

(1) Except as permitted in Articles 2.1.1.5. to 2.1.1.10., the minimum thermal performance and energy efficiency of *building* envelope and space heating equipment, domestic hot water heating equipment and heat recovery ventilator equipment shall conform to
(a) Article 2.1.1.2. if the *building* is located in Zone 1 with less than 5000 heating degree days, or
(b) Article 2.1.1.3. if the *building* is located in Zone 2 with 5000 or more heating degree days.

(2) All walls, ceilings, floors, windows and doors that separate heated space from unheated space, the exterior air or the exterior *soil* shall have thermal resistance ratings conforming to this Subsection.

(3) Where specified in compliance packages in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, space heating equipment, domestic hot water heating equipment and heat recovery ventilators shall have the efficiency rating conforming to this Subsection. (See Appendix A.)

(4) Insulation shall be provided between heated and unheated spaces and between heated spaces and the exterior in accordance with this Chapter.

(5) Reflective surfaces of insulating materials shall not be considered in calculating the thermal resistance of *building* assemblies.

(6) Where glass block is used in a wall, the required minimum overall performance of the *building* envelope shall be maintained by increasing thermal performance of other components sufficient to compensate for the additional heat loss through the glass block.

(7) Except as provided in Sentence (8) and except as permitted in Sentences (9) and 2.1.1.10.(3), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is not more than 17%, the *building* shall comply with a compliance package selected from Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C. (See Appendix A.)

(8) Except as permitted in Sentences (9) and 2.1.1.10.(3), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 17% but not more than 22%, the *building* shall comply with a compliance package selected from Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, and the overall coefficient of heat transfer of the glazing shall be upgraded to
(a) 1.8 where the selected compliance package requires 2.0,
(b) 1.6 where the selected compliance package requires 1.8, and
(c) 1.4 where the selected compliance package requires 1.6.
(See Appendix A.)

(9) Glazing in main entrance doors and adjacent sidelights to main entrance doors need not be calculated for the purposes of Sentences (7), (8) and (10).

(10) Except as provided in Sentences (9) and 2.1.1.10.(3), where the ratio of gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 22%, the *building* shall comply with Subsection 2.1.2. (See Appendix A.)

(11) Where a *dwelling* unit has a walkout *basement*, the thermal performance level of the exterior *basement* wall shall be not less than that required for the above grade wall for
(a) the *basement* wall containing the door opening, and
(b) any *basement* wall that has an exposed wall area above the ground level exceeding 50% of that *basement* wall area.

(12) The minimum thermal resistance of insulation shall conform to the applicable values specified in Articles 2.1.1.2. and 2.1.1.3.

(13) The minimum annual fuel utilization efficiency of a natural gas- or propane-fired furnace serving a *building* of *residential occupancy* shall conform to Table 2.1.1.1.A.

Table 2.1.1.1.A.
Furnace Minimum Annual Fuel Utilization Efficiency
Forming Part of Sentence 2.1.1.1.(13)

Furnace Fuel Source	Minimum AFUE
Natural gas	90%
Propane	90%
Column 1	2

(14) Where space heating is supplied by a solid fuel-burning *appliance* or an earth energy system, the compliance package is permitted to comply with Tables 2.1.1.2.A. and 2.1.1.3.A.

(15) Where an enclosed unheated space is separated from a heated space by glazing, the unheated enclosure may be considered to provide a thermal resistance of RSI 0.16.

(16) Where space heating equipment and domestic hot water heating equipment efficiencies are specified in a compliance package in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, the equipment efficiencies shall be determined in accordance with test procedures regulated by an applicable Ontario Regulation, or in the absence of such regulation, determined in accordance with test procedures governed by the applicable equipment standard.

(17) Where heat recovery ventilators are specified in a compliance package in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C, they shall
(a) meet the requirements of Article 9.32.3.11. of Division B of the *Building Code*, and
(b) meet the minimum efficiency rating required in this Chapter based on a test temperature of 0°C at an air flow rate equal to the principle exhaust flow but need not exceed 30 L/s.

2.1.1.2. Energy Efficiency for Buildings Located in Zone 1

(1) Except as required in Sentences (2) to (4) and permitted in Sentences (5) to (11), the minimum thermal performance of *building* envelope and equipment shall conform to Table 2.1.1.2.A.

(2) Except for solid fuel-burning space heating equipment and natural gas and propane furnaces, where the space heating equipment efficiency ranges from 78% to less than 90%, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.2.B.

(3) Where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.2.C.

(4) Except for solid fuel-burning space heating equipment, where the space heating equipment efficiency is less than 78% or it cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Clause 12.2.1.1.(3)(a) of Division B of the *Building Code* or Subsection 2.1.2. of this Supplementary Standard.

(5) Where the thermal performance of above grade walls, windows or *basement* walls is reduced by applying Sentences (6) through (11), only the thermal performance of one of those *building* components is permitted to be reduced.

(6) Except as permitted in Sentence (7), where compliance package I or J in Table 2.1.1.2.A is used, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8), in addition to a upgrade where it is required due to high fenestration to wall ratio, or (See Appendix A.)
(b) the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package J is used.

(7) Where blown-in insulation or spray-applied foam insulation is used in compliance package I or J in Table 2.1.1.2.A, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the thermal insulation value in a ceiling with an attic space is not less than RSI 10.55,
(b) the minimum efficiency of the HRV is increased by not less than 8 percentage points,
(c) the minimum AFUE of the space heating equipment is increased by not less than 2 percentage points,
(d) the minimum EF of the domestic hot water heater is increased by not less than 4 percentage points, or
(e) the *building* is in compliance with Sentence (6).

(8) Except as permitted in Sentence (9), where compliance package D, E, F, G, H or M in Table 2.1.1.2.A is used, the minimum RSI value for thermal insulation of exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8), in addition to an upgrade where it is required due to high fenestration to wall ratio, and the minimum EF of the domestic hot water heater is increased by not less than 8 percentage points, or (See Appendix A.)
(b) the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package F, G, or H is used, and the *building* is in compliance with at least two requirements of Clauses (7)(a) to (d).

(9) Where blown-in insulation or spray-applied foam insulation is used in compliance package D, E, F, G, H or M in Table 2.1.1.2.A, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8), in addition to an upgrade where it is required due to high fenestration to wall ratio or the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package F, G, or H is used, and (See Appendix A.)
(b) the *building* is in compliance with Clause (7)(a), (b), (c) or (d).

(10) Where a drain water heat recovery unit conforming to Article 2.1.1.11. is provided in addition to the requirements of a compliance package selected from Tables 2.1.1.2.A to 2.1.1.2.C.

(a) the thermal insulation value in exposed above grade walls is permitted to be not less than RSI 3.52 where it is required to be RSI 3.87,

(b) the thermal insulation value in exposed above grade walls is permitted to be not less than RSI 3.52 where it is required to be RSI 4.23, provided that the drain water heat recovery unit has a minimum efficiency of not less than 46%,

(c) the thermal insulation value in *basement* walls is permitted to be not less than RSI 2.11 where it is required to be RSI 3.52,

(d) the overall coefficient of heat transfer of glazing is permitted to be not greater than 1.8 W/(m²•K) where it is required to be 1.6 W/(m²•K), or not greater than 1.6 W/(m²•K) where it is required to be 1.4 W/(m²•K),

(e) the minimum efficiency of an HRV is permitted to be not less than 55% where it is required to be 75% or less, or

(f) the minimum efficiency of a furnace is permitted to be not less than 90% where it is required to be 94%.

(11) Where an HRV is only required for the purpose of meeting the energy efficiency requirements of a compliance package included in Table 2.1.1.2.A, the HRV may be omitted provided that a drain water heat recovery unit with a minimum efficiency of not less than 62% is installed in conformance with Article 2.1.1.11.

Table 2.1.1.2.A
ZONE 1 - Compliance Packages for Space Heating Equipment with AFUE ≥ 90%
Forming Part of Sentence 2.1.1.2.(1)

Component	Compliance Package												
	A	B	C	D	E	F	G	H	I	J	K[3]	L[4]	M[5]
Ceiling with Attic Space Minimum RSI (R)-Value[1]	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value[1]	4.23 (R24)	4.75 (R27)	4.75 (R27)	4.23 (R24)	4.23 (R24)	4.23 (R24)	4.23 (R24)	4.23 (R24)	3.87 (R22)	3.87 (R22)	3.87 (R22)	4.23 (R24)	4.23 (R24)
Basement Walls Minimum RSI (R)-Value[1]	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	2.11 (R12)	2.11 (R12)	2.11 (R12)	3.52 (R20)	2.11 (R12)	3.87 (R22)	3.87 (R22)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value[1]	0.88 (R5)	—	—	—	—	—	—	—	—	—	—	—	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value[2]	1.6	1.6	1.8	1.8	1.8	1.8	1.8	2.0	1.8	1.8	1.8	1.8	1.8
Skylights Maximum U-Value[2]	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	90%	90%	94%	94%	90%	94%	92%	94%	92%	94%	90%	94%	90%[7]
HRV[6] Minimum Efficiency	—	—	—	—	55%	60%	60%	70%	55%	60%	—	—	—
Domestic Hot Water Heater Minimum EF	0.57	0.57	0.62	0.67	0.57	0.57	0.62	0.67	0.62	0.67	0.57	0.57	0.80[7]
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14

Notes to Table 2.1.1.2.A:

(1) Except for notes (3) and (4), the values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in $(m^2 \cdot K)/W$.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in $W/(m^2 \cdot K)$. See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

(3) Compliance package K applies only to a *building* with both ICF *basement* walls and ICF above grade walls. Alternatively, any other compliance package is permitted to be used for a *building* with both ICF *basement* walls and ICF above grade walls. The thermal resistance value of an ICF wall is the total thermal resistance of the entire wall assembly.

(4) Compliance package L applies only to a *building* with ICF *basement* walls. Alternatively, any other compliance package except compliance package K, is permitted to be used for a *building* with ICF *basement* walls. The thermal resistance value of an ICF wall is the total thermal resistance of the entire wall assembly.

(5) Applies to a *building* with combined space heating and domestic hot water heating system.

(6) Except as required in Subsection 9.32.3. of Division B of the *Building Code*, an HRV is only required as a part of a compliance package where a minimum efficiency level is specified.

(7) Only the hot water heating equipment shall meet the minimum AFUE or EF specified in the Table or shall be of the condensing type.

Table 2.1.1.2.B
ZONE 1 - Compliance Packages for Space Heating Equipment with AFUE ≥ 78% and < 90%
Forming Part of Sentence 2.1.1.2.(2)

Component	Compliance Package					
	A	B	C	D	E	F
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)	5.11 (R29)	5.11 (R29)	4.75 (R27)	4.75 (R27)	4.75 (R27)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	2.11 (R12)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	—	—	—	—	—	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6	1.8	1.6	1.6	1.8
Skylights Maximum U-Value(2)	2.8	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	78%	84%	84%	84%	78%	84%
HRV Minimum Efficiency	55%	55%	70%	55%	70%	75%
Domestic Hot Water Heater Minimum EF	—	—	—	—	—	—
Column 1	2	3	4	5	6	7

Notes to Table 2.1.1.2.B:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m^2 • K)/W.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m^2 • K). See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

Table 2.1.1.2.C
ZONE 1 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 2.1.1.2.(3)

Component	Compliance Package	
	A	B
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)	5.11 (R29)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	2.11 (R12)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	—	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8
Space Heating Equipment Minimum AFUE	—	—
HRV Minimum Efficiency	55%	75%
Domestic Hot Water Heater Minimum EF	—	—
Column 1	2	3

Notes to Table 2.1.1.2.C:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m^2 • K)/W.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m^2 • K). See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

2.1.1.3. Energy Efficiency for Buildings Located in Zone 2

(1) Except as required in Sentences (2) to (4) and permitted in Sentences (5) to (8), the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.3.A.

(2) Except for solid fuel-burning space heating equipment and natural gas and propane furnaces, where the space heating equipment efficiency ranges from 78% to less than 90%, the minimum thermal performance of *building* envelope and equipment shall conform to Table 2.1.1.3.B.

(3) Where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 2.1.1.3.C.

(4) Except for solid fuel-burning space heating equipment, where the space heating equipment efficiency is less than 78% or it cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Clause 12.2.1.1.(3)(a) of Division B of the *Building Code* or Subsection 2.1.2. of this Supplementary Standard.

(5) Where the thermal performance of above grade walls, windows or *basement* walls is reduced by applying Sentences (6) through (8), only the thermal performance of one of those *building* components is permitted to be reduced.

(6) Except as permitted in Sentence (7), where compliance package H, I, J or M in Table 2.1.1.3.A is used, the minimum RSI value for thermal insulation of exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8), in addition to a upgrade where it is required due to high fenestration to wall ratio and the minimum EF of the domestic hot water heater is increased by not less than 8 percentage points, or (See Appendix A.)
(b) the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package J is used, and the *building* is in compliance with at least two requirements of Clauses 2.1.1.2.(7)(a) to (d).

(7) Where blown-in insulation or spray-applied foam insulation is used in compliance package H, I, J or M in Table 2.1.1.3.A, the minimum RSI value for thermal insulation in exposed above grade walls is permitted to be not less than RSI 3.52 provided that

(a) the overall coefficient of heat transfer of the glazing is upgraded in accordance with Sentence 2.1.1.1.(8), in addition to a upgrade where it is required due to high fenestration to wall ratio or the thermal insulation value in *basement* walls has a minimum RSI 3.52 where compliance package J is used, and (See Appendix A.)
(b) the *building* is in compliance with Clause 2.1.1.2.(7)(a), (b), (c) or (d).

(8) Where a drain water heat recovery unit conforming to Article 2.1.1.11. is provided in addition to the requirements of a compliance package selected from Tables 2.1.1.3.A to 2.1.1.3.C.

(a) the thermal insulation value in exposed above grade walls is permitted to be not less than RSI 3.87 where it is required to be RSI 4.23 provided that the drain water heat recovery unit has a minimum efficiency of not less than 41%,
(b) the thermal insulation value in *basement* walls is permitted to be not less than RSI 2.11 where it is required to be RSI 3.52, provided that the drain water heat recovery unit has a minimum efficiency of not less than 46%,
(c) the overall coefficient of heat transfer of glazing is permitted to be not greater than 1.8 W/(m²•K) where it is required to be 1.6 W/(m²•K),
(d) the overall coefficient of heat transfer of glazing is permitted to be not greater than 1.6 W/(m²•K) where it is required to be 1.4 W/(m²•K), provided that the drain water heat recovery unit has a minimum efficiency of not less than 41%, or
(e) the minimum efficiency of an HRV is permitted to be not less than 55% where it is required to be 75% or less.

Table 2.1.1.3.A
ZONE 2 - Compliance Packages for Space Heating Equipment with AFUE ≥ 90%
Forming Part of Sentence 2.1.1.3.(1)

Component	Compliance Package												
	A	B	C	D	E	F	G	H	I	J	K[3]	L[4]	M[5]
Ceiling with Attic Space Minimum RSI (R)-Value[1]	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value[1]	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value[1]	5.11 (R29)	5.11 (R29)	5.11 (R29)	4.75 (R27)	4.75 (R27)	4.75 (R27)	4.75 (R27)	4.23 (R24)	4.23 (R24)	4.23 (R24)	3.87 (R22)	4.23 (R24)	4.23 (R24)
Basement Walls Minimum RSI (R)-Value[1]	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	3.52 (R20)	2.11 (R12)	3.52 (R20)	3.52 (R20)	2.11 (R12)	3.87 (R22)	3.87 (R22)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value[1]	0.88 (R5)	—	—	0.88 (R5)	—	—	—	0.88 (R5)	—	—	—	—	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value[1]	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value[2]	1.6	1.6	1.8	1.6	1.6	1.8	1.8	1.6	1.6	1.6	1.8	1.8	1.8
Skylights Maximum U-Value[2]	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Space-Heating Equipment Minimum AFUE	90%	94%	92%	94%	94%	94%	94%	94%	90%	94%	94%	94%	90%[7]
HRV[6] Minimum Efficiency	—	—	60%	—	—	60%	75%	—	60%	60%	—	—	55%
Domestic Hot Water Heater Minimum EF	0.57	0.57	0.57	0.57	0.67	0.57	0.62	0.67	0.57	0.67	0.57	0.67	0.80[7]
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14

Notes to Table 2.1.1.3.A:

(1) Except for notes (3) and (4), the values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in $(m^2 \cdot K)/W$.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in $W/(m^2 \cdot K)$. See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

(3) Compliance package K applies only to a *building* with both ICF *basement* walls and ICF above grade walls. Alternatively, any other compliance package is permitted to be used for a *building* with both ICF *basement* walls and ICF above grade walls. The thermal resistance value of an ICF wall is the total thermal resistance of the entire wall assembly.

(4) Compliance package L applies only to a *building* with ICF *basement* walls. Alternatively, any other compliance package except compliance package K, is permitted to be used for a *building* with ICF *basement* walls. The thermal resistance value of an ICF wall is the total thermal resistance of the entire wall assembly.

(5) Applies to a *building* with combined space heating and domestic hot water heating system.

(6) Except as required in Subsection 9.32.3. of Division B of the *Building Code*, an HRV is only required as a part of a compliance package where a minimum efficiency level is specified.

(7) Only the hot water heating equipment shall meet the minimum AFUE or EF specified in the Table or shall be of the condensing type.

Table 2.1.1.3.B
ZONE 2 - Compliance Packages for Space Heating Equipment with AFUE ≥ 78% and < 90%
Forming Part of Sentence 2.1.1.3.(2)

Component	Compliance Package	
	A	B
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)	5.11 (R29)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	0.88 (R5)	0.88 (R5)
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8
Space Heating Equipment Minimum AFUE	78%	84%
HRV Minimum Efficiency	75%	60%
Domestic Hot Water Heater Minimum EF	—	—
Column 1	2	3

Notes to Table 2.1.1.3.B.:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m^2 • K)/W.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m^2 • K). See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

Table 2.1.1.3.C
ZONE 2 - Compliance Packages for Electric Space Heating
Forming Part of Sentence 2.1.1.3.(3)

Component	Compliance Package A
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	5.11 (R29)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	0.88 (R5)
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6
Skylights Maximum U-Value(2)	2.8
Space Heating Equipment Minimum AFUE	—
HRV Minimum Efficiency	75%
Domestic Hot Water Heater Minimum EF	—
Column 1	2

Notes to Table 2.1.1.3.C:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in $(m^2 \cdot K)/W$.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in $W/(m^2 \cdot K)$. See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

2.1.1.4. Elements Acting as a Thermal Bridge

(1) Except for a *foundation* wall, the insulated portion of a wall that incorporates wood stud framing elements that have a thermal resistance of less than RSI 0.90 shall be insulated to restrict heat flow through the studs by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 2.1.1.2., 2.1.1.3. and 2.1.1.10.

(2) Except as provided in Sentence (3), the thermal resistance of the insulated portion of a *building* assembly in Articles 2.1.1.2. and 2.1.1.3. that incorporates metal framing elements, such as steel studs and steel joists, that act as thermal bridges to facilitate heat flow through the assembly, shall be 20% greater than the values shown in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C and Table 2.1.1.10., unless it can be shown that the heat flow is not greater than the heat flow through a wood frame assembly of the same thickness.

(3) Sentence (2) does not apply to *building* assemblies incorporating thermal bridges where the thermal bridges are insulated to restrict heat flow through the thermal bridges by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 2.1.1.2., 2.1.1.3. and 2.1.1.10.

2.1.1.5. Log Wall Construction and Post, Beam and Plank Construction

(1) Except as provided in Sentences (2) and (3), log wall construction and post, beam and plank construction shall have a minimum thermal resistance of RSI 2.1 for the total assembly.

(2) The thermal resistance value in Sentence (1) for the total wall assembly may be reduced to not less than RSI 1.61 if,
(a) the thermal resistance of insulation for the exposed roof or ceiling required in Table 2.1.1.2.A. is increased by an amount equivalent to the reduction permitted in this Sentence, and
(b) for log walls, the logs have tongue-and-groove or splined joints.

(3) Where milled log walls are installed, the thermal resistance value in Sentence (1) for the total wall assembly does not apply if,
(a) the mean thickness of each log is not less than 150 mm,
(b) the thermal resistance of insulation for the exposed roof or ceiling required in Table 2.1.1.2.A is increased by RSI 0.53, and
(c) the logs have tongue-and-groove or splined joints.

(4) Where a log wall is constructed in accordance with Sentences (1) to (3), the log wall shall be deemed to comply with the requirements in Subsection 9.25.3. of Division B of the *Building Code*.

2.1.1.6. Insulation of Foundation Walls

(1) *Foundation* walls enclosing heated space shall be insulated from the underside of the subfloor to not more than 200 mm above the finished floor level of the *basement*. (See Appendix A.)

(2) The insulation required by Sentence (1) may be provided by a system installed,
(a) on the interior of the *foundation* wall,
(b) on the exterior face of the *foundation* wall, or
(c) partially on the interior and partially on the exterior, provided the thermal performance of the system is equivalent to that permitted in Clauses (a) or (b).

(3) If a *foundation* wall is constructed of hollow masonry units, one or more of the following shall be used to control convection currents in the core spaces,
(a) filling the core spaces,
(b) at least one row of semi-solid blocks at or below *grade*, or
(c) other similar methods.

(4) Masonry walls of hollow units that penetrate the ceiling shall be sealed at or near the ceiling adjacent to the roof space to prevent air within the voids from entering the *attic or roof space* by,
(a) capping with masonry units without voids, or
(b) installation of flashing material extending across the full width of the masonry.

(5) Except as provided in Sentences (6) and (7), where a portion of a *basement* slab or a portion of a *basement* slab edge is the only part of the slab that is at the exterior ground level such as a walk-out *basement*, or within 600 mm of the exterior ground level, those portions shall have perimeter insulation extend not less than 600 mm below the slab level. (See Appendix A.)

(6) Where the entire concrete slab is within 600 mm of the exterior ground level, the entire surface of the slab shall be insulated. (See Appendix A.)

(7) Where a slab contains heating ducts, pipes, tubes or cables, the entire heated surface of the slab that is in contact with the ground shall be insulated.

2.1.1.7. Thermal Resistance Values for Roof Access Hatches and Eaves

(1) The thermal resistance values for insulation required by Articles 2.1.1.2. and 2.1.1.3. for exposed ceilings with attic spaces are permitted to be reduced
(a) directly above access hatches, and
(b) near eaves to the extent made necessary by the roof slope and required ventilation clearances,

except that the thermal insulation value at the location directly above access hatches and inner surfaces of exterior walls shall be not less than RSI 3.52.

2.1.1.8. Thermal Performance of Windows, Skylights and Sliding Glass Doors

(1) Except as provided in Sentence (3) and except for sidelights to main entrance doors, windows, skylights and sliding glass doors shall meet
(a) the required overall coefficient of heat transfer in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C and Table 2.1.1.10., or
(b) the corresponding energy rating in Table 2.1.1.8.

Table 2.1.1.8.
Maximum U-Values and Minimum Energy Ratings (ER) for Windows, Skylights and Sliding Glass Doors
Forming Part of Sentence 2.1.1.8.(1)

Component	Maximum U-Values		Minimum Energy Ratings (ER)
	U-Value ($W/m^2 \cdot K$)	U-Value ($Btu/h \cdot ft.^2 \cdot °F$)	ER
Skylights	2.8	0.50	—
Windows and Sliding Glass Doors	2.0	0.35	17
	1.8	0.32	21
	1.6	0.28	25
	1.4	0.25	29
Column 1	2	3	4

(2) The energy rating and the overall coefficient of heat transfer required for windows and sliding glass doors in a *residential occupancy* shall be determined in conformance with
(a) CAN/CSA-A440.2, "Fenestration Energy Performance", or
(b) NFRC 100, "Procedure for Determining Fenestration Product U-factors" and NFRC 200, "Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence".

(3) A *basement* window that incorporates a *loadbearing* structural frame shall be double glazed with a low-E coating.

2.1.1.9. Minimum Thermal Resistance of Doors

(1) Except for doors in enclosed unheated vestibules and cold cellars, and except for glazed portions of doors, all doors that separate heated space from unheated space shall have a thermal resistance of not less than RSI 0.7 where a storm door is not provided.

2.1.1.10. Additions to Existing Buildings

(1) Except as provided in Sentences (2) and (3), an addition to an existing *building* shall comply with
(a) one of the applicable compliance packages in Article 2.1.1.2. or 2.1.1.3. in accordance with this Subsection, or
(b) Sentences 2.1.1.1.(7) to (10), except that the Tables referenced in Sentences 2.1.1.1.(7) and (8) are permitted to be substituted with Table 2.1.1.10.
(See Appendix A.)

(2) For the purpose of Sentences 2.1.1.1.(7) to (10) and Subsection 2.1.2., the addition may be considered independently or in combination with the existing *building*, regardless of the thermal characteristics of the existing *building* envelope.
(See Appendix A.)

(3) A *one-storey* sunroom addition to an existing *building* shall be deemed to be in compliance with Articles 2.1.1.2. and 2.1.1.3. and Subsection 2.1.2., provided that the overall coefficient of heat transfer of
(a) doors, windows and walls has a maximum U-Value of
  (i) 1.6 if the *building* is located in Zone 1 with less than 5000 heating degree days,
  (ii) 1.4 if the *building* is located in Zone 2 with 5000 or more heating degree days, or
  (iii) 1.4 if the *building* uses *electric space heating*, and
(b) roofs and skylights has a maximum U-Value of 2.6.
(See Appendix A.)

Table 2.1.1.10.
Thermal Performance Requirements for Additions to Existing Buildings(3)
Forming Part of Sentence 2.1.1.10.(2)

Component	Zone 1 Less than 5000 Degree-Days	Zone 2 5000 or more Degree-Days	*Electric Space Heating* Zones 1 and 2
Ceiling with Attic Space Minimum RSI (R)-Value(1)	8.81 (R50)	8.81 (R50)	8.81 (R50)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	4.23 (R24)	4.23 (R24)	5.46 (R31)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	3.52 (R20)	3.52 (R20)
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.8	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8	2.8
Column 1	2	3	4

Notes to Table 2.1.1.10.:

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m² • K)/W.

(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m² • K). See exceptions and use of alternative Energy Ratings (ER) in Article 2.1.1.8.

(3) The *building* need not conform to minimum efficiency requirements for HRV's, domestic hot water heaters and space heating equipment required in Article 2.1.1.2. or 2.1.1.3.

2.1.1.11. Drain Water Heat Recovery

(1) Where a drain water heat recovery unit is installed to meet the requirements of this Subsection, the unit and its installation shall conform to Sentences (2) to (5).

(2) Drain water heat recovery units shall conform to CSA B55.2, "Drain Water Heat Recovery Units".

(3) The minimum efficiency of a drain water heat recovery unit shall be determined in conformance with CSA B55.1, "Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units".

(4) A drain water heat recovery unit shall be installed
(a) to receive drain water from all showers or at least two showers where there are two or more showers in a *dwelling unit*, (See Appendix A.)
(b) in an upright position that does not diverge more than 5 degrees from the vertical,
(c) in a position such that the cold water inlet connection is at the bottom of the unit,
(d) downstream of a water softener where a water softener is installed, and
(e) in a *conditioned space* or on the warm side of the dewpoint of the wall assembly.

(5) Except as required in Clauses 2.1.1.2.(10)(b) and 2.1.1.3.(8)(a), (b) and (d), and Sentence 2.1.1.2.(11), the minimum efficiency of the drain water heat recovery unit shall be not less than 36% when it is tested in accordance with Sentence (3).

2.1.2. Performance Compliance

2.1.2.1. Required Performance Level (See Appendix A.)

(1) The performance level shall be measured based on the simulated annual energy use of the *building*.

(2) The simulated annual energy use of the proposed *building* shall not be greater than the simulated annual energy use of the *building* as if it met the performance level of a permitted compliance package in Subsection 2.1.1. selected on the basis of
(a) Zone location,
(b) energy source, and
(c) equipment efficiency.

(3) The simulated annual energy use shall be calculated for the
(a) proposed *building*, and
(b) *building* conforming to the applicable compliance package.

(4) For the purpose of calculations required in Sentence (3),
(a) a recognized annual energy use simulation software shall be used to calculate annual energy use,
(b) local climatic data shall be used, and
(c) the equivalent domestic hot water, appliance and other plug-in loads shall be assumed in both calculations.

(5) Except as provided in Sentence (6), for the purpose of Clauses (3)(a) and (3)(b), the air leakage rate of a *dwelling unit* may be assumed to be
(a) 2.5 air changes per hour at an air pressure differential of 50 Pa for detached homes, and
(b) 3.0 air changes per hour at an air pressure differential of 50 Pa for attached homes.

(6) For the purpose of Clause (3)(a), values less than Sentence (5) may be used provided that the values are verified with air leakage tests as conducted in accordance with the requirements of Clause 12.2.1.(3)(a) of Division B of the *Building Code*.

(7) For the purpose of calculations required in Clause (3)(b), the *building* shall have identical dimensions and orientation as the proposed design, except where the glazing to wall ratio exceeds 22%, the glazing area shall be reduced proportionally along each exposure until the limit is met.

(8) For the purpose of calculations required in Clause (3)(b), where frame construction is used, the design of the framing system shall assume a spacing of
(a) 406 mm o.c. for wall studs,
(b) 406 mm o.c. for exposed floors joists, roof joists and roof rafters, and
(c) 610 mm o.c. for roof trusses.

(9) For the purpose of calculations required in Clause (3)(b), *building* envelope component properties and characteristics not specifically described in this Subsection and Subsection 2.1.1. shall be modeled the same for both the proposed design and a design based on a permitted compliance package unless it can be shown such properties and characteristics of the proposed design constitute additional energy conservation measures.

(10) Where the overall thermal performance of the proposed *building* envelope is less than the envelope performance of the compliance package that is compared against it, the reduction in the performance level of the *building* envelope shall not be more than 25%.

2.1.3. Other Acceptable Compliance Methods

2.1.3.1. Other Acceptable Compliance Methods (See Appendix A.)

(1) A *building* shall be deemed to be in compliance with the requirements of Subsection 2.1.1. provided that the building is in compliance with the technical requirements of NRCan,"Energy Star for New Homes: Technical Specifications - Ontario".

Chapter 3

Acceptable Solutions for Energy Efficiency Compliance After December 31, 2016

(Applies to construction for which a permit has been applied for after December 31, 2016)

Section 3.1. Methods for Achieving Energy Efficiency Compliance

3.1.1. Prescriptive Compliance Packages (See Appendix A.)

3.1.1.1. Energy Efficiency

(1) Except as permitted in Articles 3.1.1.5. to 3.1.1.10., the minimum thermal performance and energy efficiency of *building* envelope and space heating equipment, domestic hot water heating equipment and heat recovery ventilators equipment shall conform to
(a) Article 3.1.1.2. if the *building* is located in Zone 1 with less than 5000 heating degree days, or
(b) Article 3.1.1.3. if the *building* is located in Zone 2 with 5000 or more heating degree days.

(2) All walls, ceilings, floors, windows and doors that separate heated space from unheated space, the exterior air or the exterior *soil* shall have thermal resistance ratings conforming to this Subsection.

(3) Where specified in compliance packages in Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC, space heating equipment, domestic hot water heating equipment and heat recovery ventilators shall have the efficiency rating conforming to this Subsection. (See Appendix A.)

(4) Insulation shall be provided between heated and unheated spaces and between heated spaces and the exterior in accordance with this Chapter.

(5) Reflective surfaces of insulating materials shall not be considered in calculating the thermal resistance of building assemblies.

(6) Where glass block is used in a wall, the required minimum overall performance of the *building* envelope shall be maintained by increasing thermal performance of other components sufficient to compensate for the additional heat loss through the glass block.

(7) Except as provided in Sentence (8) and except as permitted in Sentences (9) and 3.1.1.10.(3), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is not more than 17%, the *building* shall comply with a compliance package selected from Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC. (See Appendix A.)

(8) Except as permitted in Sentences (9) and 3.1.1.10.(3), where the ratio of the gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 17% but not more than 22%, the *building* shall comply with a compliance package selected from Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC, and the overall coefficient of heat transfer of the glazing shall be upgraded to

(a) 1.8 where the selected compliance package requires 2.0,
(b) 1.6 where the selected compliance package requires 1.8,
(c) 1.4 where the selected compliance package requires 1.6, and
(d) 1.2 where the selected compliance package requires 1.4.

(See Appendix A.)

(9) Glazing in main entrance doors and adjacent sidelights to main entrance doors need not be calculated for the purposes of Sentences (7), (8) and (10).

(10) Except as provided in Sentence (9), where the ratio of gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the gross area of peripheral walls measured from grade to the top of the upper most ceiling is more than 22%, the *building* shall comply with Subsection 3.1.2. (See Appendix A.)

(11) Where a *dwelling unit* has a walkout *basement*, the thermal performance level of the exterior *basement* wall shall be not less than that required for the above grade wall for

(a) the *basement* wall containing the door opening, and
(b) any *basement* wall that has an exposed wall area above the ground level exceeding 50% of that basement wall area.

(12) The minimum thermal resistance of insulation shall conform to the applicable values specified in Articles 3.1.1.2. and 3.1.1.3.

(13) Every *dwelling unit* that is within the scope of Part 9 and is intended for occupancy on a continuing basis during the winter months shall be equipped with a heat recovery ventilator.

(14) Where space heating is supplied by a solid fuel-burning *appliance* or an earth energy system, the compliance package is permitted to comply with Tables 3.1.1.2.A. and 3.1.1.3.A.

(15) Where an enclosed unheated space is separated from a heated space by glazing, the unheated enclosure may be considered to provide a thermal resistance of RSI 0.16.

(16) Where space heating equipment and domestic hot water heating equipment efficiencies are specified in a compliance package in Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC, the equipment efficiencies shall be determined in accordance with test procedures regulated by an applicable Ontario Regulation, or in the absence of such regulation, determined in accordance with test procedures governed by the applicable equipment standard.

(17) Where heat recovery ventilators are specified in a compliance package in Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC, they shall

(a) meet the requirements of Article 9.32.3.11. of Division B of the *Building Code*, and
(b) meet the minimum efficiency rating required in this Chapter based on a test temperature of 0°C at an air flow rate equal to the principle exhaust flow but need not exceed 30 L/s.

3.1.1.2. Energy Efficiency for Buildings Located in Zone 1

(1) Except as required in Sentences (2) and (3) and permitted in Sentence (4), the minimum thermal performance of *building* envelope and equipment shall conform to Table 3.1.1.2.A.

Table 3.1.1.2.A
ZONE 1 - Compliance Packages for Space Heating Equipment with AFUE ≥ 90%
Forming Part of Sentence 3.1.1.2.(1)

Component	Compliance Package				
	A	B	C	D	E
Ceiling with Attic Space Minimum RSI (R)-Value(1)	10.56 (R60)	10.56 (R60)	10.56 (R60)	10.56 (R60)	10.56 (R60)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	3.34 + 1.32 ci (R19 + R7.5 ci)	3.87 (R22)	3.34 + 0.88 ci (R19 + R5 ci)	4.22 (R24)	3.34 + 0.88 ci (R19 + R5 ci)
Basement Walls Minimum RSI (R)-Value(1)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 (R20)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	—	—	—	—	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.8	1.6	1.6	1.6
Skylights Maximum U-Value(2)	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	90%	96%	94%	96%	92%
HRV Minimum Efficiency	55%	75%	75%	75%	60%
Domestic Hot Water Heater Minimum EF	0.67	0.83	0.67	0.67	0.83
Column 1	2	3	4	5	6

Notes to Table 3.1.1.2.A:
The following definitions apply: ci = continuous insulation

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m² • K)/W.
(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m² • K). See exceptions and use of alternative Energy Ratings (ER) in Article 3.1.1.8.

(2) Except as permitted in Sentence (4), where the space heating equipment efficiency is less than 90% or where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 3.1.1.2.BC.

Table 3.1.1.2.BC
ZONE 1 - Compliance Packages for Space Heating Equipment with AFUE < 90% or for Electric Space Heating
Forming Part of Sentence 3.1.1.2.(2)

Component	Compliance Package		
	A	B	C
Ceiling with Attic Space Minimum RSI (R)-Value(1)	10.56 + HH (R60 + HH)	10.56 + HH (R60 + HH)	10.56 + HH (R60 + HH)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	3.34 + 1.76 ci (R19 + R10 ci)	3.87 + 1.76 ci (R22 + R10 ci)	3.34 + 1.76 ci (R19 + R10 ci)
Basement Walls Minimum RSI (R)-Value(1)	3.52 (R20)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 + 1.40 ci (R20 + R8 ci)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.4	1.6	1.4
Skylights Maximum U-Value(2)	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	—	—	—
HRV Minimum Efficiency	80%	70%	75%
Domestic Hot Water Heater Minimum EF	—	—	—
Column 1	2	3	4

Notes to Table 3.1.1.2.BC:
The following definitions apply: ci = continuous insulation HH = 250 mm high heel

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m² • K)/W.
(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m² • K). See exceptions and use of alternative Energy Ratings (ER) in Article 3.1.1.8.

(3) Except as permitted in Sentence (4), where the space heating equipment efficiency cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Clause 12.2.1.2.(3)(a) of Division B of the *Building Code* or Subsection 3.1.2. of this Supplementary Standard.

(4) Where space heating is supplied by a solid fuel-burning appliance or an earth energy system, the compliance package is permitted to comply with Table 3.1.1.2.A.

3.1.1.3. Energy Efficiency for Buildings Located in Zone 2

(1) Except as required in Sentences (2) and (3) and permitted in Sentence (4), the minimum thermal performance of the *building* envelope and equipment shall conform to Table 3.1.1.3.A.

(2) Except as permitted in Sentence (4), where the space heating equipment efficiency is less than 90% or where *electric space heating* is used, the minimum thermal performance of the *building* envelope and equipment shall conform to Table 3.1.1.3.BC.

(3) Except as permitted in Sentence (4), where the space heating equipment efficiency cannot meet the requirements of the applicable compliance packages, energy efficiency compliance shall be achieved in accordance with Clause 12.2.1.2.(3)(a) of Division B of the *Building Code* or Subsection 3.1.2. of this Supplementary Standard.

(4) Where space heating is supplied by a solid fuel-burning appliance or an earth energy system, the compliance package is permitted to comply with Table 3.1.1.3.A.

Table 3.1.1.3.A
ZONE 2 - Compliance Packages for Space Heating Equipment with AFUE ≥ 90%
Forming Part of Sentence 3.1.1.3.(1)

Component	Compliance Package				
	A	B	C	D	E
Ceiling with Attic Space Minimum RSI (R)-Value(1)	10.56 (R60)	10.56 (R60)	10.56 (R60)	10.56 (R60)	10.56 (R60)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	3.34 + 1.32 ci (R19 + R7.5 ci)	3.34 + 0.88 ci (R19 + R5 ci)	4.22 (R24)	3.34 + 1.32 ci (R19 + R7.5 ci)	3.34 + 1.76 ci (R19 + R10 ci)
Basement Walls Minimum RSI (R)-Value(1)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 (R20)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	0.88 ci (R5)	0.88 ci (R5)	1.76 (R10)	—	—
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6	1.6	1.6	1.8
Skylights Maximum U-Value(2)	2.8	2.8	2.8	2.8	2.8
Space Heating Equipment Minimum AFUE	90%	92%	94%	94%	96%
HRV Minimum Efficiency	60%	70%	70%	70%	75%
Domestic Hot Water Heater Minimum EF	0.67	0.67	0.67	0.83	0.83
Column 1	2	3	4	5	6

Notes to Table 3.1.1.3.A:
The following definitions apply: ci = continuous insulation

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m² • K)/W.
(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m² • K). See exceptions and use of alternative Energy Ratings (ER) in Article 3.1.1.8.

Table 3.1.1.3.BC
ZONE 2 - Compliance Packages for Space Heating Equipment with AFUE < 90% or for Electric Space Heating
Forming Part of Sentence 3.1.1.3.(2)

Component	Compliance Package	
	A	B
Ceiling with Attic Space Minimum RSI (R)-Value(1)	10.56 + HH (R60 + HH)	10.56 + HH (R60 + HH)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	3.34 + 1.76 ci (R19 + R10 ci)	3.34 + 1.76 ci (R19 + R10 ci)
Basement Walls Minimum RSI (R)-Value(1)	3.52 + 2.11 ci (R20 + R12 ci)	3.52 (R20)
Below Grade Slab Entire Surface > 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	0.88 (R5)
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.4	1.6
Skylights Maximum U-Value(2)	2.8	2.8
Space Heating Equipment	—	ASHP: 2.0 COP
HRV Minimum Efficiency	75%	70%
Domestic Hot Water Heater Minimum EF	—	—
Column 1	2	3

Notes to Table 3.1.1.2.BC:
The following definitions apply: ci = continuous insulation; HH = 250 mm high heel; ASHP = air source heat pump; COP = Coefficient of Performance

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m^2 • K)/W.
(2) U-value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m^2 • K). See exceptions and use of alternative Energy Ratings (ER) in Article 3.1.1.8.

3.1.1.4. Elements Acting as a Thermal Bridge

(1) Except for a *foundation* wall, the insulated portion of a wall that incorporates wood stud framing elements that have a thermal resistance of less than RSI 0.90 shall be insulated to restrict heat flow through the studs by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 3.1.1.2., 3.1.1.3. and 3.1.1.10.

(2) Except as provided in Sentence (3), the thermal resistance of the insulated portion of a *building* assembly in Articles 3.1.1.2. and 3.1.1.3. that incorporates metal framing elements, such as steel studs and steel joists, that act as thermal bridges to facilitate heat flow through the assembly, shall be 20% greater than the values shown in Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC and Table 3.1.1.10., unless it can be shown that the heat flow is not greater than the heat flow through a wood frame assembly of the same thickness.

(3) Sentence (2) does not apply to *building* assemblies incorporating thermal bridges where the thermal bridges are insulated to restrict heat flow through the thermal bridges by a material providing a thermal resistance at least equal to 25% of the thermal resistance required for the insulated portion of the assembly in Articles 3.1.1.2., 3.1.1.3. and 3.1.1.10.

3.1.1.5. Log Wall Construction and Post, Beam and Plank Construction

(1) Except as provided in Sentences (2) and (3), log wall construction and post, beam and plank construction shall have a minimum thermal resistance of RSI 2.1 for the total assembly.

(2) The thermal resistance value in Sentence (1) for the total wall assembly may be reduced to not less than RSI 1.61 if,
(a) the thermal resistance of insulation for the exposed roof or ceiling required in Table 3.1.1.2.A. is increased by an amount equivalent to the reduction permitted in this Sentence, and
(b) for log walls, the logs have tongue-and-groove or splined joints.

(3) Where milled log walls are installed, the thermal resistance value in Sentence (1) for the total wall assembly does not apply if,
(a) the mean thickness of each log is not less than 150 mm,
(b) the thermal resistance of insulation for the exposed roof or ceiling required in Table 3.1.1.2.A is increased by RSI 0.53, and
(c) the logs have tongue-and-groove or splined joints.

(4) Where a log wall is constructed in accordance with Sentences (1) to (3), the log wall shall be deemed to comply with the requirements in Subsection 9.25.3. of Division B of the *Building Code*.

3.1.1.6. Insulation of Foundation Walls

(1) *Foundation* walls enclosing heated space shall be insulated from the underside of the subfloor to not more than 200 mm above the finished floor level of the *basement*. (See Appendix A.)

(2) The insulation required by Sentence (1) may be provided by a system installed,
(a) on the interior of the *foundation* wall,
(b) on the exterior face of the *foundation* wall, or
(c) partially on the interior and partially on the exterior, provided the thermal performance of the system is equivalent to that permitted in Clauses (a) or (b).

(3) If a *foundation* wall is constructed of hollow masonry units, one or more of the following shall be used to control convection currents in the core spaces,
(a) filling the core spaces,
(b) at least one row of semi-solid blocks at or below *grade*, or
(c) other similar methods.

(4) Masonry walls of hollow units that penetrate the ceiling shall be sealed at or near the ceiling adjacent to the roof space to prevent air within the voids from entering the *attic or roof space* by,
(a) capping with masonry units without voids, or
(b) installation of flashing material extending across the full width of the masonry.

(5) Except as provided in Sentences (6) and (7), where a portion of a *basement* slab or a portion of a *basement* slab edge is the only part of the slab that is at the exterior ground level such as a walk-out *basement*, or within 600 mm of the exterior ground level, those portions shall have perimeter insulation extend not less than 600 mm below the slab level. (See Appendix A.)

(6) Where the entire concrete slab is within 600 mm of the exterior ground level, the entire surface of the slab shall be insulated. (See Appendix A.)

(7) Where a slab contains heating ducts, pipes, tubes or cables, the entire heated surface of the slab that is in contact with the ground shall be insulated.

3.1.1.7. Thermal Resistance Values for Roof Access Hatches and Eaves

(1) The thermal resistance values for insulation required by Articles 3.1.1.2. and 3.1.1.3. for exposed ceilings with attic spaces are permitted to be reduced
(a) directly above access hatches, and
(b) near eaves to the extent made necessary by the roof slope and required ventilation clearances,

except that the thermal insulation value at the location directly above access hatches and inner surfaces of exterior walls shall be not less than RSI 3.52.

3.1.1.8. Thermal Performance of Windows, Skylights and Sliding Glass Doors

(1) Except as provided in Sentence (3) and except for sidelights to main entrance doors, windows, skylights and sliding glass doors shall meet
(a) the required overall coefficient of heat transfer in Tables 3.1.1.2.A and 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC and Table 3.1.1.10., or
(b) the corresponding energy rating in Table 3.1.1.8.

(2) The energy rating and the overall coefficient of heat transfer required for windows and sliding glass doors in a *residential occupancy* shall be determined in conformance with
(a) CAN/CSA-A440.2, “Fenestration Energy Performance”, or
(b) NFRC 100, “Procedure for Determining Fenestration Product U-factors” and NFRC 200, “Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence”.

(3) A *basement* window that incorporates a *loadbearing* structural frame shall be double glazed with a low-E coating.

Table 3.1.1.8.
Maximum U-Values and Minimum Energy Ratings (ER) for Windows, Skylights and Sliding Glass Doors
Forming Part of Sentence 3.1.1.8.(1)

Component	Maximum U-Values		Minimum Energy Ratings (ER)
	U-Value	U-Value	
Skylights	2.8	0.50	—
Windows and Sliding Glass Doors	2.0	0.35	17
	1.8	0.32	21
	1.6	0.28	25
	1.4	0.25	29
Column 1	2	3	4

3.1.1.9. Minimum Thermal Resistance of Doors

(1) Except for doors in enclosed unheated vestibules and cold cellars, and except for glazed portions of doors, all doors that separate heated space from unheated space shall have a thermal resistance of not less than RSI 0.7 where a storm door is not provided.

3.1.1.10. Additions to Existing Buildings

(1) Except as provided in Sentences (2) and (3), an addition to an existing *building* shall comply with
(a) one of the applicable compliance packages in Article 3.1.1.2. or 3.1.1.3. in accordance with this Subsection, or
(b) Sentences 3.1.1.1.(7) to (10), except that the Tables referenced in Sentences 3.1.1.1.(7) and (8) are permitted to be substituted with Table 3.1.1.10.
(See Appendix A.)

(2) For the purpose of Sentences 3.1.1.1.(7) to (10) and Subsection 3.1.2., the addition may be considered independently or in combination with the existing *building*, regardless of the thermal characteristics of the existing *building* envelope.
(See Appendix A.)

(3) A one-*storey* sunroom addition to an existing *building* shall be deemed to be in compliance with Articles 3.1.1.2. and 3.1.1.3. and Subsection 3.1.2., provided that the overall coefficient of heat transfer of
(a) doors, windows and walls has a maximum U-Value of
  (i) 1.4 if the *building* is located in Zone 1 with less than 5000 heating degree days,
  (ii) 1.4 if the *building* is located in Zone 2 with 5000 or more heating degree days, or
  (iii) 1.2 if the *building* uses *electric space heating*, and
(b) roofs and skylights has a maximum U-Value of 2.6.
(See Appendix A.)

Table 3.1.1.10.
Thermal Performance Requirements for Additions to Existing Buildings(3)
Forming Part of Sentence 3.1.1.10.(2)

Component	Zone 1 Less than 5000 Degree-Days	Zone 2 5000 or more Degree-Days	*Electric Space Heating* Zones 1 and 2
Ceiling with Attic Space Minimum RSI (R)-Value(1)	10.56 + HH (R60 + HH)	10.56 + HH (R60 + HH)	10.56 + HH (R60 + HH)
Ceiling Without Attic Space Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Exposed Floor Minimum RSI (R)-Value(1)	5.46 (R31)	5.46 (R31)	5.46 (R31)
Walls Above Grade Minimum RSI (R)-Value(1)	3.34 + 0.88 ci (R19 + R5 ci)	3.34 + 0.88 ci (R19 + R5 ci)	3.34 + 1.76 ci (R19 + R10 ci)
Basement Walls Minimum RSI (R)-Value(1)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 + 1.40 ci (R20 + R8 ci)	3.52 + 1.76 ci (R20 + R10 ci)
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Heated Slab or Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value(1)	1.76 (R10)	1.76 (R10)	1.76 (R10)
Windows and Sliding Glass Doors Maximum U-Value(2)	1.6	1.6	1.4
Skylights Maximum U-Value(2)	2.8	2.8	2.8
Column 1	2	3	4

Notes to Table 3.1.1.10.:
The following definitions apply: ci = continuous insulation HH = 250 mm high heel

(1) The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in (m² • K)/W.
(2) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in W/(m² • K). See exceptions and use of alternative Energy Ratings (ER) in Article 3.1.1.8.
(3) The *building* need not conform to minimum efficiency requirements for HRV's, domestic hot water heaters and space heating equipment required in Article 3.1.1.2. or 3.1.1.3.

3.1.2. Performance Compliance

3.1.2.1. Required Performance Level (See Appendix A.)

(1) The performance level shall be measured based on the simulated annual energy use of the *building*.

(2) The simulated annual energy use of the proposed *building* shall not be greater than the simulated annual energy use of the *building* as if it met the performance level of a permitted compliance package in Subsection 3.1.1. selected on the basis of
(a) Zone location,
(b) energy source, and
(c) equipment efficiency.

(3) The simulated annual energy use shall be calculated for the
(a) proposed *building*, and
(b) *building* conforming to the applicable compliance package.

(4) For the purpose of calculations required in Sentence (3),
(a) a recognized annual energy use simulation software shall be used to calculate annual energy use,
(b) local climatic data shall be used, and
(c) the equivalent domestic hot water, appliance and other plug-in loads shall be assumed in both calculations.

(5) Except as provided in Sentence (6), for the purpose of Clauses (3)(a) and (3)(b), the air leakage rate of a *dwelling unit* may be assumed to be
(a) 2.5 air changes per hour at an air pressure differential of 50 Pa for detached homes, and
(b) 3.0 air changes per hour at an air pressure differential of 50 Pa for attached homes.

(6) For the purpose of Clause (3)(a), values less than Sentence (5) may be used provided that the values are verified with air leakage tests as conducted in accordance with the requirements of Clause 12.2.1.2.(3)(a) of Division B of the *Building Code*.

(7) For the purpose of calculations required in Clause (3)(b), the *building* shall have identical dimensions and orientation as the proposed design, except where the glazing to wall ratio exceeds 22%, the glazing area shall be reduced proportionally along each exposure until the limit is met.

(8) For the purpose of calculations required in Clause (3)(b), where frame construction is used, the design of the framing system shall assume a spacing of
(a) 406 mm o.c. for wall studs,
(b) 406 mm o.c. for exposed floors joists, roof joists and roof rafters, and
(c) 610 mm o.c. for roof trusses.

(9) For the purpose of calculations required in Clause (3)(b), *building* envelope component properties and characteristics not specifically described in this Subsection and Subsection 2.1.1. shall be modeled the same for both the proposed design and a design based on a permitted compliance package unless it can be shown such properties and characteristics of the proposed design constitute additional energy conservation measures.

(10) Where the overall thermal performance of the proposed *building* envelope is less than the envelope performance of the compliance package that is compared against it, the reduction in the performance level of the *building* envelope shall not be more than 25%.

3.1.3. Other Acceptable Compliance Methods

3.1.3.1. Other Acceptable Compliance Methods (See Appendix A.)

(1) A *building* shall be deemed to be in compliance with the requirements of Subsection 3.1.1. provided that the *building* is in compliance with the technical requirements of NRCan,"Energy Star for New Homes Standard Version 12.1".

Appendix A

Explanatory Material for SB-12

Chapter 1: General

A-Table 1.4.1.2. National Fenestration Rating Council.

Name	Address	Contact
NFRC	National Fenestration Rating Council 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770, USA	ph: 301-589-1776 fax: 301-589-3884 web site: www.nfrc.org
Column 1	2	3

Chapter 2: Acceptable Solutions for Achieving Energy Efficiency Compliance Before January 1, 2017.

A-2.1.1. Compliance Packages.

Individual components of compliance packages found in Tables 2.1.1.2.A, 2.1.1.2.B and 2.1.1.2.C and Tables 2.1.1.3.A, 2.1.1.3.B and 2.1.1.3.C are not permitted to be mixed with similar components of other compliance packages either found within the same Table or similar components of compliance packages found in other Tables.

A-2.1.1.1.(3) Mechanical Equipment.

Compliance package tables referred to in this Sentence contain energy efficiency requirements for some or all mechanical equipment. Where a compliance package includes an energy efficiency level for space heating equipment, domestic hot water heater or heat recovery ventilator, conformance with the package can only be achieved if the building is equipped with the mechanical equipment specified in the compliance package.

A-2.1.1.1.(7), (8) and (10) Fenestration to Wall Ratio.

When the fenestration to wall ratio is calculated, all fenestration areas and the entire peripheral wall above grade is included. The peripheral wall area includes floor rim board areas and all above grade wall areas. It is essentially the sum of the above grade walls that separate conditioned spaces from unconditioned spaces, and adjacent units. In the case of an attached garage, the walls that are common with the house and the garage are also included in the wall area calculations. For attached homes, the above grade portions of the walls that are common to other conditioned units are also included in the wall area. The fenestration area is based on the rough structural opening provided for windows, skylights, sliding glass doors, and for glazed portions in doors. For A–frame structures with steeply inclined roofs that also act as walls, the roof portion that serves as the interior wall area can be considered as the wall area in calculating the fenestration to wall ratio.

A-2.1.1.2.(6)(a), (8)(a), and (9)(a) RSI Reduction of Above Grade Walls in Conjunction with Upgrading U-Value of Glazing - Zone 1.

Where the above grade wall insulation is permitted to be reduced to RSI 3.52, one of the required compensating measures is to upgrade the window U-Value in accordance with Clauses 2.1.1.1.(8)(a) to (c). This upgrade is independent of the glazing upgrade that may be required due to a fenestration ratio that is higher than 17%. In cases where the above grade insulation is reduced to RSI 3.52 and compensated for with a fenestration upgrade, and the building has more than 17% fenestration, the glazing would be required to be upgraded a second time.

A-2.1.1.3.(6)(a) and (7)(a) RSI Reduction of Above Grade Walls in Conjunction with Upgrading U-Value of Glazing - Zone 2.

Where the above grade wall insulation is permitted to be reduced to RSI 3.52, one of the required compensating measures is to upgrade the window U-Value in accordance with Clauses 2.1.1.1.(8)(a) to (c). This upgrade is independent of the glazing upgrade that may be required due to a fenestration ratio that is higher than 17%. In cases where the above grade insulation is reduced to RSI 3.52 and compensated for with a fenestration upgrade, and the building has more than 17% fenestration, the glazing would be required to be upgraded a second time.

A-2.1.1.6.(1) Permitted Basement Insulation Gap.

The provision refers to the gap between basement insulation and the floor level that might be left at the bottom of a foundation wall. Insulation can be extended from the underside of the subfloor to the floor level of the basement, or a gap may be left provided that the gap is not more than 200 mm when measured from floor level to where the insulation is terminated.

A-2.1.1.6.(5) and (6) Slab Insulation.

Except where specifically required in a compliance package, the entire surface of the slab is only required to be insulated when the entire concrete slab is completely within 600 mm of the exterior ground level. A typical example would be a slab on ground construction without a basement. If a slab is partially at the exterior ground level (i.e. a walkout basement) or partially within 600 mm of the exterior surface, then only those parts are required to be insulated with perimeter insulation.

Where a slab of a house is completely or partially within 600 mm of the exterior ground level, either the entire surface of the slab or the perimeter of the slab is required to be insulated but not at both locations.

A-2.1.1.10.(1) Additions to Existing Houses.

In Clause 2.1.1.10.(1)(a), the design and construction of an addition to an existing house can conform to the minimum building envelope and mechanical equipment requirements where an applicable compliance package is selected from Article 2.1.1.2. or 2.1.1.3.

Alternatively, Clause 2.1.1.10.(1)(b) provides a simpler approach and permits an addition to an existing building to comply with the appropriate column in Table 2.1.1.10. since the design and construction of an existing building is unlikely to be determined and matched against an applicable compliance package from Article 2.1.1.2. or 2.1.1.3. However, the addition is required to comply with Sentences 2.1.1.1.(7) to (10). Glazing upgrade of the addition is required if it falls within the scope of Sentence 2.1.1.1.(8). Table 2.1.1.10. further exempts both an addition and an existing building from conforming to minimum efficiency requirements for HRV's, domestic hot water heaters and space heating equipment required in Article 2.1.1.2. or 2.1.1.3. This would permit existing mechanical equipment to serve the entire building provided that it has the necessary capacity.

A-2.1.1.10.(2) Treatment of Additions.

Where the fenestration to wall ratio of an addition is calculated or the annual energy use of an addition is modeled for the purpose of demonstrating compliance, calculations can be done for only the addition or the for entire house including the existing part of the house. Regardless, the thermal characteristics of the existing building, existing window and wall areas can be used in the fenestration ratio calculations. Similarly, in the case of modeling, existing building components that have not been altered can be used as they are for the reference house and for the proposed design.

A-2.1.1.10.(3) Sunroom Additions to Existing Houses.

A sunroom addition to an existing house referred in this Sentence applies to a one-storey structure built substantially with wall/roof fenestration and glass doors but which sometimes contain unglazed low wall panels that support wall glazing above it. Since the glazing percentage of sunrooms exceeds the limits permitted for compliance packages in Articles 2.1.1.2. and 2.1.1.3. and performance compliance methods may not be possible, these sunrooms are exempt from compliance package requirements, provided that the thermal performance of the glazing is enhanced further than what is required for non-sunroom additions.

The maximum U-Values for doors, sliding glass doors, wall glazing and supporting wall panels for sunroom additions in Clause 2.1.1.10.(3)(a) have been derived from the maximum U-Values for window and sliding glass doors in additions to existing buildings in Table 2.1.1.10. and then upgraded in accordance with Sentence 2.1.1.1.(8).

The maximum U-Value of 2.6 for roofs and skylights for sunroom additions in Clause 2.1.1.10.(3)(b) has been derived from upgrading the maximum U-Value of 2.8 for skylights in additions to existing buildings in Table 2.1.1.10. consistent with the methodology used in Sentence 2.1.1.1.(8).

A-2.1.2.1. Application of Performance Compliance Path.

This Article requires two annual energy use simulations. These simulations compare the simulated annual energy use of the proposed building with the simulated annual energy use of an applicable compliance package. The simulated annual energy use of the proposed building cannot exceed the simulated annual energy use of an applicable compliance package.

Where a performance compliance path is selected, it is the intent of Sentence 2.1.2.1.(2) that the performance level of the compliance package takes into account the requirements listed in Subsection 2.1.1. that are applicable to that compliance package. Similarly, the annual energy use calculation for a compliance package referenced in Clause 2.1.2.1.(3)(b) shall take into account the requirements listed in Subsection 2.1.1. that are applicable to that compliance package.

For the purpose of calculating the annual energy use of a proposed design and a design based on a selected compliance package, the following software may be used:

- HOT2000 version 9.34c or newer versions
- other software referenced by the Energuide Rating System
- RESNET accredited Home Energy Rating System (HERS) software, such as:
  - OptiMiser
  - EnergyGauge
  - EnergyInsights
  - REM/Rate

A-2.1.3.1. Other Acceptable Compliance Methods.

Compliance with the technical requirements of the Energy Star Program may be achieved using either the prescriptive path or the performance path required by NRCan,"Energy Star for New Homes: Technical Specifications – Ontario".

Clause 2.1.1.1 of NRCan,"Energy Star for New Homes: Technical Specifications – Ontario" allows the designer to use an NRCan-approved compliance option described in NRCan, "Energy Star for New Homes: Compliance Options" (Ontario).

Only the technical provisions contained in NRCan,"Energy Star for New Homes: Technical Specifications – Ontario" and other Energy Star documents it references are mandatory under this Supplementary Standard. However, in addition to the technical requirements, the administrative requirements of the Energy Star documents may be used to demonstrate compliance with Sentence 2.1.3.1.(1) by obtaining an Energy Star label for the building.

Chapter 3: Acceptable Solutions for Achieving Energy Efficiency Compliance After December 31, 2016.

A-3.1.1. Compliance Packages.

Individual components of compliance packages found in Tables 3.1.1.2.A and, 3.1.1.2.BC and Tables 3.1.1.3.A and 3.1.1.3.BC are not permitted to be mixed with similar components of other compliance packages either found within the same Table or similar components of compliance packages found in other Tables.

A-3.1.1.1.(3) Mechanical Equipment.

Compliance package tables referred to in this Sentence contain energy efficiency requirements for some or all mechanical equipment. Where a compliance package includes an energy efficiency level for space heating equipment, domestic hot water heater or heat recovery ventilator, conformance with the package can only be achieved if the building is equipped with the mechanical equipment specified in the compliance package.

A-3.1.1.1.(7), (8) and (10) Fenestration to Wall Ratio.

When the fenestration to wall ratio is calculated, all fenestration areas and the entire peripheral wall above grade is included. The peripheral wall area includes floor rim board areas and all above grade wall areas. It is essentially the sum of the above grade walls that separate conditioned spaces from unconditioned spaces, and adjacent units. In the case of an attached garage, the walls that are common with the house and the garage are also included in the wall area calculations. For attached homes, the above grade portions of the walls that are common to other conditioned units are also included in the wall area. The fenestration area is based on the rough structural opening provided for windows, skylights, sliding glass doors, and for glazed portions in doors. For A–frame structures with steeply inclined roofs that also act as walls, the roof portion that serves as the interior wall area can be considered as the wall area in calculating the fenestration to wall ratio.

A-3.1.1.6.(1) Permitted Basement Insulation Gap.

The provision refers to the gap between basement insulation and the floor level that might be left at the bottom of a foundation wall. Insulation can be extended from the underside of the subfloor to the floor level of the basement, or a gap may be left provided that the gap is not more than 200 mm when measured from floor level to where the insulation is terminated.

A-3.1.1.6.(5) and (6) Slab Insulation.

Except where specifically required in a compliance package, the entire surface of the slab is only required to be insulated when the entire concrete slab is completely within 600 mm of the exterior ground level. A typical example would be a slab on ground construction without a basement. If a slab is partially at the exterior ground level (i.e. a walkout basement) or partially within 600 mm of the exterior surface, then only those parts are required to be insulated with perimeter insulation.

Where a slab of a house is completely or partially within 600 mm of the exterior ground level, either the entire surface of the slab or the perimeter of the slab is required to be insulated but not at both locations.

A-3.1.1.10.(1) Additions to Existing Houses.

In Clause 3.1.1.10.(1)(a), the design and construction of an addition to an existing house can conform to the minimum building envelope and mechanical equipment requirements where an applicable compliance package is selected from Article 3.1.1.2. or 3.1.1.3.

Alternatively, Clause 3.1.1.10.(1)(b) provides a simpler approach and permits an addition to an existing building to comply with the appropriate column in Table 3.1.1.10. since the design and construction of an existing building is unlikely to be determined and matched against an applicable compliance package from Article 3.1.1.2. or 3.1.1.3. However, the addition is required to comply with Sentences 3.1.1.1.(7) to (10). Glazing upgrade of the addition is required if it falls within the scope of Sentence 3.1.1.1.(8). Table 3.1.1.10. further exempts both an addition and an existing building from conforming to minimum efficiency requirements for HRV's, domestic hot water heaters and space heating equipment required in Article 3.1.1.2. or 3.1.1.3. This would permit existing mechanical equipment to serve the entire building provided that it has the necessary capacity.

A-3.1.1.10.(2) Treatment of Additions.

Where the fenestration to wall ratio of an addition is calculated or the annual energy use of an addition is modeled for the purpose of demonstrating compliance, calculations can be done for only the addition or the for entire house including the existing part of the house. Regardless, the thermal characteristics of the existing building, existing window and wall areas can be used in the fenestration ratio calculations. Similarly, in the case of modeling, existing building components that have not been altered can be used as they are for the reference house and for the proposed design.

A-3.1.1.10.(3) Sunroom Additions to Existing Houses.

A sunroom addition to an existing house referred in this Sentence applies to a one-storey structure built substantially with wall/roof fenestration and glass doors but which sometimes contain unglazed low wall panels that support wall glazing above it. Since the glazing percentage of sunrooms exceeds the limits permitted for compliance packages in Articles 3.1.1.2. and 3.1.1.3. and performance compliance methods may not be possible, these sunrooms are exempt from compliance package requirements, provided that the thermal performance of the glazing is enhanced further than what is required for non-sunroom additions.

The maximum U-Values for doors, sliding glass doors, wall glazing and supporting wall panels for sunroom additions in Clause 3.1.1.10.(3)(a) have been derived from the maximum U-Values for window and sliding glass doors in additions to existing buildings in Table 3.1.1.10. and then upgraded in accordance with Sentence 3.1.1.1.(8).

The maximum U-Value of 2.6 for roofs and skylights for sunroom additions in Clause 3.1.1.10.(3)(b) has been derived from upgrading the maximum U-Value of 2.8 for skylights in additions to existing buildings in Table 3.1.1.10. consistent with the methodology used in Sentence 3.1.1.1.(8).

A-3.1.2.1. Application of Performance Compliance Path.

This Article requires two annual energy use simulations. These simulations compare the simulated annual energy use of the proposed building with the simulated annual energy use of an applicable compliance package. The simulated annual energy use of the proposed building cannot exceed the simulated annual energy use of an applicable compliance package.

Where a performance compliance path is selected, it is the intent of Sentence 3.1.2.1.(2) that the performance level of the compliance package takes into account the requirements listed in Subsection 3.1.1. that are applicable to that compliance package. Similarly, the annual energy use calculation for a compliance package referenced in Clause 3.1.2.1.(3)(b) shall take into account the requirements listed in Subsection 3.1.1. that are applicable to that compliance package.

For the purpose of calculating the annual energy use of a proposed design and a design based on a selected compliance package, the following software may be used:

- HOT2000 version 9.34c or newer versions
- other software referenced by the Energuide Rating System
- RESNET accredited Home Energy Rating System (HERS) software, such as:
  - OptiMiser
  - EnergyGauge
  - EnergyInsights
  - REM/Rate

A-3.1.3.1. Other Acceptable Compliance Methods.

Compliance with the technical requirements of the Energy Star Program may be achieved using either the prescriptive path or the performance path required by NRCan,“Energy Star for New Homes Standard Version 12.1”.

Only the technical provisions contained in NRCan,“Energy Star for New Homes Standard Version 12.1” and other Energy Star documents it references are mandatory under this Supplementary Standard. However, in addition to the technical requirements, the administrative requirements of the Energy Star documents may be used to demonstrate compliance with Sentence 3.1.3.1.(1) by obtaining an Energy Star label for the building.