January 12, 2015

TO: BUILDING CODE USERS

RE: ERRATA PAGES TO THE 2012 BUILDING CODE COMPENDIUM EDITION

The enclosed errata pages to the 2012 Building Code Compendium edition are identified by the notation “Errata Issued January 12, 2015" at the bottom of the page below the page number.

These replacement pages should be inserted in your Building Code following the insertion of the January 1, 2015 update amendment package issued October 24, 2014.
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) Part 1 of Division B applies to all buildings.

(2) Subject to Article 1.1.2.6., Parts 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, used for major occupancies classified as,

(a) Group A, assembly occupancies,

(b) Group B, care, care and treatment or detention occupancies, or

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

(b) exceeding 600 m² in building area or exceeding three storeys in building height and used for major occupancies classified as,

(a) Group C, residential occupancies,

(b) Group D, business and personal services occupancies,

(c) Group E, mercantile occupancies, or

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

Section 3.11. of Division B applies to public pools.
Section 3.12. of Division B applies to public spas.
Section 3.15. of Division B applies to signs.

**1.1.2.3. Application of Part 8**

Subject to Article 1.1.2.6., 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**

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 m², 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**

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**

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.

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.
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</table>
(4) In an assembly occupancy with fixed seats, the minimum number of spaces designated for wheelchair use and the minimum number of fixed seats designated for adaptable seating shall conform to Table 3.8.2.1. (See Appendix A.)

Table 3.8.2.1.
Designated Wheelchair Spaces and Adaptable Seating
Forming Part of Sentence 3.8.2.1.(4)

<table>
<thead>
<tr>
<th>Number of Fixed Seats in Seating Area</th>
<th>Minimum Number of Spaces Designated for Wheelchairs</th>
<th>Minimum Number of Fixed Seats Designated for Adaptable Seating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 20</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>21 to 40</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>41 to 60</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>61 to 80</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>81 to 100</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Over 100</td>
<td>3% of the seating capacity</td>
<td>The greater of 5 seats or 5% of the aisle seating capacity</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

(5) In a Group C major occupancy apartment building, not less than 15% of all suites of residential occupancy shall be provided with a barrier-free path of travel from the suite entrance door into the following rooms and spaces that shall be located at the same level as the barrier-free path of travel:
   (a) at least one bedroom,
   (b) at least one bathroom conforming to Sentence (6),
   (c) a kitchen or kitchen space, and
   (d) a living room or space.
(See Appendix A.)

(6) Bathrooms required by Clause (5)(b) shall,
(a) contain a lavatory,
(b) contain a water closet,
(c) contain a bathtub or a shower,
(d) have wall reinforcement installed in conformance with Sentence 3.3.4.9.(1), and
(e) be designed to permit a wheelchair to turn in an open space not less than 1500 mm in diameter.
(See Appendix A.)

(7) The number of suites described in Sentence (5) having 1, 2 or 3 or more bedrooms shall be in proportion to the number of suites of residential occupancy having 1, 2 or 3 or more bedrooms in the remainder of the building. (See Appendix A.)

(8) The suites described in Sentence (5) shall be distributed among storeys that are required by Article 3.8.2.1. to have a barrier-free path of travel, having regard to the height of the suite above grade.

3.8.2.2. Access to Parking Areas

(1) A barrier-free path of travel shall be provided from the entrance described in Article 3.8.1.2. to,
(a) an exterior parking area, where exterior parking is provided, and (See Appendix A.)
(b) at least one parking level, where a passenger elevator serves an indoor parking level.

(2) The vehicular entrance to and egress from at least one parking level described in Sentence (1) and all areas intended to be used by wheelchair accessible vehicles to gain access to a parking space on that level shall have a vertical clearance of not less than 2100 mm.
3.8.2.2. If an exterior passenger loading zone is provided, it shall have,

(a) an access aisle not less than 2440 mm wide and 7400 mm long adjacent and parallel to the vehicle pull-up space,
(b) a curb ramp, where there are curbs between the access aisle and the vehicle pull-up space, and
(c) a clearance height of not less than 3600 mm at the vehicle pull-up space and along the vehicle access and egress routes.

3.8.2.3. Washrooms Required to be Barrier-Free (See Appendix A.)

(1) A barrier-free path of travel shall be provided to barrier-free washrooms designed to accommodate persons with disabilities in conformance with the requirements in Articles 3.8.3.8. to 3.8.3.12.

(2) The number of universal washrooms conforming to Article 3.8.3.12. provided in a building in which a washroom is required by Subsection 3.7.4. shall conform to Table 3.8.2.3.A. (See Appendix A.)

<table>
<thead>
<tr>
<th>Number of Storeys in Building</th>
<th>Minimum Number of Universal Washrooms per Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>1</td>
</tr>
<tr>
<td>4 to 6</td>
<td>2</td>
</tr>
<tr>
<td>Over 6</td>
<td>3, plus 1 for each additional increment of 3 storeys in excess of 6 storeys</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
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</tbody>
</table>

(3) Where a washroom required by Subsection 3.7.4. is provided in a storey that is required by Article 3.8.2.1. to have a barrier-free path of travel,
(a) the washroom shall conform to Articles 3.8.3.8. to 3.8.3.11., and
(b) the number of barrier-free water closet stalls provided in the washroom shall conform to Table 3.8.2.3.B. (See Appendix A.)

(4) Except as permitted in Sentence (5), where washrooms in excess of those required by Subsection 3.7.4. are provided in a storey that is required by Article 3.8.2.1. to have a barrier-free path of travel, the additional washrooms shall be designed to accommodate persons with disabilities in conformance with the requirements of,
(a) Articles 3.8.3.8. to 3.8.3.11., or
(b) Article 3.8.3.12.

(5) Washrooms need not conform to Sentence (4) provided,
(a) they are located within suites of residential occupancy,
(b) other barrier-free washrooms are provided on the same floor level within 45 m, or
(c) they are located in an individual suite that is,
   (i) used for a business and personal services occupancy, a mercantile occupancy or an industrial occupancy,
   (ii) less than 300 m² in area, and
   (iii) completely separated from, and without access to, the remainder of the building.
(See Appendix A.)

(6) Where a washroom required by Subsection 3.7.4. is provided in a storey that is not required by Article 3.8.2.1. to have a barrier-free path of travel, the washroom shall,
(a) conform to Article 3.8.3.9. and Sentences 3.8.3.10.(5) and 3.8.3.11.(5), and
(b) be provided with at least one ambulatory water closet stall conforming to Sentence 3.8.3.8.(10).
(See Appendix A.)
(d) unless the bathtub is free-standing, a grab bar conforming to Sentence 3.8.3.8.(7) that is located at each end of the bathtub and is,

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(i) at least 750 mm long,
(ii) mounted vertically from a point 200 mm above the rim of the bathtub, and
(iii) mounted within 150 mm from the edge of the bathtub, measured horizontally.
(See Appendix A.)

(5) Where a barrier-free bathtub is provided, a clear floor space at least 900 mm wide and 1 440 mm long shall be provided along the full length of the bathtub.

3.8.3.14. Reserved

3.8.3.15. Shelves or Counters for Telephones (See Appendix A.)

(1) Where more than one telephone is provided for public use, a built-in shelf or counter shall be provided for at least one telephone.

(2) A shelf or counter described in Sentence (1) shall,
(a) be level,
(b) be not less than 500 mm wide and 350 mm deep, and
(c) have, for each telephone provided, a clear space that,
   (i) is not less than 810 mm wide and 1 370 mm deep, centred on the telephone, and
   (ii) has no obstruction within 250 mm above the surface.

(3) The top surface of a section of the shelf or counter described in Sentence (1) shall,
(a) be located not less than 775 mm and not more than 875 mm from the finished floor, and
(b) have a knee space not less than 740 mm high.

(4) Where a wall-hung telephone is provided above the shelf or counter section described in Sentence (3), it shall be located so that the receiver and coin or card slot are not more than 1 200 mm from the finished floor.

(5) Where more than one telephone is provided for public use in a normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel, a built-in shelf or counter that conforms to Sentences (2), (3) and (4) shall be provided for at least one telephone.

3.8.3.16. Drinking Fountains (See Appendix A.)

(1) Where more than one drinking fountain is provided, at least one shall be a barrier-free fountain that conforms to Sentences (2) and (3).

(2) A barrier-free drinking fountain shall,
(a) have a spout located near the front of the unit not more than 915 mm above the finished floor,
(b) be equipped with controls that are easily operated from a wheelchair using one hand with a force of not more than 22 N or operates automatically,
(c) project the water at least 100 mm high,
(d) provide the water stream at a vertical angle of up to,
   (i) 30°, where the spout is located less than 75 mm from the front of the fountain, or
   (ii) 15°, where the spout is located not less than 75 mm and not more than 125 mm from the front of the fountain,
(e) be detectable by a cane at a level at or below 680 mm from the finished floor, and
3.8.3.16. where the drinking fountain is cantilevered, meet the following requirements:

(i) be mounted not more than 915 mm above the finished floor,
(ii) provide a clearance height under the fountain of not less than 735 mm above the finished floor,

(iii) have a clear depth under the fountain of not less than 450 mm,
(iv) have a clear width under the fountain of not less than 760 mm,
(v) have a toe clearance height under the fountain of at least 350 mm above the finished floor from a point 300 mm back from the front edge to the wall, and
(vi) have a depth at the base of the fountain of at least 700 mm.

(3) A barrier-free drinking fountain required by Sentence (1) shall have a clear floor space in front of, or adjacent to, the fountain that is a minimum of 810 mm deep and 1370 mm wide.

(4) Where more than one drinking fountain is provided in a normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel, at least one shall be a barrier-free fountain that conforms to Sentences (2) and (3).

3.8.3.17. Platforms

(1) A tactile attention indicator conforming to Article 3.8.3.18. shall be installed along any edge of a platform that is,

(a) not protected by a guard, and
(b) higher than 250 mm above the finished floor or ground or sloped steeper than 1 in 3.

(2) Sentence (1) does not apply to the front edges of stages.

3.8.3.18. Tactile Attention Indicators

(1) Where a tactile attention indicator is required, it shall conform to Sentence (2) and Clauses 4.1.1. and 4.1.2. of ISO 23599, “Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators”.

(2) The depth of the tactile attention indicator shall be not less than 300 mm and not more than 610 mm.
(4) Where a fire alarm system is required in a hotel, heat detectors shall be installed in every room in a suite and in every room not located in a suite in a floor area containing a hotel, other than washrooms within a suite, saunas, refrigerated areas and swimming pools.

9.10.18.5. Smoke Detectors in Recirculating Air Handling Systems

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

9.10.18.6. Portions of Buildings Considered as Separate Buildings

(1) Except as provided in Sentence (2), where a vertical fire separation having a fire-resistance rating of at least 1 h separates a portion of a building from the remainder of the building and there are no openings through the fire separation other than those for piping, tubing, wiring and conduit, the requirements for fire alarm and detection systems is permitted to be applied to each portion so separated as if it were a separate building.

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

9.10.18.7. Central Vacuum Systems

(1) 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 activation of the fire alarm system.

9.10.18.8. Open-Air Storage Garages

(1) Except as required in Article 9.10.18.1., 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.

9.10.18.9. Fire Alarm System in a Hotel

(1) If a fire alarm system is required in a building containing a hotel, a single stage fire alarm system shall be provided.

9.10.18.10. 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 of the systems.

(2) Sentence (1) does not apply to a building that contains only dwelling units and has no dwelling unit above another dwelling unit.

9.10.19. Smoke Alarms

9.10.19.1. Required Smoke Alarms (See Appendix A.)

(1) Smoke alarms conforming to CAN/ULC-S531, “Smoke Alarms”, shall be installed in each dwelling unit and in each sleeping room not within a dwelling unit.
9.10.19.1. Smoke Alarms

(2) Smoke alarms required in Sentence (1) shall have a visual signalling component conforming to the requirements in 18.5.3. (Light, Color and Pulse Characteristics) of NFPA 72, “National Fire Alarm and Signaling Code”.

(3) The visual signalling component required in Sentence (2) need not,
(a) be integrated with the smoke alarm provided it is interconnected to it,
(b) be on battery backup, or
(c) have synchronized flash rates, when installed in a dwelling unit.

(4) The luminous intensity for visual signalling components required in Sentence (2) that are installed in sleeping rooms shall be a minimum of 175 cd.

(5) Smoke alarms required in Sentence (1) shall be installed on or near the ceiling.

9.10.19.2. Sound Patterns of Smoke Alarms

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

9.10.19.3. Location of Smoke Alarms (See Appendix A.)

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

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

(3) A smoke alarm required in Sentence (1) shall have a visual signalling component conforming to the requirements in 18.5.3. (Light, Color and Pulse Characteristics) of NFPA 72, “National Fire Alarm and Signaling Code”.

(4) The visual signalling component required in Sentence (3) need not,
(a) be integrated with the smoke alarm provided it is interconnected to it,
(b) be on battery backup, or
(c) have synchronized flash rates, when installed in a dwelling unit.

(5) The luminous intensity for visual signalling components required in Sentence (3) that are installed in sleeping rooms shall be a minimum of 175 cd.

(6) Smoke alarms required in Sentence (1) shall be installed on or near the ceiling.

9.10.19.4. Power Supply

(1) Except as provided in Sentences (2) and (3), smoke alarms required in Sentence 9.10.19.1.(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 7 days in the normal condition, followed by 4 min of alarm.

(2) Where the building is not supplied with electrical power, smoke alarms are permitted to be battery operated.
A-3.8.3.15. Telephone Shelves or Counters.

Built-in shelves or counters for public telephones must be designed to accommodate persons using text telephones (TT). These devices may also be referred to as teletypewriters (TT) or telecommunication devices for the deaf (TDD). These devices require a level surface at least 500 mm wide by 350 mm deep with no obstruction above that space within 250 mm. If a wall-hung telephone or other obstruction extends to less than 250 mm from the shelf or counter, an equivalent clear space must be provided on either side of each telephone.

At least one telephone should be equipped with a volume control on a receiver that generates a magnetic field compatible with the T-switch of a hearing aid. The lower portion of the shelf or counter is intended for persons using a wheelchair; therefore all parts of the operating mechanism of the telephone above this portion should be within the reach of a wheelchair user.

Accessible drinking fountains require sufficient knee and toe clearance below to permit a person in a wheelchair to move close enough to the fountain to easily access the water stream. The 700 mm deep clear space in addition to the fountain depth of 450 mm minimum is required for the wheelchair user to pull into the fountain. That approach space may overlap with an adjacent barrier-free path of travel but should not prevent other building users from passing when the drinking fountain is being used.

![Diagram of Drinking Fountain Clearances](image)

Figure A-3.8.3.16.
Clearances Below Drinking Fountain

A-3.9.3. Portable Classrooms.

Case 1

Distance between classrooms: 6 m or more
3.2.2. applies to each classroom
3.2.3. does not apply between classrooms

Extinguisher required
Access; street; hydrant; fire alarm; - not required
Case 2

Distance between classrooms: less than 6 m
3.2.2. applies to each classroom
3.2.3. applies to each classroom
  i.e. rating and construction of facing walls determined by limiting distance

Extinguisher required
Access; street; hydrant; fire alarm; - not required

Case 3

Distance between classrooms: less than 6 m
No. of classrooms in group: 6 max.
Distance between groups: not less than 12 m
3.2.2. applies to each group
3.2.3. does not apply between classrooms within a group if the facing walls have a rating of 45 min, on the inside
3.2.3. applies between groups

Extinguisher required
Access; street; hydrant; fire alarm - not required

Case 4

Distance between classrooms: less than 6 m
No. of classrooms in group: 6 max.
Distance between groups: not less than 12 m
3.2.2. applies to each group
3.2.3. does not apply between classrooms within a group
3.2.3. applies between groups

Extinguisher required
Fire alarm required (extension of main system)
Access; street; hydrant; - not required
Case 5

Distance between classrooms: less than 6 m
No. of classrooms in group: 6 max.
Distance between groups: not less than 12 m
3.2.2. applies to each group
3.2.3. does not apply between classrooms within a group
3.2.3. applies between groups

Extinguisher required
Fire alarm required (extension of main system)
Access; street; hydrant; - not required

All other cases require: - Fire extinguisher
- Access
- Street
- Hydrant
- Fire alarm: extension of existing system

A-3.11.3.1.(9)(a) Barrier-Free Path of Travel at Pool Deck.
The barrier-free path of travel throughout the pool deck area may be included in the 1800 mm wide pool deck space. The width of the barrier-free path of travel must not be reduced where a column or other obstruction interrupts the pool deck space.

A-3.11.3.1.(14) Tactile Indicator at Pool Deck.
The tactile indicator at the of the pool deck, signals a warning to people with no or low vision that they have reached the water’s edge. The tactile indicator may be built-in or applied but must not present a tripping hazard. The indicator should be a continuous band installed parallel to the outside edge of the gutter around the pool perimeter.

A-3.11.3.2.(1) Outdoor Pool Deck.
Where an outdoor pool deck is provided, a barrier-free path that is an exterior walk is required between the building and the outdoor pool, including access from change rooms and showers, and throughout the pool deck area.

A-3.11.3.3.(4) Pool Lift Space Requirements.
The clear space required to transfer from a wheelchair to the pool lift may overlap the required barrier-free path of travel within the pool deck.

A-3.11.5.1.(4)(b) Ramps into Public Swimming Pools.
Despite the requirement that the hard surface area piercing the pool deck and leading to a submerged ramp must be at least 750 mm wide, it is recommended that the clear width of the access point to the ramp be at least the same width of the ramp and consistent with Clause 3.8.3.4.(1)(d).
October 24, 2014

TO: BUILDING CODE USERS

The enclosed replacement pages to the 2012 Building Code Compendium Edition¹ reflect recent amendments to the Building Code (O. Reg. 332/12) as well as to several Supplementary Standards and Appendix A. In particular, the 2012 Building Code Compendium is amended by:

- O. Reg. 191/14 effective January 1, 2015
  - for new provisions related to midrise wood buildings
  - for changes to Building Materials Evaluation Commission fees
  - for changes to professional design
  - minor housekeeping changes including revisions to editions of referenced standards
- Revisions to Supplementary Standards and Appendix A
  - SA-1 corresponding to regulatory changes
  - SB-1 to include elevations for Ontario locations
  - SB-2, SB-3 and SB-12 related to minor housekeeping changes
  - Appendix A related to regulatory changes and other minor housekeeping items

Changes to the Code are identified on the amendment pages by a unique symbol and a corresponding effective date. These pages should be inserted in your Code for January 1, 2015. Some of these pages may supersede amendment pages issued previously in the January 1, 2014 update amendment package containing pending amendment pages with an effective date of January 1, 2015.

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), TTY 1-800-268-7095 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

January 1, 2015 update
(Containing O. Reg. 191/14)
COMMENCEMENT

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


Amending Ontario Regulation 360/13 comes into force on the 1st day of January, 2015.


Amending Ontario Regulation 368/13 comes into force on the 1st day of January, 2015.

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

Editorial correction issued for January 1, 2014.

Editorial correction issued for January 1, 2014.

Editorial correction issued for January 1, 2015.

Editorial correction issued for January 1, 2015.

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:

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

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<td>Sprinkling of retirement homes</td>
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<td>O. Reg. 360/13</td>
<td>December 20, 2013</td>
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<td>O. Reg. 361/13</td>
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<td>January 1, 2014</td>
<td>Housekeeping changes, fireplace emission limits</td>
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<td>Midrise wood construction, accessibility, housekeeping changes</td>
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<td></td>
<td>Revise Supplementary Standards SA-1, SB-1, SB-2, SB-3, SB-12</td>
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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.

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<td>MR-13-S-24</td>
<td>September 1, 2013</td>
<td>January 1, 2014</td>
<td>Revise Table 1.3.1.2. of Division B</td>
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<td>Revise Supplementary Standards SA-1, SB-5 and SB-12</td>
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Building Code Act, 1992

S.O. 1992, Chapter 23

as amended by:  
S.O. 1997  c. 24, s. 224 except s. 224(17) in force June 17, 1998
S.O. 1997  c. 30, Schedule B, s. 1-20 in force April 6, 1998
S.O. 1999  c. 12, Schedule M, s. 1-11 in force December 22, 1999
S.O. 2000  c. 5, s. 7 in force January 1, 2001
S.O. 2000  c. 26, Schedule K, s. 1 in force December 6, 2000
S.O. 2002  c. 9, s. 5, 6(1), (2), 16, 24, 25, 27, 31(1), 34, 40(1), 41(1), 43, 51(6), (9), (11)-(15), 53(3), 54, 55 in force September 1, 2003
S.O. 2002  c. 9, s. 1-4, 6(3), 7-15, 17-19, 20(1), (2), 21-23, 26, 28-30, 31(2), 32, 33, 35-39, 40(2), (3), 41(2), 42, 44-50, 51(1), (2), (4), (5), (7), (8), (10), 52, 53(1), (2) in force July 1, 2005
S.O. 2002  c. 17, Schedule C, s. 1-6 in force July 1, 2005
S.O. 2002  c. 17, Schedule F, Table in force January 1, 2003
S.O. 2005  c. 33, s. 1 in force December 15, 2005
S.O. 2006  c. 19, Schedule O, s. 1 in force June 22, 2006
S.O. 2006  c. 21, Schedule F, s. 104, 136(1) in force July 25, 2007
S.O. 2006  c. 22, s. 112 in force July 3, 2007
S.O. 2006  c. 32, Schedule C, s. 3 in force January 1, 2007
S.O. 2006  c. 33, Schedule Z.3, s. 4 in force January 1, 2009
S.O. 2006  c. 35, Schedule C, s. 8 in force August 20, 2007
S.O. 2009  c. 12, Schedule J in force May 14, 2009
S.O. 2009  c. 33, Schedule 6, s. 43 in force June 1, 2011
S.O. 2009  c. 33, Schedule 21, s. 2(1) in force December 15, 2009
S.O. 2009  c. 33, Schedule 21, s. 2(4), (7), (8) and (9) in force July 1, 2010
S.O. 2009  c. 33, Schedule 21, s. 2(2), (3), (5) and (6) in force January 1, 2011
S.O. 2010  c. 19, Schedule 2, s. 1, s. 2(1), (2) in force April 1, 2011
S.O. 2014  c. 7, Schedule 3, s. 1 in force July 23, 2014

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Forms

(9) The power to prescribe forms under clause (1)(f) does not include the power to prescribe a form for a particular purpose where there is a form for that purpose prescribed in the building code or approved by the Minister. 2002, c. 9, s. 11(2); 2006, c. 21, Sched. F, s. 104(4).

Code of Conduct

7.1(1) A principal authority shall establish and enforce a code of conduct for the chief building official and inspectors. 2002, c. 9, s. 12.

Purposes

(2) The following are the purposes of a code of conduct:

1. To promote appropriate standards of behaviour and enforcement actions by the chief building official and inspectors in the exercise of a power or the performance of a duty under this Act or the building code.

2. To prevent practices which may constitute an abuse of power, including unethical or illegal practices, by the chief building official and inspectors in the exercise of a power or the performance of a duty under this Act or the building code.

3. To promote appropriate standards of honesty and integrity in the exercise of a power or the performance of a duty under this Act or the building code by the chief building official and inspectors. 2002, c. 9, s. 12.

Contents

(3) A code of conduct must provide for its enforcement and include policies or guidelines to be used when responding to allegations that the code has been breached and disciplinary actions that may be taken if the code is breached. 2002, c. 9, s. 12.

Public Notice

(4) The principal authority shall ensure that the code of conduct is brought to the attention of the public. 2002, c. 9, s. 12.

Construction and Demolition

Building Permits

8.(1) No person shall construct or demolish a building or cause a building to be constructed or demolished unless a permit has been issued therefor by the chief building official. 1992, c. 23, s. 8(1); 1997, c. 30, Sched. B, s. 7(1).

Application for Permit

(1.1) An application for a permit to construct or demolish a building may be made by a person specified by regulation and the prescribed form or the form approved by the Minister must be used and be accompanied by the documents and information specified by regulation. 2002, c. 9, s. 14(1); 2006, c. 21, Sched. F, s. 104(5).

Issuance of Permits

(2) The chief building official shall issue a permit referred to in subsection (1) unless,

(a) the proposed building, construction or demolition will contravene this Act, the building code or any other applicable law;

(b) the applicant is a builder or vendor as defined in the Ontario New Home Warranties Plan Act and is not registered under that Act;

(b.1) the Architects Act or the Professional Engineers Act requires that the proposed construction of the building be designed by an architect or a professional engineer or a combination of both and the proposed construction is not so designed;

(c) a person who prepared drawings, plans, specifications or other documents or gave an opinion concerning the compliance of the proposed building or construction with the building code does not have the applicable qualifications, if any, set out in the building code or does not have the insurance, if any, required by the building code;

(d) the plans review certificate, if any, required for the application does not contain the prescribed information;

(e) the application for the permit is not complete; or

(f) any fees due have not been paid. 2002, c. 9, s. 14(2); 2014, c. 7, Sched. 3, s. 1.
Conditional Permit

(3) Even though all requirements have not been met to obtain a permit under subsection (2), the chief building official may issue a conditional permit for any stage of construction if,

(a) compliance with by-laws passed under sections 34 and 38 of the Planning Act and with such other applicable law as may be set out in the building code has been achieved in respect of the proposed building or construction;
(b) the chief building official is of the opinion that unreasonable delays in the construction would occur if a conditional permit is not granted; and
(c) the applicant and such other person as the chief building official determines agree in writing with the municipality, upper-tier municipality, board of health, planning board, conservation authority or the Crown in right of Ontario to,

(i) assume all risk in commencing the construction,
(ii) obtain all necessary approvals in the time set out in the agreement or, if none, as soon as practicable,
(iii) file plans and specifications of the complete building in the time set out in the agreement,
(iv) at the applicant’s own expense, remove the building and restore the site in the manner specified in the agreement if approvals are not obtained or plans filed in the time set out in the agreement, and
(v) comply with such other conditions as the chief building official considers necessary, including the provision of security for compliance with subclause (iv). 1992, c. 23, s. 8(3); 1997, c. 30, Sched. B, s. 7(2); 1999, c. 12, Sched. M, s. 5(1); 2002, c. 17, Sched. F, Table.

Delegation re Conditional Permits

(3.1) A principal authority may, in writing, delegate to the chief building official the power to enter into agreements described in clause (3)(c) and may impose conditions or restrictions with respect to the delegation. 2002, c. 9, s. 14(3).

Criteria

(4) In considering whether a conditional permit should be granted, the chief building official shall, among other matters, have regard to the potential difficulty in restoring the site to its original state and use if required approvals are not obtained. 1992, c. 23, s. 8(4).

Registration

(5) Any agreement entered into under clause (3)(c) may be registered against the land to which it applies and the municipality, upper-tier municipality, board of health, planning board, conservation authority or the Province of Ontario, as the case may be, is entitled to enforce its provisions against the owner and, subject to the Registry Act and the Land Titles Act, any and all subsequent owners of the land. 1999, c. 12, Sched. M, s. 5(2); 2002, c. 17, Sched. F, Table.

Enforcement of Agreement

(6) If the chief building official determines that a building has not been removed or a site restored as required by an agreement under clause (3)(c), the chief building official may cause the building to be removed and the site restored and for this purpose the chief building official, an inspector and their agents may enter upon the land and into the building governed by the agreement at any reasonable time without a warrant. 1992, c. 23, s. 8(6).

Lien

(7) If the building is in a municipality, the municipality shall have a lien on the land for the amount spent on the removal of the building and restoration of the site under subsection (6) and the amount shall have priority lien status as described in section 1 of the Municipal Act, 2001 or section 3 of the City of Toronto Act, 2006, as the case may be. 2002, c. 17, Sched. F, Table; 2006, c. 32, Sched. C, s. 3(1).

Deemed Taxes

(8) If the building is in territory without municipal organization, the amount spent on the removal of the building and restoration of the site under subsection (6) is a debt owing to the Crown and may be collected under the Provincial Land Tax Act, 2006 as if it was tax imposed under that Act. 1992, c. 23, s. 8(8); 2006, c. 33, Sched. Z.3, s. 4(1).

Disclosure of Prescribed Information

(8.1) The chief building official shall, within the period and in the manner prescribed by regulation, give to the corporation designated under section 2 of the Ontario New Home Warranties Plan Act the information prescribed by regulation relating to permits issued under this section and the applications for those permits. 2009, c. 33, Sched. 21, s. 2(3).

Referral of Plans, etc.

(9) Upon reasonable grounds, the chief building official or registered code agency may refer drawings, plans or specifications accompanying applications for permits or the reports arising out of the general review of the construction of a building to the Association of Professional Engineers of Ontario or the Ontario Association of Architects for the purpose of determining if the Professional Engineers Act or...
of Toronto Act, 2006, as the case may be. 2002, c. 17, Sched. C, s. 5(2); 2006, c. 32, Sched. C, s. 3(6).

Deemed Taxes

(11) If the building is in territory without municipal organization, the amount determined by the judge to be recoverable is a debt owing to the Crown and may be collected under the Provincial Land Tax Act, 2006 as if it was tax imposed under that Act. 2002, c. 9, s. 26; 2006, c. 33, Sched. Z.3, s. 4(3).

Maintenance Inspection Programs

Maintenance Inspections

15.10.1(1) An inspector may enter upon land and into buildings at any reasonable time without a warrant for the purpose of conducting a maintenance inspection. 2006, c. 22, s. 112(8).

Order

(2) An inspector who finds a contravention of this Act or the building code may make an order directing compliance with this Act or the building code and may require the order to be carried out immediately or within such time as is specified in the order. 2006, c. 22, s. 112(8).

Service

(3) The order shall be served on the person whom the inspector believes is contravening this Act or the building code. 2006, c. 22, s. 112(8).

Form and Contents

(4) The prescribed form or the form approved by the Minister must be used for the order and it must contain sufficient information to specify the nature of the contravention and its location and the nature of the compliance that is required. 2006, c. 22, s. 112(8).

Posting

(5) The inspector may post a copy of the order on the site of the maintenance inspection. 2006, c. 22, s. 112(8).

Qualifications

Qualifications for Various Positions

15.11(1) A person is not eligible to be appointed as a chief building official unless he or she has the qualifications set out in the building code for the position. 2002, c. 9, s. 27.

Same

(2) Subsection (1) also applies to every inspector who has the same powers and duties as a chief building official in relation to sewage systems or to plumbing, to the extent of those powers and duties. 2002, c. 9, s. 27.

Qualifications for Inspectors

(3) A person is not eligible to be appointed as an inspector under this Act unless he or she has the qualifications set out in the building code for the position. 2002, c. 9, s. 27.

Qualifications for Registered Code Agencies

(4) A person is not eligible to be appointed as a registered code agency under this Act unless the person has the qualifications and meets the requirements set out in the building code. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(7).

Qualifications for Designers

(5) A person is not eligible to engage in any of the following activities unless he, she or it has the qualifications and meets the requirements set out in the building code to be a designer:

1. Prepare a design or give other information or opinion concerning whether a building or part of a building complies with the building code, if the design, information or opinion is to be submitted to a chief building official in connection with,
   i. an application for a permit,
   ii. a request for the authorization referred to in subsection 8(12) or (13), or
   iii. a report described in paragraph 2.
2. If a general review of the construction of a building or part of a building is required by the building code, prepare a written report based on the general review. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(7).

Same

(6) In subsection (5),

“design” includes a plan, specification, sketch, drawing or graphic representation respecting the construction of a building. 2002, c. 9, s. 27.

Prohibition

(7) No person shall represent, directly or indirectly, that he, she or it has the qualifications or meets the requirements established under this section if the person does not have those qualifications or does not meet those requirements. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(7).

Non Application

(8) Subsection (5) does not apply to a holder of any licence or certificate issued under the Architects Act or the Professional Engineers Act. 2014, c. 7, Sched. 3, s. 2.
Qualifications re Sewage Systems

15.12(1) No person shall engage in the business of constructing on site, installing, repairing, servicing, cleaning or emptying sewage systems unless the person has the qualifications and meets the requirements set out in the building code. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(8).

Prohibition

(2) No person shall represent, directly or indirectly, that he, she or it has the qualifications or meets the requirements referred to in subsection (1) if the person does not have those qualifications or does not meet those requirements. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(8).

Duty to Notify the Chief Building Official

(3) If any part of the construction of a building will be undertaken by a person described in subsection (1) (a “specified person”), no person shall begin or continue the construction of a sewage system, or cause it to begin or continue, unless the person has given the chief building official the prescribed information about the specified person. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(8).

Duty to Have Insurance

15.13(1) Every registered code agency, every person referred to in subsection 15.11(5) and such other persons as may be specified in the building code who construct buildings are required to have the insurance coverage specified by the building code. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(9).

Exception

(2) Subsection (1) does not apply to a person who is a builder or vendor within the meaning of the Ontario New Home Warranties Plan Act in respect of the construction of a building. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(10).

Prohibition

(3) No person shall represent, directly or indirectly, that he, she or it has the insurance coverage required by subsection (1) if the person does not have that insurance coverage. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(10).

Qualification or Requirement

(4) If the building code so provides, the insurance coverage constitutes a qualification or requirement for the purposes of a position referred to in section 15.11. 2002, c. 9, s. 27.

Duty to Notify the Chief Building Official

(5) If any part of the construction of a building will be undertaken by a person who is required by subsection (1) to have insurance (a “specified person”), no person shall begin or continue the construction, or cause it to begin or continue, unless the person has given the chief building official the prescribed information about the specified person and the insurance coverage of the specified person. 2002, c. 9, s. 27; 2006, c. 19, Sched. O, s. 1(10).

Powers and Duties of Registered Code Agencies

Notice to Chief Building Official

15.14(1) Every registered code agency shall give the chief building official such information as may be prescribed by regulation. 2002, c. 9, s. 28.

Notice to the Director

(2) Every registered code agency shall give the director such information as may be prescribed by regulation. 2002, c. 9, s. 28.

Functions of Registered Code Agencies

15.15 The following are the functions that a registered code agency may be appointed to perform in respect of the construction of a building:

1. Review designs and other materials to determine whether the proposed construction of a building complies with the building code.
2. Issue plans review certificates.
3. Issue change certificates.
4. Inspect the construction of a building for which a permit has been issued under this Act.
5. Issue final certificates.
6. Perform such other functions as may be authorized under this Act or in the building code. 2002, c. 9, s. 28.

Scope of Agency's Powers

15.16(1) A registered code agency may exercise the powers and perform the duties specified in this Act and the building code in respect only of the functions and the building specified in a particular appointment. 2002, c. 9, s. 28.

Confidentiality

(2) A registered code agency shall not collect, use or disclose information except in accordance with the building code. 2002, c. 9, s. 28.

Persons Acting on Behalf of an Agency

15.17(1) A registered code agency may authorize, in writing, one or more prescribed persons to exercise powers and perform its functions under this Act, subject to such conditions as may be prescribed by regulation. 2002, c. 9, s. 28.
6. **REPEALED**: 2009, c. 33, Sched. 21, s. 2(7).

5. governing the design of buildings and the use to which they may be put;

4. setting out the applicable laws with which compliance must be achieved before a conditional permit may be issued under subsection 8(3);

3. prescribing requirements and circumstances for the purposes of subsection 8(2.2) and prescribing the period within which the chief building official is required to make a decision under subsection 8(2.2) and the manner of determining when the period begins;

3.4.1 prescribing the period within which the chief building official is required to inform an applicant under subsection 8(2.3) and the manner of determining when the period begins;

3.5 prescribing the information that a plans review certificate must contain under subsection 8(2.1) and a change certificate must contain under subsection 8(14);

3.4 prescribing the information that a chief building official is required to give under subsection 8(8.1) and prescribing the period within which and the manner in which the chief building official shall give the information;

3.2 prescribing the persons who may apply for a permit under section 8 and the information to be provided with an application for a permit under section 8;

3.3 prescribing the information that a plans review certificate must contain for the purposes of clause 8(2)(d);

3.1 establishing objectives governing the standards for the construction and demolition of buildings;

2. setting out rules and policies to be observed in the interpretation of the building code by any person exercising a power or discretion conferred under the Act or the building code;

1. prescribing any part of the construction of a building described in clauses 11(3)(a) and (b) of the Architects Act or subsection 12(4) and clause 12(5)(a) of the Professional Engineers Act to be designed by an architect or a professional engineer or a combination of both;

10. requiring any part of the design, construction or demolition of a building to be under the general review of an architect or a professional engineer or a combination of both and that copies of reports arising from the general review be provided to the chief building official or to a registered code agency;

9.1 requiring the manner in which a referral to the chief building official or to a registered code agency in respect of any method, matter or thing;

9. requiring any part of the design, construction or demolition of such documents or information as is prescribed;

8. determining an increase in hazard for the purposes of section 10;

7. setting out rules and policies to be observed in the interpretation of the building code by any person exercising a power or discretion conferred under the Act or the building code;

6. REPEALED: 2009, c. 33, Sched. 21, s. 2(7).

5. setting out rules and policies to be observed in the interpretation of the building code by any person exercising a power or discretion conferred under the Act or the building code;

4. determining an increase in hazard for the purposes of section 10;

3. adopting by reference, in whole or in part, with such changes as the Lieutenant Governor in Council considers necessary, any code, formula, standard, guideline, protocol or procedure and requiring compliance with any code, formula, standard, guideline, protocol or procedure that is so adopted;

2. setting out rules and policies to be observed in the interpretation of the building code by any person exercising a power or discretion conferred under the Act or the building code;

1. requiring any part of the construction of a building described in clauses 11(3)(a) and (b) of the Architects Act or subsection 12(4) and clause 12(5)(a) of the Professional Engineers Act to be designed by an architect or a professional engineer or a combination of both;
official or registered code agency and requiring permission to be received from the official or agency before the building or part may be occupied;

19. exempting any building or person or class thereof from compliance with all or any part of this Act and the regulations and prescribing conditions for the exemption;

20. prescribing the form of a warrant and the form in which the information upon oath will be taken under section 21;

21. requiring the alteration of any part of an existing building where construction in relation to the building affects that part;

22. requiring the payment of fees in respect of applications to the Building Materials Evaluation Commission and prescribing the amounts thereof;

22.1 prescribing the manner in which the Minister’s written interpretations under section 28.1 are to be made available to the public;

23. designating materials evaluation bodies for the purposes of section 29;

24. establishing criteria to be followed by the Minister in respect of a ruling under section 29;


26. prescribing the persons to whom notice shall be given of the issuance of a permit, the time for giving the notice and the class of buildings for which notice is required;

27. defining, for the purposes of this Act and the building code, any word or expression not defined in this Act, and in so doing may define a word or expression differently for different provisions;

28. prescribing forms and providing for their use or requiring that forms provided by the Minister or the director be used, and prescribing the information that must be contained in the forms;

29. prescribing boards of health, planning boards and conservation authorities that are responsible for the enforcement of the provisions of this Act related to sewage systems and the municipalities and territory without municipal organization in which they will have jurisdiction to carry out the enforcement;

30. permitting chief building officials or registered code agencies, subject to such conditions as are set out in the building code, to allow the use of materials, systems and building designs other than those prescribed in the building code with respect to the construction of buildings;

31. governing the location of sewage systems;

32. designating areas in which any class of sewage system may not be established;

33. prescribing qualifications for chief building officials, inspectors, registered code agencies, designers and other persons referred to in section 15.12 and related matters including,

   i. requiring different qualifications for different classes of officials, inspectors, agencies, designers and other persons,
   ii. requiring assessments or examinations in connection with obtaining or maintaining the required qualifications,
   iii. establishing one or more registers identifying persons with qualifications and such other information as the regulation may require, and
   iv. requiring fees to be paid in connection with the qualifications;

34. establishing certification, registration or licensing schemes for chief building officials, inspectors, registered code agencies, designers and other persons referred to in sections 15.11 and 15.12 (qualifications) and 15.12 (qualifications related to sewage systems) which may include provision for,

   i. the eligibility or ineligibility of classes of persons to obtain certification, registration or a licence,
   ii. categories or classes of certification, registration or licence,
   iii. application for the issuance, amendment or renewal of a certificate, registration or a licence,
   iv. the issuance, amendment or renewal of a certificate, registration or a licence or the refusal to do so,
   v. suspension, revocation or cancellation of a certificate, registration or a licence,
   vi. the imposition of conditions relating to a certificate, registration or licence, including conditions relating to the qualifications of directors, officers, partners, employees and others associated with the holder of the certificate, registration or licence, conditions relating to the manner in which specified persons carry out activities under this Act and the building code and conditions relating to insurance coverage, including the kinds and amounts of insurance and the circumstances in which a person will be considered to be covered by insurance,
   vii. the establishment and maintenance of one or more registers containing information about the holders of certificates, registrations or licences and containing such information as may be given to the director under paragraph 35.1, and
   viii. fees payable in connection with certification, registration or licensing;
35. prescribing an appeal to a prescribed tribunal from a refusal to issue or renew a certificate, registration or licence or a suspension, revocation or cancellation of a certificate, registration or licence, prescribing the circumstances in which the decision appealed from takes effect immediately despite the appeal, and prescribing the circumstances in which the tribunal may stay the decision pending the outcome of the appeal;

35.1 requiring the Ontario Association of Architects and the Association of Professional Engineers of Ontario to give the prescribed information to the director;

35.2 prescribing fees payable to the Crown by the Ontario Association of Architects and the Association of Professional Engineers of Ontario in connection with the registers referred to in paragraphs 33 and 34 and in respect of the development of training materials for a purpose described in paragraph 33 or 34;

35.3 prescribing the persons who are required under subsection 15.13(1) to have insurance coverage and prescribing the kinds and amounts of insurance that are required and the circumstances in which the person will be considered to be covered by insurance;

35.4 prescribing additional functions that registered code agencies may perform;

35.5 prescribing the manner in which registered code agencies and persons authorized by them under subsection 15.17(1) are required to perform any of their functions;

35.6 prescribing the manner in which a registered code agency is authorized to collect, use and disclose information;

35.7 prescribing circumstances in which a registered code agency may be appointed in respect of a building even though an inspector or another registered code agency has already carried out a function described in section 15.15;

35.8 prescribing circumstances in which a registered code agency cannot be appointed, including circumstances that would constitute a conflict of interest for a registered code agency;

35.9 prescribing the information that a registered code agency is required to give to the director or to the chief building official;

35.10 prescribing the classes of persons that may be authorized by a registered code agency under subsection 15.17(1), the conditions to which the authorization may be subject and the information that must be included in a certificate of authorization;

35.11 prescribing certificates and the form of certificates referred to in subsection 15.18(2), the information that the certificates are required to contain and the circumstances and manner in which registered code agencies are permitted to issue them;

35.12 prescribing the circumstances in which the appointment of a registered code agency may be terminated and the conditions that must be met before the termination of an appointment, including,

i. requiring the consent of the director and authorizing the director to impose conditions and restrictions in connection with the consent, and

ii. authorizing an appeal to a person specified in the regulations from a decision of the director or conditions imposed by the director;

36. designating persons, specifying powers of a chief building official or inspector that those designated persons may exercise to enforce this Act and the building code in relation to the qualifications of persons described in sections 15.11 and 15.12 and the requirement in section 15.13 for insurance coverage, and establishing conditions for the exercise of the specified powers;

37. prescribing any transitional matters necessary for the regulation of sewage systems, including matters relating to,

i. licensing and certification and the qualifications of inspectors and persons described in subsection 15.12(1),

ii. certificates of approval and orders issued under the Environmental Protection Act,

iii. enforcement issues,

iv. matters commenced under the Environmental Protection Act, including appeals,

v. records and documents to be kept or transferred and the payment of associated costs,

vi. certification of records and their use in courts,

vii. the continuation of matters commenced under the Environmental Protection Act, and

viii. the transfer of responsibilities involving any municipality or any board of health, conservation authority or planning board prescribed under section 3.1;

38. permitting the Building Code Commission to sit in one or more divisions simultaneously upon such conditions as may be prescribed in the regulation;

39. authorizing one member of the Building Code Commission, with the approval of the chair or vice-chair, to hear and determine any matter and deeming the member to constitute the commission for that purpose, under such conditions as may be prescribed in the regulation;
39.1 prescribing relationships for the purposes of clause 23(3)(d) (eligibility to be a member of the Commission);
39.2 prescribing the period within which the Building Code Commission must hold a hearing in respect of a dispute described in clause 24(1)(b) or (c);
39.3 providing for transitional provisions relating to the effect of a repeal or re-enactment of any provision of this Act;
40. prescribing any matter referred to in this Act as prescribed. 1992, c. 23, s. 34(1); 1997, c. 30, Sched. B, s. 17(1-4); 1999, c. 12, Sched. M, s. 11; 2002, c. 9, s. 51(1, 2, 4-14); 2006, c. 19, Sched. O, s. 1(12-17); 2006, c. 35, Sched. C, s. 8(3); 2009, c. 33, Sched. 21, s. 2(5-7); 2014, c. 7, Sched. 3, s. 3.

Standards for Existing Buildings
(2) The Lieutenant Governor in Council may make regulations to establish standards that existing buildings must meet even though no construction is proposed, including regulations,
(a) prescribing any or all of the matters set out in subsection (1) as applicable to existing buildings;
(b) establishing standards for maintenance, retrofit, operation, occupancy and repair;
(c) prescribing standards related to resource conservation and environmental protection; and
(d) prescribing standards, methods and equipment for the inspection, cleaning, disinfecting and emptying of sewage systems. 1992, c. 23, s. 34(2); 1997, c. 30, Sched. B, s. 17(1-4); 1999, c. 12, Sched. M, s. 11; 2002, c. 9, s. 51(1, 2, 4-14); 2006, c. 19, Sched. O, s. 1(12-17); 2006, c. 35, Sched. C, s. 8(3); 2009, c. 33, Sched. 21, s. 2(5-7); 2014, c. 7, Sched. 3, s. 3.

Discretionary Maintenance Inspection Programs
(2.1) The Lieutenant Governor in Council may make regulations governing programs established under clause 7(1)(b.1), including regulations,
(a) governing the classes of buildings and area affected by a program;
(b) governing the type and manner of inspections that are conducted under a program and the frequency of the inspections;
(c) authorizing the principal authority that establishes a program, as an alternative to conducting an inspection, to accept a certificate, in a form approved by the Minister, that is signed by a person who belongs to a class of persons specified by the regulations and that confirms that the person has conducted an inspection and is of the opinion that the building that was inspected complies with the standards prescribed under clause (2)(b) that are enforced by the program. 2006, c. 22, s. 112(11).

Sewage System Maintenance Inspection Programs
(2.2) The Lieutenant Governor in Council may make regulations establishing and governing programs to enforce standards prescribed under clause (2)(b) in relation to sewage systems, including regulations,
(a) governing the classes of sewage systems affected by the program;
(b) requiring a principal authority that has jurisdiction in the area affected by the program to administer the program for that area and to conduct inspections under the program;
(c) governing the type and manner of inspections that are conducted under the program and the frequency of the inspections;
(d) authorizing the principal authority that administers the program, as an alternative to conducting an inspection, to accept a certificate, in a form approved by the Minister, that is signed by a person who belongs to a class of persons specified by the regulations and that confirms that the person has conducted an inspection and is of the opinion that the sewage system that was inspected complies with the standards prescribed under clause (2)(b) that are enforced by the program. 2006, c. 22, s. 112(11).

Application
(3) A regulation made under this section applies to buildings whether erected before or after the coming into force of this Act. 1992, c. 23, s. 34(3).

Limited Application
(4) Any regulation made under this section may be limited in its application territorially or to any class of activity, matter, person or thing. 1997, c. 30, Sched. B, s. 17(6).

Same
(4.1) A class under this Act may be defined with respect to any attribute, quality or characteristic and may be defined to consist of, include or exclude any specified member whether or not with the same attributes, qualities or characteristics. 1997, c. 30, Sched. B, s. 17(6).

Retroactive
(4.2) A regulation made under paragraph 37 of subsection (1) may be retroactive. 1997, c. 30, Sched. B, s. 17(6).

Purposes
(5) The purposes of the regulations made under this section are,
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) Part 1 of Division B apply to all buildings.

(2) Subject to Article 1.1.2.6., Parts 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, used for major occupancies classified as,

(a) Group A, assembly occupancies,

(b) Group B, care, care and treatment or detention occupancies, or

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

(b) exceeding 600 m² 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.
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.

Section 3.11. of Division B applies to public pools.

Section 3.12. of Division B applies to public spas.

Section 3.15. of Division B applies to signs.

1.1.2.3. Application of Part 8

Subject to Article 1.1.2.6., 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

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

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

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.

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 boarding house means a building,
(a) that has a building height not exceeding three storeys and a building area not exceeding 600 m²,
(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.

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 described in Sentence 1.3.3.5.(1) of Division C means a certificate described in Sentence 3.7.4.3.(7) 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.
Closure means a device or assembly for closing an opening through a fire separation or an exterior wall, such as a door, a shutter, wired glass and glass block, and includes all components such as hardware, closing devices, frames and anchors.

Combustible means that a material fails to meet the acceptance criteria of CAN/ULC-S114, “Test for Determination of Non-Combustibility in Building Materials”.

Combustible construction means a type of construction that does not meet the requirements for noncombustible construction.

Combustible fibres means finely divided combustible vegetable or animal fibres and thin sheets or flakes of such materials which, in a loose, unbaled condition, present a flash fire hazard, and includes cotton, wool, hemp, sisal, jute, kapok, paper and cloth.

Combustible liquid means any liquid having a flash point at or above 37.8°C and below 93.3°C.

Compliance alternative means a substitute for a requirement in another Part of Division B that is listed in Part 10 or 11 of Division B, and “C.A.” has a corresponding meaning.

Compressed gas means,

(a) any contained mixture or material having a vapour pressure exceeding one or both of the following,

(i) 275.8 kPa (absolute) at 21°C, or
(ii) 717 kPa (absolute) at 54°C, or

(b) any liquid having a vapour pressure exceeding 275.8 kPa (absolute) at 37.8°C.

Computer room means a room,

(a) that contains electronic computer or data processing equipment such as main frame type,
(b) that is separated from the remainder of the building for the purpose of controlling the air quality in the room by a self-contained climate control system, and
(c) that has an occupant load of not more than one person for each 40 m² of the room.

Conditioned space means space within a building in which the temperature is controlled to limit variation in response to the exterior ambient temperature or interior differential temperatures by the provision, either directly or indirectly, of heating or cooling over substantial portions of the year.

Construction index means a level on a scale of 1 to 8 determined in accordance with Table 11.2.1.1.A. of Division B designating the expected performance level of the building structure with respect to the type of construction and fire protection of an existing building, and “C.I.” has a corresponding meaning.

Contained use area means a supervised area containing one or more rooms in which occupant movement is restricted to a single room by security measures not under the control of the occupant.

Continuous vent means a vent pipe that is an extension of a vertical section of a branch or fixture drain.

Cooktop means a cooking surface having one or more burners or heating elements.

Critical level means the level of submergence at which a back-siphonage preventer ceases to prevent back-siphonage.

Dangerous goods means those products or substances that are regulated by the Transportation of Dangerous Goods Regulations made under the Transportation of Dangerous Goods Act, 1992 (Canada).

Day camp means a camp or resort that admits persons for a continuous period not exceeding 24 hours.

Day nursery means a day nursery as defined in the Day Nurseries Act.

Dead end means a pipe that terminates with a closed fitting.

Dead load means the weight of all permanent structural and nonstructural components of a building.

Deep foundation means a foundation unit that provides support for a building by transferring loads either by end-bearing to a soil or rock at considerable depth below the building or by adhesion or friction, or both, in the soil or rock in which it is placed. Piles are the most common type of deep foundation.

Design activities means the activities described in subsection 15.11(5) of the Act.

Design bearing pressure means the pressure applied by a foundation unit to soil or rock, which pressure is not greater than the allowable bearing pressure.
Design capacity means, in the definition of sewage system, the total daily design sanitary sewage flow determined in accordance with Article 8.2.1.3. of Division B.

Designer means the person responsible for the design.

Design load means the load applied to a foundation unit, which load is not greater than the allowable load.

Detention occupancy (Group B, Division 1) means an occupancy in which persons are under restraint or are incapable of self preservation because of security measures not under their control.

Developed length means, when applied to a pipe and fittings, the length along the centre line of the pipe and fittings.

Directly connected means physically connected in such a way that neither water nor gas can escape from the connection.

Distilled beverage alcohol means a beverage that is produced by fermentation and contains more than 20% by volume of water-miscible alcohol.

Distillery means a process plant where distilled beverage alcohols are produced, concentrated or otherwise processed, and includes facilities on the same site where the concentrated products may be blended, mixed, stored or packaged.

Distributing pipe means a pipe or piping in a water distribution system.

Distribution box means a device for ensuring that effluent from a treatment unit is distributed in equal amounts to each line of distribution pipe in a leaching bed.

Distribution pipe means a line or lines of perforated or open jointed pipe or tile installed in a leaching bed for the purpose of distributing effluent from a treatment unit to the soil, as defined in Part 8 of Division B, or leaching bed fill in the leaching bed.

Diving board means a flexible board.

Diving platform means a rigid platform that is not a starting platform.

Drainage system means an assembly of pipes, fittings, fixtures and appurtenances on a property that is used to convey sewage and clear water waste to a main sewer or a private sewage disposal system, and includes a private sewer, but does not include subsoil drainage piping.

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

Drum trap means a trap whose inlet and outlet are in the sides of the cylindrical body of the trap.

Dual vent means a vent pipe that serves two fixtures and connects at the junction of the trap arms.

Dwelling unit means a suite operated as a housekeeping unit, used or intended to be used by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.

Earth pit privy means a latrine consisting of an excavation in the ground surmounted by a superstructure.

Effluent means sanitary sewage that has passed through a treatment unit.

Electric space heating means an electric energy source that provides more than 10 per cent of the heating capacity provided for a building and includes,

(a) electric resistance unitary baseboard heating,
(b) electric resistance unitary cabinet heating,
(c) electric resistance ceiling cable or floor cable heating,
(d) electric resistance central furnace heating,
(e) electric hot water space heating, and
(f) air source heat pumps in combination with electric resistance backup heating.

Excavation means the space created by the removal of soil, rock or fill for the purposes of construction.

Exhaust duct means a duct through which air is conveyed from a room or space to the outdoors.

Exit means that part of a means of egress, including doorways, that leads from the floor area it serves to a separate building, an open public thoroughfare or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare. (See Appendix A.)
Table 1.4.2.1.
Symbols and Abbreviations
Forming Part of Sentence 1.4.2.1.(1)

<table>
<thead>
<tr>
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<th>Meaning</th>
</tr>
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<tr>
<td>1 in 2</td>
<td>slope of 1 vertical to 2 horizontal</td>
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<tr>
<td>ABS</td>
<td>acrylonitrile-butadiene-styrene</td>
</tr>
<tr>
<td>ASWG</td>
<td>American Steel Wire Gage</td>
</tr>
<tr>
<td>Bq</td>
<td>becquerel(s)</td>
</tr>
<tr>
<td>CBOD₅</td>
<td>the five day carbonaceous biochemical oxygen demand</td>
</tr>
<tr>
<td>cd</td>
<td>candela(s)</td>
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<tr>
<td>CFU</td>
<td>colony forming units</td>
</tr>
<tr>
<td>cm</td>
<td>centimetre(s)</td>
</tr>
<tr>
<td>cm²</td>
<td>square centimetre(s)</td>
</tr>
<tr>
<td>CO₂e</td>
<td>carbon dioxide equivalent</td>
</tr>
<tr>
<td>CPVC</td>
<td>chlorinated poly (vinyl chloride)</td>
</tr>
<tr>
<td>dB(A)</td>
<td>A-weighted sound level</td>
</tr>
<tr>
<td>°</td>
<td>degree(s)</td>
</tr>
<tr>
<td>°C</td>
<td>Degree(s) Celsius</td>
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<td>diam</td>
<td>diameter</td>
</tr>
<tr>
<td>DWV</td>
<td>drain, waste and vent</td>
</tr>
<tr>
<td>ft</td>
<td>foot (feet)</td>
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<td>g</td>
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<td>ga</td>
<td>gauge</td>
</tr>
<tr>
<td>gal</td>
<td>imperial gallon(s)</td>
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<td>gal/min</td>
<td>imperial gallon(s) per minute</td>
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<td>h</td>
<td>hour(s)</td>
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<td>HVAC</td>
<td>heating, ventilating and air-conditioning</td>
</tr>
<tr>
<td>Hz</td>
<td>hertz</td>
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<td>in.</td>
<td>inch(es)</td>
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<td>J</td>
<td>joule(s)</td>
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<td>kg/m²</td>
<td>kilograms per square metre</td>
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<tr>
<td>kN</td>
<td>kilonewton(s)</td>
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<tr>
<td>kPa</td>
<td>kilopascal(s)</td>
</tr>
<tr>
<td>kW</td>
<td>kilowatt(s)</td>
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<td>L</td>
<td>litre(s)</td>
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<tr>
<td>L/min</td>
<td>litre(s) per minute</td>
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<tr>
<td>L/s</td>
<td>litre(s) per second</td>
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<tr>
<td>LPF</td>
<td>litres per flush</td>
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<tr>
<td>lx</td>
<td>lux</td>
</tr>
<tr>
<td>m</td>
<td>metre(s)</td>
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<tr>
<td>m²</td>
<td>square metre(s)</td>
</tr>
<tr>
<td>m³</td>
<td>cubic metre(s)</td>
</tr>
<tr>
<td>m/s</td>
<td>metre(s) per second</td>
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<td>max.</td>
<td>maximum</td>
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Table 1.4.2.1. (Cont’d)
Symbols and Abbreviations
Forming Part of Sentence 1.4.2.1.(1)

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

Acceptable Solutions

Part 1

General

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   1.1.1. Application ..........................................................  3
   1.1.2. Climatic Data ........................................................  3

1.2. Reserved

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Part 1

General

Section 1.1. General

1.1.1. Application

1.1.1.1. Application

(1) This Part applies to all buildings covered in this Code.

1.1.2. Climatic Data

1.1.2.1. Climatic and Seismic Design Values

(1) The climatic and seismic values required for the design of buildings under this Code shall be in conformance with the climatic and seismic values provided in MMAH Supplementary Standard SB-1, “Climatic and Seismic Data”.

(2) The outside winter design temperatures determined from MMAH Supplementary Standard SB-1, “Climatic and Seismic Data”, shall be those listed for the January 2.5% values. (See Appendix A.)

1.1.2.2. Depth of Frost Penetration

(1) Depth of frost penetration shall be established on the basis of local experience.

Section 1.2. Reserved

Section 1.3. Referenced Documents and Organizations

1.3.1. Referenced Documents

1.3.1.1. Effective Date

r5 (1) Unless otherwise specified in this Code, the documents referenced in this Code shall include all amendments, revisions and supplements effective to June 30, 2012.
### 1.3.1.2. Applicable Editions

(1) Where documents are referenced in this Code, they shall be in the editions designated in Column 2 of Table 1.3.1.2.

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

<table>
<thead>
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<th>Title of Document(1)</th>
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<tr>
<td>ACGIH</td>
<td>2013, 28th Edition</td>
<td>Industrial Ventilation Manual</td>
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<td>AISI</td>
<td>S201-07</td>
<td>North American Standard for Cold Formed Steel Framing – Product Data</td>
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<td>A208.1-2009</td>
<td>Particleboard</td>
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<td>ANSI/CSA</td>
<td>ANSI Z21.22-1999 / CSA 4.4-M99 (including Addenda 1 and 2)</td>
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**Issued October 24, 2014**

**Effective Date: January 1, 2015**
### Documents Referenced in the Building Code

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<th>Code Reference</th>
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| EPA            | 625/R-92/016 (1994) | Radon Prevention in the Design and Construction of Schools and Other Large Buildings | 6.2.1.1.(1)  |
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<td>Fire Door Frames Meeting the Performance Required by CAN/ULC-S104</td>
<td>9.10.13.6.(1)</td>
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<td>CAN4-S106-M80</td>
<td>Fire Tests of Window and Glass Block Assemblies</td>
<td>3.1.8.4.(1)</td>
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<td>CAN/ULC-S107-10</td>
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<td>CAN/ULC-S109-03</td>
<td>Flame Tests of Flame-Resistant Fabrics and Films</td>
<td>3.1.16.1.(1)</td>
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<td>ULC</td>
<td>CAN/ULC-S110-07</td>
<td>Test for Air Ducts</td>
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<td>ULC-S111-07</td>
<td>Fire Tests for Air Filter Units</td>
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<td>ULC</td>
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<td>Fire Test of Ceiling Firestop Flap Assemblies</td>
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<td>Wood Core Doors Meeting the Performance Required by CAN/ULC-S104 for Twenty Minute Fire Rated Closure Assemblies</td>
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<td>CAN/ULC-S114-05</td>
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<td>1.4.1.2.(1) of Division A</td>
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<th>Document Number</th>
<th>Title of Document(1)</th>
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</table>
| ULC            | CAN/ULC-S115-11 | Fire Tests of Firestop Systems | 3.1.5.16,(3)  
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| ULC            | CAN/ULC-S124-06 | Test for the Evaluation of Protective Coverings for Foamed Plastic | 3.1.5.12,(2)    |
| ULC            | CAN/ULC-S126-06 | Test for Fire Spread Under Roof-Deck Assemblies | 3.1.14.1,(1)    |
|                |                 |                      | 3.1.14.2,(1)     |
| ULC            | CAN/ULC-S134-92 | Fire Test of Exterior Wall Assemblies | 3.1.5.5,(1)     |
|                |                 |                      | 3.2.3.7,(3)      |
|                |                 |                      | 3.2.3.7,(6)      |
| ULC            | CAN/ULC-S135-04 | Test Method for the Determination of Combustibility Parameters of Building Materials Using an Oxygen Consumption Calorimeter (Cone Calorimeter) | 3.1.5.1,(2)    |
| ULC            | CAN/ULC-S138-06 | Fire Test for Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration | 3.1.5.12,(7)    |
| ULC            | ULC-S139-00     | Fire Test for Evaluation of Integrity of Electrical Cables | 3.2.7.10,(2)    |
|                |                 |                      | 3.2.7.10,(3)     |
| ULC            | CAN/ULC-S143-09 | Fire Tests for Non-Metallic Electrical and Optical Fibre Cable Raceways | 3.1.5.20,(1)    |
| ULC            | S505-1974       | Fusible Links for Fire Protection Service | 3.1.8.9,(1)     |
| ULC            | S513-1978       | Threaded Couplings for 38 mm and 65 mm Fire Hose | 3.2.9.2,(7)     |
| ULC            | CAN/ULC-S524-06 | Installation of Fire Alarm Systems | 3.1.8.12,(2)    |
|                |                 |                      | 3.1.8.12,(3)     |
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|                |                 |                      | 3.2.4.22,(6)     |
|                |                 |                      | 3.2.4.22,(11)    |
|                |                 |                      | 9.10.19.4,(3)    |
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| ULC            | CAN/ULC-S531-02 | Smoke Alarms | 3.2.4.22,(1)     |
|                |                 |                      | 9.10.19.1,(1)    |
| ULC            | CAN/ULC-S537-04 | Verification of Fire Alarm Systems | 3.2.4.5,(2)     |
|                |                 |                      | 3.2.4.22,(6)     |
| ULC            | CAN/ULC-S543-09 | Internal Lug Quick Connect Couplings for Fire Hose | 3.2.9.2,(7)    |
| ULC            | CAN/ULC-S553-02 | Installation of Smoke Alarms | 3.2.4.22,(9)    |
|                |                 |                      | 9.10.19.3,(2)    |
| ULC            | CAN/ULC-S561-03 | Installation and Services for Fire Signal Receiving Centres and Systems | 3.2.4.8,(4)    |
| ULC            | CAN/ULC-S572-10 | Photoluminescent and Self-Luminous Signs and Path Marking Systems | 3.4.5.1,(5)    |
|                |                 |                      | 9.9.11.3,(3)     |
| ULC            | CAN/ULC-S610-M87 | Factory-Built Fireplaces | 9.22.8.1,(1)    |
| ULC            | S628-93         | Fireplace Inserts | 9.22.10.1,(1)   |
| ULC            | CAN/ULC-S629-M87 | 650°C Factory-Built Chimneys | 9.21.1.2,(1)   |

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<td>ULC</td>
<td>CAN/ULC-S639-M87</td>
<td>Steel Liner Assemblies for Solid Fuel-Burning Masonry Fireplaces</td>
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<td>CAN/ULC-S701-11</td>
<td>Thermal Insulation, Polystyrene, Boards and Pipe Covering</td>
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<td>ULC</td>
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<td>Exterior Insulation and Finish Systems (EIFS) – Materials and Systems</td>
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<td>Sprinkler-Protected Window Systems</td>
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<td>ULC/ORD-C199P-02</td>
<td>Combustible Piping for Sprinkler Systems</td>
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<td>ULC</td>
<td>ULC/ORD-C1254.6-1995</td>
<td>Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units</td>
<td>6.2.2.6.(2) 3.6.4.3.(1)</td>
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<td>USDA</td>
<td>October 1993</td>
<td>Soil Survey Manual</td>
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Notes to Table 1.3.1.2.:
(1) Some titles have been abridged to omit superfluous wording.
1.3.2. Abbreviations

1.3.2.1. Abbreviations of Proper Names (See Appendix A.)

(1) In this Code, an abbreviation of proper names listed in Column 1 of Table 1.3.2.1. has the meaning assigned opposite it in Column 2.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>AISI</td>
<td>American Iron and Steel Institute</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>APHA</td>
<td>American Public Health Association</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air-Conditioning Engineers</td>
</tr>
<tr>
<td>ASME</td>
<td>The American Society of Mechanical Engineers</td>
</tr>
<tr>
<td>ASPE</td>
<td>American Society of Plumbing Engineers</td>
</tr>
<tr>
<td>ASSE</td>
<td>American Society of Sanitary Engineering</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>AWPA</td>
<td>American Wood-Preservers' Association</td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
</tr>
<tr>
<td>BCMOH</td>
<td>British Columbia Ministry of Health</td>
</tr>
<tr>
<td>BNQ</td>
<td>Bureau de Normalisation du Québec</td>
</tr>
<tr>
<td>CAN</td>
<td>National Standard of Canada designation</td>
</tr>
<tr>
<td></td>
<td>The number or name following the CAN designation represents the agency under whose auspices the standard is issued.</td>
</tr>
<tr>
<td></td>
<td>CAN1 designates CGA,</td>
</tr>
<tr>
<td></td>
<td>CAN2 designates CGSB,</td>
</tr>
<tr>
<td></td>
<td>CAN3 designates CSA, and</td>
</tr>
<tr>
<td></td>
<td>CAN4 designates ULC.</td>
</tr>
<tr>
<td>CCBFC</td>
<td>Canadian Commission on Building and Fire Codes</td>
</tr>
<tr>
<td>CGSB</td>
<td>Canadian General Standards Board</td>
</tr>
<tr>
<td>CSA</td>
<td>Canadian Standards Association</td>
</tr>
<tr>
<td>CWC</td>
<td>Canadian Wood Council</td>
</tr>
<tr>
<td>DBR</td>
<td>Division of Building Research, known as the Institute for Research in Construction since 1985</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>FINA</td>
<td>Fédération Internationale de Natation</td>
</tr>
<tr>
<td>HI</td>
<td>Hydronics Institute</td>
</tr>
<tr>
<td>HRAI</td>
<td>Heating, Refrigerating and Air-Conditioning Institute of Canada</td>
</tr>
<tr>
<td>HUD</td>
<td>U.S. Department of Housing and Urban Development</td>
</tr>
<tr>
<td>HVI</td>
<td>Home Ventilating Institute</td>
</tr>
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tr>
<td>IAPMO</td>
<td>International Association of Plumbing and Mechanical Officials</td>
</tr>
<tr>
<td>IESNA</td>
<td>Illuminating Engineering Society of North America</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
</tr>
<tr>
<td>MMAH</td>
<td>Ontario Ministry of Municipal Affairs and Housing</td>
</tr>
<tr>
<td>MOE</td>
<td>Ontario Ministry of the Environment</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NLGA</td>
<td>National Lumber Grades Authority</td>
</tr>
<tr>
<td>NRCan</td>
<td>Natural Resources Canada</td>
</tr>
<tr>
<td>NSF</td>
<td>NSF International, formerly called National Sanitation Federation</td>
</tr>
<tr>
<td>SMACNA</td>
<td>Sheet Metal and Air Conditioning Contractors National Association Inc.</td>
</tr>
<tr>
<td>TC</td>
<td>Transport Canada</td>
</tr>
<tr>
<td>TPIC</td>
<td>Truss Plate Institute of Canada</td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratories Inc.</td>
</tr>
<tr>
<td>ULC</td>
<td>Underwriters' Laboratories of Canada</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>WEF</td>
<td>World Environment Federation</td>
</tr>
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### Part 3

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(1) A restaurant is permitted to be classified as a Group E major occupancy provided the restaurant is designed to accommodate not more than 30 persons consuming food or drink.

3.1.2.7. Storage of Combustible Fibres

(1) Buildings or parts of them used for the storage of baled combustible fibres shall be classified as medium hazard industrial occupancies.

3.1.3. Multiple Occupancy Requirements

3.1.3.1. Separation of Major Occupancies

(1) Except as provided by Sentences (2) to (5), major occupancies shall be separated from adjoining major occupancies by fire separations having fire-resistance ratings conforming to Table 3.1.3.1.

(2) In a building not more than 3 storeys in building height, if not more than two dwelling units are contained together with a Group E major occupancy, the fire-resistance rating of the fire separation between the two major occupancies need not be more than 1 h.

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<td>B-3</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>2</td>
</tr>
<tr>
<td>F-1</td>
<td>N/A</td>
</tr>
<tr>
<td>F-2</td>
<td>2</td>
</tr>
<tr>
<td>F-3</td>
<td>1</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes to Table 3.1.3.1.:
(1) Section 3.3. contains requirements for the separation of occupancies and tenancies that are in addition to the requirements for the separation of major occupancies.
(2) See Sentence 3.1.3.1.(3).
(3) See Sentence 3.1.3.1.(4).
(4) See Sentence 3.1.3.1.(2).
3.1.3.1. In a building within the scope of Article 3.2.2.43A., a fire separation with a 2 h fire-resistance rating is required between the Group C and Group A, Division 2 major occupancies.

3.1.3.2. In a building within the scope of Article 3.2.2.50A., a fire separation with a 2 h fire-resistance rating is required between the Group D and Group A, Division 2 major occupancies.

3.1.3.3. The fire separations required between major occupancies in Sentence (1) are permitted to be penetrated by floor openings protected in conformance with Subsection 3.2.8., except for fire separations for Group F, Division 1 major occupancies and for mezzanines described in Sentence 3.2.8.2.(1).

3.1.3.2. Prohibition of Occupancy Combinations

(1) No major occupancy of Group F, Division 1 shall be contained within a building with any occupancy classified as Group A, B or C.

(2) Except as provided in Sentence (4) and Sentence 3.10.2.4.(9), not more than one suite of residential occupancy shall be contained within a building classified as a Group F, Division 2 major occupancy.

(3) A sleeping room or sleeping area shall not open directly into a room or area where food is intended to be stored, prepared, processed, distributed, served, sold or offered for sale. (See Appendix A.)

(4) A Group F, Division 2 major occupancy is permitted in a building containing only live/work units if the occupancy is for the exclusive use of the occupants of the live/work units.

(5) A building within the scope of Article 3.2.2.43A. or 3.2.2.50A. shall not contain,
(a) a Group A, Division 1 or 3, Group B, or Group F, Division 1 or 2 major occupancy,
(b) a Group A, Division 2 or a Group E major occupancy above the second storey, or
(c) except as permitted by Sentence (6), a Group F, Division 3 major occupancy.
(See Appendix A.)

(6) A storage garage below the third storey is permitted in a building within the scope of Article 3.2.2.43A. or 3.2.2.50A. (See Appendix A.)

3.1.4. Combustible Construction

3.1.4.1. Combustible Materials Permitted

(1) Except as required by this Part, a building permitted to be of combustible construction is permitted to be constructed of combustible materials, with or without noncombustible components.

3.1.4.2. Protection of Foamed Plastics

(1) Foamed plastics that form part of a wall or ceiling assembly in combustible construction shall be protected from adjacent spaces in the building, other than adjacent concealed spaces within attic or roof spaces, crawl spaces, and wall assemblies,
(a) by one of the interior finishes described in Subsections 9.29.4. to 9.29.9.,
(b) by any thermal barrier that meets the requirements of Sentence 3.1.5.12.(2), or
(c) where the building does not contain a Group B or Group C major occupancy, by sheet metal,
   (i) mechanically fastened to the supporting assembly independent of the insulation,
   (ii) not less than 0.38 mm thick, and
   (iii) with a melting point not below 650°C.
(See Appendix A.)

(2) The flame-spread rating on any exposed surface of combustible insulation, or any surface that would be exposed by cutting through it in any direction, shall be not more than 500.
3.1.4.3. **Wires and Cables**  (See Appendix A.)

(1) Except as permitted by Sentences (2) and (3), optical fibre cables and electrical wires and cables with combustible insulation, jackets or sheaths installed in a building permitted to be of combustible construction shall,
   (a) not convey flame or continue to burn for more than 1 min when tested in conformance with the Vertical Flame Test in Clause 4.11.1. of CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables (FT1 Rating)”, or
   (b) be located in,
      (i) totally enclosed noncombustible raceways, (See Appendix A.)
      (ii) concealed spaces in walls,
      (iii) concrete slabs, or
      (iv) totally enclosed nonmetallic raceways conforming to Clause 3.1.5.20(1)(b).

(2) The requirement in Clause (1)(a) is considered to be met where the wires and cables,
   (a) exhibit a vertical char of not more than 1.5 m when tested in conformance with the Vertical Flame Test – Cables in Cabletrough in Clause 4.11.4. of CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables” (FT4 Rating), or
   (b) exhibit a flame-spread of not more than 1.5 m, a smoke density of not more than 0.5 at peak optical density and a smoke density not more than 0.15 at average optical density when tested in conformance with the Flame and Smoke Test in the Appendix to CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables” (FT6 Rating).

(3) Service-entrance cables for communication and community antennae distribution systems need not conform to Sentence (1) provided,
   (a) the service-entrance cables are located in a building permitted to be of combustible construction and are not more than 3 m in length from the point of entry into the building or from the point of leaving protection as required in Clause (1)(b), or
   (b) the service-entrance cables enter into an electrical or telephone service room separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h.

3.1.4.4. **Nonmetallic Raceways**

(1) Totally enclosed nonmetallic raceways used in a plenum in a building permitted to be of combustible construction shall meet the requirements of Clause 3.1.5.20.(1)(a).

3.1.4.5. **Fire-Retardant Treated Wood**

(1) If fire-retardant treated wood is specified in this Part, the wood shall,
   (a) be pressure impregnated with fire-retardant chemicals in conformance with CAN/CSA-O80 Series-M, “Wood Preservation”, and
   (b) have a flame-spread rating not more than 25.

3.1.4.6. **Heavy Timber Construction Alternative**

(1) If combustible construction is permitted and is not required to have a fire-resistance rating more than 45 min, heavy timber construction is permitted to be used.

(2) If heavy timber construction is permitted, it shall conform to Article 3.1.4.7.

3.1.4.7. **Heavy Timber Construction**

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

(2) Except as permitted by Sentences (3) to (6) and (12), the minimum dimensions of wood elements in heavy timber construction shall conform to Table 3.1.4.7.
Table 3.1.4.7.
Heavy Timber Dimensions
Forming Part of Sentence 3.1.4.7.(2)

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

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

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

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

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

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

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

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

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

(11) In heavy timber construction, intermediate wood beams used to support a floor shall be supported on top of the girders or on metal hangers into which the ends of the beams are closely fitted.
(12) Roof arches supported on the tops of walls or abutments, roof trusses, roof beams and roof girders in *heavy timber construction* are permitted to be not less than 64 mm wide provided,
(a) where two or more spaced members are used, the intervening spaces are,
   (i) blocked solidly throughout, or
   (ii) tightly closed by a continuous wood cover plate not less than 38 mm thick secured to the underside of the members, or
(b) the space below the roof deck or sheathing is *sprinklered*.

### 3.1.4.8. Cladding

(1) Except as permitted by Sentence 3.2.3.7.(6), cladding for a *building* within the scope of Article 3.2.2.43A. or 3.2.2.50A. that exceeds 4 *storeys* in *building height* or cladding for a *fire compartment* in such a *building* shall be *noncombustible*.

### 3.1.4.9. Combustible Piping

(1) Except as provided by Sentence (2), *combustible* piping and tubing and associated adhesives used in a *building* within the scope of Article 3.2.2.43A. or 3.2.2.50A. shall have a *flame-spread rating* not more than 25.

(2) Sentence (1) does not apply to,
(a) *combustible* sprinkler piping and associated adhesives,
(b) *combustible* tubing for pneumatic controls and associated adhesives, provided the tubing has an outside diameter not more than 10 mm,
(c) *combustible* piping and tubing and associated adhesives used in *public pools* and *public spas*, and
(d) *combustible* piping and tubing and associated adhesives concealed in a concrete floor slab.

### 3.1.5. Noncombustible Construction

#### 3.1.5.1. Noncombustible Materials

(1) Except as permitted by Sentences (2) to (4) and Articles 3.1.5.2. to 3.1.5.25., 3.1.13.4. and 3.2.2.16., a *building* or part of a *building* required to be of *noncombustible construction*, shall be constructed with *noncombustible* materials.

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

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

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

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

3.1.5.3. Combustible Roofing Materials

(1) Combustible roof covering that has an A, B or C classification determined in conformance with Subsection 3.1.15. is permitted on a building required to be of noncombustible construction.

(2) Combustible roof sheathing and roof sheathing supports installed above a concrete deck are permitted on a building required to be of noncombustible construction provided,
   (a) the concrete deck is not less than 50 mm thick,
   (b) the height of the roof space above the deck is not more than 1 000 mm,
   (c) the roof space is divided into compartments by fire blocks in conformance with Article 3.1.11.5.,
   (d) openings through the concrete deck, other than for noncombustible roof drains and plumbing piping, are protected by masonry or concrete shafts,
      (i) constructed as fire separations having a fire-resistance rating not less than 1 h, and
      (ii) extending from the concrete deck to not less than 150 mm above the adjacent roof sheathing,
   (e) the perimeter of the roof is protected by a noncombustible parapet extending from the concrete deck to not less than 150 mm above the adjacent sheathing, and
   (f) except as permitted by Clause (d), the roof space does not contain any building services.

(3) Combustible cant strips, roof curbs, nailing strips and similar components used in the installation of roofing are permitted on a building required to be of noncombustible construction.

(4) Wood nailer facings to parapets, not more than 600 mm high, are permitted on a building required to be of noncombustible construction, if the facings and any roof membranes covering the facings are protected by sheet metal.

3.1.5.4. Combustible Glazing and Skylights

(1) Combustible skylight assemblies are permitted in a building required to be of noncombustible construction if the assemblies have a flame-spread rating not more than,
   (a) 150, provided the assemblies,
      (i) have an individual area not more than 9 m²,
      (ii) have an aggregate horizontal projected area of the openings through the ceiling not more than 25% of the area of the ceiling of the room or space in which they are located, and
      (iii) are spaced not less than 2 500 mm from adjacent assemblies and 1 200 mm from required fire separations, or
   (b) 75, provided the assemblies,
      (i) have an individual area not more than 27 m²,
      (ii) have an aggregate horizontal projected area of the openings through the ceiling not more than 33% of the area of the ceiling of the room or space in which they are located, and
      (iii) are spaced not less than 1 200 mm from adjacent assemblies and from required fire separations.

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

(3) Except as permitted by Sentence (4), the combustible vertical glazing permitted by Sentence (2) shall have a flame-spread rating not more than 75.

(4) The flame-spread rating of combustible glazing in Sentence (2) is permitted to be not more than 150 if the aggregate area of glazing is not more than 25% of the wall area of the storey in which it is located, and,
(a) the glazing is installed in a building not more than 1 storey in building height,
(b) the glazing in the first storey is separated from the glazing in the second storey in accordance with the requirements of Article 3.2.3.17. for opening protection, or
(c) sprinklers are installed in,
   (i) any storey with combustible glazing, and
   (ii) the storey immediately above the storey with combustible glazing.

(5) Combustible window sashes and frames are permitted in a building required to be of noncombustible construction provided,
(a) each window in an exterior wall face is an individual unit separated by noncombustible wall construction from every other opening in the wall,
(b) windows in exterior walls in contiguous storeys are separated by not less than 1 000 mm of noncombustible construction, and
(c) the aggregate area of openings in an exterior wall face of a fire compartment is not more than 40% of the area of the wall face.

3.1.5.5. Combustible Components for Exterior Walls

(1) Except as required by Sentence (2), an exterior non-loadbearing wall assembly that includes combustible components is permitted to be used in a building required to be of noncombustible construction provided,

(a) the building is,
   (i) not more than 3 storeys in building height, or
   (ii) not more than 6 storeys in building height if sprinklered,
(b) the interior surfaces of the wall assembly are protected by a thermal barrier conforming to Sentence 3.1.5.12.(3), and
(c) the wall assembly satisfies the criteria of Sentences (3) and (4) when subjected to testing in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies”.
(See Appendix A.)

(2) Except as permitted by Articles 3.2.3.10. and 3.2.3.11., where the area of unprotected openings determined in accordance with Tables 3.2.3.1.B. to 3.2.3.1.E. is required to be not more than 10% of the exposing building face, the construction requirements of Table 3.2.3.7. shall be met.

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

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

(5) A wall assembly permitted by Sentence (1) that includes combustible cladding of fire-retardant treated wood shall be tested for fire exposure after the cladding has been conditioned in conformance with ASTM D2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing”.

(6) The requirements in this Article do not apply where foamed plastic insulation is used in an exterior wall assembly of a building and the insulation is protected in conformance with Sentences 3.2.3.8.(1) and (2).
3.1.5.6. Nailing Elements

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

3.1.5.7. Combustible Millwork

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

3.1.5.8. Combustible Flooring Elements

(1) Combustible stage flooring supported on noncombustible structural members is permitted in a building required to be of noncombustible construction.

(2) Wood members more than 50 mm but not more than 375 mm high applied directly to or set into a noncombustible floor slab are permitted for the construction of a raised platform in a building required to be of noncombustible construction provided the concealed spaces created are divided into compartments by fire blocks in conformance with Sentence 3.1.11.3.(2).

(3) The floor system for the raised platform referred to in Sentence (2) is permitted to include combustible subfloor and combustible finished flooring.

(4) Combustible finished flooring is permitted in a building required to be of noncombustible construction.

3.1.5.9. Combustible Stairs in Dwelling Units

(1) Combustible stairs are permitted in a dwelling unit in a building required to be of noncombustible construction.

3.1.5.10. Combustible Interior Finish

(1) Combustible interior finish, including paint, wallpaper, and other interior finishes not more than 1 mm thick, is permitted in a building required to be of noncombustible construction.

(2) Combustible interior wall finishes, other than foamed plastics, are permitted in a building required to be of noncombustible construction provided they,
   (a) are not more than 25 mm thick, and
   (b) have a flame-spread rating not more than 150 on any exposed surface, or any surface that would be exposed by cutting through the material in any direction.

(3) Combustible interior ceiling finishes, other than foamed plastics, are permitted in a building required to be of noncombustible construction provided they,
   (a) are not more than 25 mm thick, except for exposed fire-retardant treated wood battens, and
   (b) have a flame-spread rating not more than 25 on any exposed surface, or on any surface that would be exposed by cutting through the material in any direction, or are of fire-retardant treated wood, except that not more than 10% of the ceiling area within each fire compartment is permitted to have a flame-spread rating not more than 150.

3.1.5.11. Gypsum Board

(1) Gypsum board with a tightly adhering paper covering not more than 1 mm thick is permitted in a building required to be of noncombustible construction provided the flame-spread rating of the surface is not more than 25.
3.1.5.12. Combustible Insulation and its Protection

1. Combustible insulation, other than foamed plastics, is permitted in a building required to be of noncombustible construction provided that it has a flame-spread rating not more than 25 on any exposed surface, or any surface that would be exposed by cutting through the material in any direction, where the insulation is not protected as described in Sentences (3) and (4).

2. Foamed plastic insulation having a flame-spread rating not more than 25 on any exposed surface, or any surface that would be exposed by cutting through the material in any direction, is permitted in 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 consisting of,
   (a) not less than 12.7 mm thick gypsum board mechanically fastened to a supporting assembly independent of the insulation,
   (b) lath and plaster, mechanically fastened to a supporting assembly independent of the insulation,
   (c) masonry,
   (d) concrete, or
   (e) any thermal barrier that meets the requirements of classification B when tested in conformance with CAN/ULC-S124, “Test for the Evaluation of Protective Coverings for Foamed Plastic”. (See Appendix A.)

3. Combustible insulation having a flame-spread rating more than 25 but not more than 500 on an exposed surface, or any surface that would be exposed by cutting through the material in any direction, is permitted in the exterior walls 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) 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 m² in area are permitted to be used in a building required to be of noncombustible construction provided,
(a) are not required fire separations, and
(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,
(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,
(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.

(3) Polypropylene pipes and fittings are permitted to be used for drain, waste and vent piping for the conveyance of highly corrosive materials and for piping used to distribute distilled or dialyzed water in laboratory and hospital facilities in a building required to be of noncombustible construction, provided,
   (a) the building is sprinklered,
   (b) the piping is not located in a vertical shaft, and
   (c) piping that penetrates a fire separation is sealed at the penetration by a fire stop that has an FT rating not less than the fire-resistance rating of the fire separation when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems”, with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side.

3.1.5.17. Combustible Plumbing Fixtures

(1) Combustible plumbing fixtures are permitted in a building required to be of noncombustible construction if they are constructed of material having a flame-spread rating and smoke developed classification permitted in Subsection 3.1.13.

3.1.5.18. Wires and Cables

(1) Except as permitted by Sentence (2) and Articles 3.1.5.19. and 3.1.5.21., optical fibre cables and electrical wires and cables with combustible insulation, jackets or sheathes are permitted in a building required to be of noncombustible construction, provided,
   (a) the wires and cables exhibit a vertical char of not more than 1.5 m when tested in conformance with the Vertical Flame Test – Cables in Cabletrough in Clause 4.11.4. of CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables”, (FT4 Rating),
   (b) the wires and cables are located in,
      (i) totally enclosed noncombustible raceways,
      (ii) concealed spaces in walls,
      (iii) concrete slabs,
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(iv) a service room separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h, or
(v) totally enclosed nonmetallic raceways conforming to Clause 3.1.5.20.(1)(b), or
(c) the wires and cables are communication cables used at the service entry to a building and are not more than 3 m long.
(See Appendix A.)

(2) The requirement in Clause (1)(a) is considered to be met where the wires and cables exhibit a flame-spread of not more than 1.5 m, a smoke density of not more than 0.5 at peak optical density and a smoke density not more than 0.15 at average optical density when tested in conformance with the Flame and Smoke Test in the Appendix to CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables”, (FT6 Rating).

3.1.5.19. Combustible Travelling Cables for Elevators

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

3.1.5.20. Nonmetallic Raceways

(1) Except as provided by Subclause 3.6.4.3.(1)(a)(iv) and subject to limits on size for penetrations of fire separations as required by Sentence 3.1.9.3.(2), within a fire compartment of a building required to be of noncombustible construction, totally enclosed nonmetallic raceways not more than 175 mm in outside diameter, or an equivalent rectangular area, are permitted to be used to enclose optical fibre cables and electrical wires and cables, provided, where,
(a) the wires and cables in the raceways meet or exceed the requirements of Clause 3.1.5.18.(1)(a), the nonmetallic raceways meet the requirements for at least an FT4 rating in,
   (i) CAN/CSA-C22.2 No. 262, “Optical Fiber Cable and Communication Cable Raceway Systems”, or
   (ii) CAN/ULC-S143, “Fire Tests for Non-Metallic Electrical and Optical Fibre Cable Raceway Systems”, and
(b) the wires and cables in the raceways do not meet or exceed the requirements of Clause 3.1.5.18.(1)(a), the nonmetallic raceways exhibit a vertical char not more than 1.5 m when tested in conformance with the Vertical Flame Test (FT4) – Conduit or Tubing on Cable Tray in Clause 6.16 of CSA C22.2 No. 211.0, “General Requirements and Methods of Testing for Nonmetallic Conduit”.

3.1.5.21. Wires in Computer Room Floors

(1) Optical fibre cables and electrical wires and cables with combustible insulation, jackets or sheathes, located in the space below a raised floor in a computer room, are permitted in a building required to be of noncombustible construction provided they do not convey flame or continue to burn for more than 1 min when tested in conformance with the Vertical Flame Test in Clause 4.11.1. of CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables”, (FT1 Rating).

(2) The requirement in Sentence (1) is considered to be met where the wires and cables,
(a) exhibit a vertical char of not more than 1.5 m when tested in conformance with the Vertical Flame Test – Cables in Cabletrough in Clause 4.11.4. of CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables”, (FT4 Rating), or
(b) exhibit a flame-spread of not more than 1.5 m, a smoke density of not more than 0.5 at peak optical density and a smoke density not more than 0.15 at average optical density when tested in conformance with the Flame and Smoke Test in the Appendix to CSA C22.2 No. 0.3, “Test Methods for Electrical Wires and Cables”, (FT6 Rating).

3.1.5.22. Combustible Components in Public Pools and Public Spas

(1) Combustible fittings and components in a public pool or public spa, including main drains, piping, skimmers, return inlets, steps, ladder rungs and liners, are permitted in a building required to be of noncombustible construction.
3.1.5.23. Marquees Having Combustible Elements

(1) Except as permitted in Sentence (2), exterior marquees, not greater than 7.5 m from ground level to the top of the marquee, having combustible elements, other than fabrics or films conforming to Sentence 3.1.16.1.(1), are permitted on a building required to be of noncombustible construction, provided every opening in the exposed wall of the building above the marquee is protected with wired glass in accordance with MMAH Supplementary Standard SB-2, “Fire Performance Ratings” where these openings are within,
   (a) 4.5 m horizontally of the marquee, and
   (b) 9 m vertically above the marquee.

(2) The protection required by Sentence (1) is permitted to be waived if the building is sprinklered.

3.1.5.24. Combustible Mezzanines

(1) In a building required to be of noncombustible construction, a mezzanine located within a live/work unit is permitted to be of combustible construction, provided the area of the mezzanine is not more than 25% of the floor area of the live/work unit or 20 m², whichever is less, and has no obstructions more than 1 070 mm above the floor.

3.1.5.25. Wood Decorative Cladding

(1) Wood decorative cladding is permitted to be used on exterior marquee fascias, of a storey having direct access to a street or access route, of a building required to be of noncombustible construction, provided the cladding is fire-retardant treated wood that, before testing to CAN/ULC-S102, “Test for Surface Burning Characteristics of Building Materials and Assemblies”, has been conditioned in conformance with ASTM D2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing”.

3.1.5.26. Combustible Solar Collector Systems

(1) A combustible solar collector system is permitted to be installed above the roof of a building required to be of noncombustible construction.

3.1.6. Reserved

3.1.7. Fire-Resistance Ratings

3.1.7.1. Determination of Ratings

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

(2) A material, assembly of materials or a structural member is permitted to be assigned a fire-resistance rating on the basis of MMAH Supplementary Standard SB-2, “Fire Performance Ratings”.

3.1.7.2. Exception for Exterior Walls

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

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

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

3. Exterior walls shall be rated for exposure to fire from inside the building.

3.1.7.4. Minimum Fire-Resistance Rating

1. The use of materials or assemblies having a greater fire-resistance rating than required shall impose no obligation to exceed in whole or in part the minimum fire-resistance ratings required by this Part.

3.1.7.5. Rating of Supporting Construction

1. Except as permitted by Sentence (2) and by Articles 3.2.2.20. to 3.2.2.83. for mixed types of construction, all loadbearing walls, columns and arches in the storey immediately below a floor or roof assembly required to have a fire-resistance rating shall have a fire-resistance rating not less than that required for the supported floor or roof assembly.

2. Loadbearing walls, columns and arches supporting a service room or service space need not conform to Sentence (1).

3. Except for noncombustible construction required by Subclauses 3.2.2.43A.(2)(c)(i) and 3.2.2.50A.(2)(c)(i), if an assembly is required to be of noncombustible construction and have a fire-resistance rating, it shall be supported by noncombustible construction.

3.1.8. Fire Separations and Closures

3.1.8.1. General Requirements

1. Any wall, partition or floor assembly required to be a fire separation shall,
   a) except as permitted by Sentence (2), be constructed as a continuous element, and
   b) as required in this Part, have a fire-resistance rating as specified. (See Appendix A.)

2. Openings in a fire separation shall be protected with closures, shafts or other means in conformance with Articles 3.1.8.4. to 3.1.8.18. and Subsections 3.1.9. and 3.2.8. (See Appendix A.)

3.1.8.2. Combustible Construction Support

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

3.1.8.3. Continuity of Fire Separations

1. Except as permitted by Sentence 3.6.4.2.(2), a horizontal service space or other concealed space located above a required vertical fire separation, including the walls of a vertical shaft, shall be divided at the fire separation by an equivalent fire separation within the service space.
(2) The fire separation required by Sentence (1) shall terminate so that smoke-tight joints are provided where it abuts on or intersects,
(a) a floor,
(b) a roof slab, or
(c) a roof deck.

(3) Except as required by Subsection 3.6.3. for a shaft penetrating a roof assembly, a shaft, including an exit enclosure, that penetrates a fire separation, shall,
(a) extend through any horizontal service space or any other concealed space, and
(b) terminate so that smoke-tight joints are provided where the shaft abuts on or intersects,
   (i) a floor,
   (ii) a roof slab, or
   (iii) a roof deck.

(4) The continuity of a fire separation shall be maintained where it abuts another fire separation, a floor, a ceiling, or an exterior wall assembly. (See Appendix A.)

3.1.8.4. Determination of Ratings

(1) Except as permitted by Sentences (2) and 3.1.8.14.(1), the fire-protection rating for a closure shall be determined on the basis of the results of tests conducted in conformance with the appropriate provisions in,
\[ r_s \]
(a) CAN/ULC-S104, “Fire Tests of Door Assemblies”,
(b) CAN4-S106-M, “Fire Tests of Window and Glass Block Assemblies”, or
\[ r_s \]
(c) CAN/ULC-S112, “Fire Test of Fire-Damper Assemblies”.

(2) Except as permitted by Sentence 3.1.8.10.(1), the fire-protection rating of a closure shall conform to Table 3.1.8.4. for the required fire-resistance rating of the fire separation.
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3.1.9.2. Combustibility of Service Penetrations

(1) Except as permitted by Articles 3.1.9.3. and 3.1.9.4., pipes, ducts, electrical outlet boxes, totally enclosed raceways or other similar service equipment that penetrate an assembly required to have a fire-resistance rating shall be noncombustible unless the assembly has been tested incorporating that service equipment. (See Appendix A.)

3.1.9.3. Penetration by Wires, Cables and Outlet Boxes

(1) Optical fibre cables and electrical wires and cables in totally enclosed noncombustible raceways are permitted to penetrate an assembly required to have a fire-resistance rating without being incorporated in the assembly at the time of testing as required by Article 3.1.9.2.

(2) Except as permitted by Sentence (3), totally enclosed nonmetallic raceways conforming to Article 3.1.5.20., optical fibre cables, and electrical wires and cables, single or grouped, with combustible insulation, jackets or sheathes that conform to the requirements of Clause 3.1.5.18.(1)(a) and that are not installed in totally enclosed noncombustible raceways are permitted to penetrate an assembly required to have a fire-resistance rating without being incorporated in the assembly at the time of testing as required by Article 3.1.9.2., provided the overall diameter of the single or grouped wires or cables, or the raceways is not more than 25 mm.

(3) 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 by Article 3.1.9.2., provided the cables are not grouped and are spaced a minimum of 300 mm apart.

(4) Combustible totally enclosed raceways that are embedded in a concrete floor slab are permitted in an assembly required to have a fire-resistance rating without being incorporated in the assembly at the time of testing as required by Article 3.1.9.2., provided the concrete cover between the raceway and the bottom of the slab is not less than 50 mm.

(5) Combustible electrical outlet boxes are permitted in an assembly required to have a fire-resistance rating without being incorporated in the assembly at the time of testing as required by Article 3.1.9.2., provided the opening through the membrane into the box is not more than 160 cm².

(6) Noncombustible electrical outlet boxes that penetrate a fire separation or a membrane forming part of an assembly required to have a fire-resistance rating need not meet the requirements of Article 3.1.9.1. provided,
   (a) they do not exceed,
      (i) 100 cm² each in area, and
      (ii) an aggregate area of 650 cm² in any 9.3 m² of surface area, and
   (b) the annular space between the membrane and the box does not exceed 3 mm.

(7) Unless provided with a fire stop in accordance with CAN/ULC-S115, “Fire Tests of Firestop Systems”, electrical outlet boxes on opposite sides of a vertical fire separation required to have a fire-resistance rating shall be,
   (a) separated by a horizontal distance of not less than 600 mm, or
   (b) installed in adjacent stud cavities.

3.1.9.4. Combustible Piping Penetrations

(1) Except as permitted by Sentences (3) to (8), combustible piping shall not be used if any part of the piping system penetrates,
   (a) a fire separation required to have a fire-resistance rating, or
   (b) a membrane that forms part of an assembly required to have a fire-resistance rating.
   (See Appendix A.)

(2) Combustible piping that is part of a system described in Sentence (1) shall not be located in a vertical service space.
(3) Except as provided by Sentences (4) to (7), combustible piping is permitted to penetrate a fire separation required to have a fire-resistance rating or is permitted to penetrate a membrane that forms part of an assembly required to have a fire-resistance rating, provided the piping is sealed at the penetration by a fire stop that has an F rating not less than the fire-resistance rating required for the fire separation when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems”, with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side.

(4) Except as required by Sentence (7), combustible drain piping is permitted to penetrate a horizontal fire separation, provided it leads directly from a noncombustible water closet through a concrete floor slab and the piping is sealed at the penetration by a fire stop in conformance with Clause 3.1.9.1.(1)(a).

(5) Except as required by Sentence (7), combustible piping is permitted to penetrate a vertical or horizontal fire separation, provided the fire compartments on each side of the fire separation are sprinklered and the piping is sealed at the penetration by a fire stop in conformance with Clause 3.1.9.1.(1)(a).

(6) Except as required by Sentence (7), combustible piping not more than 25 mm in diameter containing chlorine gas is permitted to penetrate a fire separation between a chlorine gas service room built in conjunction with a public pool or public spa and the remainder of the building, provided the piping is sealed at the penetration by a fire stop in conformance with Clause 3.1.9.1.(1)(a).

(7) Where combustible piping penetrates a firewall or a horizontal fire separation described in Sentence 3.2.1.2.(1), the piping shall be sealed at the penetration by a fire stop that has an FT rating not less than the fire-resistance rating required for the firewall or horizontal fire separation when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems”, and,
(a) the fire stop shall have been tested with a pressure differential of 50 Pa between the exposed and unexposed sides, with the higher pressure on the exposed side, or
(b) the fire compartments on each side of the firewall or horizontal fire separation shall be sprinklered.

(8) Combustible piping for central vacuum cleaning systems is permitted to penetrate a fire separation, provided the installation conforms to the requirements that apply to combustible piping specified in Sentence (3).

### 3.1.9.5. Openings Through a Membrane Ceiling

(1) A membrane ceiling forming part of an assembly assigned a fire-resistance rating on the basis of MMAH Supplementary Standard SB-2, “Fire Performance Ratings”, is permitted to be penetrated by openings leading into ducts within the ceiling space provided,
(a) the ducts are sheet steel, and
(b) the amount of openings and their protection conform to the requirements of MMAH Supplementary Standard SB-2, “Fire Performance Ratings”.

(2) Fire stop flaps in ceiling membranes required in Sentence (1) shall conform to CAN/ULC-S112.2, “Fire Test of Ceiling Firestop Flap Assemblies”.

### 3.1.9.6. Plenums

(1) A ceiling assembly used as a plenum shall conform to Article 3.6.4.3.

### 3.1.10. Firewalls

#### 3.1.10.1. Prevention of Firewall Collapse

(1) Except as permitted by Sentence (2), the connections and supports for structural framing members that are connected to or supported on a firewall and have a fire-resistance rating less than that required for the firewall, shall be designed so that the failure of the framing systems during a fire will not affect the integrity of the firewall during the fire.
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(2) Sentence (1) does not apply to a firewall consisting of two separate wall assemblies each tied to its respective building frame but not to each other, provided each wall assembly is,
(a) a fire separation having one-half of the fire-resistance rating required for the firewall by Sentences 3.1.10.2.(1) and (2), and
(b) designed so that the collapse of one wall assembly will not cause the collapse of the other.

(3) A firewall is permitted to be supported on the structural frame of a building of noncombustible construction provided the supporting frame has a fire-resistance rating not less than that required for the firewall.

(4) Piping, ducts and totally enclosed noncombustible raceways shall be installed so that their collapse will not cause the collapse of the firewall.

3.1.10.2. Rating of Firewalls

(1) A firewall that separates a building or buildings with floor areas containing a Group E or a Group F, Division 1 or 2 major occupancy shall be constructed as a fire separation of noncombustible construction having a fire-resistance rating not less than 4 h, except that where the upper portion of a firewall separates floor areas containing other than Group E or Group F, Division 1 or 2 major occupancies, the fire-resistance rating of the upper portion of the firewall is permitted to be not less than 2 h.

(2) A firewall that separates a building or buildings with floor areas containing major occupancies other than Group E or Group F, Division 1 or 2 shall be constructed as a fire separation of noncombustible construction having a fire-resistance rating not less than 2 h.

(3) Except as permitted by Sentence (4), the required fire-resistance rating of a firewall, except for closures, shall be provided by masonry or concrete.

(4) A firewall permitted to have a fire-resistance rating not more than 2 h need not be constructed of masonry or concrete provided,
(a) the assembly providing the fire-resistance rating is protected against damage that would compromise the integrity of the assembly,
(b) the design conforms to Article 4.1.5.17.,
(c) the level of performance of the firewall is not less than of masonry or concrete in the areas of,
(i) performance during fire conditions,
(ii) mechanical damage during the normal use of the building, and
(iii) resistance to damage from moisture,
(d) the firewall separates buildings or buildings with floor areas that do not contain,
(i) a Group B, Division 1 major occupancy, or
(ii) a Group B, Division 2 major occupancy, and
(e) the firewall does not separate a building regulated by the provisions of Subsection 3.2.6. or a building within the scope of Article 3.2.2.43A. or 3.2.2.50A. from another building unless the buildings on both sides of the firewall are sprinklered.
(See Appendix A.)

3.1.10.3. Continuity of Firewalls

(1) A firewall shall extend from the ground continuously through, or adjacent to, all storeys of a building or buildings so separated, except that a firewall located above a basement storage garage conforming to Article 3.2.1.2. is permitted to commence at the floor assembly immediately above the storage garage.

(2) A firewall is permitted to terminate on the underside of a reinforced concrete roof slab provided,
(a) the roof slab on both sides of the firewall has a fire-resistance rating not less than,
(i) 1 h if the firewall is required to have a fire-resistance rating not less than 2 h, or
(ii) 2 h if the firewall is required to have a fire-resistance rating not less than 4 h, and
(b) there are no concealed spaces within the roof slab in that portion immediately above the firewall.
3.1.10.4. Parapets

(1) Except as permitted by Sentences (2) and 3.1.10.3.(2), a firewall shall extend above the roof surface to form a parapet not less than,
   (a) 150 mm high for a firewall required to have a fire-resistance rating not less than 2 h, and
   (b) 900 mm high for a firewall required to have a fire-resistance rating not less than 4 h.

(2) A firewall that separates two buildings with roofs at different elevations need not extend above the upper roof surface to form a parapet, provided the difference in elevation between the roofs is more than 3 m.

3.1.10.5. Maximum Openings

(1) Openings in a firewall shall conform to the size limits described in Article 3.1.8.6. and the aggregate width of openings shall be not more than 25% of the entire length of the firewall.

3.1.10.6. Exposure Protection for Adjacent Walls

(1) The requirements of Article 3.2.3.14. shall apply to the external walls of two buildings that meet at a firewall at an angle less than 135°.

3.1.10.7. Combustible Projections

(1) Combustible material shall not extend across the end of a firewall but is permitted to extend across a roof above a firewall that is terminated in conformance with Sentence 3.1.10.3.(2).

(2) If buildings are separated by a firewall, combustible projections on the exterior of one building, including balconies, platforms, canopies, eave projections and stairs, that extend outward beyond the end of the firewall, shall not be permitted within 2.4 m of combustible projections and window or door openings of the adjacent building.

3.1.11. Fire Blocks in Concealed Spaces

3.1.11.1. Separation of Concealed Spaces

(1) Concealed spaces in interior wall, ceiling and crawl spaces shall be separate from concealed spaces in exterior walls and attic or roof spaces by fire blocks conforming to Article 3.1.11.7.

3.1.11.2. Fire Blocks in Wall Assemblies

(1) Except as permitted by Sentence (2), fire blocks conforming to Article 3.1.11.7. shall be provided to block off concealed spaces within a wall assembly,
   (a) at every floor level,
   (b) at every ceiling level where the ceiling forms part of an assembly required to have a fire-resistance rating, and
   (c) so that the maximum horizontal dimension is not more than 20 m and the maximum vertical dimension is not more than 3 m.

(2) Fire blocks conforming to Sentence (1) are not required provided,
   (a) the wall space is filled with insulation,
   (b) the exposed construction materials and any insulation within the wall space are noncombustible,
   (c) the exposed materials within the wall space, including insulation but not including wiring, piping or similar services, have a flame-spread rating not more than 25 on any exposed surface, or on any surface that would be exposed by cutting through the material in any direction, and fire blocks are installed so that the vertical distance between them is not more than 10 m, or
(d) the insulated wall assembly contains not more than one concealed air space and the horizontal thickness of that air space is not more than 25 mm.

3.1.11.3. Fire Blocks Between Nailing and Supporting Elements

(1) In a building required to be of noncombustible construction, a concealed space in which there is an exposed ceiling finish with a flame-spread rating more than 25, shall be provided with fire blocks conforming to Article 3.1.11.7. between wood nailing elements, so that the maximum area of the concealed space is not more than 2 m².

(2) In a building required to be of noncombustible construction, fire blocks conforming to Article 3.1.11.7. shall be provided in the concealed spaces created by the wood members permitted by Sentence 3.1.5.8.(2), so that the maximum area of a concealed space is not more than 10 m².

3.1.11.4. Fire Blocks Between Vertical and Horizontal Spaces

(1) Fire blocks conforming to Article 3.1.11.7. shall be provided,
(a) at all interconnections between concealed vertical and horizontal spaces in interior coved ceilings, drop ceilings and soffits in which the exposed construction materials within the space have a flame-spread rating more than 25, and
(b) at the end of each run and at each floor level in concealed spaces between stair stringers in which the exposed construction materials within the space have a flame-spread rating more than 25.

3.1.11.5. Fire Blocks in Horizontal Concealed Spaces

(1) Except for a crawl space conforming to Sentence 3.1.11.6.(1), a horizontal concealed space within a floor assembly or roof assembly of combustible construction, in which sprinklers are not installed, shall be separated by construction conforming to Article 3.1.11.7. into compartments not more than,
(a) 600 m² in area with no dimension more than 60 m, if the exposed construction materials within the space have a flame-spread rating not more than 25, and
(b) 300 m² in area with no dimension more than 20 m, if the exposed construction materials within the space have a flame-spread rating more than 25.
(See Appendix A.)

(2) A concealed space in an exterior cornice, a mansard style roof, a balcony or a canopy in which exposed construction materials within the space have a flame-spread rating more than 25, shall be separated by construction conforming to Article 3.1.11.7.,
(a) at locations where the concealed space extends across the ends of required vertical fire separations, and
(b) so that the maximum dimension in the concealed space is not more than 20 m.

(3) Except as provided by Sentence (4), a horizontal concealed space within a floor assembly or roof assembly of combustible construction in a building within the scope of Article 3.2.2.43A, or 3.2.2.50A. shall be separated by construction conforming to Article 3.1.11.7. into compartments not more than,
(a) 600 m² in area with no dimension more than 60 m, if the exposed construction materials within the space have a flame-spread rating not more than 25, and
(b) 300 m² in area with no dimension more than 20 m, if the exposed construction materials within the space have a flame-spread rating more than 25.

(4) Sentence (3) does not apply if the horizontal concealed space within the floor assembly or roof assembly is entirely filled with noncombustible insulation such that any air gap between the top of the insulation and the underside of the floor or roof deck does not exceed 50 mm.
3.1.11.6. Fire Blocks in Crawl Spaces

(1) A crawl space that is not considered as a basement by Article 3.2.2.9. and in which sprinklers are not installed, shall be separated by construction conforming to Article 3.1.11.7. into compartments not more than 600 m$^2$ in area with no dimension more than 30 m.

3.1.11.7. Fire Block Materials

(1) Except as permitted by Sentences (2) to (4) and (7) materials used to separate concealed spaces into compartments shall remain in place and prevent the passage of flames for not less than 15 min when subjected to the standard fire exposure in CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials”.

(2) Gypsum board not less than 12.7 mm thick and sheet steel not less than 0.38 mm thick need not be tested in conformance with Sentence (1) provided all joints have continuous support.

(3) In a building required to be of noncombustible construction, wood nailing elements described in Article 3.1.5.6. need not be tested in conformance with Sentence (1).

(4) In a building permitted to be of combustible construction, in a combustible roof system permitted by Sentence 3.1.5.3.(2), and in a raised platform permitted by Sentence 3.1.5.8.(2), materials used to separate concealed spaces into compartments are permitted to be,

(a) solid lumber not less than 38 mm thick,
(b) phenolic bonded plywood, waferboard, or strandboard not less than 12.5 mm thick with joints supported, or
(c) two thicknesses of lumber, each not less than 19 mm thick with joints staggered, where the width or height of the concealed space requires more than one piece of lumber not less than 38 mm thick to block off the space.

(5) Openings through materials referred to in Sentences (1) to (4) shall be protected to maintain the integrity of the construction.

(6) Where materials referred to in Sentences (1) to (4) are penetrated by construction elements or by service equipment, a fire stop shall be used to seal the penetration. (See Appendix A.)

(7) In a building permitted to be of combustible construction, semi-rigid fibre insulation board, produced from glass, rock or slag, is permitted to be used to block the vertical space in a double wythe wall assembly formed at the intersection of the floor assembly and the walls, provided the insulation board,

(a) has a density not less than 45 kg/m$^3$,
(b) is securely fastened to one set of studs,
(c) extends from below the bottom of the top plates in the lower storey to above the top of the bottom plate in the upper storey, and
(d) completely fills the portion of the vertical space between the headers and between the wall plates.

3.1.12. Flame-Spread Rating and Smoke Developed Classification

3.1.12.1. Determination of Ratings

(1) Except as required by Sentence (2) and as permitted by Sentence (3), the flame-spread rating and smoke developed classification of a material, assembly, or structural member shall be determined on the basis of no fewer than three tests conducted in conformance with CAN/ULC-S102, “Test for Surface Burning Characteristics of Building Materials and Assemblies”.

(2) The flame-spread rating and smoke developed classification of a material or assembly shall be determined on the basis of no fewer than three tests conducted in conformance with CAN/ULC-S102.2, “Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies”, if the material or assembly,
(4) The flame-spread rating limits specified in Sentences (1) to (3) apply to occupancies in the corridor as well as to the corridor itself.

(5) Except in a floor area that is sprinklered and as permitted in Sentence (6), the interior ceiling finish of corridors and occupancies referred to in Sentences (1) and (4) shall have a flame-spread rating not more than 25.

(6) The flame-spread rating limits specified in Sentence (5) do not apply to a corridor in which the flame-spread rating is not more than 150 provided the floor area is sprinklered.

### 3.1.13.7. High Buildings

(1) Except as permitted by Sentences (2) and (3), the interior wall, ceiling and floor finishes in a building regulated by the provisions of Subsection 3.2.6. shall conform to the flame-spread rating requirements in Articles 3.1.13.2. to 3.1.13.6. and to the flame-spread rating and smoke developed classification values in Table 3.1.13.7.

(2) Except for a building of Group B major occupancy and elevator cars, the flame-spread rating and smoke developed classification of interior wall, floor and ceiling finishes need not conform to the values in Table 3.1.13.7., provided the building is sprinklered and the sprinkler system is electrically supervised in conformance with Sentences 3.2.4.10.(3) and 3.2.4.17.(1).

(3) Trim, millwork and doors in an exit stairway, a vestibule to an exit stairway, a lobby described in Sentence 3.4.4.2.(2), or a corridor not within a suite need not conform to the flame-spread rating and smoke developed classification requirements of Sentence (1), provided they have,

(a) a flame-spread rating not more than 150,

(b) a smoke developed classification not more than 300, and

(c) an aggregate area not more than 10% of the area of the wall or ceiling on which they occur.

#### Table 3.1.13.7.

<table>
<thead>
<tr>
<th>Location or Element</th>
<th>Maximum Flame-Spread Rating</th>
<th>Maximum Smoke Developed Classification</th>
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<td>Ceiling Surface(1)</td>
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<td>3</td>
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</tbody>
</table>

**Notes to Table 3.1.13.7.:**

(1) See Sentence 3.1.13.4.(1) for lighting elements.

(2) Other requirements of this Part apply.
3.1.13.7. 2012 Building Code Compendium

(4) Except as permitted in Sentences (5) to (7), plumbing fixtures in a building regulated by the provisions of Subsection 3.2.6. shall have a smoke developed classification not more than 300.

(5) A plumbing fixture that is not located in a Group B occupancy need not comply with Sentence (4) if the building is sprinklered.

(6) A plumbing fixture may have a smoke developed classification more than 300 but not more than 500 if,
(a) it is in a room where the wall surfaces have a smoke developed classification not more than 200, and
(b) it is located in,
   (i) a Group C occupancy, or
   (ii) a Group B occupancy and the building is sprinklered.

(7) A therapeutic bathing system in a Group B occupancy need not comply with Sentence (4) if the room in which it is located,
(a) does not open directly into patients’ or residents’ sleeping rooms, and
(b) is sprinklered.

3.1.13.8. Noncombustible Construction

(1) In a building required to be of noncombustible construction,
(a) the flame-spread ratings required by Subsection 3.1.5. shall apply in addition to the requirements in this Subsection, and
(b) the flame-spread ratings for exits in this Subsection shall also apply to any surface in the exit that would be exposed by cutting through the material in any direction, except that this requirement does not apply to doors, heavy timber construction in a sprinklered building and fire-retardant treated wood.

3.1.13.9. Underground Walkways

(1) Except for paint, the interior wall and ceiling finishes of an underground walkway shall be of noncombustible materials.

3.1.13.10. Exterior Exit Passageway

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

3.1.13.11. Elevator Cars

(1) The wall and ceiling surfaces of elevator cars shall have a flame-spread rating not more than 75.

(2) The wall, ceiling and floor surfaces of elevator cars shall have a smoke developed classification not more than 450.
3.1.14. Roof Assemblies

3.1.14.1. Fire-Retardant Treated Wood Roof Systems

(1) If a fire-retardant treated wood roof system is used to comply with the requirements of Subsection 3.2.2., the roof deck assembly shall meet the conditions of acceptance of CAN/ULC-S126, “Test for Fire Spread Under Roof-Deck Assemblies”.

(2) Supports for the roof deck assembly referred to in Sentence (1) shall consist of,
   (a) fire-retardant treated wood,
   (b) heavy timber construction,
   (c) noncombustible construction, or
   (d) a combination of the items described in Clauses (a) to (c).

3.1.14.2. Metal Roof Deck Assemblies

(1) Except as permitted by Sentence (2), a metal roof deck assembly shall meet the conditions of acceptance of CAN/ULC-S126, “Test for Fire Spread Under Roof-Deck Assemblies”, if,
   (a) it supports a combustible material above the deck that could propagate a fire beneath the roof deck assembly, and
   (b) the deck is used to comply with the requirements of Sentences 3.2.2.25.(2), 3.2.2.32.(2), 3.2.2.53.(2), 3.2.2.59.(2), 3.2.2.70.(2) and 3.2.2.76.(2) for noncombustible construction.

(2) The requirements of Sentence (1) are waived provided,
   (a) the combustible material above the roof deck is protected,
      (i) by not less than 12.7 mm thick gypsum board, mechanically fastened to a supporting assembly if located beneath the roof deck, or
      (ii) by a thermal barrier conforming to one of Clauses 3.1.5.12.(2)(c) to (e) that is located on the underside of the combustible material or beneath the roof deck,
   (b) the building is sprinklered, or
   (c) the roof assembly has a fire-resistance rating not less than 45 min.

3.1.15. Roof Covering

3.1.15.1. Roof Covering Classification

(1) A roof covering classification shall be determined in conformance with CAN/ULC-S107, “Fire Tests of Roof Coverings”. (See Appendix A.)

3.1.15.2. Roof Coverings

(1) Except as provided by Sentences (2) and (3), every roof covering shall have a Class A, B or C classification as determined in accordance with Article 3.1.15.1.

(2) A roof covering is not required to have a Class A, B or C classification for,
   (a) a tent,
   (b) an air-supported structure, or
   (c) a building of Group A, Division 2 occupancy not more than 2 storeys in building height and not more than 1 000 m² in building area, provided the roof covering is underlaid with noncombustible material.

(3) Combustible roof coverings on buildings within the scope of Article 3.2.2.43A. or 3.2.2.50A. shall have a Class A classification.
3.1.16. Fabrics

3.1.16.1. Fabric Awnings, Canopies and Marquees

(1) Fabrics used as part of an awning, canopy or marquee that is located within or attached to a building of any type of construction shall conform to CAN/ULC-S109, “Flame Tests of Flame-Resistant Fabrics and Films”.

3.1.17. Occupant Load

3.1.17.1. Occupant Load Determination

(1) The occupant load of a floor area or part of a floor area, or of a building or part of a building not having a floor area, shall be based on,
   (a) the number of seats in an assembly occupancy having fixed seats,
   (b) two persons per sleeping room or sleeping area in a dwelling unit or suite, or
   (c) the number of persons,
      (i) for which the area is designed, or
      (ii) determined from Table 3.1.17.1. for occupancies other than those described in Clauses (a) and (b).

(2) If a floor area or part of it has been designed for an occupant load other than that determined from Table 3.1.17.1., a permanent sign indicating that occupant load shall be posted in a conspicuous location.

(3) For the purposes of this Article, mezzanines, tiers and balconies shall be regarded as part of the floor area.

(4) If a room or group of rooms is intended for different occupancies at different times, the value to be used from Table 3.1.17.1. shall be the value that gives the greatest number of persons for the occupancies concerned.

(5) Except as provided by Sentence (6) or (7), in dining, alcoholic beverage and cafeteria spaces the occupant load shall be determined from Table 3.1.17.1.

(6) The occupant load in Sentence (5) is permitted to be the number of persons for which the space is designed.

(7) The occupant load in Sentence (6) shall be not more than that determined by using an area of 0.6 m² per person.

Issued October 24, 2014
Effective Date: January 1, 2015
3.1.20. Glass in Guards

3.1.20.1. Glass

(1) Except as provided in Sentence 3.3.4.7.(1), glass in guards shall conform to MMAH Supplementary Standard SB-13, “Glass in Guards”.

Section 3.2. Building Fire Safety

3.2.1. General

3.2.1.1. Exceptions in Determining Building Height

(1) A rooftop enclosure provided for elevator machinery, a stairway or a service room used for no purpose other than for service to the building, shall not be considered as a storey in calculating the building height.

(2) Space under tiers of seats in a building of the arena type shall not be considered as adding to the building height provided the space is used only for dressing rooms, concession stands and similar purposes incidental to the major occupancy of the building.

(3) Except as required by Sentence (5), the space above a mezzanine need not be considered as a storey in calculating building height provided,
   (a) the aggregate area of mezzanines that are not superimposed does not exceed 40% of the open area of the room in which they are located, and (See Appendix A.)
   (b) except as permitted in Sentence (8) and Sentence 3.3.2.11.(3) the space above the mezzanine is used as an open area without partitions or subdividing walls higher than 1070 mm above the mezzanine floor.

(4) Except as required by Sentence (5), the space above a mezzanine need not be considered as a storey in calculating the building height provided,
    (a) the aggregate area of mezzanines that are not superimposed and do not meet the conditions of Sentence (3) does not exceed 10% of the floor area in which they are located, and
    (b) the area of mezzanine in a suite does not exceed 10% of the area of that suite.

(5) Except as permitted by Sentences (6) and (7), each level of mezzanine that is partly or wholly superimposed above the first level of mezzanine shall be considered as a storey in calculating the building height.

(6) Platforms intended solely for periodic inspection and elevated catwalks need not be considered as floor assemblies or mezzanines for the purpose of determining building height provided,
   (a) they are not used for storage,
   (b) they are constructed with noncombustible materials unless the building is permitted to be of combustible construction, and
   (c) where they are intended to be occupied, they have an occupant load of not more than four persons.

(7) Mezzanines, elevated walkways and platforms that are intended to be occupied in Group F, Division 2 or 3 major occupancies need not be considered as storeys in calculating building height provided,
   (a) the building is of noncombustible construction, and
   (b) the occupant load is not more than four persons.
3.2.1.1. 2012 Building Code Compendium

(8) The space above a mezzanine conforming to Sentence (3) is permitted to include an enclosed space whose area does not exceed 10% of the open area of the room in which the mezzanine is located, provided the enclosed space does not obstruct visual communication between the open space above the mezzanine and the room in which it is located.

(9) A service space in which facilities are included to permit a person to enter and to undertake maintenance and other operations pertaining to building services from within the service space need not be considered a storey if it conforms to Articles 3.2.5.15. and 3.3.1.23. and Sentences 3.2.4.20.(12), 3.2.7.3.(2), 3.3.1.3.(7), 3.4.2.4.(3) and 3.4.4.4.(9). (See Appendix A.)

3.2.1.2. Storage Garage Considered as a Separate Building

(1) A basement used primarily as a storage garage is permitted to be considered as a separate building for the purposes of Subsection 3.2.2., provided the floor and roof assemblies above the basement and, except as permitted by Sentence (2), the exterior walls of the basement above the adjoining ground level are constructed as fire separations of,
(a) masonry or concrete having a fire-resistance rating not less than 2 h, or
(b) noncombustible construction having a fire-resistance rating of not less than 2 h, where the building conforms to
Clauses 3.1.10.2.(4)(a) and (c) to (e).

(2) The exterior wall of a basement that is required to be a fire separation with a fire-resistance rating in accordance with Sentence (1) is permitted to be penetrated by openings that are not protected by closures provided,
(a) the storage garage is sprinklered,
(b) every opening in the exterior wall is separated from storeys above the opening by a projection of the floor or roof assembly above the basement, extending not less than,
   (i) 1 m beyond the exterior face of the storage garage if the upper storeys are required to be of noncombustible construction, or
   (ii) 2 m beyond the exterior face of the storage garage if the upper storeys are permitted to be of combustible construction, or
(c) the exterior walls of any storeys located above the floor or roof assembly referred to in Sentence (1) are recessed behind the outer edge of the assembly by not less than,
   (i) 1 m if the upper storeys are required to be of noncombustible construction, or
   (ii) 2 m if the upper storeys are permitted to be of combustible construction.

(3) The floor or roof assembly projection referred to in Clause (2)(b) shall have a fire-resistance rating not less than 2 h and shall have no openings within the projection.

3.2.1.3. Roof Considered as a Wall

(1) For the purposes of this Section any part of a roof that is pitched at an angle of 60° or more to the horizontal and is adjacent to a space intended for occupancy within a building shall be considered as part of an exterior wall of the building.

3.2.1.4. Floor Assembly Over Basement

(1) Except as permitted by Sentence 3.2.2.42.(3), 3.2.2.43.(3), 3.2.2.44.(3), 3.2.2.45.(3), 3.2.2.46.(3), 3.2.2.47.(3) or 3.2.2.48.(3), a floor assembly immediately above a basement shall be constructed as a fire separation having a fire-resistance rating conforming to the requirements of Articles 3.2.2.20. to 3.2.2.83. for a floor assembly, but not less than 45 min.

(2) All loadbearing walls, columns and arches supporting a floor assembly immediately above a basement shall have a fire-resistance rating not less than that required by Sentence (1) for the floor assembly.
3.2.1.5. Fire Containment in Basements

(1) Except as permitted by Sentences (2) and 3.2.2.15.(3), in a building in which an automatic sprinkler system is not required to be installed by Articles 3.2.2.20. to 3.2.2.83., every basement shall,
   (a) be sprinklered, or
   (b) be subdivided into fire compartments not more than 600 m² in area by a fire separation having a fire-resistance rating not less than that required for the floor assembly immediately above the basement.

(2) An open-air storey need not conform to Sentence (1).

3.2.1.6. Mezzanines

(1) The floor assembly of a mezzanine that is required to be considered as a storey in calculating building height shall be constructed in conformance with the fire separation requirements for floor assemblies in Articles 3.2.2.20. to 3.2.2.83.

3.2.2. Building Size and Construction Relative to Occupancy

3.2.2.1. Application

(1) Except as permitted by Article 3.2.2.3., a building shall be constructed in conformance with this Subsection to prevent fire spread and collapse caused by the effects of fire.

3.2.2.2. Special and Unusual Structures

(1) A structure that cannot be identified with the characteristics of a building in Articles 3.2.2.20. to 3.2.2.83. shall be protected against fire spread and collapse in conformance with good fire protection engineering practice. (See Appendix A.)

3.2.2.3. Exceptions to Structural Fire Protection

(1) Fire protection is not required for,
   (a) steel lintels above openings not more than 2 m wide in loadbearing walls and not more than 3 m wide in non-loadbearing walls,
   (b) steel lintels above openings more than 2 m wide in loadbearing walls and more than 3 m wide in non-loadbearing walls, provided the lintels are supported at intervals of not more than 2 m by structural members with the required fire-resistance rating,
   (c) the bottom flanges of shelf angles and plates that are not a part of the structural frame,
   (d) steel members for framework around elevator hoistway doorways, steel for the support of elevator and dumbwaiter guides, counterweights and other similar equipment, that are entirely enclosed in a hoistway and are not a part of the structural frame of the building,
   (e) steel members of stairways and escalators that are not a part of the structural frame of a building,
   (f) steel members of porches, exterior balconies, exterior stairways, fire escapes, cornices, marquees and other similar appurtenances, provided they are outside an exterior wall of a building, and
   (g) loadbearing steel or concrete members wholly or partly outside a building face in a building not more than 4 storeys in building height and classified as Group A, B, C, D or F, Division 3 major occupancy provided the members are,
      (i) not less than 1 m away from any unprotected opening in an exterior wall, or
      (ii) shielded from heat radiation in the event of a fire within the building by construction that will provide the same degree of protection that would be necessary if the member was located inside the building, with the protection extending on either side of the member a distance equal to the projection of the member from the face of the wall.

3.2.2.4. Buildings with Multiple Major Occupancies

(1) The requirements restricting fire spread and collapse for a building of a single major occupancy classification are provided in this Subsection according to its building height and building area.
(2) If a building contains more than one major occupancy, classified in more than one Group or Division, the requirements of this Subsection concerning building size and construction relative to major occupancy shall apply according to Articles 3.2.2.5. to 3.2.2.8.

3.2.2.5. Applicable Building Height and Area

(1) In determining the fire safety requirements of a building in relation to each of the major occupancies contained in it, the building height and building area of the entire building shall be used.

3.2.2.6. Multiple Major Occupancies

(1) Except as permitted by Articles 3.2.2.7. and 3.2.2.8. and Sentences 3.2.2.43A.(5) and 3.2.2.50A.(4), in a building containing more than one major occupancy, the requirements of this Subsection for the most restricted major occupancy contained shall apply to the whole building.

3.2.2.7. Superimposed Major Occupancies

(1) Except as permitted by Article 3.2.2.8. and Sentences 3.2.2.43A.(5) and 3.2.2.50A.(4), in a building in which one major occupancy is located entirely above another major occupancy, the requirements in this Subsection for each portion of the building containing a major occupancy shall apply to that portion as if the entire building was of that major occupancy.

(2) If one major occupancy is located above another major occupancy, the fire-resistance rating of the floor assembly between the major occupancies shall be determined on the basis of the requirements of this Subsection for the lower major occupancy.

3.2.2.8. Exceptions for Major Occupancies

(1) In a building in which the aggregate area of all major occupancies in a particular Group or Division is not more than 10% of the floor area of the storey in which they are located, these major occupancies need not be considered as major occupancies for the purposes of this Subsection, provided they are not classified as Group F, Division 1 or 2 occupancies.

(2) A helicopter landing area on the roof of a building need not be considered a major occupancy for purposes of Subsection 3.2.2. where such landing area is not more than 10% of the area of the roof.

3.2.2.9. Crawl Spaces

(1) For the purposes of Articles 3.2.1.4. and 3.2.1.5., a crawl space shall be considered as a basement if it is,
   (a) more than 1 800 mm high between the lowest part of the floor assembly and the ground or other surface below,
   (b) used for any occupancy,
   (c) used for the passage of flue pipes, or
   (d) used as a plenum in combustible construction.

(2) A floor assembly immediately above a crawl space is not required to be constructed as a fire separation and is not required to have a fire-resistance rating provided the crawl space is not required to be considered as a basement by Sentence (1).

3.2.2.10. Streets

(1) Every building shall face a street located in conformance with the requirements of Articles 3.2.5.4 and 3.2.5.5 for access routes.

(2) For the purposes of Subsections 3.2.2. and 3.2.5. an access route conforming to Subsection 3.2.5. is permitted to be considered as a street.
3.2.2.15. Storeys Below Ground

(1) If a building is erected entirely below the adjoining finished ground level and does not extend more than 1 storey below that ground level, the minimum precautions against fire spread and collapse shall be the same as are required for basements under a building of 1 storey in building height having the same occupancy and building area.

(2) If any portion of a building is erected entirely below the adjoining finished ground level and extends more than 1 storey below that ground level, the following minimum precautions against fire spread and collapse shall be taken:
   (a) except as permitted by Sentence (3), the basements shall be sprinklered,
   (b) a floor assembly below the ground level shall be constructed as a fire separation with a fire-resistance rating not less than,
      (i) 3 h if the basements are intended for use as Group E or Group F, Division 1 or 2 occupancies, or
      (ii) 2 h if the basements are not intended for use as Group E or Group F, Division 1 or 2 occupancies, and
3.2.2.15. 2012 Building Code Compendium

(c) all loadbearing walls, columns and arches shall have a fire-resistance rating not less than that required for the construction that they support.

(3) If the first storey of a building is not required to be sprinklered, sprinklers are not required in the storey immediately below the first storey, provided the storey below,
   (a) contains only residential occupancies, and
   (b) has at least one unobstructed access opening conforming to Sentence 3.2.5.1.(2) installed on that storey for each 15 m of wall length in at least one wall required by this Subsection to face a street.

3.2.2.16. Heavy Timber Roof Permitted

(1) Unless otherwise permitted by Articles 3.2.2.20. to 3.2.2.83., a roof assembly in a building up to 2 storeys in building height is permitted to be of heavy timber construction regardless of building area or type of construction required, provided the building is sprinklered.

(2) If Sentence (1) permits a roof assembly to be of heavy timber construction, structural members in the storey immediately below the roof assembly are permitted to be of heavy timber construction.

3.2.2.17. Sprinklers in Lieu of Roof Rating

$r_s$

(1) Except as provided by Sentence (2), the requirements in Articles 3.2.2.20. to 3.2.2.83. for roof assemblies to have a fire-resistance rating are permitted to be waived provided,
   (a) the building is sprinklered,
   (b) the sprinkler system in Clause (a) is electrically supervised in conformance with Sentence 3.2.4.10.(3), and
   (c) the operation of the sprinkler system in Clause (a) will cause a signal to be transmitted to the fire department in conformance with Sentence 3.2.4.8.(4).

$r_s$

(2) The fire-resistance rating of roof assemblies required by Clause 3.2.2.43A.(2)(b) or 3.2.2.50A.(2)(b) is not permitted to be waived.

3.2.2.18. Automatic Sprinkler System Required

(1) If an automatic sprinkler system is required by Articles 3.2.2.20. to 3.2.2.83., the system shall conform to the requirements of Articles 3.2.4.8. to 3.2.4.10. and 3.2.5.13. (See Appendix A.)

3.2.2.19. Buildings Containing Impeded Egress Zones

(1) A building containing an impeded egress zone and conforming to the appropriate requirements of Articles 3.2.2.20. to 3.2.2.83. is not required to conform to the requirements of Articles 3.2.2.36. and 3.2.2.37. for a Group B, Division 1 major occupancy provided,
   (a) the building is sprinklered,
   (b) it is not more than 1 storey in building height,
   (c) it does not include,
      (i) a contained use area,
      (ii) sleeping accommodation,
      (iii) a high hazard industrial occupancy, or
      (iv) a mercantile occupancy,
   (d) the building area is not more than 6 400 m$^2$ if the building includes a medium hazard industrial occupancy,
   (e) the impeded egress zone does not extend beyond the boundaries of the fire compartment in which it is located, and
   (f) the occupant load of the impeded egress zone is not more than 100.
(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,
(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 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.

3.2.2.39. Group B, Division 2 or Division 3, up to 3 Storeys, Sprinklered

(1) A building classified as Group B, Division 2 or Division 3 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,
   (i) that is not limited if the building is not more than 1 storey in building height,
   (ii) not more than 12 000 m² if 2 storeys in building height, or
   (iii) not more than 8 000 m² if 3 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.

3.2.2.40. Group B, Division 2 or Division 3, up to 2 Storeys, Sprinklered

(1) A building classified as Group B, Division 2 or Division 3 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 2 storeys in building height, and
(c) it has a building area not more than,
   (i) 2 400 m² if 1 storey in building height, or
   (ii) 1 600 m² if 2 storeys in building height.

(2) The building referred to in Sentence (1) is permitted to be of combustible construction or noncombustible construction used singly or in combination, and,
(a) floor assemblies shall be fire separations 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.

3.2.2.41. Group B, Division 2 or Division 3, 1 Storey, Sprinklered

(1) A building classified as Group B, Division 2 or Division 3 is permitted to be of combustible construction or noncombustible construction used singly or in combination, provided,
(a) except as permitted by Sentence 3.2.2.7.(1), the building is sprinklered,
(b) it is not more than 1 storey in building height, and
(c) it has a building area not more than 500 m².

3.2.2.42. Group C, Any Height, Any Area, Sprinklered

(1) Except as permitted by Articles 3.2.2.43. to 3.2.2.48., a building classified as Group C shall conform to Sentence (2).
3.2.2.42. 2012 Building Code Compendium

(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,
(b) except as permitted by Sentence (3), 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 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, 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.

3.2.2.43. Group C, up to 6 Storeys, Sprinklered, Noncombustible Construction

(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 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 12 000 m² if 3 storeys in building height,
   (iii) not more than 9 000 m² if 4 storeys in building height,
   (iv) not more than 7 200 m² if 5 storeys in building height, or
   (v) not more than 6 000 m² 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) except as permitted by Sentence (3), 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, 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.

3.2.2.43A. Group C, up to 6 Storeys, Sprinklered, Combustible Construction

(1) A building classified as Group C is permitted to conform to Sentence (2) provided,
(a) it is sprinklered,
(b) it is not more than 6 storeys in building height,
(c) it has a height of not more than 18 m, measured between the floor level of the first storey and the floor level of the uppermost storey or mezzanine that is not a rooftop enclosure, provided for elevator machinery, a stairway or a service room used for no purpose other than for service to the building, and
(d) it has a building area of not more than,
   (i) 9 000 m² if 1 storey in building height,
   (ii) 4 500 m² if 2 storeys in building height,
   (iii) 3 000 m² if 3 storeys in building height,
   (iv) 2 250 m² if 4 storeys in building height,
   (v) 1 800 m² if 5 storeys in building height, or
   (vi) 1 500 m² if 6 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 Sentence (3), floor assemblies shall be fire separations with a fire-resistance rating not less than 1 h,
(b) roof assemblies shall have a fire-resistance rating not less than 1 h,
(c) except as provided by Sentence (4), where the roof assembly has a height greater than 25 m measured from the floor level of the first storey to the highest point of the roof assembly, the roof assembly shall,
   (i) be of noncombustible construction, or
   (ii) be constructed of fire-retardant treated wood conforming to Article 3.1.4.5.,
(d) mezzanines shall have a fire-resistance rating not less than 1 h,
(e) the fire separation of exits described in Sentence 3.4.4.1.(3) shall be of noncombustible construction, and
(f) 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, 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 construction of non-contiguous roof assemblies at different elevations is permitted to be evaluated separately to determine which roof assemblies are required to be constructed in accordance with Clause (2)(c).

(5) Group A, Division 2 major occupancies, Group E major occupancies and storage garages located in a building within the scope of this Article are permitted to be constructed in accordance with this Article provided they are located below the third storey of the building. (See Appendix A.)

3.2.2.44. Group C, up to 4 Storeys, Noncombustible Construction

(1) A building classified as Group C is permitted to conform to Sentence (2) provided,
(a) it is not more than,
   (i) 3 storeys in building height, or
   (ii) 4 storeys in building height provided there is not more than one dwelling unit above another dwelling unit,
   and vertical fire separations of adjacent dwelling units conform to Sentence (4), and
(b) it has a building area not more than the value in Table 3.2.2.44.

(2) The building referred to in Sentence (1) shall be of noncombustible construction, and,
(a) except as permitted by Sentence (3), 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.
(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.

(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 m² if 1 storey in building height,

(ii) 2 700 m² if 2 storeys in building height, or

(iii) 1 800 m² 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 than 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)

<table>
<thead>
<tr>
<th>No. of Storeys</th>
<th>Maximum Area, m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Facing 1 Street</td>
</tr>
<tr>
<td>1</td>
<td>not limited</td>
</tr>
<tr>
<td>2</td>
<td>7 200</td>
</tr>
<tr>
<td>3</td>
<td>4 800</td>
</tr>
<tr>
<td>4</td>
<td>3 600</td>
</tr>
<tr>
<td>5</td>
<td>2 800</td>
</tr>
<tr>
<td>6</td>
<td>2 400</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

(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.
3.2.2.50A. Group D, up to 6 Storeys, Sprinklered, Combustible Construction

(1) A building classified as Group D is permitted to conform to Sentence (2) provided,
(a) it is sprinklered,
(b) it is not more than 6 storeys in building height,
(c) it has a height of not more than 18 m, measured between the floor level of the first storey and the floor level of the uppermost storey or mezzanine that is not a rooftop enclosure, provided for elevator machinery, a stairway or a service room used for no purpose other than for service to the building, and
(d) it has a building area of not more than,
   (i) 18 000 m² if 1 storey in building height,
   (ii) 9 000 m² if 2 storeys in building height,
   (iii) 6 000 m² if 3 storeys in building height,
   (iv) 4 500 m² if 4 storeys in building height,
   (v) 3 600 m² if 5 storeys in building height, or
   (vi) 3 000 m² if 6 storeys in building height.

(2) The building referred to in Sentence (1) is permitted to be of combustible construction or noncombustible construction used singly or in combination, and,
(a) floor assemblies shall be fire separations with a fire-resistance rating not less than 1 h,
(b) roof assemblies shall have a fire-resistance rating not less than 1 h,
(c) except as provided by Sentence (3), where the roof assembly has a height greater than 25 m measured from the floor level of the first storey to the highest point of the roof assembly, the roof assembly shall,
   (i) be of noncombustible construction, or
   (ii) be constructed of fire-retardant treated wood conforming to Article 3.1.4.5.,
(d) mezzanines shall have a fire-resistance rating not less than 1 h,
(e) the fire separation of exits described in Sentence 3.4.4.1.(3) shall be of noncombustible construction, and
(f) loadbearing walls, columns and arches shall have a fire-resistance rating not less than that required for the supported assembly.

(3) The construction of non-contiguous roof assemblies at different elevations is permitted to be evaluated separately to determine which roof assemblies are required to be constructed in accordance with Clause (2)(c).

(4) Group A, Division 2 major occupancies, Group E major occupancies and storage garages located in a building within the scope of this Article are permitted to be constructed in accordance with this Article provided they are located below the third storey of the building. (See Appendix A.)

3.2.2.51. Group D, up to 6 Storeys, Sprinklered, Noncombustible Construction

(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 m² if 3 storeys in building height,
   (iii) not more than 10 800 m² if 4 storeys in building height,
   (iv) not more than 8 640 m² if 5 storeys in building height, or
   (v) not more than 7 200 m² 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.
For buildings of combustible construction, materials installed to provide the required protection of soffits may be covered with a combustible or noncombustible finish material.

**3.2.3.7. Construction of Exposing Building Face**

(1) Except as provided by Sentences (3) to (6) and Articles 3.2.3.10. and 3.2.3.11, the fire-resistance rating, construction and cladding for exposing building faces of buildings or fire compartments shall comply with Table 3.2.3.7.

(2) Reserved

(3) Except as provided by Sentences (4) to (6), cladding for buildings or fire compartments where the maximum permitted area of unprotected openings is more than 10% of the exposing building face need not be noncombustible where the wall assembly complies with the requirements of Sentences 3.1.5.5.(1), (3) and (4) when tested in conformance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies”.

(4) Except as provided by Sentence (6), cladding for buildings or fire compartments where the maximum permitted area of unprotected openings is more than 10% but not more than 25% of the exposing building face need not be noncombustible where the wall assembly complies with Article 3.1.5.5.

(5) Except as provided by Sentence (6), cladding for buildings or fire compartments where the maximum permitted area of unprotected openings is more than 25% but not more than 50% of the exposing building face need not be noncombustible where, 
(a) the limiting distance is greater than 5 m, 
(b) the building or fire compartment and all combustible attic or roof spaces are sprinklered, 
(c) the cladding, 
   (i) conforms to Subsection 9.27.6., 9.27.7., 9.27.8., 9.27.9. or 9.27.10., 
   (ii) is installed without furring members, or on furring not more than 25 mm thick, over gypsum sheathing at least 12.7 mm thick or over masonry, and 
   (iii) after conditioning in conformance with ASTM D2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing”, has a flame-spread rating not greater than 25 on the exterior face when tested in accordance with Sentence 3.1.12.1.(1),
(d) the cladding, 
   (i) conforms to Subsection 9.27.12., 
   (ii) is installed with or without furring members over gypsum sheathing at least 12.7 mm thick or over masonry, 
   (iii) has a flame-spread rating not greater than 25 when tested in accordance with Sentence 3.1.12.1.(2), and 
   (iv) does not exceed 2 mm in thickness exclusive of fasteners, joints and local reinforcements, or 
(e) the wall assembly complies with Article 3.1.5.5.

(6) Subject to Sentence (7), cladding for buildings within the scope of Article 3.2.2.43A. or 3.2.2.50A. that exceed 4 storeys in building height or for fire compartments in such buildings where the maximum permitted area of unprotected openings is more than 10% of the exposing building face need not be noncombustible where the wall assembly complies with the requirements of Sentences 3.1.5.5.(3) and (4) when tested in accordance with CAN/ULC-S134, “Fire Test of Exterior Wall Assemblies”.

(7) A wall assembly described in Sentence (6) that includes combustible cladding of fire-retardant treated wood shall be tested for fire exposure after the cladding has been conditioned in conformance with ASTM D2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing”.

(8) The construction requirements for the exposing building face that are listed in Table 3.2.3.7. shall be satisfied before the area of unprotected openings may be increased as permitted by Sentence 3.2.3.12.(1).
### Table 3.2.3.7.
Minimum Construction Requirements for Exposing Building Faces
Forming Part of Sentences 3.2.3.7.(1) and (8)

<table>
<thead>
<tr>
<th>Occupancy Classification of Building or Fire Compartment</th>
<th>Maximum Area of Unprotected Openings Permitted, % of Exposing Building Face Area</th>
<th>Minimum Required Fire-Resistance Rating</th>
<th>Type of Construction Required</th>
<th>Type of Cladding Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A, B, C, D, or Group F, Division 3</td>
<td>0 to 10</td>
<td>1 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 to 25</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 25 to 50</td>
<td>45 min</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 50 to &lt; 100</td>
<td>45 min</td>
<td>Combustible or Noncombustible</td>
<td>Combustible or Noncombustible(1)</td>
</tr>
<tr>
<td>Group E, or Group F, Division 1 or 2</td>
<td>0 to 10</td>
<td>2 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 to 25</td>
<td>2 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 25 to 50</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 50 to &lt; 100</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Combustible or Noncombustible(1)</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Notes to Table 3.2.3.7.:
(1) Cladding for buildings over 4 storeys in building height within the scope of Article 3.2.2.43A. or 3.2.2.50A. or for fire compartments in such buildings is required to be noncombustible.

### 3.2.3.8. Protection of Exterior Building Face

(1) Except as permitted by Sentence (3) and in addition to the requirements of Sentence 3.2.3.7.(1) and where the maximum permitted area of unprotected openings is greater than 10% of the exposing building face, foamed plastic insulation used in an exterior wall of a building more than 3 storeys in building height shall be protected on its exterior surface by,
(a) concrete or masonry not less than 25 mm thick, or
(b) noncombustible material that complies with the criteria for testing and conditions of acceptance of Sentence (2) when tested in conformance with CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials”.

(2) The criteria for testing and the conditions of acceptance for a wall assembly to satisfy the requirements of Clause (1)(b) are that,
(a) the fire exposed area of the wall assembly shall be not less than 9.3 m² and have no dimension less than 2.75 m,
(b) the exposed surface will include typical vertical and horizontal joints,
(c) the test shall be continued for not less than 15 min and the standard time/temperature curve of the referenced standard shall be followed,
(d) the noncombustible protective material will remain in place and no through openings will develop that are visible when viewed normal to the face of the material, and
(e) the noncombustible protective material will not disintegrate in a manner that would permit fire to propagate along the surface of the test assembly.

(3) The requirements of Sentence (1) are waived for wall assemblies that comply with the requirements of Article 3.1.5.5.
3.2.3.9. Protection of Structural Members

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

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

3.2.3.10. Unlimited Unprotected Openings

(1) An exposing building face of an open-air storey in a storage garage is permitted to have unlimited unprotected openings provided it has a limiting distance not less than 3 m.

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

3.2.3.11. Low Fire Load, 1 Storey Building

(1) An exposing building face of a building of low hazard industrial occupancy conforming to Article 3.2.2.82. is permitted to be of noncombustible construction without a fire-resistance rating provided,

(a) it is not a loadbearing wall, and

(b) the limiting distance is not less than 3 m.

3.2.3.12. Area Increase for Unprotected Openings

\( r_s \)

(1) Except as required by Sentence 3.2.3.7.(8), the maximum area of unprotected openings in any exposing building face or fire compartment of a building that is not sprinklered is permitted to be doubled if the openings are glazed with,

(a) glass block conforming to the requirements of Article 3.1.8.14., or

(b) wired glass assemblies conforming to MMAH Supplementary Standard SB-2, “Fire Performance Ratings”.

(See Appendix A.)

3.2.3.13. Protection of Exit Facilities

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

(a) less than 10 m below an opening in the exterior wall of the exit, or

(b) less than 2 m above an opening in the exterior wall of the exit.

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

(a) less than 10 m below the exit stair or ramp, or

(b) less than 5 m above the exit stair or ramp.

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

(1) Except as required by Sentences (3) and 3.2.3.13.(1) or as permitted by Sentence 3.2.3.19.(4), if an unprotected opening in an exterior wall of a fire compartment is exposed to an unprotected opening in the exterior wall of another fire compartment, and the planes of the two walls are parallel or at an angle less than 135°, measured from the exterior of the building, the unprotected openings in the two fire compartments shall be separated by a distance not less than \( D_0 \),

\[
D_0 = 2D - \left(\frac{\theta}{90}\right) \times D
\]

but in no case less than 1 m, and

\[
D = \text{the greater required limiting distance for the exposing building faces of the two fire compartments, and}
\]

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

(2) The exterior wall of each fire compartment referred to in Sentence (1) within the distance, \( D_0 \), shall have a fire-resistance rating not less than that required for the interior vertical fire separation between the fire compartment and the remainder of the building.

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

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

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

3.2.3.15. Wall Exposed to Adjoining Roof

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

3.2.3.16. Protection of Soffits

(1) Except as permitted by Sentences (2) to (4), where a common attic or roof space spans more than two suites of residential occupancy or more than two patients’ or residents’ sleeping rooms in a Group B, Division 2 or 3 occupancy, and the common attic or roof space projects beyond the exterior wall of the building, the portion of any soffit or other surface enclosing the projection that is less than 2.5 m vertically above a window or door and less than 1.2 m from either side of the window or door, shall have no openings and shall be protected by,

(a) noncombustible material,

(i) not less than 0.38 mm thick, and

(ii) having a melting point not below 650°C,

(b) not less than 12.7 mm thick gypsum soffit board or gypsum wallboard installed according to CSA A82.31-M, “Gypsum Board Application”,

(c) not less than 11 mm thick plywood,

(d) not less than 12.5 mm thick OSB or waferboard, or

(e) not less than 11 mm thick lumber.

(2) Where an attic or roof space, including its adjoining eave overhangs, is separated by construction conforming to Article 3.1.11.7. into compartments such that the resulting spaces are not common to more than two suites of residential
occupancy or more than two patients’ or residents’ sleeping rooms in a Group B, Division 2 or 3 occupancy, the requirements in Sentence (1) do not apply.

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

(4) The protection required by Sentence (1) for projections is permitted to be omitted if,
(a) the fire compartments behind the window and door openings are sprinklered in accordance with Article 3.2.5.13., and
(b) all rooms, including closets and bathrooms, having openings in the wall beneath the soffit are sprinklered, notwithstanding exceptions permitted in the standards referenced in Article 3.2.5.13. for the installation of automatic sprinkler systems.

3.2.3.17. Canopy Protection for Vertically Separated Openings

(1) Except as permitted by Sentences (2) and (3), if a storey classified as a Group E or Group F, Division 1 or 2 major occupancy is required to be separated from the storey above by a fire separation,
(a) every opening in the exterior wall of the lower storey that is located vertically below an opening in the storey above shall be separated from the storey above by a canopy projecting not less than 1 m from the face of the building at the intervening floor level, and
(b) the canopy required by Clause (a) shall have a fire-resistance rating not less than that required for the floor assembly but need not be more than 1 h, except as required elsewhere in this Subsection.

(2) Except as permitted by Sentence (3), the canopy required by Sentence (1) is permitted to be omitted if the exterior wall of the upper storey is recessed not less than 1 m behind the exterior wall containing the opening in the lower storey.

(3) The requirements of Sentences (1) and (2) are permitted to be waived if sprinklers are installed in,
(a) the lower storey referred to in Clause (1)(a), and
(b) the storey immediately above the lower storey.

3.2.3.18. Covered Vehicular Passageway

(1) A covered vehicular passageway designed as a receiving or shipping area shall be separated from every building or part of a building adjoining it by a fire separation having a fire-resistance rating not less than 1.5 h.

(2) A covered vehicular passageway constructed below grade shall be of noncombustible construction.

3.2.3.19. Walkway Between Buildings

(1) Except as required by Sentence 3.2.3.20.(2), if buildings are connected by a walkway, each building shall be separated from the walkway by a fire separation with a fire-resistance rating not less than 45 min.

(2) Except as permitted by Sentence (3), a walkway connected to a building required to be of noncombustible construction shall also be of noncombustible construction.

(3) A walkway connected to a building required to be of noncombustible construction is permitted to be of heavy timber construction provided,
(a) not less than 50% of the area of any enclosing perimeter walls is open to the outdoors, and
(b) the walkway is at ground level.

(4) A walkway of noncombustible construction used only as a pedestrian thoroughfare need not conform to the requirements of Articles 3.2.3.14. and 3.2.3.15.

(5) A walkway between buildings shall be not more than 9 m wide.
3.2.3.20. Underground Walkway

(1) An underground walkway shall not be designed or used for any purpose other than pedestrian travel unless,
   (a) the purpose is permitted, and
   (b) sprinklers are installed in any space in the walkway containing an occupancy.

(2) Buildings connected by an underground walkway shall be separated from the walkway by a fire separation with a fire-resistance rating not less than 1 h.

(3) An underground walkway shall be of noncombustible construction suitable for an underground location.

(4) In an underground walkway,
   (a) smoke barrier doors shall be installed at intervals of not more than 100 m, or
   (b) the travel distance from the door of an adjacent room or space to the nearest exit shall be not more than one and a half times the least allowable travel distance to an exit for any of the adjacent occupancies as permitted by Sentence 3.4.2.5.(1).

(5) An underground walkway between buildings shall be not more than 9 m wide.

3.2.3.21. Service Lines Under Buildings

(1) A building shall not be constructed over an existing buried flammable gas main unless the gas main is encased in a gas-tight conduit in conformance with CAN/CSA-Z662 / Z662.1, “Oil and Gas Pipeline Systems / Commentary on CAN/CSA-Z662-11, Oil and Gas Pipeline Systems”.

3.2.4. Fire Alarm and Detection Systems  (See Appendix A.)

3.2.4.1. Determination of Requirement for a Fire Alarm System

(1) Reserved

(2) Except as permitted by Sentences (3) to (5) and Sentence 3.2.4.2.(4), a fire alarm system shall be installed in a building that contains,
   (a) a contained use area,
   (b) an impeded egress zone,
   (c) more than 3 storeys, including storeys below the first storey,
   (d) a total occupant load more than 300, other than in open air seating areas,
   (e) an occupant load more than 150 above or below the first storey, other than in open air seating areas,
   (f) a school, college or child care facility, with an occupant load more than 40,
   (g) a licensed beverage establishment or a restaurant, with an occupant load more than 150,
   (h) a medium hazard industrial occupancy or a low hazard industrial occupancy with an occupant load more than 75 above or below the first storey,
   (i) a residential occupancy with sleeping accommodation for more than 10 persons,
   (j) a high hazard industrial occupancy with an occupant load more than 25,
   (k) an occupant load more than 300 below an open air seating area,
   (l) an interconnected floor space required to conform to Articles 3.2.8.3. to 3.2.8.11,
   (m) a care and treatment occupancy for more than 10 persons receiving care or treatment, or
   (n) a care occupancy for more than 10 persons receiving care.

(3) If each dwelling unit has direct access to an exterior exit facility leading to ground level, a fire alarm system is not required in an apartment building,
   (a) in which not more than four dwelling units share a common means of egress, or
   (b) that is not more than 3 storeys in building height.
(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

(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 reactivate 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.

(13) Smoke alarms required by Sentence (1) shall have a visual signalling component conforming to the requirements in 18.5.3. (Light, Color and Pulse Characteristics) of NFPA 72, “National Fire Alarm and Signaling Code”. (See Appendix A.)

(14) The visual signalling component required by Sentence (13) need not,
(a) be integrated with the smoke alarm provided it is interconnected to it,
(b) be on battery backup, or
(c) have synchronized flash rates, when installed in a dwelling unit.

(15) The luminous intensity for visual signalling components required by Sentence (13) that are installed in sleeping rooms shall be a minimum of 175 cd.

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.

(8) A voice communication system required by Sentence (7) shall consist of loudspeakers that are,
   (a) operated from the central alarm and control facility or, in the absence of a central alarm and control facility, from a designated area, and
   (b) designed and located so that transmitted messages are audible and intelligible in all parts of the building, except in elevator cars.

(9) Unless staff trained to provide instructions over the voice communication system referred to in Sentence (8) are present at all times, a pre-recorded message shall be provided.

(10) The voice communication system required by Sentence (7) shall meet the silencing and transmission requirements of Sentences (3) to (5).

3.2.5. Provisions for Firefighting

3.2.5.1. Access to Above Grade Storeys

(1) Except for storeys below the first storey, direct access for firefighting shall be provided from the outdoors to every storey that is not sprinklered and whose floor level is less than 25 m above grade, by at least one unobstructed window or access panel for each 15 m of wall in each wall required to face a street by Subsection 3.2.2.

(2) An opening for access required by Sentence (1) shall,
   (a) have a sill no higher than 1 070 mm above the inside floor, and
   (b) be not less than 1 100 mm high by not less than,
      (i) 550 mm wide for a building not designed for the storage or use of dangerous goods, or
      (ii) 750 mm wide for a building designed for the storage or use of dangerous goods.

(3) Access panels above the first storey shall be readily openable from both inside and outside, or the opening shall be glazed with plain glass.

3.2.5.2. Access to Basements

(1) Direct access from at least one street shall be provided from the outdoors to each basement,
   (a) that is not sprinklered, and
   (b) that has horizontal dimension more than 25 m.

(2) The access required by Sentence (1) is permitted to be provided by,
   (a) doors, windows or other means that provide an opening not less than 1 100 mm high and 550 mm wide, with a sill no higher than 900 mm above the inside floor, or
   (b) an interior stairway immediately accessible from the outdoors.
3.2.5.3. **Roof Access**

(1) On a building more than 3 storeys in building height where the slope of the roof is less than 1 in 4, all main roof areas shall be provided with direct access from the floor areas immediately below, either by,
   (a) a stairway, or
   (b) a hatch not less than 550 mm by 900 mm with a fixed ladder.

(2) Clearance and access around roof signs or other obstructions shall provide,
   (a) a passage not less than 900 mm wide by 1 800 mm high, clear of all obstructions except for necessary horizontal supports not more than 600 mm above the roof surface,
      (i) around every roof sign, and
      (ii) through every roof sign at locations not more than 15 m apart, and
   (b) a clearance of not less than 1 200 mm between any portion of a roof sign and any opening in the exterior wall face or roof of the building in which it is erected.

3.2.5.4. **Access Routes**

(1) A building that is more than 3 storeys in building height or more than 600 m² in building area shall be provided with access routes for fire department vehicles,
   (a) to the building face having a principal entrance, and
   (b) to each building face having access openings for firefighting as required by Articles 3.2.5.1. and 3.2.5.2.
      (See Appendix A.)

3.2.5.5. **Location of Access Routes**

(1) Access routes required by Article 3.2.5.4. shall be located so that the principal entrance and every access opening required by Articles 3.2.5.1. and 3.2.5.2. are located not less than 3 m and not more than 15 m from the closest portion of the access route required for fire department use, measured horizontally from the face of the building.

(2) Access routes shall be provided to a building so that,
   (a) for a building provided with a fire department connection, a fire department pumper vehicle can be located adjacent to the hydrants referred to in Article 3.2.5.16.,
   (b) for a building not provided with a fire department connection, a fire department pumper vehicle can be located so that the length of the access route from a hydrant to the vehicle plus the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 90 m, and
   (c) the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 45 m.

(3) The unobstructed path of travel for the firefighter required by Sentence (2) from the vehicle to the building shall be measured from the vehicle to the fire department connection provided for the building, except that if no fire department connection is provided, the path of travel shall be measured to the principal entrance of the building.

(4) If a portion of a building is completely cut off from the remainder of the building so that there is no access to the remainder of the building, the access routes required by Sentence (2) shall be located so that the unobstructed path of travel from the vehicle to one entrance of each portion of the building is not more than 45 m.
3.2.5.6. Access Route Design

(1) A portion of a roadway or yard provided as a required access route for fire department use shall,
(a) have a clear width not less than 6 m, unless it can be shown that lesser widths are satisfactory,
(b) have a centreline radius not less than 12 m,
(c) have an overhead clearance not less than 5 m,
(d) have a change of gradient not more than 1 in 12.5 over a minimum distance of 15 m,
(e) be designed to support the expected loads imposed by firefighting equipment and be surfaced with concrete, asphalt
or other material designed to permit accessibility under all climatic conditions,
(f) have turnaround facilities for any dead-end portion of the access route more than 90 m long, and
(g) be connected with a public thoroughfare.
(See Appendix A.)

3.2.5.7. Water Supply
(See Appendix A.)

(1) An adequate water supply for firefighting shall be provided for every building.

2) Hydrants shall be located within 90 m horizontally of any portion of a building perimeter that is required to face a
street in Subsection 3.2.2.

3.2.5.13. Automatic Sprinkler Systems

(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.

(3) Except as required by Sentence (9), 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) Despite 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) Despite the requirements of the standards referenced in Sentences (1) and (2) for the installation of automatic sprinkler systems, sprinklers shall be provided for all balconies and decks forming part of a building within the scope of Article 3.2.2.43A. or 3.2.2.50A., other than, (a) balconies or decks that are not more than 610 mm in depth measured perpendicular to the exterior wall of the building, or of residential occupancy that is not more than 4 storeys in building height, or (b) decks on the uppermost roof of the building. (See Appendix A.)

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

(9) 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/m².

(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 m² 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 m².

(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 m² 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 m² 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 CAN/ULC-S104, “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) 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 lx.
(3) Rooms and spaces used by the public shall be illuminated as described in Article 9.34.2.7.

(4) Lighting outlets in a building of residential occupancy shall be provided in conformance with Subsection 9.34.2.

(5) Elevator machine rooms shall be equipped to provide illumination to an average level of not less than 100 lx at floor level.

(6) Every place of assembly intended for the viewing of motion pictures or the performing arts, shall be equipped to provide an average level of illumination at floor level in the aisles of not less than 2 lx during the viewing.

(7) Every area where food is intended to be processed, prepared or manufactured and where equipment or utensils are intended to be cleaned shall be equipped to provide illumination to a level of not less than 500 lx measured at the floor level.

(8) Every storage room, dressing room, sanitary facility, service area and corridor serving the areas in Sentence (7) shall be equipped to provide illumination to a level of not less than 300 lx measured at the floor level.

3.2.7.2. Recessed Lighting Fixtures

(1) A recessed lighting fixture shall not be located in an insulated ceiling unless the fixture is designed for this type of installation.

3.2.7.3. Emergency Lighting

(1) Emergency lighting shall be provided to an average level of illumination not less than 10 lx at floor or tread level in,
   (a) exits,
   (b) principal routes providing access to exit in an open floor area and in service rooms,
   (c) corridors used by the public,
   (d) corridors serving patients’ or residents’ sleeping rooms in a Group B, Division 2 or 3 occupancy,
   (e) corridors serving classrooms,
   (f) underground walkways,
   (g) public corridors,
   (h) floor areas or parts of them where the public may congregate in,
      (i) Group A, Division 1 occupancies, or
      (ii) Group A, Divisions 2 and 3 occupancies having an occupant load of 60 or more,
   (i) floor areas or parts of them in day care centres where persons are cared for,
   (j) food preparation areas in commercial kitchens,
   (k) principal routes providing access to exit in a floor area that is not subdivided into rooms or suites of rooms served by corridors in a business and personal services occupancy, a mercantile occupancy or an industrial occupancy, and
   (l) internal corridors or aisles serving as principal routes to exits in a business and personal services occupancy, a mercantile occupancy or an industrial occupancy that is subdivided into rooms or suites of rooms, and is not served by a public corridor.

(2) Emergency lighting to provide an average level of illumination of not less than 10 lx at floor or catwalk level shall be included,
   (a) in a service space referred to in Sentence 3.2.1.1.(9), and
   (b) on a shelf and rack storage system, in locations described in Sentence 3.16.1.5.(2).

(3) The minimum value of the illumination required by Sentences (1) and (2) shall not be less than 1 lx.

(4) In addition to the requirements of Sentences (1) to (3), the installation of battery-operated emergency lighting in health care facilities shall conform to the appropriate requirements of CSA Z32, “Electrical Safety and Essential Electrical Systems in Health Care Facilities”.

Effective Date: January 1, 2015
3.2.7.4. Emergency Power for Lighting

(1) An emergency power supply shall be,
(a) provided to maintain the emergency lighting required by this Subsection from a power source such as batteries or generators that will continue to supply power in the event that the regular power supply to the building is interrupted, and
(b) so designed and installed that upon failure of the regular power it will assume the electrical load automatically for a period of,
   (i) 2 h for a building within the scope of Subsection 3.2.6.,
   (ii) 1 h for a building of Group B major occupancy classification that is not within the scope of Subsection 3.2.6.,
   (iii) 1 h for a building within the scope of Article 3.2.2.43A. or 3.2.2.50A., and
   (iv) 30 min for any other building.
(See Appendix A.)

(2) If self-contained emergency lighting units are used, they shall conform to CSA C22.2 No. 141, “Emergency Lighting Equipment”.

3.2.7.5. Emergency Power Supply Installation

(1) Except as required by Articles 3.2.7.6. and 3.2.7.7., an emergency electrical power system shall be installed in conformance with CSA C282, “Emergency Electrical Power Supply for Buildings”.

(2) Every emergency power supply shall be equipped with an emergency audible and visual trouble indication.

3.2.7.6. Emergency Power for Hospitals

(1) Except as required by Article 3.2.7.7., an emergency electrical power system for emergency equipment required by this Part for health care facilities shall be installed in conformance with CSA Z32, “Electrical Safety and Essential Electrical Systems in Health Care Facilities”. (See Appendix A.)

3.2.7.7. Fuel Supply Shut-Off Valves and Exhaust Pipes

(1) If a liquid or gas fuel-fired engine or turbine for an emergency electric power supply is dependent on a fuel supply from outside the building, the fuel supply shall be provided with a suitably-identified separate shut-off valve outside the building.

(2) Where pipes for exhaust gases from emergency power systems penetrate required fire separations, they shall be enclosed in a separate service space having a fire-resistance rating equal to that of the penetrated floor assembly, but not less than 45 min.

3.2.7.8. Emergency Power for Fire Alarm Systems

(1) Fire alarm systems, including those incorporating a voice communication system, shall be provided with an emergency power supply conforming to Sentences (2) to (4).

(2) The emergency power supply required by Sentence (1) shall be supplied from,
   (a) a generator,
   (b) batteries, or
   (c) a combination of the items described in Clauses (a) and (b).

(3) The emergency power supply required by Sentence (1) shall be capable of providing,
   (a) supervisory power for not less than 24 h, and
   (b) immediately following, emergency power under full load for not less than,
(i) 2 h for a building within the scope of Subsection 3.2.6.,
(ii) 1 h for a building classified as Group B major occupancy that is not within the scope of Subsection 3.2.6.,
(iii) 1 h for a building within the scope of Article 3.2.2.43A. or 3.2.2.50A.,
(iv) 5 min for a building not required to be equipped with an annunciator, and
(v) 30 min for any other building.
(See Appendix A.)

(4) The emergency power supply required by Sentence (1) shall be designed so that, in the event of a failure of the normal power source, there is an immediate automatic transfer to emergency power with no loss of information.

### 3.2.7.9. Emergency Power for Building Services

(1) An emergency power supply capable of operating under a full load for not less than 2 h shall be provided by an emergency generator for,
(a) every elevator serving storeys above the first storey in a building that is more than 36 m high measured between grade and the floor level of the top storey and every elevator for firefighters in conformance with Sentence (2),
(b) water supply for firefighting in conformance with Article 3.2.5.7., if the supply is dependent on electrical power supplied to the building, and the building is within the scope of Subsection 3.2.6.,
(c) fans and other electrical equipment that are installed to maintain the air quality specified in Article 3.2.6.2., and
(d) fans required for venting by Article 3.2.6.6.
(See Appendix A.)

(2) Except as permitted by Sentence (3), the emergency power supply for elevators required by Clause (1)(a) shall be capable of operating all elevators for firefighters plus one additional elevator simultaneously.

(3) Sentence (2) does not apply if the time to recall all elevators under emergency power supply is not more than 5 min, each from its most remote storey to,
(a) the storey containing the entrance for firefighter access referred to in Articles 3.2.5.4 and 3.2.5.5., or
(b) to a transfer lobby.

(4) Except as provided by Sentence (5), an emergency power supply capable of operating under a full load for not less than 30 min shall be provided by emergency generator for water supply for firefighting in conformance with Article 3.2.5.7., if the supply is dependent on electrical power supplied to the building, and the building is not within the scope of Subsection 3.2.6.

(5) Sentence (4) does not apply to the water supply for a standpipe system.

### 3.2.7.10. Protection of Electrical Conductors

(1) Electrical conductors shall conform to Sentences (2) to (9) if they,
(a) are within buildings identified in Article 3.2.6.1. and serve,
   (i) fire alarm systems, or
   (ii) emergency equipment within the scope of Articles 3.2.6.2. to 3.2.6.8.,
(b) serve fire pumps required to be installed under Article 3.2.5.19.,
(c) serve mechanical systems related to,
   (i) compartments referred to in Clause 3.3.3.6.(1)(b),
   (ii) contained use areas referred to in Clauses 3.3.3.7.(4)(a) and (b), or
   (iii) provisions of Articles 3.2.8.4. to 3.2.8.6. and 3.2.8.9., or
(d) serve emergency lighting described in Article 3.2.7.3.

(2) Except as required by Sentence (3) and except as permitted in this Article, electrical conductors referred to in Sentence (1) shall,
(a) conform to ULC-S139, “Fire Test for Evaluation of Integrity of Electrical Cables”, including the hose stream application, to provide a circuit integrity rating of not less than 1 h, or
(b) be located in a service space that is separated from the remainder of the building by a fire separation that has a fire-resistance rating of not less than 1 h.
(3) Electrical conductors that are used in conjunction with systems referred to in Clause (1)(c) shall,  
(a) conform to ULC-S139, “Fire Test for Evaluation of Integrity of Electrical Cables”, including the hose stream 
application, to provide a circuit integrity rating of not less than 2 h, or  
(b) be located in a service space that is separated from the remainder of the building by a fire separation that has a fire-
resistance rating of not less than 2 h.  

(4) The service spaces referred to in Clause (2)(b) or (3)(b) shall not contain any combustible materials other than the 
electrical conductors being protected.  

(5) Except as permitted by Sentences (7) and (9), the electrical conductors referred to in Sentence (1) are those that 
extend from the source of emergency power to, 
(a) the equipment served, or  
(b) the distribution equipment supplying power to the equipment served, if both are in the same room. (See 
Appendix A.)  

(6) If a fire alarm transponder or annunciator located in one fire compartment is connected to a central processing unit 
or another transponder or annunciator located in a different fire compartment, the electrical conductors connecting them 
shall be protected in accordance with Sentence (2).  

(7) Fire alarm system branch circuits within a storey that connect transponders and individual devices need not conform 
to Sentence (2). (See Appendix A.)  

(8) Except as permitted by Sentence (9), if a distribution panel supplies power to emergency lighting, the power supply 
conductors leading up to the distribution panel shall be protected in accordance with Sentence (2).  

(9) Conductors leading from a distribution panel referred to in Sentence (8) to emergency lighting units in the same 
storey need not conform to Sentence (2).

3.2.8. Mezzanines and Openings Through Floor Assemblies  

3.2.8.1. Application  

(1) Except as permitted by Article 3.2.8.2. and Sentence 3.3.4.2.(3), the portions of a floor area or a mezzanine that do 
not terminate at an exterior wall, a firewall or a vertical shaft shall, 
(a) terminate at a vertical fire separation having a fire-resistance rating not less than that required for the floor 
assembly and extending from the floor assembly to the underside of the floor or roof assembly above, or  
(b) be protected in conformance with the requirements of Articles 3.2.8.3. to 3.2.8.11.  

(2) The penetration of a floor assembly by an exit or a vertical service space shall conform to the requirements of 
Sections 3.4. to 3.6.  

(3) A floor area containing sleeping rooms in a building of Group B, Division 2 or 3 major occupancy shall not be 
constructed as part of an interconnected floor space.  

(4) Except as permitted in Sentence (5), an elementary or secondary school shall not, 
(a) contain an interconnected floor space, or  
(b) be located in an interconnected floor space.  

(5) An interconnected floor space is permitted in an elementary or secondary school provided, 
(a) the interconnected floor space consists of the first storey, and the storey next above or below it, but not both,  
(b) the interconnected floor space is sprinklered,  
(c) the portions of the upper floor area that do not terminate at an exterior wall, a firewall or a vertical shaft shall 
terminate at a vertical fire separation extending from the floor assembly to the underside of the floor or roof 
assembly above,
3.2.8.6. Group B Sleeping Rooms

(1) Openings provided for access between an interconnected floor space and a building or a portion of a building containing Group B major occupancy sleeping rooms shall be provided with vestibules that are provided with a mechanical air supply and that are designed,
(a) to restrict the passage of smoke from the interconnected floor space into the area containing sleeping rooms in accordance with the limits described in Sentence 3.2.8.4.(1), and
(b) in conformance with Clause 3.2.8.4.(3)(a).

3.2.8.7. Sprinklers

(1) In a building containing an interconnected floor space, storeys that are wholly or partially within an interconnected floor space and all storeys below an interconnected floor space shall be sprinklered.

(2) In a building containing an interconnected floor space,
(a) waterflow alarm signals from sprinkler systems shall be transmitted to the fire department in conformance with Sentence 3.2.4.8.(4), and
(b) sprinkler systems shall be electrically supervised as required by Sentence 3.2.4.10.(3).

3.2.8.8. Fire Alarm and Detection System

(1) A building containing an interconnected floor space shall be provided with,
(a) a fire alarm system and electrically supervised annunciator conforming to Subsection 3.2.4.,
(b) a system of smoke detectors located,
   (i) on the ceiling of each storey in the vicinity of the openings through floor assemblies described in Article 3.2.8.3., except within dwelling units, heat detectors may be installed instead of smoke detectors, and
   (ii) as required for the activation of the smoke control system described in Sentences 3.2.8.9.(3), (4), (6) and (7), and
   (See Appendix A.)
(c) facilities for transmitting a signal to the fire department in conformance with Article 3.2.4.8.

3.2.8.9. Smoke Control

(1) A smoke control system conforming to Sentences (2) to (8) shall be designed to control the movement of smoke within a building containing an interconnected floor space.

(2) The design of the smoke control system shall assume an outdoor temperature equal to the January design temperature on a 2.5% basis.

(3) Upon activation of the sprinkler system or automatic detection of smoke by at least two smoke detectors in a single zone within an interconnected floor space, the system shall,
(a) stop air moving fans that provide for the normal exhausting or re-circulating of air in an interconnected floor space,
(b) activate exit stairshaft protection required in Article 3.2.8.4.,
(c) activate elevator protection required in Article 3.2.8.5., and
(d) activate the vestibule air supply required in Sentence 3.2.8.6.(1).

(4) A building containing an interconnected floor space may be designed so that, in the event of a fire arising in a floor area or part of a floor area within the interconnected floor space, automatic detection of such fire will activate air handling equipment that,
(a) extracts air directly from such floor area or part of a floor area at the rate of at least six air changes per hour, and
(b) supplies air in sufficient quantities and at appropriate locations to prevent smoke from passing out of such floor area into other portions of the interconnected floor space.
3.2.8.9. 2012 Building Code Compendium

(5) For purposes of Sentences (6) and (7), the volume of an interconnected floor space need not include the aggregate volume of those floor areas or portions of floor areas designed to have zoned air extraction in accordance with Sentence (4).

(6) A mechanical exhaust shall be provided to remove air at the top of an interconnected floor space at the rate of at least six air changes per hour, except that where the volume of the interconnected floor space exceeds 17 000 m$^3$, only four air changes per hour need be provided.

(7) Except where zoned mechanical exhaust described in Sentence (4) has been activated, upon automatic detection of smoke within the volume of the interconnected floor space, the mechanical exhaust described in Sentence (6) shall be automatically activated and supply air shall be provided in sufficient quantity and at appropriate locations to allow a consistent rate of removal of smoke throughout the volume of the interconnected floor space.

(8) Overriding manual controls for the smoke control system shall be provided for fire department use at an acceptable location in the vicinity of the fire alarm annunciator.

3.2.8.10. Emergency Power Supply

(1) In a building that is more than 18 m in height, measured between grade and the floor level of the top storey, an emergency power supply capable of operating under a full load for at least 2 h shall be provided by an emergency generator or by a separate service not supplied by the same substation as the primary source for fans required for smoke control purposes in Articles 3.2.8.4., 3.2.8.5., 3.2.8.6. and 3.2.8.9.

3.2.8.11. Testing

(1) The systems for smoke control and venting described in Articles 3.2.8.4., 3.2.8.5., 3.2.8.6. and 3.2.8.9. shall be tested to ensure satisfactory operation.

3.2.9. Standpipe Systems

3.2.9.1. Where Required

(1) Except as provided in Sentences (4) to (7), a standpipe system shall be installed in every building that, 
   (a) is more than 3 storeys in building height,
   (b) is more than 14 m high measured between grade and the ceiling of the top storey, or
   (c) is not more than 14 m high measured between grade and the ceiling of the top storey but has a building area exceeding the area shown in Table 3.2.9.1. for the applicable building height if the building is not sprinklered.

(2) A standpipe system shall be installed in every basement of a building that requires a standpipe system above grade.

(3) A standpipe system shall be installed in every basement of a building that is regulated by Sentence 3.2.2.15.(2).

(4) A standpipe system is not required to be installed in the lowest storey in a building if this storey is a service room that has an area not more than 50 m$^2$.

(5) A standpipe system is not required to be installed in a rooftop enclosure if this enclosure has an area not more than 50 m$^2$.

(6) A standpipe system is not required to be installed in a storage garage conforming to Article 3.2.2.83. provided the building is not more than 15 m high.
3.2.9.2. Standpipe System Design

(1) Except as otherwise provided in this Subsection, if a standpipe system is required, the design, construction, installation and testing of the system shall be in conformance with NFPA 14, “Installation of Standpipe and Hose Systems”.

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

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

(4) The residual water pressure at the design flow rate at the hydraulically most remote hose connection of a standpipe system that is required to be installed in a building is permitted to be less than 450 kPa provided that,
(a) the building is sprinklered,
(b) the water supply at the base of the sprinkler riser is capable of meeting the design flow rate and pressure demand of the sprinkler system, including the inside and outside hose allowance, and
(c) fire protection equipment is available to deliver, by means of the fire department connection, the full demand flow rate at a residual water pressure of 450 kPa at the hydraulically most remote hose connection of the standpipe system. (See Appendix A.)

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

(6) Pumps required to have a rated net head pressure greater than 280 kPa and their controllers shall be listed and labelled.

(7) Couplings for hoses or other fittings used in connection with such couplings shall conform to ULC-S513, “Threaded Couplings for 38 mm and 65 mm Fire Hose” or CAN/ULC-S543, “Internal Lug Quick Connect Couplings for Fire Hose”.

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**Table 3.2.9.1.**

**Building Limits Without Standpipe Systems**

Forming Part of Sentence 3.2.9.1.(1)

<table>
<thead>
<tr>
<th>Occupancy Classification</th>
<th>Building Area, m²</th>
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<tr>
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<td>1 Storey</td>
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<tr>
<td>A</td>
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<td>C</td>
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</tr>
<tr>
<td>D</td>
<td>4 000</td>
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<tr>
<td>F, Division 2</td>
<td>2 000</td>
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<tr>
<td>F, Division 3</td>
<td>3 000</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>
(8) If freezing of piping may occur, a dry standpipe system may be provided and so arranged through the use of listed devices to,
(a) automatically admit water to the system by opening of a hose valve, and
(b) transmit a signal to an attended location.

(9) A standpipe riser shall be located in,
(a) an exit stair shaft, or
(b) a vertical service space separated from the adjacent floor area by a fire separation having a fire-resistance rating conforming to Table 3.6.3.1.

3.2.9.3. Hose Connections

(1) If a standpipe system is required in a building, 38 mm diam hose connections shall be provided in each storey in the building.

(2) In addition to the requirements in Sentence (1), if a standpipe system is required, 65 mm diam hose connections shall be installed in each storey in the building if the building,
(a) is more than 25 m high, measured between grade and the ceiling of the top storey, or
(b) has a building area of more than 4 000 m².

3.2.9.4. Hose Stations

(1) If a standpipe system is required in a building, hose stations shall be provided in each storey in the building.

(2) Each hose station shall be equipped with a hose rack filled with not more than 30 m of 38 mm diam fire hose and the hose rack and fire hose shall be,
(a) listed, or
(b) approved by the Factory Mutual Research Corporation.

(3) Except in a Group F occupancy, at each hose station, hose connections, valves, fire hose, nozzle and hose rack shall be in a hose cabinet.

(4) A hose cabinet referred to in Sentence (3) shall be of sufficient size to,
(a) contain the equipment referred to in Sentence (3),
(b) contain a listed fire extinguisher, and
(c) provide sufficient clearance to permit the use of a standard fire department hose key.

(5) Hose stations shall be located,
(a) so that every portion of the building can be reached by a hose stream and is within 3 m of a nozzle attached to the hose required in Sentence (2),
(b) not more than 5 m from every required exit serving a floor area, except,
   (i) for the first storey, or
   (ii) if additional hose stations are required to achieve full coverage of the floor area, and
(c) in a conspicuous location where they are not likely to be obstructed.

(6) Except as permitted in Sentence (7), hose stations shall be located so that it is not necessary to penetrate an exit with a hose in order to provide the design coverage required in Clause (5)(a).

(7) A hose is permitted to penetrate an exit in order to provide the required coverage to,
(a) a service room referred to in Sentence 3.2.9.1.(4),
(b) a rooftop enclosure referred to in Sentence 3.2.9.1.(5),
(c) a room not more than 50 m² in area, or
(d) a room or group of rooms not more than 200 m² in area in a sprinklered floor area.
(a) attached or secured to the floor, platform or platform riser,
(b) provided with arms and back, and
(c) arranged in rows having an unobstructed passage not less than 400 mm wide measured horizontally between plumb lines from the backs of the seats in one row and the edges of the furthest forward projection of the seats in the next row in the unoccupied position.

(2) For fixed seats with backs and with folding tablet arms, the value of 400 mm required by Clause (1)(c) shall be measured when the tablet arms are in the use position, but is permitted to be measured in the stored position provided,
(a) there are not more than seven seats between any seat and the nearest aisle,
(b) the seats are located in a lecture hall or an auditorium used for instructional purposes, and
(c) the tablet arm, when raised manually to a vertical position, falls by the force of gravity to the stored position.
(See Appendix A.)

(3) Except as permitted by Sentences (4) and (5), aisles shall be located so that there are not more than seven seats with backs or 20 seats without backs between any seat and the nearest aisle.

(4) The requirements of Sentence (3) do not apply if,
(a) egress doorways are provided to serve both ends of rows of seats,
(b) each doorway referred to in Clause (a) serves not more than three rows of seats, and
(c) each row contains not more than 100 seats.

(5) The requirements of Sentence (3) do not apply if,
(a) there are not more than seven seats between any seat and the nearest aisle, where the seats are served by a single aisle,
(b) there are not more than 20 seats between any seat and the nearest aisle, where the seats are served by two aisles,
(c) each row has an unobstructed passage with minimum width of 400 mm plus 6.1 mm for each additional seat above 16 seats in the row, and
(d) the travel distance is not more than 45 m measured along the path of travel from any seat to an exit or to an egress doorway.

(6) Seating arrangements that do not conform to the requirements of Sentences (3) to (5) are permitted provided the standard of safety is not reduced and the time required for egress is not increased.

3.3.2.4. Aisles

(1) Except as required by Articles, 3.3.2.9. and 3.3.2.10., aisles leading to egress doors or exits shall be provided in conformance with Sentences (2) to (27) in places of assembly that contain fixed seats.

(2) In this Subsection, a converging aisle is an aisle into which the occupants of two or more aisles converge in travelling to an exit.

(3) An aisle shall terminate at,
(a) a converging aisle,
(b) an egress doorway from the seating area, or
(c) an exit from the seating area.

(4) A converging aisle shall terminate at,
(a) an egress doorway from the seating area, or
(b) an exit from the seating area.

(5) The minimum clear width of aisles shall be not less than 1 100 mm, except that the width is permitted to be reduced to not less than,
(a) 750 mm if serving not more than 60 seats, and
(b) 900 mm if serving seats on one side only.
The minimum clear width of each aisle shall be measured at the point in the aisle furthest from,
(a) an egress doorway referred to in Clause (15)(a),
(b) an exit referred to in Clause (15)(b), or
(c) an exit referred to in Sentence (16).

Except for an aisle serving bleacher seats, where rows of seats discharge into an aisle, the minimum clear width required by Sentence (5) shall be increased by 25 mm for each metre of length of the aisle measured in the direction towards an exit.

The width of a converging aisle shall be not less than the required width of the widest aisle plus 50% of the total required width of the remaining aisles that it serves.

If rows of seats discharge directly into the converging aisle, the width required by Sentence (8) shall be increased by 25 mm for each metre of length of the aisle where the rows of seats discharge into the aisle.

The width of an egress doorway or an exit leading directly from the seating area shall be not less than the required width of the widest aisle or converging aisle plus 50% of the total required width of the remaining aisles and converging aisles that it serves.

The requirements in Sentences (5) to (10) and (17) do not apply if,
(a) the minimum clear width of an aisle is in accordance with Article 3.3.1.16., but is not less than 900 mm if serving seats on one side only,
(b) the minimum clear width of an aisle is in accordance with Article 3.3.1.16., but is not less than 1 200 mm if serving seats on both sides,
(c) the minimum clear width of a converging aisle is in accordance with Article 3.3.1.16., but not less than the width of the widest aisle leading to the converging aisle,
(d) the minimum clear width of an exit leading directly from the seating area is in accordance with Article 3.4.3.2.,
(e) except as provided in Clause (f), the minimum clear width of an egress doorway leading directly from the seating area is in accordance with Article 3.3.1.16., but not less than the required width of the aisle or the converging aisle leading to the doorway, and
(f) if more than one vomitory is provided,
(i) the minimum total clear width of the egress doorways leading from one vomitory is not less than the required width of the aisle or the converging aisle leading to the doorways, and
(ii) the minimum clear width of egress doorways from additional vomitories is in accordance with Article 3.3.1.16.

Except as provided in Sentences (13) and (14), dead-end aisles shall be not more than 6 m long.

Dead-end aisles are permitted to be more than 6 m long, but not more than 10 m long if,
(a) the seating area is separated from other seating areas and adjacent occupancies, including a corridor serving any seating area, by a fire separation in accordance with Sentences 3.3.2.2.(1) and (2),
(b) the travel distance is not more than 25 m measured along the path of travel from any seat to an exit, to an egress doorway or to an opening into a vomitory,
(c) at least one means of egress, comprising not less than 30 per cent of the required exit capacity, is through an exterior exit, an exit stairway or a corridor not containing an occupancy,
(d) each row served by the dead-end aisle has a minimum unobstructed width of 400 mm plus 6.1 mm for each additional seat above seven seats in a row, but not more than 550 mm,
(e) the minimum ceiling height above the seating area is 3 m,
(f) the activation of a fire detector or a sprinkler head in the seating area will,
(i) cause the shutdown of the projection system serving the seating area, and
(ii) turn on the normal lighting in the seating area, and
(g) the floor area is sprinklered.

Dead-end aisles are permitted to be more than 10 m long, but not more than 13 m long if,
(a) the seating area is separated from other seating areas and adjacent occupancies, including a corridor serving any seating area, by a fire separation in accordance with Sentences 3.3.2.2.(1) and (2),
the travel distance is not more than 25 m measured along the path of travel from any seat to an exit, to an egress doorway or to an opening into a vomitory, 

at least one means of egress, comprising not less than 30 per cent of the required exit capacity, is through an exterior exit, an exit stairway or a corridor not containing an occupancy, 

each row served by a dead-end aisle has a minimum unobstructed width of 400 mm plus 6.1 mm for each additional seat above seven seats in a row, but not more than 550 mm, 

the activation of a fire detector or a sprinkler head in the seating area will, 

(ii) cause the shutdown of the projection system serving the seating area, and 

on the normal lighting in the seating area, 

a voice communication system is installed in conformance with Article 3.2.4.23., 

a smoke control system is installed to control movement of smoke in the seating area or a smoke exhaust system is provided so that, in the event of detection of smoke by a smoke detector in the seating area, air handling equipment is activated to extract air directly from the seating area at the rate of at least six air changes per hour, and 

the floor area is sprinklered. 

Where a seating area is separated as required by Sentences 3.3.2.2.(1) and (2) or 3.3.2.2.(8), the length of travel by any aisle shall be not more than 45 m measured from the most remote point of the aisle to, 

an egress doorway in the required separation, or 

an exit leading directly from the seating area. 

Where a seating area is not required to be separated by Sentences 3.3.2.2.(1) and (2) or 3.3.2.2.(8), the travel distance shall be not more than 45 m measured from the most remote point of the aisle to an exit. 

Side aisles shall be not less than 1 100 mm wide if seating is provided in conformance with Sentence 3.3.2.3.(4). 

An aisle that has a slope not more than 1 in 8 shall not be stepped. 

An aisle that slopes more than 1 in 8 shall be stepped. 

The passageway between rows of seats served by a stepped aisle shall be level at right angles to the line of travel. 

The riser of a step in an aisle shall be, 

(b) not less than 110 mm high, and 

(b) not more than 200 mm high. 

Variations are permitted in riser height provided, 

(a) the height of adjacent risers does not vary by more than 6 mm, and 

(b) the depth of a tread or a platform in the direction of travel is not less than 430 mm. 

Steps in an aisle shall, 

(a) have a run not less than 230 mm exclusive of nosings, 

(b) have a tread depth not less than 250 mm, 

(c) extend to the adjacent rows of seats in a manner that will not create a hazard from tripping, and 

(d) have a finish on the treads conforming to Sentence 3.4.6.1.(1). 

The location of every riser in an aisle shall be made apparent from both directions of travel by strategically placed lighting or contrasting marking stripes. 

A platform in an aisle shall be level, except that a slope not more than 1 in 50 is permitted for a platform that is not less than 430 mm deep in the direction of exit travel. 

If a step is used at the entry to a row of seats from a stepped aisle, an unobstructed platform not less than 800 mm square shall be provided adjacent to the aisle. 

The finish of the surface of a platform in or adjacent to a stepped aisle shall conform to Sentence 3.4.6.1.(1).
3.3.2.5. Corridors

(1) Except as permitted by Sentences (2) to (4), a corridor used by the public in an assembly occupancy as an access to exit shall be separated from the remainder of the floor area by a fire separation having a fire-resistance rating not less than 1 h.

(2) The fire-resistance rating of the fire separation required by Sentence (1) 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.

(3) The fire-resistance rating required by Sentence (1) is permitted to be waived if the floor area in which the corridor is located is sprinklered.

(4) The fire separation required by Sentence (1) is permitted to be waived if the distance from any point in the floor area to an exit measured along the path of travel to an exit does not exceed the travel distance permitted by Article 3.4.2.5.

3.3.2.6. Doors

(1) A door equipped with a latching mechanism in an access to exit from a room or suite of assembly occupancy containing an occupant load more than 100 shall be equipped with a device that will release the latch and allow the door to swing wide open when a force not more than that specified in Sentence 3.8.3.3.(7) is applied to the device in the direction of travel to the exit.

3.3.2.7. Fixed Bench-Type Seats Without Arms

(1) If fixed bench-type seats without arms are provided, the seat width per person shall be assumed to be 450 mm.

(2) The centre-to-centre spacing between rows of bench-type seats shall be not less than 760 mm if back rests are provided, and not less than 550 mm if back rests are not provided.

(3) A clear space of not less than 300 mm shall be provided between the back of each seat and the front of the seat immediately behind it.

3.3.2.8. Guards

(1) Except as required by Sentences (2) to (4) for bleacher seats, guards shall be installed in outdoor and indoor places of assembly with fixed seats so that,
   (a) at the fascia of every box, balcony or gallery where the seats extend to the edge, the height of guards is not less than,
      (i) 760 mm in front of the seats, and
      (ii) 920 mm if located at the end of aisles or at the foot of steps,
   (b) the height of guards along every cross aisle other than those adjacent to the fascia of every box, balcony or gallery is not less than 660 mm, except that guards need not be provided if the backs of the seats along the front side of the aisle are not less than 600 mm above the floor of the aisle, and
   (c) where the seating is arranged in successive tiers and the height of rise between platforms is more than 450 mm, the height of guards is not less than 660 mm along the entire row of seats at the edge of the platform.

(2) The backs and ends of bleacher seats more than 1 200 mm above the ground or floor that are not adjacent to a wall shall be protected with a guard,
   (a) not less than 1 070 mm high above an adjacent aisle surface or foot rest, and
   (b) not less than 920 mm high above the centre of an adjacent seat board.
(3) If the front of a bleacher is more than 600 mm above the ground or floor, it shall be protected with a guard not less than 840 mm high above the front foot rest.

(4) Openings through any guard that is required by Sentences (2) and (3) shall be of a size that will prevent the passage of a sphere having a diameter more than 300 mm.

### 3.3.2.9. Outdoor Places of Assembly

(1) A Group A, Division 4 occupancy and each tier or balcony that has a capacity of more than,

(a) 1 000 persons shall have no fewer than three separate exits, or
(b) 4 000 persons shall have no fewer than four separate exits.

(2) In a Group A, Division 4 occupancy, every seat shall be located so that the travel distance is not more than 45 m measured along the path of travel from the seat to,

(a) the ground,
(b) an exit,
(c) an opening to a passageway leading from the seating area, or
(d) a portal, a vomitory or any other opening through the seating deck structure.

(3) Exits from outdoor stadia or grandstands shall be located not more than 25 m apart.

(4) The capacity of a means of egress for a Group A, Division 4 occupancy shall conform to the requirements of Sentence 3.4.3.2.(3).

(5) Aisles in a Group A, Division 4 occupancy,

(a) shall be located so that there are not more than 20 seats between any seat and the nearest aisle, and
(b) shall be not less than 1 200 mm wide, except that an aisle serving less than 60 persons is permitted to be 750 mm wide.

### 3.3.2.10. Bleachers

(1) Steps provided in aisles of bleachers of the telescopic type shall,

(a) have risers not more than 250 mm high, and
(b) have treads with a run not less than 280 mm.

(2) If the vertical distance between seating platforms in bleachers is more than 280 mm, an intermediate step shall be provided the full width of the aisle and proportioned to provide two equal risers between platforms.

(3) If the vertical distance between seating platforms in bleachers is more than 450 mm, two intermediate steps shall be provided the full width of the aisle so that there are three equal risers between platforms.

(4) If the passageway between rows of seats is not a closed deck, footboards shall be provided so that,

(a) the total width of the footboards shall be not less than three-quarters of the centre-to-centre spacing between rows of seats, and
(b) the spacing between footboard members shall be not more than 25 mm.

(5) Openings above footboards and below the seats in rows of bleachers shall be of a size that will prevent the passage of a sphere having a diameter more than 100 mm.

### 3.3.2.11. Libraries

(1) Except as permitted by Sentence (2), a library book storage room that is not normally accessible to the public shall be separated from the remainder of the building by a fire separation with a fire-resistance rating not less than 2 h if it,
3.3.2.11. 2012 Building Code Compendium

(a) is more than 250 m$^2$ in area, or
(b) contains book stacks that,
    (i) are more than 10 m high, or
    (ii) penetrate more than one floor assembly.

(2) The fire separation required by Sentence (1) is not required if the book storage room is sprinklered.

(3) Open book shelves are permitted above and below a mezzanine floor in a library building provided the height of the shelves is not more than 2.1 m but not more than 75% of the floor-to-ceiling height of the space above or below the mezzanine floor assembly.

3.3.2.12. Stages for Theatrical Performances

(1) A stage for theatrical performances and ancillary spaces, including workshops, dressing rooms and storage areas, shall be sprinklered.

(2) A fire separation with a fire-resistance rating not less than 1 h shall be provided between a stage for theatrical performances and ancillary spaces, including workshops, dressing rooms and storage areas.

(3) Except as permitted by Sentence (6), a stage for theatrical performances and ancillary spaces, including workshops, dressing rooms and storage areas, shall be separated from the seating area by a fire separation having a fire-resistance rating not less than 1 h, except for a proscenium opening protected with,
   (a) a sprinkler deluge system conforming to the requirements of NFPA 13 “Installation of Sprinkler Systems”,
   (b) an unframed fire curtain if the opening is not more than 20 m wide, or
   (c) a semi-rigid fire curtain if the opening is more than 20 m wide.

(4) A fire curtain required by Sentence (3) shall be of a type designed to close,
   (a) automatically upon the actuation of the sprinkler system,
   (b) automatically upon actuation of the fire alarm system,
   (c) manually by remote control devices located at the curtain control panel and at each side of the stage, and
   (d) automatically by heat-actuated devices.

(5) At least two vents for the purpose of venting fire and smoke to the outside of a building shall be provided above a stage designed for theatrical performances and shall,
   (a) have an aggregate area not less than one-eighth of the area of the stage behind the proscenium opening, and
   (b) be arranged to open automatically upon actuation of the sprinkler system.

(6) The fire separation referred to in Sentence (3) is not required between a stage and a seating area in a floor area that is sprinklered, provided a sprinkler deluge system is installed at the boundary between the stage and the seating area.

3.3.2.13. Risers for Stairs

(1) In a Group A, Division 2 occupancy used for the serving of food and beverages, an interior flight of stairs with fewer than three risers is permitted provided it,
   (a) is not less than 900 mm wide,
   (b) is illuminated at all times that occupants are on the premises, and
   (c) has a handrail on each side.

3.3.2.14. Storage Rooms

(1) A room intended for the storage of flammable liquids or combustible liquids required by the Fire Code made under the Fire Protection and Prevention Act, 1997 shall not be located above or below the first storey of the building.
(3) A single exit is permitted from a dwelling unit provided the exit is an exterior doorway not more than 1.5 m above adjacent ground level and,
(a) it is not necessary to travel up or down more than 1 storey to reach the exit door, or
(b) the uppermost floor level opens to a balcony not more than 6 m above adjacent ground level.

(4) An egress door from either the uppermost storey or the lowest storey in a dwelling unit, as required in Sentence (2), need not be provided,
(a) except as required by Sentence (8), if that storey is served by a stairway that,
   (i) leads to a public access to exit,
   (ii) has no direct access to any other storey in the dwelling unit, and
   (iii) is separated from the other storeys in the dwelling unit by a fire separation having a fire-resistance rating of not less than 45 min,
(b) on the uppermost storey in the dwelling unit if the dwelling unit has not more than 2 storeys above the first storey of the building,
(c) if it is not necessary to travel either more than 18 m or more than 1 storey up or down within the dwelling unit to reach the egress door, or
(d) if that storey is,
   (i) provided with a balcony conforming to Sentence (7),
   (ii) not more than 2 storeys above or below the dwelling unit egress door, and
   (iii) in a building that is not more than 6 storeys in building height.

(5) In a building of residential occupancy not more than 3 storeys in building height, a doorway from a dwelling unit is permitted to open directly into an exit stairway provided the dwelling unit has a second and separate means of egress.

(6) If a dwelling unit has a second and separate means of egress, one means of egress from a dwelling unit is permitted to pass through,
(a) an interior corridor served by a single exit,
(b) an exterior balcony served by a single exit stairway, or
(c) an exterior passageway served by a single exit stairway.

(7) Where a balcony is provided to meet the requirements of Sentence (3) or (4), the balcony shall have,
(a) a solid floor having a fire-resistance rating not less than that required for a floor assembly between suites, and
(b) an area providing not less than 1.5 m² per suite occupant, based on occupant load, and a minimum dimension of 1.200 mm.

(8) Each dwelling unit in a building conforming to Subclause 3.2.2.44.(1)(a)(ii) shall be served by,
(a) a direct exit that is an exterior doorway located not more than 1.5 m above adjacent ground level, or
(b) a stairway that,
   (i) leads to an exterior doorway not more than 1.5 m above adjacent ground level,
   (ii) has no access to another dwelling unit, and
   (iii) is separated from the remainder of the building with a fire separation having a fire-resistance rating not less than 1 h.

3.3.4.5. Automatic Locking Prohibition

(1) Except for hotels, a door opening onto a public corridor that provides access to exit from a suite shall be designed not to lock automatically. (See Appendix A.)

3.3.4.6. Sound Transmission

(1) Sound transmission class ratings of building assemblies shall conform to Section 5.9.
3.3.4.7. Stairs, Ramps, Landings, Handrails and Guards for Dwelling Units

(1) Except as required by Article 3.3.4.8., stairs, ramps, landings, handrails and interior guards within a dwelling unit shall conform to the applicable requirements in Section 9.8.

(2) Except as provided in Sentence (3), exterior stairs, ramps, landings, handrails and guards serving a single dwelling unit shall conform to the applicable requirements in Section 9.8. and Sentence 3.1.20.1.(1).

(3) Loads on exterior guards serving a single dwelling unit shall comply with Part 4.

3.3.4.8. Protection of Openable Windows

(1) Except as provided by Sentence (2), openable windows in suites of residential occupancy shall be protected by,
   (a) a guard with a minimum height of 1 070 mm constructed in accordance with Article 3.3.1.17., or
   (b) a mechanism capable of controlling the free swinging or sliding of the openable part of the window so as to limit any clear unobstructed opening to a size that will prevent the passage of a sphere having a diameter more than 100 mm.

(2) Windows need not be protected in accordance with Sentence (1) where,
   (a) the only opening having greater dimensions than those allowed by Clause (1)(b) is located higher than 1 070 mm above the finished floor, or
   (b) the bottom edge of the openable portion of the window is located less than 1 800 mm above the floor or ground on the other side of the window.

3.3.4.9. Stud Wall Reinforcement

(1) If wood wall studs or sheet steel wall studs enclose the main bathroom in a dwelling unit, reinforcement shall be installed to permit the future installation of the following:
   (a) for a water closet, a grab bar described in Clauses 3.8.3.8.(3)(a) and a grab bar described in Clause 3.8.3.8.(3)(c),
   (b) for a shower, a grab bar described in Clause 3.8.3.13.(2)(f), and
   (c) for a bathtub, a grab bar described in Clause 3.8.3.13.(4)(c).
   (See Appendix A.)

3.3.4.10. Resistance to Forced Entry

(1) Resistance to forced entry into dwelling units shall conform to the applicable requirements in Articles 9.7.5.2. and 9.7.5.3.

3.3.5. Industrial Occupancy

3.3.5.1. Scope

(1) This Subsection applies to industrial occupancies.

3.3.5.2. Fire Extinguishing Systems

(1) In addition to other requirements in this Division for the installation of automatic fire extinguishing systems, an appropriate fire extinguishing system shall be installed in every industrial occupancy floor area to provide protection if required by,
   (a) the Fire Code made under the Fire Protection and Prevention Act, 1997, or
   (b) the CCBFC NRCC 53303, “National Fire Code of Canada”, in the absence of provisions referred to in Clause (a).
3.4.3.5. **Headroom Clearance** *(See Appendix A.)*

(1) Except as provided by Sentences (2), (4) and (5), every exit shall have a clear height over the clear width of the exit of not less than 2 100 mm.

(2) The clear height of stairways shall be measured vertically, over the clear width of the stairway, from a straight line tangent to the tread and landing nosings to the lowest point above, and shall not be less than 2 050 mm.

(3) The clear height of landings shall be measured vertically, over the clear width of the landing, to the lowest point above.

(4) Except as permitted by Sentence (5), the clear height of doorways shall not be less than 2 030 mm.

(5) No door closer or other device shall be installed so as to reduce the clear height of a doorway to less than 1 980 mm.

3.4.4. **Fire Separation of Exits**

3.4.4.1. **Fire-Resistance Rating of Exit Separations**

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(1) Except as provided by Sentences (2), (3) and (5) and Sentences 3.3.5.4.(3), 3.4.4.2.(2), 3.4.4.3.(1) and 3.13.3.1.(3), every exit shall be separated from the remainder of the building by a fire separation having a fire-resistance rating not less than that required by Subsection 3.2.2., but not less than 45 min, for,

(a) the floor assembly above the storey, or

(b) the floor assembly below the storey, if there is no floor assembly above.

(2) The fire-resistance rating of the fire separation referred to in Sentence (1) need not be more than 2 h.

\[ r_s \]

(3) In a building within the scope of Article 3.2.2.43A. or 3.2.2.50A., the fire-resistance rating of the fire separation referred to in Sentence (1) shall not be less than 1.5 h.

\[ r_s \]

(4) If an exit stair in an assembly hall or theatre serves more than one balcony level, the exit stair shall be separated from the remainder of the building in conformance with Sentence (1).

\[ r_s \]

(5) The path of exit travel may lead from an exit door or exit enclosure through open air parking that is located below a roof or floor assembly that is part of the building served by the exit door or exit enclosure where,

(a) the portion of the path of exit travel that leads through the open air parking is not more than 9 m in length measured from the exit door to a point at ground level at the perimeter of the building,

(b) measures are taken to prevent vehicles intended to park in spaces adjacent to the path of exit travel from encroaching on the path of exit travel, and

(c) an alternate means of egress not leading through the open air parking is available from the interior side of the door opening onto the path of exit travel through the open air parking area.

3.4.4.2. **Exits Through Lobbies**

(1) Except as permitted by Sentence (2), no exit from a floor area above or below the first storey shall lead through a lobby.

(2) Not more than one exit from a floor area is permitted to lead through a lobby provided,

(a) the lobby floor is not more than 4.5 m above grade,

(b) the path of travel through the lobby to the outdoors is not more than 15 m,

(c) the adjacent rooms or premises having direct access to the lobby do not contain a residential occupancy or an industrial occupancy, except that dwelling units may open directly onto the lobby where,

(i) from the interior of the exit stair that opens onto the lobby there is alternate means of egress not leading through the lobby and such means of egress is entirely within the same storey as the lobby, or

(ii) the floor area is sprinklered,
3.4.4.2. except as required by Clause (g), the lobby is not located within an interconnected floor space other than as described in Sentence 3.2.8.2.(6),

(d) the lobby conforms to the requirements for exits, except that,
(i) rooms other than service rooms and storage rooms are permitted to open onto the lobby,
(ii) the fire separation between the lobby and a room used for the sole purpose of control and supervision of the building need not have a fire-resistance rating,
(iii) the fire separation between the lobby and adjacent occupancies that are permitted to open onto the lobby need not have a fire-resistance rating provided the lobby and adjacent occupancies are sprinklered, and
(iv) passenger elevator entrances are permitted to open onto the lobby provided the elevator entrance doors are designed to remain closed except while loading and unloading.

(See Appendix A.)

(f) a fire separation, constructed in accordance with Sentence 3.4.4.1.(1), is maintained between the lobby and any exit permitted by this Sentence to lead through the lobby, and

(g) that if the exit serves a hotel, the lobby is not located within an interconnected floor space.

3.4.4.3. Exterior Passageway Exceptions

(1) The requirements of Sentences 3.4.4.1.(1) and 3.2.3.13.(1) and (3) do not apply to an exterior exit passageway provided,
(a) not less than 50% of the exterior side is open to the outdoors, and
(b) an exit stair is provided at each end of the passageway.

3.4.4.4. Integrity of Exits

(1) A fire separation that separates an exit from the remainder of the building shall have no openings except for,
(a) standpipe and sprinkler piping,
(b) electrical wires and cables, totally enclosed noncombustible raceways and noncombustible piping that serve only the exit,
(c) openings required by the provisions of Subsection 3.2.6.,
(d) exit doorways,
(e) wired glass and glass block permitted by Article 3.1.8.14., and
(f) a sprinkler protected glazed wall assembly conforming to Article 3.1.8.18.

(2) Exits within scissors stairs and other contiguous exit stairways shall be separated from each other by a smoke-tight fire separation having a fire-resistance rating not less than that required for the floor assembly through which they pass.

(3) Fire separations separating contiguous stairs described in Sentence (2) shall not be pierced by doorways, ductwork, piping or any other openings that affect the continuity of the separation.

(4) A fuel-fired appliance shall not be installed in an exit.

(5) An exit shall not be used as a plenum for a heating, ventilating or air-conditioning system.

(6) An exit shall be designed for no purpose other than for exiting, except that an exit is permitted also to be designed to serve as an access to a floor area.

(7) A service room shall not open directly into an exit.

(8) Storage rooms, washrooms, toilet rooms, laundry rooms and similar ancillary rooms shall not open directly into an exit.

(9) Service spaces referred to in Sentence 3.2.1.1.(9) shall not open directly into an exit.

(10) In elementary and secondary schools, an exit shall be designed so that it does not serve as an access from one portion of a floor area to another portion of the same floor area.
3.4.5. Exit Signs

3.4.5.1. Exit Signage

(1) Except as provided by Sentences (9) and (10), every exit door shall have an exit sign placed over or adjacent to it if the exit serves,
(a) a building more than 2 storeys in building height,
(b) a building having an occupant load of more than 150, or
(c) a room or floor area that has a fire escape as part of a required means of egress.

(2) Except as provided by Sentence (7), every exit sign shall,
(a) be visible on approach to the exit,
(b) consist of a green pictogram and white graphic symbol meeting the visibility specifications referred to in ISO 3864-1, “Graphical Symbols – Safety Colours and Safety Signs – Part 1: Design Principles for Safety Signs and Safety Markings”, and
(c) conform to the dimensions indicated in ISO 7010, “Graphical Symbols - Safety Colours and Safety Signs - Safety Signs Used in Workplaces and Public Areas” for the following symbols:
   (i) E001 emergency exit left,
   (ii) E002 emergency exit right,
   (iii) E005 90-degree directional arrow, and
   (iv) E006 45-degree directional arrow.
   (See Appendix A.)

(3) Internally illuminated exit signs shall,
(a) be continuously illuminated, and
(b) where illumination of the sign is powered by an electrical circuit, be constructed in conformance with CSA 22.2 No. 141, “Emergency Lighting Equipment”.

(4) Externally illuminated exit signs shall be continuously illuminated by a light fixture supplied by an electrical circuit.

(5) Photoluminescent and self-luminous exit signs shall,
(a) conform to CAN/ULC-S572, “Photoluminescent and Self-Luminous Signs and Path Marking Systems”,
(b) be labelled in accordance with the time duration for which they have been tested and listed,
(c) be so installed that upon failure of the regular power they will continue to be illuminated for the applicable time duration specified in Clause 3.2.7.4.(1)(b), and
(d) be continuously illuminated if reliant on an external energy source to energize the reflective coating of the sign.
   (See Appendix A.)

(6) If illumination of an exit sign is provided from an electrical circuit, that circuit shall,
(a) serve no equipment other than emergency lighting in the area where exit signs are installed, and
(b) be connected to an emergency power supply as described in Sentence 3.2.7.4.(1)

(7) Where no exit is visible from a public corridor, from a corridor used by the public in a Group A or B major occupancy or from principal routes serving an open floor area having an occupant load of more than 150, an exit sign conforming to Clauses (2)(b) and (c) with an arrow or other indicator pointing at the direction of egress shall be provided.

(8) Except for egress doorways described in Sentence 3.3.2.3.(4), an exit sign conforming to Sentences (2) to (6) shall be placed over or adjacent to every egress doorway from rooms with an occupant load more than 60 in Group A, Division 1 occupancies, dance halls, licensed beverage establishments and other similar occupancies that, when occupied, have lighting levels below the level that would provide easy identification of the egress doorway.

(9) Except for suite doors opening directly to the exterior, every exit serving a hotel shall have an exit sign placed over or adjacent to it.
3.4.5.1. (10) An exit sign is not required within a suite containing a Group B, Division 3 occupancy if the following requirements are met:
(a) the suite contains sleeping accommodation for not more than 10 persons, and
(b) not more than 6 occupants require assistance in evacuation in case of an emergency.

3.4.5.2. Signs Within Exit Facilities

(1) In a building more than 2 storeys in building height, any part of an exit ramp or stair that continues up or down past the lowest exit level shall be clearly marked by a sign indicating that it does not lead to an exit.

(2) An exit stair serving a building more than 6 storeys in building height shall be clearly marked by signs indicating that it does not lead to an exit at the roof level. (See Appendix A.)

3.4.6. Types of Exit Facilities (See Appendix A.)

3.4.6.1. Surface Finish of Ramps and Stairs

(1) The surfaces of ramps, landings and treads shall,
(a) have a finish that is slip-resistant, and
(b) if accessible to the public, have a colour contrast or a distinctive visual pattern to demarcate,
   (i) the leading edge of the tread,
   (ii) the leading edge of the landing, and
   (iii) the beginning and end of a ramp.

(2) A tactile attention indicator conforming to Article 3.8.3.18. shall be installed,
(a) at the top of the stairs, starting one tread depth back from the edge of the top stair, and
(b) at the leading edge of landings where a doorway opens onto stairs, starting one tread depth back from the edge of the landing.
(See Appendix A.)

(3) Treads and landings of exterior exit stairs shall be designed to be free of ice and snow accumulations if the stairs,
(a) are more than 10 m high, or
(b) serve a hotel.

3.4.6.2. Minimum Number of Risers

(1) Except as permitted by Sentence 3.3.2.13.(1), every flight of interior stairs shall have no fewer than 3 risers.

3.4.6.3. Maximum Vertical Rise of Stair Flights and Required Landings

(1) No flight of stairs shall have a vertical rise of more than 3.7 m between floors or landings, except that a flight of stairs serving as an exit in a Group B, Division 2 or 3 occupancy shall have a vertical rise not more than 2.4 m between floors or landings.

(2) Except as provided by Sentence (3), a landing shall be provided,
(a) at the top and bottom of each flight of interior and exterior stairs,
(b) at the top and bottom of every section of ramp,
(c) where a doorway opens onto a stair or ramp,
(d) where a ramp opens onto a stair, and
(e) where a stair opens onto a ramp.
(3) A landing may be omitted at the bottom of an exterior stair or ramp, provided there is no gate, door or fixed obstruction within the lesser of,
(a) the width of the stair or ramp, or
(b) 1 100 mm.

3.4.6.4. Dimensions of Landings

(1) Except as provided by Sentence (4), the length and width of a landing shall be at least the width of the stairway or ramp in which it occurs, except that in a straight run the length of the landing need not be more than 1 100 mm.
Section 3.6. Service Facilities

3.6.1. General

3.6.1.1. Scope

(1) The provisions of this Section apply to horizontal service spaces, vertical service spaces, attic or roof spaces, ducts, crawl spaces, shaft spaces, service rooms, and mechanical penthouses, and facilities contained in any of them.

(2) Except for plenum requirements in 3.6.4.3., the fire safety characteristics of heating, ventilating and air-conditioning systems shall comply with Part 6.

3.6.1.2. Reserved

3.6.1.3. Storage Use Prohibition

(1) Service spaces shall not be designed to facilitate subsequent use as storage space.

3.6.1.4. Reserved

3.6.1.5. Fixed Access Ladders

(1) If a fixed ladder is installed to provide access to a roof of a building, the design and installation of the attachment and anchorage system for the ladder shall be as described in MMAH Supplementary Standard SB-8, “Design, Construction and Installation of Anchorage System for Fixed Access Ladders”.

3.6.2. Service Rooms

3.6.2.1. Fire Separations around Service Rooms

(1) Except as permitted by Sentences (2) and (8) to (10), fuel-fired appliances shall be installed in service rooms separated from the remainder of the building by fire separations having a fire-resistance rating not less than 1 h. (See Appendix A.)

(2) Except as required by Sentence (3), a fuel-fired appliance that serves only one room or suite is not required to be installed in a service room separated from the remainder of the building.

(3) A solid fuel fired appliance shall not be located in a repair garage, a storage garage, or any other location where it could be exposed to flammable vapours or gases unless,

(a) it is enclosed in a service room that is separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h,

(b) it is supplied with combustion air directly from outside the building, and

(c) the heat that it generates is supplied indirectly to the space served by means of ducts or piping.
(4) A service room containing an incinerator shall be separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 2 h.

(5) Equipment that uses a liquid having a flash point below 93.3°C shall be installed in a service room separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h.

(6) Electrical equipment that is required to be located in a service room by a regulation made under the Electricity Act, 1998, shall be installed in a service room separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h.

(7) Except as permitted by Sentence (8), in a storey that is not sprinklered, a service room that contains service equipment other than that addressed by Sentences (1) to (6), shall be separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h.

(8) If a service room referred to in Sentence (7) contains a limited quantity of service equipment, and the service equipment neither constitutes a fire hazard nor is essential to the operation of fire safety systems in the building, the requirements for a fire separation shall not apply.

(9) A fire separation is not required between a fireplace and the space it serves.

(10) A fire separation is not required between a rooftop appliance and the building it serves.

(11) The fire separation provisions for a fuel-fired appliance in a portable classroom shall conform to Article 3.9.3.7.

3.6.2.2. Service Rooms Under Exits

(1) A service room containing service equipment subject to possible explosion, such as boilers operating in excess of 100 kPa (gauge) and some types of refrigerating machinery and transformers, shall not be located directly under a required exit.

3.6.2.3. Service Equipment

(1) A service room containing space heating, space cooling and service water heating appliances is permitted to contain other service equipment such as electrical service equipment.

3.6.2.4. Incinerator Rooms

(1) A service room containing an incinerator shall not contain other fuel-fired appliances.

3.6.2.5. Combustible Refuse Storage

(1) Except as required by Sentence 3.6.3.3.(9), a room for the storage of combustible refuse shall be,  
(a) separated from the remainder of the building by a fire separation with a fire-resistance rating not less than 1 h, and  
(b) sprinklered.  
(See Appendix A.)

3.6.2.6. Door Swing for Service Rooms

(1) A swing-type door from a service room containing a boiler or incinerator shall swing outward from the room, except that the door shall swing inward if the door opens onto a corridor or any room used for an assembly occupancy.
3.7.4.13. Floor Drains

(1) A floor drain shall be installed in a washroom for public use that contains a urinal or a water closet equipped with an automatic flushing device. (See Appendix A.)

3.7.4.14. Grab Bar Installation

(1) Grab bars that are installed shall resist a minimum load of 1.3 kN applied vertically or horizontally.

3.7.4.15. Clearances for Water Closets

(1) Except in a dwelling unit and except as required by Section 3.8., a minimum clearance of 380 mm shall be provided in front of a water closet. (See Appendix A.)

3.7.4.16. Privacy

(1) If a room contains not more than 1 water closet, the doorway to the room shall be provided with a full height door that is capable of being locked from the inside.

(2) Except in a room for private use, water closets, urinals, lavatories, showers and bathtubs shall not be visible from the entrance to the room where it contains at least,
   (a) two water closets,
   (b) one water closet and one urinal,
   (c) one shower stall, or
   (d) one bathtub.

3.7.4.17. Water Temperature Control

(1) A water distribution system supplying hot water to plumbing fixtures shall conform to the requirements in Subsection 7.6.5.

3.7.4.18. Drinking Water

(1) On every floor where work will be performed and within 100 m of any area where work will be performed, potable water shall be provided from,
   (a) a fountain with an upward jet,
   (b) a tap from a piped water supply, or
   (c) a tap from a covered vessel.

3.7.4.19. Pharmacies

(1) Every pharmacy shall be provided with a sink with hot and cold potable water for washing utensils used in the preparation, service or storage of drugs.

3.7.5. Health Care Facility Systems

3.7.5.1. Electrical Systems

(1) In anaesthetizing locations, electrical systems shall be designed, constructed, installed and tested in conformance with CSA Z32, “Electrical Safety and Essential Electrical Systems in Health Care Facilities”.
3.7.5.2. Medical Gas Piping

(1) All medical gas piping systems shall be designed, constructed, installed and tested in conformance with CSA Z7396.1, “Medical Gas Piping Systems - Part 1: Pipelines for Medical Gases and Vacuum”.

3.7.5.3. Shielding of X-Ray Equipment

(1) Every installation of an x-ray machine or of x-ray equipment in a building shall be shielded to protect any person who could be exposed to radiation inside and outside the building. (See Appendix A.)

3.7.6. Food Premises

3.7.6.1. Application

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

3.7.6.2. Room Finishes

(1) Except as provided in Sentence (2), floors and floor coverings shall be tight, smooth and non-absorbent in rooms where,
(a) food or drink for human consumption, or an ingredient of food or drink for human consumption, is manufactured, processed, prepared, stored, displayed, handled, served, distributed, sold or offered for sale,
(b) utensils are washed, or
(c) washing fixtures or toilet fixtures are located.

(2) Carpeting may be used in areas where food is served.

(3) Wall and ceiling finishes of rooms and passageways shall be easy to clean.

3.7.6.3. Location of Plumbing Fixtures

(1) A room containing a water closet shall be located where,
(a) it does not open directly into any room or area where food or drink for human consumption, or an ingredient of food or drink for human consumption, is intended to be stored, prepared, processed, distributed, served, sold or offered for sale, and
(b) it is not necessary for the public to go through the food preparation areas to gain access to the plumbing fixtures.

(2) Except as permitted in Sentence (3), a room containing plumbing fixtures for the public and employees in a restaurant shall be located in the restaurant.

(3) A room containing plumbing fixtures for the public in Sentence (2) need not be located in the restaurant if,
(a) the room is located in the building containing the restaurant, and
(b) the distance of travel between the restaurant and the room is not more than 45 m.

3.7.6.4. Lavatories, Appliances and Sinks

(1) A separate lavatory for the handwashing of employees shall be constructed in a location convenient for employees in each manufacturing, processing and preparation area.

(2) If equipment and facilities for the cleaning and sanitizing of utensils are provided, they shall consist of,
(a) mechanical equipment, or
3.8.1.3. **Barrier-Free Path of Travel**

(1) Except as required in Sentence (4) and except as permitted in Subsection 3.8.3., every *barrier-free* path of travel shall provide an unobstructed width of at least 1 100 mm for the passage of wheelchairs.

(2) Interior and exterior walking surfaces that are within a *barrier-free* path of travel shall,
   - have no opening that will permit the passage of a sphere more than 13 mm in diam,
   - have any elongated openings oriented approximately perpendicular to the direction of travel,
   - be stable, firm and slip-resistant,
   - be bevelled at a maximum slope of 1 in 2 at changes in level not more than 13 mm, and
   - be provided with sloped floors or ramps at changes in level more than 13 mm.

(3) A *barrier-free* path of travel is permitted to include ramps, passenger elevators or other platform equipped passenger elevating devices to overcome a difference in level.

(4) Every *barrier-free* path of travel less than 1 600 mm in width shall be provided with an unobstructed space not less than 1 800 mm in width and 1 800 mm in length located not more than 30 m apart. (See Appendix A.)

(5) Where the headroom of an area in a *barrier-free* path of travel is reduced to less than 1 980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor shall be provided. (See Appendix A.)

(6) A normally occupied *floor area* that is not required by Article 3.8.2.1. to have a *barrier-free* path of travel shall meet the following requirements:
   - interior walking surfaces throughout the normally occupied *floor area* shall comply with Clauses (2)(a) to (e), and
   - where the headroom of an area in a corridor or aisle in the normally occupied *floor area* is reduced to less than 1 980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor shall be provided. (See Appendix A.)

3.8.1.4. **Escalators and Moving Walks**

(1) In a *building* in which an escalator or inclined moving walk provides access to any floor level above or below the entrance floor level, an interior *barrier-free* path of travel shall be provided to that floor level. (See Appendix A.)

(2) The route from the escalator or inclined moving walk to the *barrier-free* path of travel required by Sentence (1) shall be clearly indicated by appropriate signs.

(3) In a *building* in which a moving walk provides access between areas on the same floor level, a *barrier-free* path of travel shall be provided between the areas served by the moving walk.

3.8.1.5. **Controls**

(1) Except as required by Sentences 3.5.2.2.(1) and 3.8.3.5.(1) for elevators and Sentence 3.8.3.3.(17) for power door operator controls, controls for the operation of *building* services or safety devices, including electrical switches, thermostats and intercom switches, intended to be operated by the occupant and located in a *barrier-free* path of travel shall,
   - be accessible to a person in a wheelchair using a side approach,
   - be operable,
     - using one hand and with a force of not more than 22.2 N, in the case of a manual pull station, and
     - using a closed fist and with a force of not more than 22.2 N, in the case of all other controls, and
   - be mounted,
     - 1 200 mm above the finished floor, in the case of a thermostat or a manual pull station, and
     - not less than 900 mm and not more than 1 100 mm above the finished floor, in the case of all other controls.
   (See Appendix A.)

(2) A signal intended for the public to indicate the operation of a *building* security system that controls access to a *building* shall consist of an audible and visual signal.
3.8.1.6. **Illumination**

(1) All portions of a barrier-free path of travel shall be equipped to provide a level of illumination in accordance with Sentence 3.2.7.1.(1).

3.8.2. **Occupancy Requirements**

3.8.2.1. **Areas Requiring Barrier-Free Path of Travel**

(1) Except as permitted by Sentence (3), a barrier-free path of travel from the entrances required by Sentences 3.8.1.2.(1) and (3) to be barrier-free shall be provided,

(a) throughout the entrance storey,

(b) except as permitted by Sentence (2), to and throughout all normally occupied floor areas and rooftop amenity spaces, and (See Appendix A.)

(c) throughout all normally occupied floor areas and rooftop amenity spaces that,

(i) are exempt from the application of Clause (b), and

(ii) are served by a passenger elevator, escalator, inclined moving walk, or other platform equipped passenger elevating device.

(See Appendix A.)

(2) A barrier-free path of travel described in Clause (1)(b) is not required to extend,

(a) to floor areas or portions of floor areas containing a Group B, Division 2 or 3 occupancy that are not required by Article 3.5.2.1. to be connected by a ramp or served by an elevator,

(b) to Group C or Group D occupancies that are in floor areas in a building that,

(i) is three or fewer storeys in building height, and

(ii) has a building area not exceeding 600 m$^2$,

(See Appendix A.)

(c) to Group F, Division 2 or 3 occupancies that are not required by Sentence 3.8.2.2.(1) to be served by an elevator,

(d) to portions of restaurants and licensed beverage establishments where the same amenities and uses are provided on other floor areas that have a barrier-free path of travel, or

(e) to portions of child care facilities that have all entrance doors at floor levels that do not have a barrier-free path of travel.

(See Appendix A.)

(3) A barrier-free path of travel described in Sentence (1) is not required to extend,

(a) into service rooms,

(b) into elevator machine rooms,

(c) into janitors’ rooms,

(d) into service spaces,

(e) into crawl spaces,

(f) into attic or roof spaces,

(g) into high hazard industrial occupancies,

(h) to portions of a floor area with fixed seats in an assembly occupancy where these portions are not part of the barrier-free path of travel to,

(i) spaces designated for wheelchair use,

(ii) seats designated for adaptable seating, or

(iii) spaces for the storage of wheelchairs and mobility assistive devices,

(i) to suites of residential occupancy that are in storeys other than the entrance storey and that have all entrance doors at floor levels that are not required to have a barrier-free path of travel,

(j) except as required by Sentence (5), on the inside of a suite of residential occupancy, or

(k) to portions of a floor area that are not at the same level as the entry level, provided amenities and uses provided on any raised or sunken level are accessible on the entry level by means of a barrier-free path of travel.

(See Appendix A.)
(17) Except where a proximity scanning device is installed in conformance with Sentence (18), the control for a power door operator required by Sentence (4), (5) or (6) shall,
(a) have a face dimension of not less than,
   (i) 150 mm in diameter where the control is circular, or
   (ii) 50 mm by 100 mm where the control is rectangular,
(b) be operable using a closed fist,
(c) be located so that,
   (i) its centre is located not less than 900 mm and not more than 1 100 mm from the finished floor or ground, or
   (ii) it extends from not more than 200 mm to not less than 900 mm above the finished floor or ground,
(See Appendix A.)
(d) be located not less than 600 mm and not more than 1 500 mm beyond the door swing where the door opens towards the control,
(e) be located in a clearly visible position, and
(f) contain a sign incorporating the International Symbol of Access.

(18) A proximity scanning device that activates a power door shall be capable of detecting a person in a wheelchair. (See Appendix A.)

(19) A normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel shall comply with the following requirements:
(a) all doorways in public corridors in the normally occupied floor area shall comply with Sentence (1),
(b) door opening devices that are the only means of operation on doors in the normally occupied floor area shall comply with Sentence (3), (See Appendix A.)
(c) where a vision panel is provided in a door in the normally occupied floor area, the panel shall comply with Sentence (14),
(d) doors consisting of a sheet of glass in the normally occupied floor area shall comply with Sentence (15), and
(e) where a power door operator is installed for doors in the normally occupied floor area, it shall comply with Sentences (16) and (17).

3.8.3.4. Ramps

(1) Ramps located in a barrier-free path of travel shall,
(a) have a minimum width of 900 mm between handrails,
(b) have a maximum gradient of 1 in 12, (See Appendix A.)
(c) have a level area of at least 1 670 mm by 1 670 mm at the top and bottom of a ramp and where a door is located in a ramp, so that the level area extends at least 600 mm beyond the latch side of the door opening, except that where the door opens away from the ramp, the area extending beyond the latch side of the door opening may be reduced to 300 mm, (See Appendix A.)
(d) have a level area at least 1 670 mm long and at least the same width as the ramp,
   (i) at intervals of not more than 9 m along its length, and
   (ii) where there is a change of 90° or more in the direction of the ramp,
(e) except as provided in Sentence (2), be equipped with handrails on both sides that shall,
   (i) be continuously graspable along their entire length and have circular cross-section with an outside diameter not less than 30 mm and not more than 40 mm, or any non-circular shape with a graspable portion that has a perimeter not less than 100 mm and not more than 155 mm and whose largest cross-sectional dimension is not more than 57 mm,
   (ii) be not less than 865 mm and not more than 965 mm high, measured vertically from the surface of the ramp, except that handrails not meeting these requirements are permitted provided they are installed in addition to the required handrail,
   (iii) be terminated in a manner that will not obstruct pedestrian travel or create a hazard,
   (iv) extend horizontally not less than 300 mm beyond the top and bottom of the ramp,
   (v) be provided with a clearance of not less than 50 mm between the handrail and any wall or guard to which it is attached, and
   (vi) be designed and constructed such that handrails and their supports will withstand the loading values obtained from the nonconcurrent application of a concentrated load not less than 0.9 kN applied at any point and in any direction for all handrails and a uniform load not less than 0.7 kN/m applied in any direction to the handrail,
(f) except as provided in Sentence (2), have a wall or a guard on both sides and where a guard is provided the guard shall,
   (i) be not less than 1 070 mm measured vertically to the top of the guard from the ramp surface, and
   (ii) be designed so that no member, attachment or opening located between 140 mm and 900 mm above the ramp surface being protected by the guard will facilitate climbing,

(g) be provided,
   (i) with a curb at least 50 mm high on any side of the ramp where no solid enclosure or solid guard is provided, and
   (ii) with railings or other barriers that extend to within 50 mm of the finished ramp surface or have a curb not less than 50 mm high, and

(h) except as provided in Sentence (2), where the ramp is wider than 2 200 mm, have an intermediate handrail with a clear width of 900 mm between the intermediate handrail and one of the handrails described in Clause (e).

(2) Where a ramp serves as an aisleway for fixed seating, the requirements for handrails in Clauses (1)(e) and (h) and for walls or guards in Clause (1)(f) need not apply. (See Appendix A.)

(3) Floors or walks in a barrier-free path of travel having a slope steeper than 1 in 20 shall be designed as ramps. (See Appendix A.)

3.8.3.5. Passenger Elevating Devices

(1) A passenger elevating device referred to in Article 3.8.2.1. shall conform to CSA B355, “Lifts for Persons with Physical Disabilities”.

3.8.3.6. Wheelchair Spaces and Adaptable Seating

(1) Spaces designated for wheelchair use required by Sentence 3.8.2.1.(4) shall be,
   (a) clear and level or level with removable seats,
   (b) not less than 900 mm wide and not less than,
      (i) 1 525 mm long where designed to permit a wheelchair to enter from a side approach, and
      (ii) 1 220 mm long where designed to permit a wheelchair to enter from the front or rear of the space,
   (c) arranged so that,
      (i) at least two of the designated spaces are side by side, and
      (ii) at least one fixed seat for a companion is located beside,
         (A) each group of designated spaces, if two or more designated spaces are arranged side by side in a group, and
         (B) each designated space that is not part of a group described in Sub-subclause (A),
   (d) located adjoining a barrier-free path of travel without infringing on egress from any row of seating or any aisle requirements, and
   (e) situated, as part of the designated seating plan, to provide a choice of viewing location and a clear view of the event taking place.

(2) Fixed seats designated for adaptable seating required by Sentence 3.8.2.1.(4) shall be,
   (a) located adjoining a barrier-free path of travel without infringing on egress from any row of seating or any aisle requirements,
   (b) equipped with a movable or removable armrest on the side of the seat adjoining the barrier-free path of travel, and
   (c) situated, as part of the designated seating plan, to provide a choice of viewing location and a clear view of the event taking place.

(3) In an assembly occupancy with fixed seats, space shall be provided for the storage of wheelchairs and mobility assistive devices in accordance with the following requirements:
   (a) at least one storage space not less than 810 mm by 1 370 mm shall be provided where the assembly occupancy has not more than 200 fixed seats and at least two such storage spaces shall be provided where the assembly occupancy has more than 200 fixed seats, and
3.10.2.4. 

3.8.3.7. **Assistive Listening Devices**

1. **In buildings of assembly occupancy,** all classrooms, auditoria, meeting rooms and theatres with an area of more than 100 m² and an occupant load of more than 75 shall be equipped with assistive listening systems encompassing the entire seating area. (See Appendix A.)

3.8.3.8. **Water Closet Stalls**

1. **Every barrier-free** water closet stall in a washroom described in Sentence 3.8.2.3.(3) or (4) shall,
   a. have a clear turning space at least 1 500 mm in diameter, (See Appendix A.)
   b. be equipped with a door that shall,
      i. be capable of being latched from the inside with a mechanism that is operable using a closed fist,
      ii. when the door is in an open position, have a clear opening of at least 860 mm,
      iii. swing outward, unless 820 mm by 1 440 mm clear floor area is provided within the stall to permit the door to be closed without interfering with the wheelchair, (See Appendix A.)
      iv. be provided with spring-type or gravity hinges so that the door closes automatically,
      v. be provided with a door pull on both sides of the door, near the latch side of the door, located at a height not less than 900 mm and not more than 1 100 mm above the finished floor, (See Appendix A.)
      vi. be aligned with a clear transfer space required by Subclause (2)(a)(ii) or Clause (2)(b), and
      vii. be capable of having the latch required by Subclause (i) released from the outside in case of an emergency,
   c. be equipped with a water closet conforming to Article 3.8.3.9. that is located in accordance with Clause (2)(a) or (b),
   d. Reserved
   e. be equipped with a coat hook mounted not more than 1 200 mm above the finished floor on a side wall and projecting not more than 50 mm from the wall,
   f. have a clearance of at least 1 700 mm between the outside of the stall face and the face of an in-swinging washroom door and 1 400 mm between the outside of the stall face and any wall-mounted fixture or other obstruction, (See Appendix A.) and
   g. where a toilet paper dispenser is provided, provide a dispenser that is,
      i. wall mounted,
      ii. located below the grab bar,
      iii. in line with or not more than 300 mm in front of the seat, and
      iv. not less than 600 mm above the finished floor.

2. A water closet described in Clause (1)(c) shall be,
   a. located so that,
      i. the centre line of the water closet is not less than 460 mm and not more than 480 mm from one side wall, and
      ii. a clear transfer space at least 900 mm wide and 1 500 mm deep is provided on the other side of the water closet, or
   b. located so that a clear transfer space at least 900 mm wide and 1 500 mm deep is provided on each side of the water closet. (See Appendix A.)

3. Where a water closet is located in accordance with Clause (2)(a),
   a. a grab bar conforming to Sentences (5) and (7) shall be provided on the side wall referred to in Subclause (2)(a)(i),
   b. a fold-down grab bar may be provided and, if one is provided, it shall conform to Sentence (8) and be provided on the side of the water closet opposite the grab bar described in Clause (a), and
   c. a grab bar conforming to Sentences (6) and (7) shall be provided on the wall behind the water closet. (See Appendix A.)

4. Where a water closet is located in accordance with Clause (2)(b),
   a. a fold-down grab bar conforming to Sentence (8) shall be provided on each side of the water closet, and
   b. a grab bar conforming to Sentences (6) and (7) shall be provided on the wall behind the water closet. (See A-3.8.3.8.(3) in Appendix A.)
(5) A grab bar described in Clause (3)(a) shall,
(a) be continuous L-shaped with 750 mm long horizontal and vertical components, and
(b) be wall mounted with the horizontal component 750 mm above the finished floor and the vertical component 150 mm in front of the water closet.

(See A-3.8.3.8.(3) and A-3.8.3.8.(5) in Appendix A.)

(6) A grab bar described in Clause (3)(c) or (4)(b) shall,
(a) be at least 600 mm in length, and
(b) be wall mounted horizontally from 840 mm to 920 mm above the finished floor and, where the water closet has a water tank, be wall mounted 150 mm above the tank.

(See A-3.8.3.8.(3) in Appendix A.)

(7) A grab bar described in Clause (3)(a) or (c) or (4)(b) shall,
(a) be installed to resist a load of at least 1.3 kN applied vertically or horizontally,
(b) be not less than 35 mm and not more than 40 mm in diameter,
(c) have a clearance of not less than 38 mm and not more than 50 mm from the wall to the inside surface of the grab bar, and
(d) have a slip-resistant surface.

(See A-3.8.3.8.(3) in Appendix A.)

(8) A fold-down grab bar described in Clause (3)(b) or (4)(a) shall,
(a) be mounted on the wall behind the water closet,
   (i) with the horizontal component 750 mm above the finished floor, and
   (ii) not less than 390 mm and not more than 410 mm from the centre line of the water closet,
(b) not require a force of more than 22.2 N to pull it down,
(c) be at least 750 mm in length,
(d) be installed to resist a load of at least 1.3 kN applied vertically or horizontally,
(e) be not less than 35 mm and not more than 40 mm in diameter, and
(f) have a slip-resistant surface.

(See A-3.8.3.8.(3) and A-3.8.3.8.(8) in Appendix A.)

(9) A fold-down grab bar installed in accordance with Sentence (8) is permitted to encroach into,
(a) the clear turning space described in Clause (1)(a), or
(b) a clear transfer space described in Subclause (2)(a)(ii) or Clause (2)(b).

(See A-3.8.3.8.(3) in Appendix A.)

(10) Where an ambulatory water closet stall is required by Sentence 3.8.2.3.(6), it shall,
(a) be at least 1 500 mm in depth and be not less than 890 mm and not more than 940 mm in width,
(b) be equipped with a door that shall,
   (i) be capable of being latched from the inside with a mechanism that is operable using a closed fist,
   (ii) when the door is in an open position, have a clear opening of at least 810 mm,
   (iii) swing outward, unless the minimum dimensions in Clause (a) are not located within the door swing,
   (iv) be provided with spring-type or gravity hinges so that the door closes automatically,
   (v) be provided with a door pull on both sides of the door, near the latch side of the door, located at a height not less than 900 mm and not more than 1 100 mm above the finished floor, and
   (vi) be capable of having the latch required by Subclause (i) released from the outside in the case of an emergency,
(c) be equipped with a water closet conforming to Article 3.8.3.9. and located so that its centre line is centred between the partition walls,
(d) be equipped on each side of the water closet with grab bars conforming to Clause (3)(a), and
(e) be equipped with a coat hook conforming to Clause (1)(e).

(See Appendix A.)
3.8.3.9. **Water Closets**  (See Appendix A.)

(1) A water closet described in Clause 3.8.3.8.(1)(c) or (10)(c) or 3.8.3.12.(1)(d) shall,
(a) be equipped with a seat located at not less than 430 mm and not more than 485 mm above the finished floor,
(b) be equipped with hand-operated flushing controls that are easily accessible to a wheelchair user or be automatically operable,
(c) be equipped with a back support where there is no seat lid or tank, and (See Appendix A.)
(d) not have a spring-activated seat.
(See Appendix A.)

(2) Hand-operated flushing controls required by Clause (1)(b) shall be operable using a closed fist and with a force of not more than 22.2 N.

3.8.3.10. **Urinals**

(1) Where more than one urinal is provided in a washroom described in Sentence 3.8.2.3.(3) or (4), at least one urinal shall be,
(a) wall mounted, with the rim located not more than 430 mm above the finished floor, or
(b) floor mounted, with the rim level with the finished floor.
(See Appendix A.)

(2) A urinal described in Sentence (1) shall have,
(a) no step in front,
(b) a vertically mounted grab bar installed on each side of the urinal that,
   (i) is not less than 300 mm long,
   (ii) has its centre line 1 000 mm above the finished floor,
   (iii) is located not less than 380 mm and not more than 450 mm measured horizontally from the vertical centre line of the urinal, and
   (iv) complies with Sentence 3.8.3.8.(7), and
(c) a minimum depth of 345 mm measured from the outer face of the urinal rim to the back of the fixture.

(3) Where manual flush controls are provided for a urinal described in Sentence (1), the flush controls shall be,
(a) operable using a closed fist, and
(b) mounted no higher than 1 200 mm above the finished floor.

(4) Where privacy screens are installed for a urinal described in Sentence (1), they shall,
(a) be mounted a minimum of 460 mm from the centre line of the urinal, and
(b) have a clearance of at least 50 mm from the grab bars required by Clause (2)(b).

(5) Where more than one urinal is provided in a washroom described in Sentence 3.8.2.3.(6), at least one urinal conforming to Sentences (1) to (4) shall be provided in the washroom.

3.8.3.11. **Lavatories**  (See Appendix A.)

(1) A washroom described in Sentence 3.8.2.3.(2), (3) or (4) shall be provided with a lavatory that shall,
(a) be located so that the distance between the centre line of the lavatory and the side wall is not less than 460 mm,
(b) be mounted so that the top of the lavatory is not more than 840 mm above the finished floor,
(c) have a clearance beneath the lavatory not less than,
   (i) 920 mm wide,
   (ii) 735 mm high at the front edge,
   (iii) 685 mm high at a point 205 mm back from the front edge, and
   (iv) 350 mm high from a point 300 mm back from the front edge to the wall,
(See Appendix A.)
(d) have insulated pipes where they would otherwise present a burn hazard or have water supply temperature limited to a maximum of 43°C, (See Appendix A.)
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(e) be equipped with faucets that have lever type handles without spring loading or operate automatically and that are located so that the distance from the centre line of the faucet to the edge of the basin or, where the basin is mounted in a vanity, to the front edge of the vanity, is not more than 485 mm,

(f) have a minimum 1 370 mm deep floor space to allow for a forward approach, of which a maximum of 500 mm can be located under the lavatory, (See Appendix A.)

(g) have a soap dispenser that is,
   (i) located to be accessible to persons in wheelchairs,
   (ii) located so that the dispensing height is not more than 1 200 mm above the finished floor,
   (iii) located not more than 610 mm, measured horizontally, from the edge of the lavatory.

   (iv) operable with one hand, and

(h) have a towel dispenser or other hand drying equipment that is,
   (i) located to be accessible to persons in wheelchairs,
   (ii) located so that the dispensing height is not more than 1 200 mm above the finished floor,
   (iii) operable with one hand, and

   (iv) located not more than 610 mm, measured horizontally, from the edge of the lavatory.

(2) If mirrors are installed in a washroom described in Sentence 3.8.2.3.(2), (3) or (4), at least one mirror shall be,

(a) installed above a lavatory required by Sentence (1), and

(b) mounted with its bottom edge not more than 1 000 mm above the finished floor or inclined to the vertical to be usable by a person in a wheelchair.

(3) If dispensing or hand-operated washroom accessories, except those located in water closet stalls or described in Clause (1)(g), are provided, they shall be mounted so that,

(a) the dispensing height is not less than 900 mm and not more than 1 200 mm above the finished floor,

(b) the controls or operating mechanisms are mounted not less than 900 mm and not more than 1 200 mm above the finished floor, and

(c) a minimum 1 370 mm deep floor space is provided in front of the controls or operating mechanisms to allow for a front approach.

(4) Where a shelf is installed above a lavatory required by Sentence (1), it shall,

(a) be located not more than 200 mm above the top of the lavatory and not more than 1 100 mm above the finished floor, and

(b) project not more than 100 mm from the wall.

(5) A washroom described in Sentence 3.8.2.3.(6) shall be provided with a lavatory conforming to Clauses (1)(e), (g) and (h).

3.8.3.12. Universal Washrooms

(1) A universal washroom room shall,

(a) be served by a barrier-free path of travel,

(b) have a door that is capable of being locked from the inside and released from the outside in case of emergency and that has,

   (i) a graspable latch-operating mechanism located not less than 900 mm and not more than 1 000 mm above the finished floor,

   (ii) if it is an outward swinging door, a door pull not less than 140 mm long located on the inside so that its midpoint is not less than 200 mm and not more than 300 mm from the latch side of the door and not less than 900 mm and not more than 1 100 mm above the finished floor, and

   (iii) if it is an outward swinging door, a door closer, spring hinges or gravity hinges, so that the door closes automatically,

(c) have one lavatory conforming to Sentences 3.8.3.11.(1), (3) and (4),

(d) have one water closet conforming to Article 3.8.3.9. that is located in accordance with Clause 3.8.3.8.(2)(a) or (b), (See Appendix A.)
3.8.3.13.  Showers and Bathtubs

(1) Except within a suite of residential occupancy, if showers are provided in a building, the number of barrier-free showers shall conform to Table 3.8.3.13. (See Appendix A.)
### Table 3.8.3.13.

**Minimum Number of Barrier-Free Showers**

Forming Part of Sentence 3.8.3.13.(1)

<table>
<thead>
<tr>
<th>Number of Showers Provided in a Group</th>
<th>Minimum Number of Showers Required to be Barrier-Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2 to 7</td>
<td>1</td>
</tr>
<tr>
<td>Over 7</td>
<td>1, plus 1 for each additional increment of 7 showers in a group</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Second:** A barrier-free shower required by Sentence (1) shall,

(a) be not less than 1,500 mm wide and 900 mm deep,

(b) have a clear floor space at the entrance to the shower not less than 900 mm deep and the same width as the shower, except that fixtures are permitted to project into that space provided they do not restrict access to the shower, (See Appendix A.)

(c) have a slip-resistant floor surface,

(d) have a threshold that is level with the adjacent finished floor or a bevelled threshold not more than 13 mm higher than the adjacent finished floor,

(e) have a hinged seat that is not spring-loaded or a fixed seat that shall be,
   (i) not less than 450 mm wide and 400 mm deep,
   (ii) mounted not less than 430 mm and not more than 485 mm above the finished floor,
   (iii) designed to carry a minimum load of 1.3 kN,
   (iv) located so that the edge of the seat is within 500 mm of the shower controls,
   (See Appendix A.)

(f) have a wall mounted continuous L-shaped grab bar conforming to Sentence 3.8.3.8.(7) located on the same wall as the controls, with the horizontal component of the grab bar,
   (i) mounted not more than 850 mm above the finished floor, and
   (ii) located so that the end of the horizontal component is within 100 mm from the edge of the shower seat,
   (See Appendix A.)

(g) have a pressure-equalizing or thermostatic mixing valve controlled by a lever or other device operable using a closed fist from the seated position,

(h) have a hand-held shower head with not less than 1,500 mm of flexible hose located so that it can be reached from the seated position and equipped with a support so that it can operate as a fixed shower head, and

(i) have fully recessed soap holders that can be reached from the seated position.

(3) Individual showers that are provided for use by patients or residents in buildings of Group B, Division 2 or 3 occupancy shall conform to Sentence (2).

(4) Individual bathtubs that are provided for the use of patients or residents in buildings of Group B, Division 2 or 3 occupancy shall have,

(a) faucets that have lever type handles without spring loading or that operate automatically,

(b) faucet handles that are located so as to be usable by a person seated in the bathtub,

(c) unless the bathtub is free-standing, a continuous L-shaped grab bar conforming to Sentence 3.8.3.8.(7) with 900 mm long horizontal and vertical components mounted with,
   (i) the horizontal component located not less than 150 mm and not more than 200 mm above and parallel to the rim of the bathtub, and
   (ii) the vertical component located not less than 300 mm and not more than 450 mm from the control end of the bathtub, and
3.8.3.16. Drinking Fountains  

(1) Where more than one drinking fountain is provided, at least one shall be a barrier-free fountain that conforms to Sentences (2) and (3).

(2) A barrier-free drinking fountain shall,
   (a) have a spout located near the front of the unit not more than 915 mm above the finished floor,
   (b) be equipped with controls that are easily operated from a wheelchair using one hand with a force of not more than 22 N or operates automatically,
   (c) project the water at least 100 mm high,
   (d) provide the water stream at a vertical angle of up to,
      (i) 30°, where the spout is located less than 75 mm from the front of the fountain, or
      (ii) 15°, where the spout is located not less than 75 mm and not more than 125 mm from the front of the fountain,
   (e) be detectable by a cane at a level at or below 680 mm from the finished floor, and
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(f) where the drinking fountain is cantilevered, meet the following requirements:
   (i) be mounted not more than 915 mm above the finished floor,
   (ii) provide a clearance height under the fountain of not less than 735 mm above the finished floor,
   (iii) have a clear depth under the fountain of not less than 450 mm,
   (iv) have a clear width under the fountain of not less than 760 mm,
   (v) have a toe clearance height under the fountain of at least 350 mm above the finished floor from a point 300 mm back from the front edge to the wall, and
   (vi) have a depth at the base of the fountain of at least 700 mm.

(3) A barrier-free drinking fountain required by Sentence (1) shall have a clear floor space in front of, or adjacent to, the fountain that is a minimum of 810 mm deep and 1 370 mm wide.

(4) Where more than one drinking fountain is provided in a normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel, at least one shall be a barrier-free fountain that conforms to Sentences (2) and (3).

3.8.3.17. Platforms

(1) A tactile attention indicator conforming to Article 3.8.3.18. shall be installed along any edge of a platform that is,
   (a) not protected by a guard, and
   (b) higher than 250 mm above the finished floor or ground or sloped steeper than 1 in 3.

(2) Sentence (1) does not apply to the front edges of stages.

3.8.3.18. Tactile Attention Indicators

(1) Where a tactile attention indicator is required, it shall conform to Sentence (2) and Clauses 4.1.1. and 4.1.2. of ISO 23599, “Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators”.

(2) The depth of the tactile attention indicator shall be not less than 300 mm and not more than 610 mm.
(4) Fuel-fired appliances with sealed combustion located in a portable classroom are not required to be separated from the remainder of the classroom,
(a) if there are not more than four portable classrooms in a group, and
(b) if the appliance is located not less than 4.5 m from an egress doorway or an exit from the portable classroom.

3.9.3.8. Washroom Facilities

(1) Washroom facilities need not be provided in a portable classroom where the facilities in the main school building comply with the requirements of Subsection 3.7.4. for the total occupant load of the main school building and the portable classrooms.

3.9.3.9. Barrier-Free Access

(1) The requirements of Section 3.8. for barrier-free access need not be provided for a portable classroom provided that the main school building complies with the requirements of Section 3.8.

Section 3.10. Self-Service Storage Buildings

3.10.1. Scope

3.10.1.1. Application

(1) Except as provided in this Section, the requirements in this Division apply to self-service storage buildings.

3.10.2. Requirements for All Buildings

3.10.2.1. Occupancy Classification

(1) A self-service storage building,
(a) shall comply with the requirements for a Group F, Division 2 major occupancy, and
(b) shall not contain a Group F, Division 1 occupancy.

3.10.2.2. Occupant Load

(1) The requirements based on occupant load shall not apply.

3.10.2.3. Structural Fire Protection

(1) Except as provided in Sentence (2) and Sentence 3.10.4.2.(1), the requirements in Subsections 3.2.1. and 3.2.2. shall apply.

(2) The first storey shall be subdivided into areas not more than 500 m² by a masonry or reinforced concrete fire separation having a fire-resistance rating not less than 1 h, or it shall be sprinklered.

3.10.2.4. Safety Requirements Within Floor Areas

(1) Except as provided in Sentences (2) to (12), the requirements in Section 3.3. shall apply.
(2) A corridor need not be constructed as a public corridor where the travel distance, measured from inside the rental space to the nearest exit, is not more than 15 m provided that the corridor walls,
(a) are of noncombustible construction,
(b) have no openings other than doors and the doors are of solid construction, and
(c) are continuous from the floor to the underside of the floor above, the ceiling or the roof.

(3) Where the building is sprinklered, doors in a public corridor do not require to be equipped with self-closing devices and latches provided that the travel distance is measured from inside the rental space to the nearest exit.

(4) Egress doors from a rental space are not required to swing in the direction of exit travel or swing on a vertical axis provided,
(a) the area of the rental space is not more than 50 m², and
(b) the distance of travel within the rental space is not more than 10 m.

(5) Where egress doors from a rental space open onto a corridor and swing in the direction of exit travel, the corridor shall be not less than 1 500 mm wide, and the doors shall be not more than 914 mm wide.

(6) Where egress doors from a rental space open onto a corridor and do not swing in the direction of exit travel, the corridor shall be not less than 1 100 mm in width.

(7) Dead end corridors are not permitted.

(8) Corridors shall be provided with,
(a) natural lighting that shall be uniformly distributed and be at least 4% of the corridor area, or
(b) emergency lighting, conforming to Sentences 3.2.7.4.(1) and (2), that shall provide average levels of illumination not less than 10 lx at floor level.

(9) Not more than two dwelling units shall be contained within one of the buildings on the property.

(10) Except as provided in Sentence (11), dwelling units shall be separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 2 h.

(11) A fire separation is not required between a dwelling unit and an office where the office is not more than 50 m² in area.

(12) The fire separations required in Sentence 3.3.1.1.(1) need not be provided between individual rental spaces.

### 3.10.2.5. Exit Requirements

(1) Except as provided in Sentences (2) and (3), the requirements in Section 3.4. shall apply.

(2) The clear width of an exit stair shall be not less than 1 100 mm.

(3) Exit doors from rental spaces are not required to swing on a vertical axis provided,
(a) the area of the rental space is not more than 50 m², and
(b) the travel distance within the rental space is not more than 10 m.

### 3.10.2.6. Service Facilities

(1) Except as provided in Sentence (2), the requirements in Section 3.6. shall apply.

(2) Except where located in and serving only the dwelling units, a fuel-fired appliance shall be located in a service room separated from the remainder of the building by a fire separation having a fire-resistance rating not less than 1 h.
3.11.4. Public Pools Equipped with Diving Boards or Diving Platforms

3.11.4.1. Diving Boards or Platforms

(1) No diving board or diving platform shall be installed in a public pool unless the requirements of Sentences (5) to (17) are met but the requirements for a diving platform do not apply to a starting platform.

(2) No diving board or diving platform shall be installed in a modified pool or a wave action pool.

(3) Where a public pool is equipped with a diving board or a diving platform, the board or platform shall have a non-slip surface.

(4) Where a diving board or a diving platform in a public pool is more than 600 mm above the water surface, the board or platform shall be equipped with one or more adjacent handrails.

(5) Where a public pool is equipped with a diving board or a diving platform not more than 3 m in height above the water surface, the pool shall be designed and constructed in conformance with Sentences (6) to (15).

(6) The depth of water in the area directly below a horizontal semi-circle in front of a diving board or diving platform having a radius of 3 m measured from any point on the front end of the board or platform shall not be less than,
   (a) 2 750 mm, where a board is 600 mm or less in height above the water surface,
   (b) 3 m, where a board or platform is greater than 600 mm but not more than 1 000 mm in height above the water surface, and
   (c) 3.65 m, where a board or platform is greater than 1 000 mm but not more than 3 m in height above the water surface.

(7) Except as permitted in Sentence (8), the water depth in a public pool shall be at least 1 350 mm at the horizontal arc having a radius of 9 m measured from any point on the front end of the diving board or diving platform and intersecting the vertical projections of the walls of the pool.

(8) Where a Class B pool is equipped with a diving board 600 mm or less in height above the water,
   (a) the water depth shall be at least 1 350 mm at the horizontal arc having a radius of 7.5 m measured from any point on the front end of the diving board, and
   (b) a warning notice, on which is printed in letters at least 150 mm high, the words DANGER — AVOID DEEP OR LONG DIVES, shall be posted in a location clearly visible to divers.

(9) The slope of the bottom of a public pool having a diving board or diving platform shall not change by more than 17% where the water depth is less than the applicable depth set out in Sentence (6) and greater than the depth set out in Sentence (7) or (8), as applicable.

(10) The horizontal distance between the vertical projection of the centre line of a diving board or diving platform and the vertical projection of the centre line of another board or platform shall be at least 2 750 mm.

(11) The horizontal distance between the centre line of a diving board or diving platform and the vertical projection of the closest side or any ledge on the closest side of a public pool shall be at least,
   (a) 3 m, where a diving board or diving platform is 1 000 mm or less in height above the water surface, and
   (b) 3.6 m, where a diving board or diving platform is greater than 1 000 mm in height above the water surface.

(12) A diving board or a diving platform 600 mm or less in height above the water surface shall project over the water a horizontal distance of at least 900 mm from the vertical projection of a pool wall under it.

(13) A diving board greater than 600 mm in height above the water surface shall project over the water a horizontal distance of at least 1 500 mm from the vertical projection of the pool wall under it.
(14) A *diving platform* greater than 600 mm in height above the water surface shall project a horizontal distance of at least 1 200 mm from the vertical projection of the pool wall under it.

(15) The space above a *diving board or diving platform* shall be unobstructed and shall consist of at least,

(a) a space having a width of 2 500 mm on each side of the centre line of the board or platform, a length equal to the sum of the horizontal distance the board or platform projects over the water plus 3 m, and a height of,

(i) 3.65 m above a *diving board* 3.65 m or less in length,
(ii) 5 m above a *diving board* greater than 3.65 m in length, or
(iii) 3 m above a *diving platform*, and

(b) the space below the planes originating from the front and sides of the uppermost horizontal plane of the space determined under Clause (a) and sloping downwards at 30° from the horizontal.

(16) A *diving board or diving platform* greater in height than 3 m above the water surface shall be equipped with a gate, barrier or other device capable of preventing access to the *diving board or diving platform*.

(17) Where a *public pool* is to be equipped with *diving boards or diving platforms* greater than 3 m in height above the water surface, the design of the *diving boards or diving platforms* and the corresponding water depths and clearances shall be in accordance with FINA, “Rules and Regulations - FINA Facilities Rules 2009-2013 - FR5 Diving Facilities”.

### 3.11.5. Ramps into Public Pools

#### 3.11.5.1. Ramps into Public Pools

(1) Where barrier-free access for entry into and egress from the water of a *public pool* is provided by a ramp as required by Clause 3.11.3.3.(1)(a), the pool shall be designed and constructed in accordance with Sentences (2) to (4).

(2) A ramp shall have,

(a) along each side a handrail that,

(i) has a height of not less than 865 mm and not more than 965 mm, and
(ii) runs parallel to the slope of the ramp,

(b) a width of at least 1 100 mm,

(c) a curb or other means to prevent a wheelchair from falling off the side of the ramp,

(d) surface finishes capable of being kept clean, sanitary and free from slipperiness, and

(e) a landing at the bottom at least 1 500 mm in length and the same width as the ramp.

(3) Where a ramp that is not submerged is adjacent to the pool wall and is used for access to the water, the pool shall be constructed so that,

(a) the landing at the bottom of the ramp is at least 450 mm but not more than 550 mm below the top of the wall separating the ramp from the pool,

(b) the landing is equipped with a floor drain at its lowest point,

(c) the top of the wall between the pool and the ramp is at least 250 mm and not more than 300 mm in width,

(d) the pool deck is capable of accommodating a movable barrier separating the deck from the ramp,

(e) the water depth at the landing is accurately and clearly marked at the landing in figures at least 100 mm high on the top of the wall separating the pool from the ramp, and

(f) the ramp has a slope not exceeding 1 in 12.

(4) Where a submerged ramp is adjacent to the pool wall and is used for access to the water, the pool shall be constructed so that,

(a) the water depth at the bottom of the ramp is at least 600 mm and not greater than 900 mm,

(b) a hard-surfaced area that is at least 750 mm wide is contiguous to the entire length of the part of the submerged ramp that pierces any part of the deck, (See Appendix A.)

(c) the area described in Clause (b) is capable of accommodating a movable barrier separating the area from the deck,

(d) the finishes in submerged portions of the ramps and curbs are different in colour or shade from each other and from that of the pool walls and bottom, and

(e) the submerged ramp has a slope not exceeding 1 in 9.
(5) In addition to the requirements in Sentence (4), hose stations shall be located in each tunnel not more than 20 m from the end of the platform.

(6) The requirement for hose rack and fire hose in Sentence 3.2.9.4.(2) does not apply in a rapid transit station.

(7) Each hose station shall have a 38 mm hose connection and a 65 mm hose connection.

(8) All supply piping shall have a diameter not less than 100 mm.

3.13.6. Required Sanitary Facilities

3.13.6.1. Application

(1) Except as provided in this Subsection, Subsection 3.7.4. applies to a rapid transit station.

3.13.6.2. Washrooms Required

(1) Except as provided in Sentences (2) and (3), a washroom for each sex, containing at least one water closet and one lavatory, shall be provided in each rapid transit station for use by employees.

(2) Where the number of employees in a rapid transit station is not more than five, a washroom containing one water closet and one lavatory is permitted to be used by both sexes provided the door to the room can be locked from the inside.

(3) Where a rapid transit station is not staffed during operating hours, a washroom is not required in the station.

(4) In each rapid transit station located at the end of a line, a washroom for each sex, containing no fewer than three water closets and two lavatories, shall be provided for use by the public.

3.13.7. Emergency Ventilation

3.13.7.1. Application

(1) Every rapid transit station shall be provided with an emergency ventilation system conforming to NFPA 130, “Fixed Guideway Transit and Passenger Rail Systems”.

3.13.8. Barrier-Free Design

3.13.8.1. Application

(1) Except as provided in this Subsection, the requirements in Section 3.8. apply to rapid transit stations.

(2) A rapid transit station need not be provided with more than one barrier-free entrance described in Article 3.8.1.2.

(3) At least one barrier-free path of travel shall be provided from a barrier-free entrance,
   (a) into the fare-paid area, and
   (b) to each platform.

3.13.8.2. Exception

(1) Where an elevator is used to comply with the requirements of Article 3.3.1.7., the provisions of Clause 3.3.1.7.(1)(a) do not apply where the elevator system complies with Article 3.13.8.3.
3.13.8.3. Elevator Requirements

(1) Except as provided in Sentence (2), the elevator described in Article 3.13.8.2. shall be capable of providing transportation from each platform to a barrier-free entrance described in Article 3.8.1.2.

(2) Where it is necessary to change elevators to reach the entrance described in Sentence (1), the elevator system shall be designed so that not more than one change of elevator is required between,

(a) a platform and a fare-paid area control, and
(b) the fare-paid area control and the entrance.

3.13.8.4. Emergency Operation of Elevators

(1) Manual emergency recall operation shall be provided for all elevators.

(2) Key-operated switches for emergency recall described in Sentence (1) shall be provided and shall be located on the outside of each elevator shaft at the level of the fare-paid area control.

(3) In-car emergency service switches shall be provided in all elevator cars.

(4) Keys to operate the switches required in Sentences (2) and (3) shall be located at,

(a) the annunciator required in Clause 3.13.5.5.(1)(a), and
(b) the collector’s booth designated in Clause 3.13.5.5.(1)(b).

3.13.8.5. Washrooms Required to be Barrier-Free

(1) A barrier-free path of travel shall be provided to the washrooms required in Article 3.13.6.2.

(2) Where a washroom required in Sentence 3.13.6.2.(1) contains only one water closet and one lavatory, the washroom shall be designed in conformance with the requirements in Article 3.8.3.12.

(3) Where a washroom required in Sentence 3.13.6.2.(1) contains more than one water closet, the washroom shall be designed in conformance with the requirements in Articles 3.8.3.8. to 3.8.3.11.

(4) The washroom required in Sentence 3.13.6.2.(2) shall be designed in conformance with the requirements in Article 3.8.3.12.

(5) The washrooms required in Sentence 3.13.6.2.(4) shall be designed in conformance with the requirements in Articles 3.8.3.8. to 3.8.3.11.

Section 3.14. Tents and Air-Supported Structures
(See Appendix A.)

3.14.1. Tents

3.14.1.1. Application

(1) Except as provided in this Subsection, tents are exempted from complying with the requirements of this Division.
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 Existing Buildings

3.17.1. Scope

3.17.1.1. Application

(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:
   (i) 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,
   (ii) a suite of a Group C major occupancy is converted into more than one suite of a Group C major occupancy,
   (iii) 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,
   (iv) a farm building or part of a farm building is changed to a major occupancy,
   (v) a building or part of a building is changed to a post-disaster building,
   (vi) a building or part of a building is changed to a retirement home regulated under the Retirement Homes Act, 2010, or
   (vii) 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, or

(b) in respect of an existing building of combustible construction will extend the building by adding a storey or storeys such that the extended building will be more than four storeys in building height.

(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 Subclauses (1)(a)(ii) to (iv) and (vi) 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

(1) Where proposed construction will result in a change of use described in Subclauses 3.17.1.1.(1)(a)(i) to (iv) and (vi), 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., 11.4.2.5. and 11.4.2.6.

(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., 11.4.3.6. and 11.4.3.7.

(4) Section 11.5. applies in respect of the requirements of Sentences 11.4.3.4.(1), (3) and (4).
### Table 4.1.8.9. (Cont’d)
SFRS Ductility-Related Force Modification Factors, $R_d$, Overstrength-Related Force Modification Factors, $R_o$, and General Restrictions\(^{(1)}\)
Forming Part of Sentence 4.1.8 9.(1)

<table>
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<tr>
<th>Type of SFRS</th>
<th>$R_d$</th>
<th>$R_o$</th>
<th>Restrictions(^{(2)})</th>
<th>Cases Where $I_E F_o S_d (0.2)$</th>
<th>Cases Where $I_E F_o S_d (1.0)$</th>
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<td></td>
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<td>NL</td>
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<td>20</td>
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<tr>
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<td>NP</td>
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<td>NP</td>
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<td>Screw-connected shear walls - wood-based panel</td>
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<td>1.7</td>
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<td>20</td>
<td>20</td>
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<td>Screw-connected shear walls - wood-based and gypsum panels in combination</td>
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<td>1.7</td>
<td>20</td>
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<td>20</td>
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<td>Diagonal strap concentrically braced walls</td>
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<td>1.0</td>
<td>15</td>
<td>NP</td>
<td>NP</td>
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</tbody>
</table>

**Notes to Table 4.1.8.9.:**

1. See Article 4.1.8.10.
2. NP = system is not permitted.
   - NL = system is permitted and not limited in height as an SFRS; height may be limited in other Parts of the Code.
   - Numbers in Columns 4 to 8 are maximum height limits in m.
   - The most stringent requirement governs.
3. Higher design force levels are prescribed in CSA S16 for some heights of buildings.

**4.1.8.10. Additional System Restrictions**

1. Except as required by Clause (2)(b), structures with a Type 6 irregularity, Discontinuity in Capacity — Weak Storey, as described in Table 4.1.8.6., are not permitted unless $I_E F_o S_d (0.2)$ is less than 0.2 and the forces used for design of the SFRS are multiplied by $R_d R_o$. 

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**Division B – Part 4**

**Effective Date: January 1, 2015**

**Issued October 24, 2014**
4.1.8.10. Post-disaster buildings shall,
(a) not have any irregularities conforming to Types 1, 3, 4, 5 and 7 as described in Table 4.1.8.6., in cases where $I_E S_a(0.2)$ is equal to or greater than 0.35,
(b) not have a Type 6 irregularity as described in Table 4.1.8.6.,
(c) have an SFRS with an $R_d$ of 2.0 or greater, and
(d) have no storey with a lateral stiffness that is less than that of the storey above it.

For buildings having fundamental lateral periods, $T_a$, of 1.0 s or greater, and where $I_E F_a S_a(1.0)$ is greater than 0.25, shear walls that are other than wood-based and form part of the SFRS shall be continuous from their top to the foundation and shall not have irregularities of Type 4 or 5 as described in Table 4.1.8.6.

For buildings constructed with more than 4 storeys of continuous wood construction and where $I_E F_a S_a(0.2)$ is equal to or greater than 0.35, timber SFRS of shear walls with wood-based panels, braced frames or moment-resisting frames as defined in Table 4.1.8.9. within the continuous wood construction shall not have irregularities of Type 4 or 5 as described in Table 4.1.8.6.

4.1.8.11. Equivalent Static Force Procedure for Structures Satisfying the Conditions of Article 4.1.8.7.

(1) The static loading due to earthquake motion shall be determined according to the procedures given in this Article.

(2) The minimum lateral earthquake force, $V$, shall be calculated using the formula,

$$V = S (T_a) M_v I_E W / (R_d R_o)$$

except,

(a) for walls, coupled walls and wall-frame systems, $V$ shall not be less than,

$$S (4.0) M_v I_E W / (R_d R_o)$$

(b) for moment-resisting frames, braced frames and other systems, $V$ shall not be less than,

$$S (2.0) M_v I_E W / (R_d R_o)$$

(c) for buildings located on a site other than Class F and having an SFRS with an $R_d$ equal to or greater than 1.5, $V$ need not be greater than,

$$\frac{2}{3} S (0.2) I_E W / (R_d R_o)$$

(3) The fundamental lateral period, $T_a$, in the direction under consideration in Sentence (2) shall be determined as,

(a) for moment-resisting frames that resist 100% of the required lateral forces and where the frame is not enclosed by or adjoined by more rigid elements that would tend to prevent the frame from resisting lateral forces, and where $h_n$ is in metres,

(i) $0.085 (h_n)^{3/4}$ for steel moment frames,

(ii) $0.075 (h_n)^{3/4}$ for concrete moment frames, or

(iii) 0.1 N for other moment frames,

(b) $0.025 h_n$ for braced frames where $h_n$ is in metres,

(c) $0.05 (h_n)^{3/4}$ for shear wall and other structures where $h_n$ is in metres, or

(d) other established methods of mechanics using a structural model that complies with the requirements of Sentence 4.1.8.3.(8), except that,

(i) for moment-resisting frames, $T_a$ shall not be taken greater than 1.5 times that determined in Clause (a),

(ii) for braced frames, $T_a$ shall not be taken greater than 2.0 times that determined in Clause (b),

(iii) for shear wall structures, $T_a$ shall not be greater than 2.0 times that determined in Clause (c),

(iv) for other structures, $T_a$ shall not be taken greater than that determined in Clause (c), and

(v) for the purpose of calculating the deflections, the period without the upper limit specified in Subclauses (d)(i) to (iv) may be used, except that, for walls, coupled walls and wall-frame systems, $T_a$ shall not exceed 4.0 s, and for moment-resisting frames, braced frames, and other systems, $T_a$ shall not exceed 2.0 s.

(See Appendix A.)
(4) The weight, $W$, of the building shall be calculated using the formula,

$$ W = \sum_{i=1}^{n} W_i $$

(5) The higher mode factor, $M_v$, and its associated base overturning moment reduction factor, $J$, shall conform to Table 4.1.8.11.

(6) The total lateral seismic force, $V$, shall be distributed such that a portion, $F_t$, shall be assumed to be concentrated at the top of the building, where $F_t$ is equal to $0.07 \, T_a \, V$ but need not exceed $0.25 \, V$ and may be considered as zero, where the fundamental lateral period, $T_a$, does not exceed 0.7 s; the remainder, $V - F_t$, shall be distributed along the height of the building, including the top level, in accordance with the formula,

$$ F_x = (V - F_t) \frac{W_x h_x}{\sum_{i=1}^{n} W_i h_i} $$

Table 4.1.8.11.
Higher Mode Factor, $M_v$, and Base Overturning Reduction Factor, $J$$^{(1)(2)}$
Forming Part of Sentence 4.1.8.11.(5)

<table>
<thead>
<tr>
<th>$S_a(0.2)/S_a(2.0)$</th>
<th>Type of Lateral Resisting System</th>
<th>$M_v$ for $T_a \leq 1.0$</th>
<th>$M_v$ For $T_a = 2.0$</th>
<th>$M_v$ For $T_a \geq 4.0$</th>
<th>$J$ For $T_a \leq 0.5$</th>
<th>$J$ For $T_a = 2.0$</th>
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<td>(3)</td>
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<td>(3)</td>
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<td>&lt; 8.0</td>
<td>Coupled walls$^{(4)}$</td>
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<td>1.0</td>
<td>(3)</td>
<td>1.0</td>
<td>0.9</td>
<td>(3)</td>
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<td></td>
<td>Braced frames</td>
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<td>(3)</td>
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<td>(3)</td>
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<td>1.0</td>
<td>0.6</td>
<td>0.5</td>
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<tr>
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<td>(3)</td>
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<td>(3)</td>
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<td>(3)</td>
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<td>(3)</td>
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<td>(3)</td>
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<td>4</td>
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<td>6</td>
<td>7</td>
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</tbody>
</table>

Notes to Table 4.1.8.11.:

(1) For values of $M_v$ between fundamental lateral periods, $T_a$, of 1.0 s and 2.0 s and between 2.0 s and 4.0 s, the product $S(T_a) \cdot M_v$ shall be obtained by linear interpolation.

(2) Values of $J$ between fundamental lateral periods, $T_a$, of 0.5 s and 2.0 s and between 2.0 s and 4.0 s shall be obtained by linear interpolation.

(3) For fundamental lateral periods, $T_a$, greater than 2.0 s, use the values for $T_a = 2.0$.

(4) A “coupled wall” is a wall system with coupling beams, where at least 66% of the base overturning moment resisted by the wall system is carried by the axial tension and compression forces resulting from shear in the coupling beams.

(5) For hybrid systems, values corresponding to walls must be used or a dynamic analysis must be carried out as per Article 4.1.8.12.
The structure shall be designed to resist overturning effects caused by the earthquake forces determined in Sentence (6) and the overturning moment at level \( x \), \( M_x \), shall be determined using the formula,

\[
M_x = J_x \sum_{i=x}^{n} F_i (h_i - h_x)
\]

where,

\[
J_x = \begin{cases} 
1.0 & \text{for } h_x \geq 0.6h_n, \text{ and} \\
J + (1-J)(h_x / 0.6h_n) & \text{for } h_x < 0.6h_n
\end{cases}
\]

where,

\[J = \text{base overturning moment reduction factor conforming to Table 4.1.8.11.}\]

Torsional effects that are concurrent with the effects of the forces mentioned in Sentence (6) and are caused by the simultaneous actions of the following torsional moments shall be considered in the design of the structure according to Sentence (10):

(a) torsional moments introduced by eccentricity between the centres of mass and resistance and their dynamic amplification, and

(b) torsional moments due to accidental eccentricities.

Torsional sensitivity shall be determined by calculating the ratio \( B_x \) for each level \( x \) according to the following equation for each orthogonal direction determined independently:

\[B_x = \frac{\delta_{\text{max}}}{\delta_{\text{ave}}}\]

where,

\[B = \text{maximum of all values of } B_x \text{ in both orthogonal directions, except that the } B_x \text{ for one-storey penthouses with a weight less than } 10\% \text{ of the level below need not be considered,}\]

\[\delta_{\text{max}} = \text{maximum storey displacement at the extreme points of the structure, at level } x \text{ in the direction of the earthquake induced by the equivalent static forces acting at distances } \pm 0.10D_{nx} \text{ from the centres of mass at each floor, and}\]

\[\delta_{\text{ave}} = \text{average of the displacements at the extreme points of the structure at level } x \text{ produced by the above-mentioned forces.}\]

Torsional effects shall be accounted for as follows:

(a) for a building with \( B \leq 1.7 \) or where \( I_E F_S (0.2) \) is less than 0.35, by applying torsional moments about a vertical axis at each level throughout the building, derived for each of the following load cases considered separately,

(i) \( T_x = F_x (e_x + 0.10D_{nx}) \), and

(ii) \( T_x = F_x (e_x - 0.10D_{nx}) \)

where \( F_x \) is the lateral force at each level determined according to Sentence (6) and where each element of the building is designed for the most severe effect of the above load cases, or

(b) for a building with \( B > 1.7 \), in cases where \( I_E F_S (0.2) \) is equal to or greater than 0.35, by a Dynamic Analysis Procedure as specified in Article 4.1.8.12.

Where the fundamental lateral period, \( T_a \), is determined by Clause (3)(d) and the building is constructed with more than 4 storeys of continuous wood construction and having a timber SFRS of shear walls with wood-based panels, braced frames or moment-resisting frames as defined in Table 4.1.8.9, the lateral earthquake force, \( V \), as determined by Sentence (2) shall be multiplied by 1.2, but need not exceed that determined by Clause (2)(c).
4.1.8.12. Dynamic Analysis Procedure

(1) The Dynamic Analysis Procedure shall be in accordance with one of the following methods:
   (a) Linear Dynamic Analysis by either the Modal Response Spectrum Method or the Numerical Integration Linear Time History Method using a structural model that complies with the requirements of Sentence 4.1.8.3.(8), or (See Appendix A)
   (b) Nonlinear Dynamic Analysis, in which case a special study shall be performed. (See Appendix A.)

(2) The spectral acceleration values used in the Modal Response Spectrum Method shall be the design spectral acceleration values, S(T), defined in Sentence 4.1.8.4.(7).

(3) The ground motion histories used in the Numerical Integration Linear Time History Method shall be compatible with a response spectrum constructed from the design spectral acceleration values, S(T), defined in Sentence 4.1.8.4.(7). (See Appendix A.)

(4) The effects of accidental torsional moments acting concurrently with the lateral earthquake forces that cause them shall be accounted for by the following methods:
   (a) the static effects of torsional moments due to \((\pm 0.10 D_m)F_x\) at each level \(x\), where \(F_x\) is either determined from the elastic dynamic analysis or determined from Sentence 4.1.8.11.(6) multiplied by \(R_dR_o/I_s\), shall be combined with the effects determined by dynamic analysis, or (See Appendix A.)
   (b) if \(B\), as defined in Sentence 4.1.8.11.(9), is less than 1.7, it is permitted to use a three-dimensional dynamic analysis with the centres of mass shifted by a distance of \(-0.05 D_m\) and \(+0.05 D_m\).

(5) Except as provided in Sentence (6), the design elastic base shear, \(V_{ed}\), is equal to the elastic base shear, \(V_e\), obtained from a Linear Dynamic Analysis.

(6) For structures located on sites other than Class F that have an SFRS with \(R_d\) equal to or greater than 1.5, the elastic base shear obtained from a Linear Dynamic Analysis may be multiplied by the following factor to obtain the design elastic base shear, \(V_{ed}\):

\[
\frac{2S(0.2)}{3S(T_d)} \leq 1.0
\]

(7) The design elastic base shear, \(V_{ed}\), shall be multiplied by the importance factor, \(I_s\), as determined in Article 4.1.8.5., and shall be divided by \(R_dR_o\), as determined in Article 4.1.8.9., to obtain the design base shear, \(V_d\).

(8) Except as required by Sentences (9) and (12), if the base shear, \(V_d\), obtained in Sentence (7) is less than 80% of the lateral earthquake design force, \(V\), of Article 4.1.8.11., \(V_d\) shall be taken as 0.8 \(V\).

(9) For irregular structures requiring dynamic analysis in accordance with Article 4.1.8.7., \(V_d\) shall be taken as the larger of the \(V_d\) determined in Sentence (7) and 100% of \(V\).

(10) Except as required by Sentence (11), the values of elastic storey shears, storey forces, member forces, and deflections obtained from the Linear Dynamic Analysis, including the effect of accidental torsion determined in Sentence (4), shall be multiplied by \(V_d/V_e\) to determine their design values, where \(V_d\) is the base shear.

(11) For the purpose of calculating deflections, it is permitted to use a value for \(V\) based on the value for \(T_s\) determined in Clause 4.1.8.11.(3)(d) to obtain \(V_d\) in Sentences (8) and (9).

(12) Buildings with more than 4 storeys of continuous wood construction and having a timber SFRS of shear walls with wood-based panels, braced frames or moment-resisting frames as defined in Table 4.1.8.9., having a fundamental lateral period, \(T_s\), as determined in Clause 4.1.8.11.(3)(d), shall have the base shear, \(V_{bp}\), taken as the larger of the base shear obtained in Sentence (7) and 100% of the lateral earthquake design force, \(V\), as determined in Article 4.1.8.11.
4.1.8.13. Deflections and Drift Limits

(1) Lateral deflections of a structure shall be calculated in accordance with the loads and requirements defined in this Subsection.

(2) Lateral deflections obtained from a linear elastic analysis using the methods given in Articles 4.1.8.11. and 4.1.8.12. and incorporating the effects of torsion, including accidental torsional moments, shall be multiplied by $R_d R_o / I_E$ to give realistic values of anticipated deflections.

(3) Based on the lateral deflections calculated in Sentence (2), the largest interstorey deflection at any level shall be limited to 0.01 $h_s$ for post-disaster buildings, 0.02 $h_s$ for High Importance Category buildings, and 0.025 $h_s$ for all other buildings.

(4) The deflections calculated in Sentence (2) shall be used to account for sway effects as required by Sentence 4.1.3.2.(12). (See Appendix A.)

4.1.8.14. Structural Separation

(1) Adjacent structures shall either be separated by the square root of the sum of the squares of their individual deflections calculated in Sentence 4.1.8.13.(2), or shall be connected to each other.

(2) The method of connection required in Sentence (1) shall take into account the mass, stiffness, strength, ductility and anticipated motion of the connected buildings and the character of the connection.

(3) Rigidly connected buildings shall be assumed to have the lowest $R_d R_o$ value of the buildings connected.

(4) Buildings with non-rigid or energy-dissipating connections require special studies.

4.1.8.15. Design Provisions

(1) Except as provided in Sentences (2) and (3), diaphragms, collectors, chords, struts and connections shall be designed so as not to yield, and the design shall account for the shape of the diaphragm, including openings, and for the forces generated in the diaphragm due to the following cases, whichever one governs:
   (a) forces due to loads determined in Article 4.1.8.11. or 4.1.8.12. applied to the diaphragm are increased to reflect the lateral load capacity of the SFRS, plus forces in the diaphragm due to the transfer of forces between elements of the SFRS associated with the lateral load capacity of such elements and accounting for discontinuities and changes in stiffness in these elements, or
   (b) a minimum force corresponding to the design-based shear divided by $N$ for the diaphragm at level $x$.
   (See Appendix A.)

(2) Steel deck roof diaphragms in buildings of less than 4 storeys or wood diaphragms that are designed and detailed according to the applicable referenced design standards to exhibit ductile behaviour shall meet the requirements of Sentence (1), except that they may yield and the forces shall be,
   (a) for wood diaphragms acting in combination with vertical wood shear walls, equal to the lateral earthquake design force,
   (b) for wood diaphragms acting in combination with other SFRS, not less than the force corresponding to $R_d R_o = 2.0$, and
   (c) for steel deck roof diaphragms, not less than the force corresponding to $R_d R_o = 2.0$.

(3) Where diaphragms are designed in accordance with Sentence (2), the struts shall be designed in accordance with Clause (1)(a) and the collectors, chords and connections between the diaphragms and the vertical elements of the SFRS shall be designed for forces corresponding to the capacity of the diaphragms in accordance with the applicable CSA standards. (See Appendix A.)
(4) In cases where $I_e F_p S_p(0.2)$ is equal to or greater than 0.35, the elements supporting any discontinuous wall, column or braced frame shall be designed for the lateral load capacity of the components of the SFRS they support. (See Appendix A.)

(5) Where structures have vertical variations of $R_d R_o$ satisfying Sentence 4.1.8.9.(4), the elements of the SFRS below the level where the change in $R_d R_o$ occurs shall be designed for the forces associated with the lateral load capacity of the SFRS above that level. (See Appendix A.)

(6) Where earthquake effects can produce forces in a column or wall due to lateral loading along both orthogonal axes, account shall be taken of the effects of potential concurrent yielding of other elements framing into the column or wall from all directions at the level under consideration and as appropriate at other levels. (See Appendix A.)

(7) Except as provided in Sentence (8), the design forces associated with the lateral capacity of the SFRS need not exceed the forces determined in accordance with Sentence 4.1.8.7.(1) with $R_d R_o$ taken as 1.0, unless otherwise provided by the applicable referenced design standards for elements, in which case the design forces associated with the lateral capacity of the SFRS need not exceed the forces determined in accordance with Sentence 4.1.8.7.(1) with $R_d R_o$ taken as 1.3. (See Appendix A.)

(8) If foundation rocking is accounted for, the design forces for the SFRS need not exceed the maximum values associated with foundation rocking, provided that $R_d$ and $R_o$ for the type of SFRS used conform to Table 4.1.8.9. and that the foundation is designed in accordance with Sentence 4.1.8.16.(1).

4.1.8.16. Foundation Provisions

(1) Foundations shall be designed to resist the lateral load capacity of the SFRS, except that when the foundations are allowed to rock, the design forces for the foundation need not exceed those determined in Sentence 4.1.8.7.(1) using an $R_d R_o$ equal to 2.0. (See Appendix A.)

(2) The design of foundations shall be such that they are capable of transferring earthquake loads and effects between the building and the ground without exceeding the capacities of the soil and rock.

(3) In cases where $I_e F_p S_p(0.2)$ is equal to or greater than 0.35, the following requirements shall be satisfied:
(a) piles or pile caps, drilled piers, and caissons shall be interconnected by continuous ties in no fewer than two directions, (See Appendix A.)
(b) piles, drilled piers, and caissons shall be embedded a minimum of 100 mm into the pile cap or structure, and
(c) piles, drilled piers, and caissons, other than wood piles, shall be connected to the pile cap or structure for a minimum tension force equal to 0.15 times the factored compression load on the pile.

(4) At sites where $I_e F_p S_p(0.2)$ is equal to or greater than 0.35, basement walls shall be designed to resist earthquake lateral pressures from backfill or natural ground. (See Appendix A.)

(5) At sites where $I_e F_p S_p(0.2)$ is greater than 0.75, the following requirements shall be satisfied:
(a) piles, drilled piers, or caissons shall be designed and detailed to accommodate cyclic inelastic behaviour when the design moment in the element due to earthquake effects is greater than 75% of its moment capacity, and (See Appendix A.)
(b) spread footings founded on soil defined as Site Class E or F shall be interconnected by continuous ties in no fewer than two directions.

(6) Each segment of a tie between elements that is required by Clause (3)(a) or (5)(b) shall be designed to carry by tension or compression a horizontal force at least equal to the greatest factored pile cap or column vertical load in the elements it connects, multiplied by a factor of 0.10 $I_e F_p S_p(0.2)$, unless it can be demonstrated that equivalent restraints can be provided by other means. (See Appendix A.)
(7) The potential for liquefaction of the soil and its consequences, such as significant ground displacement and loss of soil strength and stiffness, shall be evaluated based on the ground motion parameters referenced in Subsection 1.1.2. and shall be taken into account in the design of the structure and its foundations. (See Appendix A.)

4.1.8.17. Site Stability  (See Appendix A.)

(1) The potential for slope instability and its consequences, such as slope displacement, shall be evaluated based on site-specific material properties and ground motion parameters referenced in Subsection 1.1.2. and shall be taken into account in the design of the structure and its foundations.

4.1.8.18. Elements of Structures, Non-Structural Components and Equipment  
(See Appendix A.)

(1) Except as provided in Sentences (2) and (8), elements and components of buildings described in Table 4.1.8.18. and their connections to the structure shall be designed to accommodate the building deflections calculated in accordance with Article 4.1.8.13. and the element or component deflections calculated in accordance with Sentence (10), and shall be designed for a lateral force, \( V_p \), applied through the centre of mass of the element or component that is equal to:

\[
V_p = 0.3 F_a S_{a}(0.2) I_E S_p W_p
\]

where,

- \( F_a \) = as defined in Table 4.1.8.4.B.,
- \( S_{a}(0.2) \) = spectral response acceleration value at 0.2 s, as defined in Sentence 4.1.8.4.(1),
- \( I_E \) = importance factor for the building, as defined in Article 4.1.8.5.,
- \( S_p = C_p A_r A_x / R_p \) (the maximum value of \( S_p \) shall be taken as 4.0 and the minimum value of \( S_p \) shall be taken as 0.7), where,
  - \( C_p \) = element or component factor from Table 4.1.8.18.,
  - \( A_r \) = element or component force amplification factor from Table 4.1.8.18.,
  - \( A_x \) = height factor \((1 + 2 h_x / h_n)\),
  - \( R_p \) = element or component response modification factor from Table 4.1.8.18., and
- \( W_p \) = weight of the component or element.

(2) For buildings other than post-disaster buildings, where \( I_E F_a S_{a}(0.2) \) is less than 0.35, the requirements of Sentence (1) need not apply to Categories 6 through 21 of Table 4.1.8.18.

(3) The values of \( C_p \) in Sentence (1) shall conform to Table 4.1.8.18.

(4) For the purpose of applying Sentence (1) and Categories 11 and 12 of Table 4.1.8.18., elements or components shall be assumed to be flexible or flexibly connected unless it can be shown that the fundamental period of the element or component and its connection is less than or equal to 0.06 s, in which case the element or component is classified as being rigid or rigidly connected.

(5) The weight of access floors shall include the dead load of the access floor and the weight of permanent equipment, which shall not be taken as less than 25% of the floor live load.

(6) When the mass of a tank plus its contents or the mass of a flexible or flexibly connected piece of machinery, fixture or equipment is greater than 10% of the mass of the supporting floor, the lateral forces shall be determined by rational analysis.

(7) Forces shall be applied in the horizontal direction that results in the most critical loading for design, except for Category 6 of Table 4.1.8.18., where the forces shall be applied up and down vertically.
4.2.7.5. Installation of Deep Foundations

(1) Deep foundation units shall be installed in such a manner as not to impair,
(a) the strength of the deep foundation units and the properties of the soil or rock on or in which they are placed beyond the calculated or anticipated limits,
(b) the integrity of previously installed deep foundation units, or
(c) the integrity of neighbouring buildings.

4.2.7.6. Damaged Deep Foundation Units

(1) Where inspection shows that a deep foundation unit is damaged or not consistent with design or good engineering practice,
(a) such a unit shall be reassessed by the designer, and
(b) any necessary changes shall be made and action taken as required.

4.2.8. Special Foundations

4.2.8.1. General

(1) Where special foundation systems are used, such systems shall conform to Subsection 4.2.4. and Sentence 4.1.1.4.(2).

4.2.8.2. Use of Existing Foundations

(1) Existing foundations may be used to support new or altered buildings provided they comply with all pertinent requirements of this Section.

Section 4.3. Design Requirements for Structural Materials

4.3.1. Wood

4.3.1.1. Design Basis for Wood

(1) Buildings and their structural members made of wood shall conform to CSA O86, “Engineering Design in Wood”.

4.3.1.2. Glue-Laminated Members

(1) Glued-laminated members shall be fabricated in plants conforming to CSA O177, “Qualification Code for Manufacturers of Structural Glued-Laminated Timber”.

4.3.1.3. Termites

(1) In areas known to be infested by termites, the requirements in Articles 9.3.2.9., 9.12.1.1. and 9.15.5.1. shall apply.
4.3.2. Plain and Reinforced Masonry

4.3.2.1. Design Basis for Plain and Reinforced Masonry

(1) Buildings and their structural members made of plain and reinforced masonry shall conform to CSA S304.1, “Design of Masonry Structures”.

4.3.3. Plain, Reinforced and Prestressed Concrete

4.3.3.1. Design Basis for Plain, Reinforced and Prestressed Concrete

(1) Buildings and their structural members made of plain, reinforced or prestressed concrete shall conform to CAN/CSA-A23.3, “Design of Concrete Structures”. (See Appendix A.)

4.3.4. Steel

4.3.4.1. Design Basis for Structural Steel

(1) Buildings and their structural members made of structural steel shall conform to CSA S16, “Design of Steel Structures”. (See Appendix A.)

4.3.4.2. Design Basis for Cold Formed Steel

(1) Buildings and their structural members made of cold formed steel shall conform to CAN/CSA-S136, “North American Specification for the Design of Cold-Formed Steel Structural Members”. (See Appendix A.)

4.3.4.3. Steel Building Systems

(1) Steel building systems shall be manufactured by companies certified in accordance with the requirements of CSA A660, “Certification of Manufacturers of Steel Building Systems”. (See Appendix A.)

4.3.5. Aluminum

4.3.5.1. Design Basis for Aluminum

(1) Buildings and their structural members made of aluminum shall conform to CAN/CSA-S157 / S157.1, “Strength Design in Aluminum/Commentary on CSA S157-05, Strength Design in Aluminum”, using the loads stipulated in Section 4.1., in accordance with limit states design in Subsection 4.1.3.

4.3.6. Glass

4.3.6.1. Design Basis for Glass

(1) Glass used in buildings shall be designed in conformance with CAN/CGSB-12.20-M, “Structural Design of Glass for Buildings”.
Coatings applied to materials other than gypsum wallboard to provide required resistance to vapour diffusion shall conform to the requirements of Sentence (1) when tested in accordance with ASTM E96 / E96M, “Water Vapor Transmission of Materials” by the desiccant method (dry cup).

Section 5.6. Precipitation

5.6.1. Protection from Precipitation

5.6.1.1. Required Protection from Precipitation  (See Appendix A.)

(1) Except as provided in Sentence (2), where a building component or assembly is exposed to precipitation, the component or assembly shall,
   (a) minimize ingress of precipitation into the component or assembly, and
   (b) prevent ingress of precipitation into interior space.

(2) Protection from ingress of precipitation is not required where it can be shown that such ingress will not adversely affect any of,
   (a) the health or safety of building users,
   (b) the intended use of the building, or
   (c) the operation of building services.

5.6.1.2. Installation of Protective Materials

(1) Where a material applied to a sloped or horizontal assembly is installed to provide required protection from precipitation and its installation is covered in the scope of one of the following standards, installation shall conform to the requirements of the respective standard:
   (b) CGSB 37-GP-55M, “Application of Sheet Applied Flexible Polyvinyl Chloride Roofing Membrane”,
   (c) CAN3-A123.51-M, “Asphalt Shingle Application on Roof Slopes 1:3 and Steeper”, or
   (d) CAN3-A123.52-M, “Asphalt Shingle Application on Roof Slopes 1:6 to less than 1:3”.

(2) Where masonry applied to vertical assemblies is installed to provide required protection from precipitation, installation shall conform to the requirements of CAN/CSA-A371, “Masonry Construction for Buildings”.

(3) Where protective materials are applied to assemblies to provide the required protection from precipitation, the materials shall be installed so as to shed precipitation or otherwise minimize its entry into the assembly and prevent its penetration through the assembly.  (See Appendix A.)

5.6.2. Sealing, Drainage, Accumulation and Disposal

5.6.2.1. Sealing and Drainage  (See Appendix A.)

(1) Except as provided in Sentence (2), materials, components, assemblies, joints in materials, junctions between components and junctions between assemblies exposed to precipitation shall be,
   (a) sealed to prevent ingress of precipitation, or
   (b) drained to direct precipitation to the exterior.

(2) Sealing or drainage are not required where it can be shown that the omission of sealing and drainage will not adversely affect any of,
   (a) the health or safety of building users,
(b) the intended use of the building, or
(c) the operation of building services.

5.6.2.2. Accumulation and Disposal

(1) Where water, snow or ice can accumulate on a building, provision shall be made to minimize the likelihood of hazardous conditions arising from such accumulation.

(2) Where precipitation can accumulate on sloped or horizontal assemblies, provision shall be made for drainage conforming with Section 7.4.

(3) Where downspouts are provided and are not connected to a sewer, provisions shall be made to,
(a) divert the water from the building, and
(b) prevent soil erosion.

(4) Junctions between vertical assemblies, and sloped or horizontal assemblies, shall be designed and constructed to minimize the flow of water from the sloped or horizontal assembly onto the vertical assembly.

5.6.2.3. Solar Collector Systems

(1) A solar collector system is permitted to be installed above roofing materials conforming to Table 5.10.1.1.

Section 5.7. Surface Water

5.7.1. Protection from Surface Water

5.7.1.1. Prevention of Accumulation and Ingress

(1) Except as provided in Sentence (3), the building shall be located, the building site shall be graded or catch basins shall be installed so that surface water will not accumulate against the building.

(2) Except as provided in Sentence (3), the foundation walls shall be constructed so that surface water will not,
(a) enter the building, or
(b) damage moisture susceptible materials.

(3) Buildings specifically designed to accommodate accumulation of water at the building or the ingress of water need not comply with Sentence (1) or Clause (2)(a).

Section 5.8. Moisture in the Ground

5.8.1. Foundation and Floor Drainage

5.8.1.1. Required Drainage

(1) Except where a wall or floor is subject to continuous hydrostatic pressure, or unless it can be shown to be unnecessary, the bottom of every exterior foundation wall and every floor-on-ground shall be provided with drainage. (See Appendix A.)
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)

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Table 5.10.1.1. (Cont’d)
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Forming Part of Sentence 5.10.1.1.(1)

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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,

(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.
Part 6
Heating, Ventilating and Air-Conditioning

Section 6.1. General  (See Appendix A.)

6.1.1. Application

6.1.1.1. Scope

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

(2) Where the method of operation of an existing heating, ventilating or air-conditioning system is altered, the repair or component replacements that change the capacity or extent of safety of the system shall conform to this Code. (See Appendix A.)

6.1.1.2. Application

(1) This Part applies to systems and equipment for heating, ventilating and air-conditioning services.

Section 6.2. Design and Installation

6.2.1. General

6.2.1.1. Good Engineering Practice

(1) Heating, ventilating and air-conditioning systems, including related mechanical refrigeration systems, shall be designed, constructed and installed to conform to good engineering practice appropriate to the circumstances such as described in,

(a) the ASHRAE Handbooks as follows:
   (i) Fundamentals,
   (ii) Refrigeration,
   (iii) HVAC Applications,
   (iv) HVAC Systems and Equipment, and

(b) CSA F280, “Determining the Required Capacity of Residential Space Heating and Cooling Appliances”, and the outside winter design temperatures shall conform to MMAH Supplementary Standard SB-1, “Climatic and Seismic Data”,

(c) CAN/CSA-F326-M, “Residential Mechanical Ventilation Systems”,

(d) the NFPA Fire Codes,

(e) the HRAI Digest,

(f) the Hydronics Institute Manuals,

(g) the SMACNA Manuals,

(h) ACGIH, “Industrial Ventilation Manual”,
6.2.1.1. "Special Requirements for Heating, Ventilation, and Air Conditioning (HVAC) Systems in Health Care Facilities",

(j) CCBFC NRCC 38730, “Model National Energy Code of Canada for Buildings”,

(k) CCBFC NRCC 54435, “National Energy Code of Canada for Buildings”, and

(l) EPA/625/R-92/016, “Radon Prevention in the Design and Construction of Schools and Other Large Buildings”.

6.2.1.2. Design Indoor Air Temperatures

(1) Buildings classified as Group B, Division 2 or 3 occupancies or Group C residential occupancies that are intended for use in the winter months on a continuing basis shall be insulated and be equipped with heating facilities that are capable of maintaining an indoor air temperature of 22°C at the outside winter design temperature referred to in Article 6.2.1.7.

(2) All other buildings intended for occupancy in the winter months on a continuing basis should be insulated and shall be equipped with heating facilities to maintain a minimum indoor air temperature of 18°C or commensurate with the use of the building at the outside winter design temperature described in Article 6.2.1.7.

6.2.1.3. Structural Movement (See Appendix A.)

(1) Mechanical systems and equipment shall be designed and installed to accommodate the maximum relative structural movement provided for in the construction of the building.

6.2.1.4. Installation Standards


(2) The solid fuel-fired appliances in Sentence (1) shall conform to CSA B366.1, “Solid-Fuel-Fired Central Heating Appliances”.

(3) The design and installation of earth energy systems shall conform to CAN/CSA-C448.2, “Design and Installation of Earth Energy Systems for Residential and Other Small Buildings”, where such systems use groundwater, submerged heat exchangers or ground heat exchangers to serve,

(a) single dwelling units, or

(b) buildings where the conditioned space is not more than 1 400 m².

(4) The design and installation of earth energy systems shall conform to CAN/CSA-C448.1, “Design and Installation of Earth Energy Systems for Commercial and Institutional Buildings”, where such systems use groundwater, submerged heat exchangers or ground heat exchangers to condition a floor space area more than 1 400 m².

(5) The design and installation of solid fuel-burning stoves, ranges and space heaters, including the requirements for combustion air, shall conform to the requirements of CSA B365, “Installation Code for Solid-Fuel-Burning Appliances and Equipment” and the manufacturer’s installation instructions.

(6) The design and installation of hydronic heating systems shall conform to,

(a) CAN/CSA-B214, “Installation Code for Hydronic Heating Systems”, or

(b) good engineering practice appropriate to the circumstances such as described in Article 6.2.1.1.

(7) Solid fuel-burning stoves, furnaces and hydronic heating systems designed to burn solid fuels, other than coal, shall conform to the particulate emission limits of,

(a) CSA B415.1, “Performance Testing of Solid-Fuel-Burning Heating Appliances”, or

(b) the “Standards of Performance for New Residential Wood Heaters”, set out in Subpart AAA of Part 60 of Title 40 of the Code of Federal Regulations, published by the United States Environmental Protection Agency, as it read on November 1, 2013.

(See A-9.33.1.2.(2) in Appendix A.)
(4) In storage garages subject to the requirements of Sentence (1), where motor vehicles are parked by mechanical means, the ventilation requirements may be reduced by one half.

(5) Except as provided in Sentence (6), ticket and attendant booths of storage garages shall be pressurized with a supply of outdoor air.

(6) The requirements of Sentences (1) to (5) shall not apply to open-air storeys in a storage garage.

(7) A repair garage shall have a mechanical ventilation system designed to limit the exposure of workers to,
(a) carbon monoxide to below the time weighted average concentration of 25 parts per million for a normal 8 hour workday or 40 hour work week, and
(b) nitrogen dioxide from diesel powered vehicles to below 0.72 parts per million for a normal 8 hour workday or 40 hour work week.

(8) In a repair garage, when a repair bay is not immediately adjacent to an outside garage door opening, a system capable of providing continuous general ventilation of not less than 700 L/s per internal bay shall be provided.

(9) The general ventilation system described in Sentence (8) shall be designed to,
(a) operate continuously, or
(b) be controlled automatically by carbon monoxide monitoring devices, located so as to provide full protection throughout the repair garage.

(10) The general ventilation system described in Sentence (8) is not required when tail pipes of vehicles are directly connected to local mechanical exhaust systems that terminate outdoors.

6.2.2.4. Air Contaminants

(1) Air contaminants released within buildings shall be removed insofar as possible at their points of origin and shall not be permitted to accumulate in concentrations greater than permitted in the ACGIH, “Industrial Ventilation Manual”. (See Appendix A.)

(2) Systems serving spaces that contain sources of contamination and systems serving other occupied parts of the building but located in or running through spaces that contain sources of contamination shall be designed in such a manner as to prevent spreading of such contamination to other occupied parts of the building. (See Appendix A.)

(3) Heating, ventilating and air-conditioning systems shall be designed to minimize growth of micro-organisms according to good engineering practice as described in 6.2.1.1.(1). (See Appendix A.)

(4) Mechanical rooms containing refrigeration equipment shall be ventilated in accordance with CSA-B52, “Mechanical Refrigeration Code”.

6.2.2.5. Hazardous Gases, Dusts or Liquids

(1) Except as provided in Subsection 6.2.13., systems serving spaces that contain hazardous gases, dusts or liquids shall be designed, constructed and installed in conformance with the provisions of the Fire Code made under the Fire Protection and Prevention Act, 1997, or in the absence of requirements pertinent to such systems in the Fire Code, to good engineering practice such as is described in the publications of the National Fire Protection Association and in the CCBFC NRCC 53303, “National Fire Code of Canada”. (See Appendix A.)

(2) When indoor piping for Class I flammable liquids is installed in a trench, the trench shall be,
(a) provided with positive ventilation to the outdoors, or
(b) designed to prevent the accumulation of flammable vapours.
6.2.2.6. **Commercial Cooking Equipment**

(1) All commercial cooking equipment shall be provided with ventilation systems designed, constructed and installed to conform to NFPA 96, “Ventilation Control and Fire Protection of Commercial Cooking Operations”, except as required by Sentence 3.6.3.1.(1) and Article 3.6.4.2.

(2) Fire protection systems for high efficiency, high temperature commercial cooking equipment using vegetable oil or animal fat shall conform to,
- (a) ANSI/UL 300, “Fire Extinguishing Systems for Protection of Commercial Cooking Equipment”, or
- (b) ULC/ORD-C1254.6, “Fire Testing of Restaurant Cooking Area Fire Extinguishing System Units”.

6.2.2.7. **Crawl Spaces and Attic or Roof Spaces**

(1) Every crawl space and every attic or roof space shall be ventilated by natural or mechanical means. (See Appendix A.)

6.2.3. **Air Duct Systems**

6.2.3.1. **Application**

(1) Except as provided in Sentence (2), this Subsection applies to the design, construction and installation of air duct distribution systems serving heating, ventilating and air-conditioning systems.

(2) This Subsection does not apply to the design, construction and installation of air duct distribution systems serving heating, ventilating and air-conditioning systems that serve individual dwelling units within the scope of Part 9.

6.2.3.2. **Materials in Air Duct Systems**

(1) Except as provided in Sentences (2) to (4) and in Article 3.6.4.3., all ducts, duct connectors, associated fittings and plenums used in air duct systems shall be constructed of steel, aluminum alloy, copper, clay, asbestos-cement or similar noncombustible material.

(2) Ducts, associated fittings and plenums are permitted to contain combustible material provided they,
- (a) conform to the appropriate requirements for Class 1 duct materials in CAN/ULC-S110, “Test for Air Ducts”,
- (b) conform to Article 3.1.5.15. in a building required to be of noncombustible construction,
- (c) conform to Subsection 3.1.9.,
- (d) are used only in horizontal runs in a building required to be of noncombustible construction,  
- (e) are not used in vertical runs serving more than 2 storeys in a building required to be of noncombustible construction, and
- (f) are not used in air duct systems in which the air temperature may exceed 120°C.

(3) Duct sealants shall have a flame-spread rating of not more than 25 and a smoke developed classification of not more than 50.

(4) Duct connectors that contain combustible materials and that are used between ducts and air outlet units shall,
- (a) conform to the appropriate requirements for Class 1 air duct materials in CAN/ULC-S110, “Test for Air Ducts”,
- (b) be limited to 4 m in length,
- (c) be used only in horizontal runs, and
- (d) not penetrate required fire separations.

(5) Materials in Sentences (1) to (4) installed in a location where they may be subjected to excessive moisture shall have no appreciable loss of strength when wet and shall be corrosion-resistant.
(b) the exhaust ducts discharge to a shaft that is served by an exhaust fan having a capacity that is equal to or greater than the combined capacity of the exhaust fans discharging to the plenum multiplied by the operation diversity factor, provided that the exhaust fan serving the shaft operates continuously. (See Appendix A.)

(11) Where exhaust ducts containing air from conditioned spaces pass through or are adjacent to unconditioned spaces, the ducts shall be constructed to prevent condensation from forming inside or outside of the ducts.

(12) Where an exhaust duct system is used for smoke removal in a high building, the requirements of Article 3.2.6.6. shall apply.

(13) Where exhaust duct systems from more than one fire compartment are connected to an exhaust duct in a vertical service space, the requirements of Article 3.6.3.4. shall apply.

(14) Except as provided in Sentence (15), exhaust air shall be provided at a rate not less than 24 L/s for each water closet, urinal, shower or slop sink.

(15) Except as provided in Sentence 6.2.2.1.(3), exhaust air shall be provided for fixtures in dwelling units in accordance with ANSI/ASHRAE 62.1, “Ventilation for Acceptable Indoor Air Quality”.

(16) Except for wash basins (lavatories), sanitary facilities in a food premises shall be mechanically ventilated and shall be capable of exhausting air at the rate of not less than 24 L/s for each sanitary fixture listed in Sentence (17).

(17) The mechanical ventilation described in Sentence (16) applies to rooms containing water closets, urinals, basins, showers or slop sinks.

(18) Where collective venting of multiple installations of laundry-drying equipment is used, the ventilation system shall,
(a) be connected to a common exhaust duct that is vented by one central exhaust fan,
(b) incorporate one central lint trap,
(c) include an interlock to activate the central exhaust fan when laundry-drying equipment is in use, and
(d) be provided with make-up air.

(19) Exhaust ducts or vents connected to laundry-drying equipment shall discharge directly to the outdoors.

6.2.3.9. Interconnection of Systems

(1) In a residential occupancy, air from one suite shall not be circulated to any other suite or to a public corridor or public stairway.

(2) Except as permitted by Sentence (3) and Sentence 6.2.3.8.(6), air duct systems serving storage garages shall not be directly interconnected with ductwork serving other areas of the building.

(3) Where exhaust ducts are provided in conformance with Sentence 6.2.3.8.(6), they may exhaust through an enclosed storage garage prior to exhausting to the outdoors provided,
(a) the storage garage exhaust system runs continuously,
(b) the capacity of the storage garage exhaust system is equal to or exceeds the volume of the exhaust entering the garage, and
(c) a leakage rate 1 smoke/fire damper rated in accordance with CAN/ULC-S112.1, “Leakage Rated Dampers for Use in Smoke Control Systems”, is provided near the duct outlet location in the storage garage to prevent air from the storage garage from entering the exhaust ductwork system in the event the building’s exhaust fan is shut down.

(4) Except for corridors conforming to Sentence 3.3.1.4.(4) or as permitted in Sentences (5) and (6), a public corridor or corridor serving the public shall not be used as a portion of a supply, return or exhaust air system serving adjoining areas, other than as part of a supply air system serving toilet rooms, bathrooms, shower rooms and similar auxiliary spaces opening directly to the public corridor or corridor used by the public.
6.2.3.10. Ducts in Exits

(1) Except as permitted in Sentence (2), duct penetration of fire separations separating exits from the remainder of the building shall be in accordance with Article 3.4.4.4.

(2) Duct penetration of fire separations separating exits from the remainder of the building is permitted if the duct,

(a) is designed for the purposes of Subsection 3.2.6., or
(b) only serves the exit from a dedicated roof top air make-up unit.

6.2.3.11. Make-up Air

(1) In ventilating systems that exhaust air to the outdoors, provision shall be made for the admission of a supply of make-up air in sufficient quantity so that the operation of the exhaust system and other exhaust equipment or combustion equipment is not adversely affected.

(2) Make-up air facilities required by Sentence (1) shall be interlocked with the exhaust devices they serve so that both operate together.

(3) Where make-up air facilities are intended to introduce air directly from the outdoors to occupied parts of the building in winter, they shall incorporate means of tempering that air to maintain the indoor design temperature.

6.2.3.12. Supply, Return, Intake and Exhaust Air Openings (See Appendix A.)

(1) Supply, return and exhaust air openings located less than 2 000 mm above the floor in rooms or spaces in buildings shall be protected by grilles having openings of a size that will not allow the passage of a 15 mm diameter sphere.

(2) Outdoor air intakes and exhaust outlets on the exterior of buildings shall be designed or located so that the air entering the building system will not contain more contaminants than the normal exterior air of the locality in which the building is situated.

(3) Exterior openings for outdoor intakes and exhaust outlets shall be shielded from the entry of snow and rain and shall be fitted with corrosion-resistant screens of mesh having openings not larger than 15 mm, except where experience has shown that climatic conditions require larger openings to avoid icing over of the screen openings.

(4) Screens required in Sentence (3) shall be accessible for maintenance.

(5) Combustible grilles, diffusers and other devices for supply, return and exhaust air openings in rooms shall conform to the flame-spread rating and smoke developed classification requirements for the interior finish of the surface on which they are installed.

6.2.3.13. Filters and Odour Removal Equipment

(1) Air filters for air duct systems shall conform to the requirements for Class 2 air filter units as described in ULC-S111, “Fire Tests For Air Filter Units”.

(2) When electrostatic-type filters are used, they shall be installed so as to ensure that the electric circuit is automatically de-energized when filter access doors are opened and, in dwelling units, when the system circulating fan is not operating.
Part 7

Plumbing

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(3) Water service pipes or building sewers serving buildings located on the same property may connect into a private water supply or a private sewer conforming to Article 7.1.5.5.

(4) No plumbing serving a dwelling unit shall be installed in or under another unit of the building unless the piping is located in a tunnel, pipe corridor, common basement or parking garage, so that the piping is accessible for servicing and maintenance throughout its length without encroachment on any private living space, but this Sentence does not prevent plumbing serving a unit located above another unit from being installed in or under the lower unit.

### 7.1.5.5. Private Sewers and Private Water Supply

(1) Private water supply pipes shall be designed and installed according to MOE PIBS 6881e, “Design Guidelines for Drinking-Water Systems”.

(2) Private sewers shall be designed and installed according to MOE PIBS 6879, “Design Guidelines for Sewage Works”.

### 7.1.6. Location of Fixtures

#### 7.1.6.1. Lighting and Ventilation Requirements

(1) Plumbing fixtures shall not be installed in a room that is not lighted and ventilated in accordance with the appropriate requirements in Parts 3 and 9.

#### 7.1.6.2. Accessibility

(1) Every fixture, plumbing appliance, interceptor, cleanout, valve, device or piece of equipment shall be so located that it is readily accessible for use, cleaning and maintenance.

### 7.1.7. Accommodating Movement

#### 7.1.7.1. Structural Movement

(1) Plumbing shall be designed and installed to accommodate the maximum relative structural movement provided for in the construction of the building.

### Section 7.2. Materials and Equipment

#### 7.2.1. General

#### 7.2.1.1. Exposure of Materials

(1) Where unusual conditions exist such as excessively corrosive soil or water, only materials suited for use in such locations shall be used.

(2) Materials and equipment used in a drainage system where excessively corrosive wastes are present shall be suitable for the purpose.
7.2.1.2. Restrictions on Re-Use

(1) Used materials and equipment, including fixtures, shall not be reused unless they meet the requirements of this Part for new materials and equipment and are otherwise satisfactory for their intended use.

(2) Materials and equipment that have been used for a purpose other than the distribution of potable water shall not be subsequently used in a potable water system.

7.2.1.3. Identification and Certification

(1) Every length of pipe and every fitting shall have cast, stamped or indelibly marked on it the maker’s name or mark and the weight or class or quality of the product, or it shall be marked in accordance with the relevant standard, and such markings shall be visible after installation.

(2) Where a component of a plumbing system is required by this Code to comply with a standard and the compliance is not certified by a testing agency accredited by the Standards Council of Canada for the testing of the component in question and, when an inspector requests proof of the compliance, proof of compliance shall be produced by the person proposing to install or have installed the component, and without such proof the component shall not be installed as a permanent part of any plumbing system.

(3) The lack of certification markings on a product or plumbing component shall be regarded as proof, in the absence of evidence to the contrary, that no certification exists.

(4) If a component of a plumbing system is required to be certified to a standard, the certification shall be made by a testing agency accredited for that purpose by the Standards Council of Canada.

7.2.1.4. Pipe or Piping

(1) Where the term pipe or piping and fittings is used, it shall also apply to tube or tubing and fittings unless otherwise stated.

7.2.1.5. Withstanding Pressure

(1) Piping, fittings and joints used in pressure sewer, forcemain or sump pump discharge applications shall be capable of withstanding at least one and one-half times the maximum potential pressure.

7.2.2. Fixtures

7.2.2.1. Surface Requirements

(1) Except for the area designed to be slip proof in such fixtures, every exposed area of a fixture shall have a smooth, hard corrosion-resistant surface that is free from flaws and blemishes that may interfere with cleaning.

7.2.2.2. Conformance to Standards

(1) Water closets and urinals shall conform to the requirements in Article 7.6.4.2.

(2) Vitreous china fixtures shall conform to ASME A112.19.2 / CSA B45.1, “Ceramic Plumbing Fixtures”.

(3) Enamelled cast iron fixtures shall conform to ASME A112.19.1 / CSA B45.2, “Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures”.

Issued October 24, 2014
Effective Date: January 1, 2015
7.2.3.1. Traps and Interceptors

7.2.3.1. Traps

(1) Except as provided for in Sentence (2), every trap shall,
   (a) have a trap seal depth of at least 38 mm,
   (b) be so designed that failure of the seal walls will cause exterior leakage, and
   (c) have a water seal that does not depend on the action of moving parts.

(2) The trap seal depth on fixtures draining to an acid waste system shall be a minimum of 50 mm.
7.2.3.1.  

(3) Except for a floor-mounted service sink, every trap that serves a lavatory, a sink or a laundry tray shall,
(a) be provided with a cleanout plug of a minimum ¾ in. size located at the lowest point of the trap and of the same material as the trap, except that a cast iron trap shall be provided with a brass cleanout plug,
(b) be designed so that the trap dip can be completely removed for cleaning purposes, or
(c) be provided with a cleanout installed above the floor as close as practical downstream of the trap when the trap is,
   (i) installed below the floor, and
   (ii) not readily accessible for cleaning as required by Clause (a).
(See Appendix A.)

(4) A bell trap or an S-trap shall not be installed in a drainage system.

(5) A drum trap shall not be installed in a drainage system.

(6) Except as permitted in Sentence (7), no bottle trap shall be used in a plumbing system.

(7) A bottle trap may be used on a laboratory sink or other fixture equipped with corrosion resistant fittings.

(8) No running trap shall be installed in a plumbing system unless an accessible handhole is provided for cleaning of the trap, and where the trap is too small to accommodate a handhole, a cleanout shall be provided.

7.2.3.2.  Interceptors

(1) Every interceptor shall be designed so that it can be readily cleaned.

(2) Every grease interceptor shall be designed so that it does not become air bound.

(3) Where a grease interceptor is required by Sentence 7.4.4.3.(1), the interceptor shall conform to,
   (a) CSA B481.1, “Testing and Rating of Grease Interceptors Using Lard”, or
   (b) CSA B481.2, “Testing and Rating of Grease Interceptors Using Oil”.

7.2.3.3.  Tubular Traps

(1) Tubular metal or plastic traps that conform to ASME A112.18.2 / CSA B125.2, “Plumbing Waste Fittings” shall be used in accessible locations.

7.2.4.  Pipe Fittings

7.2.4.1.  T and Cross Fittings

(1) A T fitting shall not be used in a drainage system except to connect a vent pipe.

(2) A cross fitting shall not be used in a drainage system.

7.2.4.2.  Sanitary T Fittings

(1) A double sanitary T fitting shall not be used to connect the fixture drains of two urinals where no cleanout fitting is provided above the connection.

(2) No pipe fitting, joint or connection that would tend to intercept solids or reduce the flow through a pipe by more than 10 percent shall be used in a plumbing system.
7.2.4.3. **90° Elbows**

(1) Except as permitted in Sentences (2) and (3), 90° elbows of 4 in. *size* or less that have a centre-line radius that is less than the *size* of the pipe shall not be used to join two *soil* or *waste pipes*.

(2) 90° elbows of 4 in. *size* or less in *sanitary drainage systems* may be used,
   (a) to change the direction of piping from horizontal to vertical, in the direction of flow,
   (b) where a *trap arm* enters a wall, or
   (c) to connect *trap arms* as permitted by Sentence 7.5.6.3.(2).

(3) A 90° elbow that is part of the pre-engineered wastewater heat recovery system is permitted to have a centre-line radius that is less than the *size* of the pipe.

7.2.4.4. **Fittings Restricted in Use**

(1) No double Y, double TY, double T or double waste fitting shall be installed in a *nominally horizontal soil* or *waste pipe*.

7.2.4.5. **Assembled Pipe or Tubing**

(1) Pipe or tubing assembled to comprise a standard drain waste and venting system shall be connected with drain, waste and vent fittings in conformance with Table 7.2.4.5.
### Table 7.2.4.5.
#### Pipe Arrangement for DWV Fittings
Forming Part of Sentence 7.2.4.5.(1)

<table>
<thead>
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<tr>
<td><img src="image6" alt="Diagram" /></td>
<td>⑤⑦</td>
<td></td>
</tr>
</tbody>
</table>

**LEGEND (DWV BRANCH FITTINGS)**
- Vent pipe: _________
- Drainage pipe: _________

* Acceptable only if vertical run is of 3 inches size or larger and horizontal branches are of 1\(\frac{1}{4}\), 1\(\frac{1}{2}\), or 2 inches size

1. Straight T
2. Double T or Cross
3. Sanitary T or Short Turn TY
4. Double Sanitary T or Short Turn Double TY
5. Combination Y & \(\frac{1}{8}\) Bend or Long Turn TY
6. Double Combination Y & \(\frac{1}{8}\) Bend or Double Long Turn TY
7. Y
8. Double Y
9. Double Waste Fitting

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*Issued October 24, 2014*

*Effective Date: January 1, 2015*
7.2.5. **Non-Metallic Pipe and Fittings**

### 7.2.5.1. **Asbestos-Cement Drainage Pipe and Fittings**

1. Except as provided in Sentence (2), asbestos-cement pipe and its fittings for use in a drain, waste or vent system shall conform to,
   - (a) CAN/CGSB-34.22, “Asbestos-Cement Drain Pipe”, or
   - (b) CAN/CSA-B127.1, “Asbestos Cement Drain, Waste and Vent Fittings”.

2. Asbestos-cement pipe and fittings used underground either outside a building or under a building shall conform to Sentence (1) or to,
   - (a) CAN/CGSB-34.9, “Asbestos-Cement Sewer Pipe”,
   - (b) CAN/CGSB-34.23, “Asbestos-Cement House Connection Sewer Pipe”, or
   - (c) CSA B127.2, “Components for Use in Asbestos-Cement Building Sewer Systems”.

### 7.2.5.2. **Reserved**

### 7.2.5.3. **Concrete Pipe and Fittings**

1. Concrete pipe shall conform to CAN/CSA-A257 Series, “Standards for Concrete Pipe and Manhole Sections”.

2. Joints with external elastomeric gaskets shall be made with corrosion resistant external band type flexible mechanical couplings that conform to CAN/CSA-B602, “Mechanical Couplings for Drain, Waste, and Vent Pipe and Sewer Pipe”.

3. Concrete fittings field fabricated from lengths of pipe shall not be used. (See Appendix A.)

4. Concrete pipe shall not be used above ground inside a building.

5. Precast reinforced circular concrete manhole sections, catch basins and fittings shall conform to CAN/CSA-A257.4, “Precast Reinforced Circular Concrete Manhole Sections, Catch Basins, and Fittings”.

### 7.2.5.4. **Vitrified Clay Pipe and Fittings**

1. Vitrified clay pipe and fittings shall be certified to CSA A60.1-M, “Vitrified Clay Pipe”.

2. Couplings and joints for vitrified clay pipe shall be certified to CSA A60.3-M, “Vitrified Clay Pipe Joints”.

3. Vitrified clay pipe and fittings shall not be used except for an underground part of a drainage system.

### 7.2.5.5. **Polyethylene Pipe and Fittings**

1. Polyethylene water pipe, tubing and fittings shall be certified to, and have a pressure rating meeting the requirements of, Series 160 or a higher series of CAN/CSA-B137.1, “Polyethylene (PE) Pipe, Tubing and Fittings for Cold Water Pressure Services”.

2. Except as permitted in Sentence 7.2.5.7.(1), polyethylene water pipe shall not be used except for a water service pipe.


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7.2.5.6. Polyethylene Pipe Used Underground

(1) Polyethylene pipe used underground in a drainage system for rehabilitation of existing systems using trenchless technology shall conform to ASTM F714, “Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter” and shall be HDPE 3408, SDR 17 or heavier. (See Appendix A.)

7.2.5.7. Crosslinked Polyethylene Pipe and Fittings

(1) Crosslinked polyethylene pipe and its associated fittings used in hot and cold potable water systems shall be certified to CAN/CSA-B137.5, “Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications”. (See Appendix A.)

7.2.5.8. PVC Pipe and Fittings

(1) PVC water pipe, fittings and solvent cement shall be certified to CAN/CSA-B137.3, “Rigid Polyvinylchloride (PVC) Pipe and Fittings for Pressure Applications” or CAN/CSA-B137.2, “Polyvinylchloride (PVC) Injection-Moulded Gasketed Fittings for Pressure Applications”, and have a minimum pressure rating of 1 100 kPa.

(2) PVC water pipe and fittings in Sentence (1) shall not be used in a hot water system.

7.2.5.9. CPVC Pipe, Fittings and Solvent Cements

(1) CPVC hot and cold water pipe, fittings and solvent cements shall be certified to CAN/CSA-B137.6, “Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems”.

(2) The design temperature and design pressure of a CPVC piping system shall conform to CAN/CSA-B137.6, “Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems”.

7.2.5.10. Plastic Pipe, Fittings and Solvent Cement Used Underground

(See Appendix A.)

(1) Plastic pipe, fittings and solvent cement used underground outside a building or under a building in a drainage system shall be certified to,
   (a) ASTM F628, “Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste and Vent Pipe With a Cellular Core”,
   (c) CAN/CSA-B181.2, “Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings”,
   (d) CAN/CSA-B182.1, “Plastic Drain and Sewer Pipe and Pipe Fittings”,
   (e) CAN/CSA-B182.2, “PSM Type Polyvinylchloride (PVC) Sewer Pipe and Fittings”,
   (f) CAN/CSA-B182.4, “Profile Polyvinylchloride (PVC) Sewer Pipe and Fittings”,
   (g) CAN/CSA-B182.6, “Profile Polyethylene (PE) Sewer Pipe and Fittings for Leak-Proof Sewer Applications”,
   (h) CAN/CSA-B137.2, “Polyvinylchloride (PVC) Injection-Moulded Gasketed Fittings for Pressure Applications”, or
   (i) CAN/CSA-B137.3, “Rigid Polyvinylchloride (PVC) Pipe and Fittings for Pressure Applications”.

(2) Except as permitted in Clauses (h) and (i), plastic pipe used as described in Sentence (1) shall have a stiffness equal or greater than 320 kPa.

7.2.5.11. Transition Solvent Cement

(See Appendix A.)

(1) Solvent cement for transition joints shall conform to,
   (a) CAN/CSA-B181.1, “Acrylonitrile-Butadiene-Styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings”, or
   (b) CAN/CSA-B181.2, “Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings”.

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(2) Transition solvent cement shall only be used for joining an ABS plumbing system to a PVC plumbing system.

7.2.5.12. Plastic Pipe, Fittings and Solvent Cement Used in Buildings  (See Appendix A.)

(1) Plastic pipe, fittings and solvent cement used inside or under a building in a sanitary drainage system or venting system shall be certified to,
(a) ASTM F628, “Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe With a Cellular Core”,
(b) CAN/CSA-B181.1, “Acrylonitrile-Butadiene-Styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings”, or
(c) CAN/CSA-B181.2, “Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings”.

(2) Plastic pipe, fittings and solvent cement used inside a building in a storm drainage system shall be certified to,
(a) ASTM F628, “Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe With a Cellular Core”,
(c) CAN/CSA-B181.2, “Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings”,
(d) CAN/CSA-B182.1, “Plastic Drain and Sewer Pipe and Pipe Fittings”, or
(e) CAN/CSA-B182.2, “PSM Type Polyvinylchloride (PVC) Sewer Pipe and Fittings”.

(3) Plastic pipe used as described in Sentence (2) shall have a pipe stiffness equal or greater than 320 kPa.

(4) Requirements for combustible piping in relation to fire safety shall conform to Sentences 3.1.5.16.(1) and 9.10.9.6.(2) to (8) and Articles 3.1.9.4. and 9.10.9.7.

(5) Where noncombustible piping pierces a fire separation or a fire block, the requirements for fire stopping of Subsection 3.1.9., Sentence 9.10.9.6.(1) and Article 9.10.16.4. shall apply.

7.2.5.13. Polyethylene/Aluminum/Polyethylene Composite Pipe and Fittings

(1) PE/AL/PE composite pipe and fittings used for potable water systems shall conform to CAN/CSA-B137.9, “Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems”. (See Appendix A.)

(2) Except as provided in Sentences (3) and (4), PE/AL/PE pipe and fittings shall not be used in a hot water system.

(3) PE/AL/PE pipe with a pressure rating of 690 kPa or greater at 82°C shall be permitted in a hot water system.

(4) PE/AL/PE pipe with a pressure rating of 690 kPa or greater at 82°C shall be used with fittings that conform to CAN/CSA-B137.10, “Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Composite Pressure-Pipe Systems”, in a hot water system.

7.2.5.14. Crosslinked Polyethylene/Aluminum/Polyethylene Composite Pipe and Fittings

(1) PEX/AL/PEX composite pipe and fittings used for potable water systems shall conform to CAN/CSA-B137.10, “Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Composite Pressure-Pipe Systems”. (See Appendix A.)

7.2.5.15. Polypropylene Pipe and Fittings

(1) Polypropylene pipe and fittings used for hot and cold potable water systems shall conform to CAN/CSA-B137.11, “Polypropylene (PP-R) Pipe and Fittings for Pressure Applications”. (See Appendix A.)
7.2.6. **Ferrous Pipe and Fittings**

### 7.2.6.1. Cast Iron Drainage and Vent Pipe and Fittings

**(1)** Drainage piping, vent piping and fittings made of cast iron shall be certified to CAN/CSA-B70, “Cast Iron Soil Pipe, Fittings and Means of Joining”.

**(2)** Cast iron *soil pipe* and fittings shall not be used in a *water system*.

### 7.2.6.2. Cast Iron Fittings for Asbestos-Cement Drainage Pipe

**(1)** Cast iron fittings designed for use with asbestos-cement pipe for drainage purposes shall conform to the applicable requirements of,

(a) CAN/CSA-B127.1, “Asbestos Cement Drain, Waste and Vent Fittings”, or

(b) CSA B127.2-M, “Components for Use in Asbestos Cement Building Sewer Systems”.

### 7.2.6.3. Threaded Cast Iron Drainage Fittings

**(1)** Threaded cast iron drainage fittings shall conform to ASME B16.12, “Cast Iron Threaded Drainage Fittings”.

**(2)** Threaded cast iron drainage fittings shall not be used in a *water system*.

### 7.2.6.4. Cast Iron Water Pipe

**(1)** Cast iron water pipes shall conform to ANSI/AWWA C151/A21.51, “Ductile-Iron Pipe, Centrifugally Cast”.

**(2)** Cement-mortar lining for cast iron water pipes shall conform to ANSI/AWWA C104 / A21.4, “Cement-Mortar Lining for Ductile-Iron Pipe and Fittings”.

**(3)** Cast iron fittings for cast iron or ductile-iron water pipes shall conform to ANSI/AWWA C110 / A21.10, “Ductile-Iron and Gray-Iron Fittings”.

**(4)** Rubber gasket joints for cast iron and ductile-iron pressure pipe for water piping shall conform to ANSI/AWWA C111 / A21.11, “Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings”.

### 7.2.6.5. Screwed Cast Iron Water Fittings

**(1)** Screwed cast iron water fittings shall conform to ASME B16.4, “Gray Iron Threaded Fittings: Classes 125 and 250”.

**(2)** Screwed cast iron water fittings used in a *water system* shall be cement-mortar lined or galvanized.

**(3)** Screwed cast iron water fittings shall not be used in a *drainage system*.

### 7.2.6.6. Screwed Malleable Iron Water Fittings

**(1)** Screwed malleable iron water fittings shall conform to ASME B16.3, “Malleable Iron Threaded Fittings: Classes 150 and 300”.

**(2)** Screwed malleable iron water fittings used in a *water system* shall be cement-mortar lined or galvanized.

**(3)** Screwed malleable iron water fittings shall not be used in a *drainage system*.
7.2.6.7. Steel Pipe

(1) Except as provided in Sentences (2) and (3), welded and seamless steel pipe shall not be used in a plumbing system.

(2) Galvanized steel pipe may be used in a drainage system or a venting system above ground inside a building.

(3) Galvanized steel pipe and fittings shall not be used in a water distribution system except,
(a) in buildings of industrial occupancy, or
(b) for the repair of existing galvanized steel piping systems.
(See Appendix A.)

(4) Galvanized steel pipe and fittings shall conform to ASTM A53 / A53M, “Pipe, Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless”.

(5) Where galvanized steel pipe is used in a drainage system, it shall be used with drainage fittings.

(6) All steel pipe of 4 in. size and smaller shall be schedule 40 or heavier and fittings of less than 2 in. size shall be galvanized screw fittings.

7.2.6.8. Corrugated Steel Pipe and Couplings

(1) Corrugated steel pipe and couplings shall be certified to CAN/CSA-G401, “Corrugated Steel Pipe Products”.

(2) Corrugated steel pipe shall only be used underground outside a building in a storm drainage system.

(3) Couplings for corrugated steel pipe shall be constructed so that when installed they shall,
(a) maintain the pipe alignment,
(b) resist the separation of adjoining lengths of pipe,
(c) prevent root penetration, and
(d) prevent the infiltration of surrounding material.

7.2.6.9. Sheet Metal Leaders

(1) A sheet metal leader shall not be used except above ground outside a building.

7.2.7. Non-Ferrous Pipe and Fittings

7.2.7.1. Copper and Brass Pipe

(1) Copper pipe shall conform to ASTM B42, “Seamless Copper Pipe, Standard Sizes”.

(2) Brass pipe shall conform to ASTM B43, “Seamless Red Brass Pipe, Standard Sizes”.

7.2.7.2. Brass or Bronze Pipe Flanges and Flanged Fittings

(1) Brass or bronze pipe flanges and flanged fittings shall conform to ASME B16.24, “Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500 and 2500”.

7.2.7.3. Brass or Bronze Threaded Water Fittings

(1) Brass or bronze threaded water fittings shall conform to ASME B16.15, “Cast Copper Alloy Threaded Fittings: Classes 125 and 250”.
(2) Brass or bronze threaded water fittings shall not be used in a drainage system.

7.2.7.4. Copper Tube

(1) Copper tube in a plumbing system shall,
   (a) be certified to ASTM B88, “Seamless Copper Water Tube”, or
   (b) comply with ASTM B306, “Copper Drainage Tube (DWV)”.

(2) The use of copper tube shall conform to Table 7.2.7.4.

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<th>Type of Copper Tube or Pipe</th>
<th>Water Distribution System</th>
<th>Building Sewer</th>
<th>Drainage System</th>
<th>Venting System</th>
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<td>P</td>
<td>P</td>
<td>P</td>
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</tr>
</tbody>
</table>

Notes to Table 7.2.7.4.:  
P — Permitted  
N — Not Permitted

(3) Copper tube used in a plumbing appliance shall conform to,
   (a) ASTM B88, “Seamless Copper Water Tube”, or
   (b) ASTM B68 / B68M, “Seamless Copper Tube, Bright Annealed”.

(4) Type K or L copper tube shall be used for the potable water side of a heat exchanger in a pre-engineered wastewater heat recovery system.

7.2.7.5. Solder-Joint Drainage Fittings

(1) Solder-joint fittings for drainage systems shall conform to,
   (a) ASME B16.23, “Cast Copper Alloy Solder Joint Drainage Fittings: DWV”, or
   (b) ASME B16.29, “Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings – DWV”.

(2) Solder-joint fittings for drainage systems shall not be used in a water system.

7.2.7.6. Solder-Joint Water Fittings

(1) Except as provided in Sentence (2), solder-joint fittings for water systems shall conform to,
   (a) ASME B16.18, “Cast Copper Alloy Solder Joint Pressure Fittings”, or
   (b) ASME B16.22, “Wrought Copper and Copper Alloy Solder Joint Pressure Fittings”.

(2) Solder-joint fittings for water systems not made by casting or the wrought process shall conform to the applicable requirements of ASME B16.18, “Cast Copper Alloy Solder Joint Pressure Fittings”.

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7.2.7.7. Flared-Joint Fittings for Copper Tube Water Systems

(1) Flared-joint fittings for copper tube water systems shall conform to ASME B16.26, “Cast Copper Alloy Fittings for Flared Copper Tubes”.

(2) Flared-joint fittings for copper tube water systems not made by casting shall conform to the applicable requirements of ASME B16.26, “Cast Copper Alloy Fittings for Flared Copper Tubes”.

7.2.7.8. Lead Waste Pipe and Fittings

(1) Lead waste pipe and fittings shall not be used in a water system or for a building sewer.

(2) When there is a change in size of a lead closet bend, the change shall be in the vertical section of the bend or made in such a manner that there shall be no retention of liquid in the bend.

7.2.8. Corrosion Resistant Materials

7.2.8.1. Pipe and Fittings

(1) Pipes and fittings to be used for drainage and venting of acid and corrosive wastes shall conform to,
   (a) ASTM A518 / A518M, “Corrosion-Resistant High-Silicon Iron Castings”,
   (b) ASTM C1053, “Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications”, or
   (c) CAN/CSA-B181.3, “Polyolefin and Polyvinylidene Fluoride (PVDF) Laboratory Drainage Systems”.

7.2.9. Jointing Materials

7.2.9.1. Cement-Mortar

(1) Cement-mortar shall not be used for jointing.

7.2.9.2. Solder and Fluxes

(1) Solders for solder joint fittings shall conform to ASTM B32, “Solder Metal” in accordance with the recommended use.

(2) Solders and fluxes having a lead content in excess of 0.2 percent shall not be used in a potable water system.

(3) Fluxes for soldered joints shall conform to ASTM B813, “Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube”.

(4) Brazing alloys shall conform to ANSI/AWS A5.8M / A5.8, “Specification for Filler Metals for Brazing and Brazed Welding”, BCuP range.

7.2.10. Miscellaneous Materials

7.2.10.1. Floor Flanges

(1) Brass floor flanges shall be certified to CSA B158.1, “Cast Brass Solder Joint Drainage, Waste and Vent Fittings”.

(2) ABS floor flanges shall be certified to CAN/CSA-B181.1, “Acrylonitrile-Butadiene-Styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings”.

7.2.10.1. 2012 Building Code Compendium

(3) PVC floor flanges shall be certified to CAN/CSA-B181.2, “Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings”.

(4) Cast iron, copper and aluminum floor flanges shall be suitable for the purpose.

7.2.10.2. Screws, Bolts, Nuts and Washers

(1) Every screw, bolt, nut and washer shall be of materials that are resistant to corrosion, when used,
(a) to connect a water closet to a water closet flange,
(b) to anchor the water closet flange to the floor,
(c) to anchor the water closet to the floor, or
(d) to hold cleanout covers or floor drain grates.

7.2.10.3. Cleanout Fittings

(1) Every plug, cap, nut or bolt that is intended to be removable from a ferrous fitting shall be of a non-ferrous material.

(2) A cleanout fitting that as a result of normal maintenance operations cannot withstand the physical stresses of removal and reinstallation or cannot ensure a gas-tight seal shall not be installed.

(3) A screw cap or test cap shall not be used as a cleanout plug or cover.

7.2.10.4. Mechanical Couplings

(1) Groove and shoulder type mechanical pipe couplings shall conform to CSA B242, “Groove and Shoulder Type Mechanical Pipe Couplings”.

(2) Mechanical Couplings for DWV and Sewer Pipe shall be certified to CAN/CSA-B602, “Mechanical Couplings for Drain, Waste, and Vent Pipe and Sewer Pipe”.

7.2.10.5. Saddle Hubs

(1) Except as provided in Sentence (2), a saddle hub or fitting shall not be installed in drainage systems, venting systems or water systems.

(2) A saddle hub or saddle clamp may be installed in a building drain or building sewer of nominal diameter not less than 8 in. and that is in service provided that the connecting branch is at least two pipe sizes smaller than the run of the building drain or building sewer to which it is connected.

7.2.10.6. Supply and Waste Fittings

\( \text{r}_3 \) (1) Supply fittings shall conform to ASME A112.18.1 / CSA B125.1, “Plumbing Supply Fittings” or CSA B125.3, “Plumbing Fittings”.

\( \text{r}_5 \) (2) Waste fittings shall conform to ASME A112.18.2 / CSA B125.2, “Plumbing Waste Fittings”.

7.2.10.7. Linings and Coatings of Domestic Water Tanks

(1) Linings and coatings of domestic water tanks that come into contact with potable water shall be certified to NSF/ANSI 61, “Drinking Water System Components - Health Effects”.

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7.2.10.8. Direct Flush Valves

(1) Every direct flush valve shall,
   (a) open fully and close positively under service pressure,
   (b) complete its cycle of operation automatically,
   (c) be provided with a means of regulating the volume of water that it discharges, and
   (d) be provided with a vacuum breaker unless the fixture is designed so that back-siphonage cannot occur.

7.2.10.9. Drinking Fountain Bubblers

(1) The orifice of every drinking fountain bubbler shall,
   (a) be of the shielded type, and
   (b) direct the water upward to an angle of approximately 45°.

(2) Every drinking fountain bubbler shall include a means of regulating the flow to the orifice.

7.2.10.10. Back-Siphonage Preventers and Backflow Preventers

r3  (1) Except as provided in Sentence (2), back-siphonage preventers and backflow preventers shall be certified to,
   (a) CSA B64.0, “Definitions, General Requirements and Test Methods for Vacuum Breakers and Backflow Preventers”,
   (b) CSA B64.1.1, “Atmospheric Vacuum Breakers (AVB)”,
   (c) CSA B64.1.2, “Pressure Vacuum Breakers (PVB)”,
   (d) CSA B64.1.3, “Spill-resistant Pressure Vacuum Breakers (SRPVB)”,
   (e) CSA B64.1.4, “Vacuum Breaker, Air Space Type (ASVB)”,
   (f) CSA B64.2, “Hose Connection Vacuum Breakers (HCVB)”,
   (g) CSA B64.2.1, “Hose Connection Vacuum Breakers (HCVB) with Manual Draining Feature”,
   (h) CSA B64.2.1.1, “Hose Connection Dual Check Vacuum Breakers (HCDVB)”,
   (i) CSA B64.2.2, “Hose Connection Vacuum Breakers (HCVB) with Automatic Draining Feature”,
   (j) CSA B64.3, “Dual Check Valve Backflow Preventers with Atmospheric Port (DCAP)”,
   (k) CSA B64.3.1, “Dual Check Valve Backflow Preventers with Atmospheric Port for Carbonators (DCAPC)”,
   (l) CSA B64.4, “Reduced Pressure Principle (RP) Backflow Preventers”,
   (m) CSA B64.5, “Double Check Valve (DCVA) Backflow Preventers”,
   (n) CSA B64.6, “Dual Check Valve (DuC) Backflow Preventers”,
   (o) CSA B64.7, “Laboratory Faucet Vacuum Breakers (LFVB)”,
   (p) CSA B64.8, “Dual Check Valve Backflow Preventers with Intermediate Vent (DuCV)”, or
   (q) CSA B64.10, “Selection and Installation of Backflow Preventers”.

r3  (2) Back-siphonage preventers (anti-siphon fill valves) for tank type water closets shall be certified to CSA B125.3, “Plumbing Fittings”.

7.2.10.11. Relief Valves

(1) Temperature relief, pressure relief, combined temperature and pressure relief and vacuum relief valves shall conform to ANSI Z21.22 / CSA 4.4-M, “Relief Valves for Hot Water Supply Systems”.

7.2.10.12. Reducing Valves

7.2.10.13. Solar Domestic Hot Water

(1) Equipment forming part of a packaged system for solar heating of potable water, shall conform to CAN/CSA-F379.1, “Packaged Solar Domestic Hot Water Systems (Liquid-to-Liquid Heat Transfer)”.

7.2.10.14. Vent Pipe Flashing

(1) Flashing fabricated on site for vent pipes shall be fabricated from,
   (a) copper sheet at least 0.33 mm thick,
   (b) aluminum sheet at least 0.48 mm thick,
   (c) alloyed zinc sheet at least 0.35 mm thick,
   (d) lead sheet at least 1.73 mm thick,
   (e) galvanized steel sheet at least 0.33 mm thick, or
   (f) polychloroprene (neoprene) at least 2.89 mm thick.

(2) Prefabricated flashing for vent pipes shall be certified to CSA B272, “Prefabricated Self-Sealing Roof Vent Flashings”.

7.2.10.15. Water Hammer Arresters

(1) Factory built water hammer arresters shall conform to ANSI/ASSE 1010, “Water Hammer Arresters”.

7.2.10.16. Air Admittance Valves

(1) Air admittance valves shall conform to ASSE 1051, “Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems”. (See Appendix A.)

7.2.10.17. Drinking Water Treatment Systems

(1) A drinking water treatment system or device shall be certified to CAN/CSA-B483.1, “Drinking Water Treatment Systems”.

7.2.11. Water Service Pipes and Fire Service Mains

7.2.11.1. Design, Construction, Installation and Testing

(1) Except as provided in Articles 7.2.11.2. to 7.2.11.4., and 7.3.7.2, the design, construction, installation and testing of fire service mains and water service pipe combined with fire service mains shall be in conformance with NFPA 24, “Installation of Private Fire Service Mains and Their Appurtenances”.

7.2.11.2. Certification or Conformance

(1) Water service pipes and fire service mains shall be certified or conform to the standards for the materials listed in Table 7.2.11.2.
<table>
<thead>
<tr>
<th>Material</th>
<th>Standard</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene pipe and fittings</td>
<td>Certified to Series 160 or a higher series of CAN/CSA-B137.1, “Polyethylene (PE) Pipe, Tubing and Fittings for Cold Water Pressure Services”</td>
<td></td>
</tr>
<tr>
<td>Crosslinked polyethylene pressure pipe or tube and fittings</td>
<td>Certified to CAN/CSA-B137.5, “Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications”</td>
<td></td>
</tr>
<tr>
<td>PVC pipe and fittings</td>
<td>Certified to CAN/CSA-B137.3, “Rigid Polyvinylchloride (PVC) Pipe and Fittings for Pressure Applications”, or certified to CAN/CSA-B137.2, “Polyvinylchloride (PVC) Injection-Moulded Gasketed Fittings for Pressure Applications”</td>
<td>Pipe and fittings must have a rated working pressure of 1 100 kPa or more</td>
</tr>
<tr>
<td>CPVC pipe and fittings</td>
<td>Certified to CAN/CSA-B137.6, “Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems”</td>
<td>The design temperature and pressure shall conform to the requirements of the CAN/CSA-B137.6, “Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems”</td>
</tr>
<tr>
<td>Rubber gasket joints for cast iron and ductile-iron water pipes</td>
<td>Conform to ANSI/AWWA C111 / A21.11, “Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings”</td>
<td></td>
</tr>
<tr>
<td>Screwed cast iron water fittings</td>
<td>Conform to ASME B16.4, “Gray Iron Threaded Fittings: Classes 125 and 250”</td>
<td>Screwed cast iron water fittings shall be cement-mortar lined or galvanized</td>
</tr>
<tr>
<td>Type K soft copper tube</td>
<td>Certified to ASTM B88, “Seamless Copper Water Tube”</td>
<td></td>
</tr>
<tr>
<td>Solder-joint fittings for copper water systems</td>
<td>Conform to ASME B16.18, “Cast Copper Alloy Solder Joint Pressure Fittings”, or conform to ASME B16.22, “Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings”</td>
<td>Solder-joint fittings not made by casting or the wrought process shall conform to the applicable requirements of ASME B16.18, “Cast Copper Alloy Solder-Joint Pressure Fittings”</td>
</tr>
<tr>
<td>Flared-joint fittings for copper water systems</td>
<td>Conform to ASME B16.26, “Cast Copper Alloy Fittings for Flared Copper Tubes”</td>
<td>Flared-joint fittings not made by casting shall conform to ASME B16.26, “Cast Copper Alloy Fittings for Flared Copper Tubes”</td>
</tr>
<tr>
<td>PE/AL/PE pipe and fittings</td>
<td>Certified to CAN/CSA-B137.9, “Polyethylene/Aluminum/ Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems”</td>
<td></td>
</tr>
<tr>
<td>PEX/AL/PEX pipe and fittings</td>
<td>Certified to CAN/CSA-B137.10, “Crosslinked Polyethylene/ Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Composite Pressure-Pipe Systems”</td>
<td></td>
</tr>
</tbody>
</table>
7.2.11.3. Tracer Wire

(1) Except as provided in Sentence (2), a 14 gauge TW solid copper light coloured plastic coated tracer wire shall be attached to every non-metallic water service pipe or fire service main.

(2) Where a water service pipe or fire service main is detectable without the tracer wire referenced in Sentence (1), the tracer wire may be omitted.

7.2.11.4. Required Check Valve

(1) Where a water service pipe is supplied with water by more than one drinking water system, a check valve shall be installed at each connection with a drinking water system.

(2) Where a fire service main is supplied with water by more than one source, a check valve shall be installed at each connection with a source of water.

Section 7.3. Piping

7.3.1. Application

7.3.1.1. Application

(1) This Section applies to the construction and use of joints and connections, and the arrangement, protection, support and testing of piping.

7.3.2. Construction and Use of Joints

7.3.2.1. Caulked Lead Drainage Joints

(1) Every caulked lead drainage joint shall be firmly packed with oakum and tightly caulked with lead to a depth of at least 25 mm.

(2) No paint, varnish or other coating shall be applied on the lead until after the joint has been tested.

(3) Caulked lead drainage joints shall not be used except for cast iron pipe in a drainage system or venting system, or between such pipe and,

   (a) other ferrous pipe,
   (b) brass and copper pipe,
   (c) a caulking ferrule, or
   (d) a trap standard.

(4) A length of hub and spigot pipe and pipe fittings in a drainage system shall be installed with the hub at the upstream end.

7.3.2.2. Wiped Joints

(1) Wiped joints shall not be used except for sheet lead or lead pipe, or between such pipe and copper pipe or a ferrule.
(a) are in the same room, and
(b) are not located where they can receive food or other organic matter.

(4) Reserved

(5) A grease interceptor shall not serve as a fixture trap and each fixture discharging through the interceptor shall be trapped and vented.

(6) Where a domestic dishwashing machine equipped with a drainage pump discharges through a direct connection into the fixture outlet pipe of an adjacent kitchen sink or disposal unit, the pump discharge line shall,
(a) rise as high as possible to just under the counter, and
(b) connect,
   (i) on the inlet side of the sink trap by means of a Y fitting, or
   (ii) to the disposal unit.

7.4.5.2. Traps for Storm Drainage Systems

(1) Where a storm drainage system is connected to a public combined sewer, a trap shall be installed between any opening in the system and the drain or sewer, except that no trap is required if the opening is the upper end of a leader that terminates,
   (a) at a roof that is used only for weather protection,
   (b) not less than 1 000 mm above or not less than 3.5 m in any other direction from any air inlet, openable window or door, and
   (c) not less than 1 800 mm from a property line.

7.4.5.3. Connection of Subsoil Drainage Pipe to a Sanitary Drainage System

(1) Except as permitted in Sentence (2), no foundation drain or subsoil drainage pipe shall connect to a sanitary drainage system.

(2) Where a storm drainage system is not available or soil conditions prevent drainage to a culvert or dry well, a foundation drain or subsoil drainage pipe may connect to a sanitary drainage system.

(3) Where a subsoil drainage pipe may be connected to a sanitary drainage system, the connection shall be made on the upstream side of a trap with a cleanout or a trapped sump.

7.4.5.4. Location and Cleanout for Building Traps

(1) Where a building trap is installed, it shall,
   (a) be provided with a cleanout fitting on the upstream side of and directly over the trap,
   (b) be located upstream of the building cleanout, and
   (c) be located,
      (i) inside the building as close as practical to the place where the building drain leaves the building, or
      (ii) outside the building in a manhole.

7.4.5.5. Trap Seals

(1) Provision shall be made for maintaining the trap seal of a floor drain or a hub drain by the use of a trap seal primer, by using the drain as a receptacle for an indirectly connected drinking fountain, or by equally effective means.

(2) Where a mechanical device is installed to furnish water to a trap, the pipe or tube conveying water from the device to the trap shall be at least ⅜ in. inside diameter.
7.4.6. **Arrangement of Drainage Piping**

7.4.6.1. **Separate Systems**

   (1) No vertical soil or waste pipe shall conduct both sanitary sewage and storm sewage.

   (2) There shall be no unused open ends in a drainage system and dead ends shall be so graded that water will not collect in them.

7.4.6.2. **Location of Soil or Waste Pipes**

   (1) A soil or waste pipe shall not be located directly above,
      (a) non-pressure potable water storage tanks,
      (b) manholes in pressure potable water storage tanks, or
      (c) food-handling or processing equipment.

7.4.6.3. **Sumps or Tanks** (See Appendix A.)

   (1) Only piping that is too low to drain into a building sewer by gravity shall be drained to a sump or receiving tank.

   (2) Where the sump or tank receives sanitary sewage it shall be water and air-tight and shall be vented.

   (3) Equipment such as a pump or ejector that can lift the contents of the sump or tank and discharge it into the sanitary building drain or sanitary building sewer shall be installed.

   (4) Where the equipment does not operate automatically, the capacity of the sump shall be sufficient to hold at least a 24 hour accumulation of liquid.

   (5) Where there is a building trap, the discharge pipe from the equipment shall be connected to the sanitary building drain downstream of the trap.

   (6) The discharge pipe from every pumped sanitary sewage sump shall be equipped with a union, a check valve and a shut-off valve installed in that sequence in the direction of discharge.

   (7) The discharge piping from a pump or ejector shall be sized for optimum flow velocities at pump design conditions.

   (8) The discharge pipe from every pumped storm sewage sump shall be equipped with,
      (a) a union and a check valve installed in that sequence in the direction of discharge and pumped to above grade level, or
      (b) a union, a check valve and a shut-off valve installed in that sequence in the direction of discharge.

7.4.6.4. **Protection from Backflow** (See Appendix A.)

   (1) Except as permitted in Sentence (2), a backwater valve that would prevent free circulation of air shall not be installed in a building drain or in a building sewer.

   (2) A backwater valve may be installed in a building drain provided that,
      (a) it is a “normally open” design conforming to,
      (i) CAN/CSA-B70, “Cast Iron Soil Pipe, Fittings, and Means of Joining”,
      (iii) CAN/CSA-B181.2, “Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings”, or
      (iv) CAN/CSA-B182.1, “Plastic Drain and Sewer Pipe and Pipe Fittings”, and
(3) Except as provided in Sentences (4) and (5), a relief vent shall be connected to the branch that forms part of a circuit vented system, downstream of the connection of the most downstream circuit vented fixture.

(4) A soil or waste pipe having a hydraulic load not greater than six fixture units may act as a relief vent for a branch that is being circuit vented.

(5) A symmetrically connected relief vent may serve as a combined relief vent for a maximum of two branches that are circuit vented, provided there are not more than eight circuit vented fixtures connected between the combined relief vent and each circuit vent.

(6) Additional circuit vents shall be required,
(a) when each cumulative horizontal change in direction of a branch served by a circuit vent exceeds 45° between vent pipe connections, or
(b) where more than eight circuit vented fixtures are connected to a branch between vent pipe connections.

(7) A soil or waste pipe may serve as an additional circuit vent in accordance with Sentence (6) provided that the soil or waste pipe is sized as a wet vent in conformance with Article 7.5.8.1. and is not less than 2 in. in size.

(8) Connections to circuit vents and additional circuit vents in accordance with Sentence (6) shall conform to Sentence 7.5.4.5.(1).

(9) A circuit vented branch, including the fixture drain downstream of the circuit vent connection, shall be sized in accordance with Articles 7.4.10.7. and 7.4.10.8., except that it shall be not less than,
(a) 2 in., where traps less than 2 in. in size are circuit vented, or
(b) 3 in., where traps 2 in. in size or larger are circuit vented.

(10) Additional circuit vents shall be sized in accordance with Table 7.5.7.1. and Sentence 7.5.7.3.(1).

(11) The hydraulic load on a circuit vent shall include the hydraulic load from fixtures connected to the branch served by the circuit vent, but shall not include the hydraulic load from fixtures permitted by Sentences (3), (4) and (5).

7.5.4. Vent Pipes for Soil or Waste Stacks

7.5.4.1. Stack Vents

(1) The upper end of every soil or waste stack shall terminate in a stack vent and the stack vent shall terminate in open air outside the building, or connect directly or through a header to another stack vent or vent stack that does terminate in open air outside the building.

7.5.4.2. Vent Stacks

(1) Except as provided in Sentence (2), every soil or waste stack draining fixtures from more than 4 storeys shall have a vent stack.

(2) A soil or waste stack that serves as a wet vent does not require a vent stack.

(3) The vent stack required by Sentence (1) shall be connected to a vertical section of the soil or waste stack at or immediately below the lowest soil or waste pipe connected to the soil or waste stack.

(4) Fixtures may be connected to a vent stack provided,
(a) the total hydraulic load of the connected fixtures does not exceed eight fixture units,
(b) at least one fixture is connected to a vertical portion of the vent stack and upstream of any other fixtures,
(c) no other fixture is connected downstream of a water closet,
(d) all fixtures are located in the lowest storey served by the vent stack, and
(e) the section of the vent pipe that acts as a wet vent conforms to the requirements regarding wet vents.

7.5.4.3. Yoke Vents

(1) Except as provided in Sentence (4), where a soil or waste stack receives the discharge from fixtures located on more than 11 storeys, a yoke vent shall be,
   (a) installed for each section of 5 storeys or part of them counted from the top down,
   (b) installed at or immediately above each offset or double offset, and
   (c) sized in accordance with Sentence 7.5.7.5.(1).

(2) The yoke vent shall be connected to the soil or waste stack by means of a drainage fitting at or immediately below the lowest soil or waste pipe from the lowest storey of the sections described in Sentence (1).

(3) The yoke vent shall connect to the vent stack at least 1 000 mm above the floor level of the lowest storey in the section described in Sentence (1).

(4) A yoke vent need not be installed provided the soil or waste stack is interconnected with the vent stack in each storey of the section in which fixtures are located by means of a vent pipe equal in size to the branch or fixture drain or 2 in. in size, whichever is smaller.

7.5.4.4. Offset Relief Vents

(1) A soil or waste stack that has a nominally horizontal offset more than 1 500 mm long and above which the upper vertical portion of the stack passes through more than 2 storeys and receives a hydraulic load of more than 100 fixture units shall be vented by an offset relief vent connected to the vertical section immediately above the offset, and by another offset relief vent,
   (a) connected to the lower vertical section at or above the highest soil or waste pipe connection, or
   (b) extended as a vertical continuation of the lower section.

7.5.4.5. Fixtures Draining into Vent Pipes

(1) The trap arm of a fixture that has a hydraulic load of not more than 1½ fixture units may be connected to the vertical section of a circuit vent, additional circuit vent, offset relief vent or yoke vent, provided that,
   (a) not more than two fixtures are connected to the vent pipe,
   (b) where two fixtures are connected to the vent pipe, the connection is by means of a double fitting, in accordance with Table 7.2.4.5., and
   (c) the section of the vent pipe that acts as a wet vent conforms to the requirements regarding wet vents.

7.5.5. Miscellaneous Vent Pipes

7.5.5.1. Venting of Sanitary Sewage Sumps

(1) Every sump or tank that receives sanitary sewage shall be provided with a vent pipe that is connected to the top of the sump or tank.

7.5.5.2. Venting of Interceptors

(1) Every oil interceptor shall be provided with 2 vent pipes that,
   (a) connect to the interceptor at opposite ends,
   (b) extend independently to open air,
   (c) terminate not less than 2 000 mm above ground and at elevations differing by at least 300 mm, and
   (d) do not connect to each other or any other vent pipe.
Section 7.6. Potable Water Systems

7.6.1. Arrangement of Piping

7.6.1.1. Design

(1) Every fixture supplied with separate hot and cold water controls shall have the hot water control on the left and the cold on the right.

(2) Where hot and cold water are mixed and the temperature is regulated by a single, unmarked, manual control, a movement to the left shall increase the temperature and a movement to the right shall decrease the temperature.

(3) In a hot water distribution system of a developed length of more than 30 m or supplying more than 4 storeys, the water temperature shall be maintained by,
   (a) recirculation, or
   (b) a self-regulating heat tracing system.

7.6.1.2. Drainage

(1) A water distribution system shall be installed so that the system can be drained or blown out with air and outlets for this purpose shall be provided.

7.6.1.3. Control and Shut-Off Valves

(1) A building control valve shall be provided,
   (a) on every water service pipe at the location where the water service pipe enters the building, or
   (b) on the water distribution system at a location immediately downstream of the point of entry treatment unit, where the building is served by a point of entry treatment unit located in the building.

(2) Except as provided in Sentence (3), a drain port shall be provided on the water distribution system immediately downstream of the building control valve required by Sentence (1) and if there is a meter, the drain port shall be installed immediately downstream of the meter on the water distribution system.

(3) Where the building control valve required by Sentence (1) is of 1 in. trade size or smaller, the drain port may be an integral part of the building control valve in the form of a stop and waste valve and the drain port shall be located on the water distribution system side of the stop and waste valve.

(4) Every pipe that is supplied with water from a tank on the property that is a gravity water tank or a tank of a drinking water system shall be provided with a shut-off valve located close to the tank.

(5) Where the water supply is to be metered, the installation of the meter, including the piping that is part of the meter installation and the valving arrangement for the meter installation, shall be according to the water purveyor’s requirements.

(6) For the purpose of identifying the pipe material where plastic water pipe is used underground for a service pipe, the end of the pipe inside the building shall be brought above ground for a distance not less than 300 mm and not greater than 450 mm. (See Appendix A.)

7.6.1.4. Shut-Off Valves

(1) Except for a single-family dwelling, every riser shall be provided with a shut-off valve at the source of supply.
7.6.1.5. Water Closets

(1) Every water closet shall be provided with a shut-off valve on its water supply pipe.

7.6.1.6. Suites

(1) Shut-off valves shall be installed in every suite in a building of residential occupancy as may be necessary to ensure that when the supply to one suite is shut off the supply to the remainder of the building is not interrupted. (See Appendix A.)

7.6.1.7. Public Washrooms

(1) The water supply to each fixture in a washroom for public use shall be individually valved and each valve shall be accessible.

7.6.1.8. Tanks

(1) Every water pipe that supplies a hot water tank, pressure vessel, plumbing appliance or water using device shall be provided with a shut-off valve located close to the tank, pressure vessel, plumbing appliance or water using device.

7.6.1.9. Protection for Exterior Water Supply

(1) Every pipe that passes through an exterior wall to supply water to the exterior of the building shall be provided with,
   (a) a frost-proof hydrant with a separate shut-off valve located inside the building, or
   (b) a stop-and-waste cock located inside the building and close to the wall.

7.6.1.10. Check Valves

(1) A check valve shall be installed at the building end of the water service pipe where the pipe is made of plastic that is suitable for cold water use only. (See Appendix A.)

7.6.1.11. Flushing Devices

(1) Every flushing device that serves a water closet or one or more urinals shall have sufficient capacity and be adjusted to deliver at each operation a volume of water that will thoroughly flush the fixture or fixtures that it serves.

(2) Where a manually operated flushing device is installed, it shall serve only one fixture.

7.6.1.12. Relief Valves (See Appendix A.)

(1) Every pressure vessel that is part of a plumbing system or connected to a plumbing system shall be equipped with a pressure relief valve designed to open when the water pressure in the tank reaches the rated working pressure of the tank, and so located that the pressure in the tank shall not exceed 1 100 kPa or one-half the maximum test pressure sustained by the tank, whichever is the lesser.

(2) Every hot water tank of a storage-type service water heater shall be equipped with a temperature relief valve with a temperature sensing element,
   (a) located within the top 150 mm of the tank, and
   (b) designed to open and discharge sufficient water from the tank to keep the temperature of the water in the tank from exceeding 99°C under all operating conditions.
(3) A pressure relief valve and temperature relief valve may be combined where Sentences (1) and (2) are complied with.

(4) Every indirect service water heater shall be equipped with,
(a) a pressure relief valve, and
(b) a temperature relief valve on every storage tank that forms part of the system.

(5) Every pipe that conveys water from a temperature relief, pressure relief, or a combined temperature and pressure relief valve shall,
(a) be of a size at least equal to the size of the outlet of the valve,
(b) be rigid, slope downward from the valve, and,
   (i) terminate with an indirect connection above a floor drain, sump or other safe location, with an air break of not more than 300 mm, or
   (ii) terminate at a distance not less than 150 mm and not more than 300 mm from a floor and discharge vertically down,
(c) have no thread at its outlet, and
(d) be capable of operating at a temperature of not less than 99°C.

(6) The temperature relief valve required in Clause (4)(b) shall,
(a) have a temperature sensing element located within the top 150 mm of the tank, and
(b) be designed to open and discharge sufficient water to keep the temperature of the water in the tank from exceeding 99°C under all operating conditions.

(7) No shut-off valve shall be installed on the pipe between any tank and the relief valves or on the discharge lines from such relief valves.

7.6.1.13. Solar Domestic Hot Water Systems

(1) Except as provided in Sentence (2), a system for solar heating of potable water shall be installed in accordance with good engineering practice.

(2) Packaged systems for solar heating of potable water in residential occupancies shall be installed in conformance with CAN/CSA-F383, “Installation of Packaged Solar Domestic Hot Water Systems”.

7.6.1.14. Water Hammer

(1) Provision shall be made to protect the water distribution system from the adverse effects of water hammer. (See Appendix A.)

7.6.1.15. Mobile Home Water Service

(1) A water service pipe intended to serve a mobile home shall,
(a) be not less than ¾ in. in size,
(b) be terminated above ground, and
(c) be provided with,
   (i) a tamperproof terminal connection that is capable of being repeatedly connected, disconnected and sealed,
   (ii) a protective concrete pad,
   (iii) a means to protect it from frost heave, and
   (iv) a curb stop and a means of draining that part of the pipe located above the frost line when not in use.
7.6.1.16. Thermal Expansion

(1) Protection against thermal expansion shall be required when a check valve is required by Article 7.6.1.10., a backflow preventer is required by Article 7.6.2.2., or a pressure reducing valve is required by Article 7.6.3.3. (See Appendix A.)

7.6.2. Protection from Contamination

7.6.2.1. Connection of Systems

(1) Connections to potable water systems shall be designed and installed so that non-potable water or substances that may render the water non-potable cannot enter the system.

(2) No connection shall be made between a potable water system supplied with water from a drinking water system and any other potable water system without the consent of the water purveyor.

7.6.2.2. Back-Siphonage

(1) Every potable water system that supplies a fixture or tank that is not subject to pressures above atmospheric shall be protected against back-siphonage by a backflow preventer.

(2) Where a potable water supply is connected to a boiler, tank, cooling jacket, lawn sprinkler system or other device where a non-potable fluid may be under pressure that is above atmospheric or the water outlet may be submerged in the non-potable fluid, the water supply shall be protected against backflow by a backflow preventer.

(3) Where a hose bibb is installed outside a building, inside a garage, or where there is an identifiable risk of contamination, the potable water system shall be protected against backflow by a backflow preventer.

7.6.2.3. Protection from Backflow

(1) Except as provided in Sentence (3) and Articles 7.6.2.4. to 7.6.2.6., where a backflow preventer is required by this Subsection, the backflow preventer shall be selected, installed and tested in conformance with CSA B64.10, “Selection and Installation of Backflow Preventers”.

(2) Backflow preventers shall be provided in conformance with Sentence 7.2.10.10.(1).

(3) Tank type water closet valves shall be provided with a back-siphonage preventer in conformance with Sentence 7.2.10.10.(2).

7.6.2.4. Backflow from Fire Protection Systems

(1) A backflow preventer shall not be required in a residential full flow through fire sprinkler system, in which the pipe and fittings are constructed of potable water system materials.

(2) Except as required in Sentence (4), potable water system connections to fire sprinkler and standpipe systems shall be protected against backflow caused by back-siphonage or back pressure in conformance with the following Clauses:

\[ r_s \]

\( r_s \)

(a) Residential partial flow through fire sprinkler systems in which the pipes and fittings are constructed of potable water system materials shall be protected by a dual check valve backflow preventer conforming to CSA B64.6.1, “Dual Check Valve Backflow Preventers for Fire Protection Systems (DuCF)”,

(b) Class I fire sprinkler/standpipe systems shall be protected by a single check valve backflow preventer conforming to CSA B64.9, “Single Check Valve Backflow Preventers for Fire Protection Systems (SCVAF)”, provided that the systems do not use antifreeze or other additives of any kind and all pipes and fittings are constructed of potable water system materials,
(c) Class 1 fire sprinkler/standpipe systems not covered by Clause (b) as well as Class 2 and Class 3 fire sprinkler/standpipe systems shall be protected by a double check valve backflow preventer conforming to CSA B64.5.1, “Double Check Valve Backflow Preventers for Fire Protection Systems (DCVAF)”, provided that the systems do not use antifreeze or other additives of any kind.

(d) Class 1, Class 2 or Class 3 fire sprinkler/standpipe systems, in which antifreeze or other additives are used, shall be protected by a reduced pressure principle backflow preventer conforming to CSA B64.4.1, “Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)”, installed on the portion of the system that uses the additives and the balance of the system shall be protected as required by Clause (b) or (c).

(e) Class 4 and Class 5 fire sprinkler/standpipe systems shall be protected by a reduced pressure principle backflow preventer conforming to CSA B64.4.1, “Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)”,

(f) Class 6 fire sprinkler/standpipe systems shall be protected, (i) by a double check valve backflow preventer conforming to CSA B64.5.1, “Double Check Valve Backflow Preventers for Fire Protection Systems (DCVAF)”, or

(ii) where a severe hazard may be caused by backflow, by a reduced pressure principle backflow preventer conforming to CSA B64.4.1, “Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)”, and

(g) backflow preventers on fire sprinkler and standpipe systems shall be selected and installed in conformance with Table 7.6.2.4.

---

### Table 7.6.2.4. Backflow Preventers on Fire Sprinkler and Standpipe Systems

<table>
<thead>
<tr>
<th>CSA Standard Number</th>
<th>Type of Device(1)</th>
<th>Minor Hazard(2) Residential Partial Flow-Through System</th>
<th>Minor Hazard(2) Class 1 System</th>
<th>Moderate Hazard(2) Class 1, 2, 3 and 6 Systems</th>
<th>Severe Hazard(2) – Any Class of System in which Antifreeze or Other Additives Are Used</th>
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<tr>
<td></td>
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<td>System Made with Potable Water System Materials</td>
<td>System Not Made with Potable Water System Materials</td>
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<tr>
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<td>DuCF</td>
<td>P</td>
<td>NP</td>
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<td>5</td>
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</table>

**Notes to Table 7.6.2.4.:**

- **P** – Permitted
- **NP** – Not Permitted
- (1) The product is only permitted for use on fire sprinkler and standpipe systems.
- (2) Minor Hazard, Moderate Hazard and Severe Hazard have the same meaning as indicated in CSA B64.10 “Selection and Installation of Backflow Preventers”.
- (3) The backflow preventer required by Sentence (2) shall be installed upstream of the fire department pumper connection.
- (4) Where a reduced pressure principle backflow preventer is required on the water service pipe at a service connection located on the same premises as the fire service main in Class 3, 4, 5 and 6 fire sprinkler/standpipe systems, a reduced pressure principle backflow preventer conforming to CSA B64.4.1, “Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)”, shall also be provided on the fire service connection.
7.6.2.5. **Backflow from Buildings with a Solar Domestic Hot Water System**  
(See Appendix A.)

1. Except as permitted by Sentence (2) and as provided in Sentences (3) and (4), a **potable water system** shall be protected against **backflow** where the heat transfer loop of a solar domestic hot water system is **directly connected** to the **potable water system**.

2. Where the heat transfer loop of the solar domestic hot water system consists of direct flow-through of **potable water** only, protection against **backflow** is not required.

3. A **potable water system** that is **directly connected** to the heat transfer loop of a solar domestic hot water system that serves a **residential occupancy** within the scope of Part 9 shall be provided with a **backflow preventer** selected in accordance with CAN/CSA-F379.1, “Packaged Solar Domestic Hot Water Systems (Liquid-to-Liquid Heat Transfer)”. 

4. Where a solar domestic hot water system includes a single wall heat exchanger and contains only a relatively harmless heat transfer fluid as described in CAN/CSA-F379.1, “Packaged Solar Domestic Hot Water Systems (Liquid-to-Liquid Heat Transfer)”, the **backflow prevention** required in Sentence (1) is permitted to be a dual check valve **backflow preventer** conforming to CSA B64.3, “Dual Check Valve Backflow Preventers with Atmospheric Port (DCAP)”.

7.6.2.6. **Premise Isolation**  (See Appendix A.)

1. **Buildings** or facilities where a moderate hazard or severe hazard may be caused by **backflow** shall be provided with premise isolation of the **potable water system** by the installation of a **backflow preventer** selected in accordance with Clauses 5.3.4.2.(b) and (c) of CSA B64.10, “Selection and Installation of Backflow Preventers”.

2. **Buildings** of **residential occupancy** within the scope of Part 9 are not required to be isolated unless they have access to an **auxiliary water supply**.

3. Except as provided in Sentence (1), where no direct connection exists between the **auxiliary water supply** and the **potable water system**, premise isolation shall be provided by a dual check valve **backflow preventer** conforming to CSA B64.6, “Dual Check Valve (DuC) Backflow Preventers”.

7.6.2.7. **Reserved**

7.6.2.8. **Cleaning of Systems**

1. A newly installed part of a **potable water system** shall be cleaned and then flushed with **potable water** before the system is put into operation.  (See Appendix A.)

7.6.2.9. **Air Gap**

1. An **air gap** shall not be located in a noxious environment.

2. Every **air gap** shall be not less than 25 mm high and at least twice the diameter of the opening of the water supply outlet in height.

7.6.2.10. **Vacuum Breakers and Flood Levels**

1. Where the **critical level** is not marked on an atmospheric **vacuum breaker** or pressure **vacuum breaker**, the **critical level** shall be taken as the lowest point on the device.
(2) Sentence (1) does not apply to hot water supplied to installed dishwashers or clothes washers.

### 7.6.5.2. Showers

(1) Except as provided for in Sentences (2) and (3), all valves supplying fixed location shower heads, shall be individually pressure-balanced or thermostatic-mixing valves, conforming to ASME A112.18.1 / CSA B125.1, “Plumbing Supply Fittings”.

(2) An individually pressure-balanced or thermostatic-mixing valve shall not be required for showers if a single temperature water supply for such showers is controlled by a master thermostatic-mixing valve conforming to CSA B125.3, “Plumbing Fittings”.

(3) Deck-mounted, hand-held, flexible-hose spray attachments are exempt from the thermal shock requirements of Sentence (1).

(4) Pressure-balanced or thermostatic-mixing valves shall be,
   
   (a) designed so that the outlet temperature does not exceed 49°C, or
   
   (b) equipped with high-limit stops which shall be adjusted to a maximum hot water setting of 49°C.

### 7.6.5.3. Temperature Control Devices

(1) A water distribution system supplying hot water to any bathtub, shower or hand basin that is accessible to a patient or resident in a Group B, Division 2 or 3 occupancy or a resident of a group home, home for special care or residence for adults with developmental disabilities shall have one or more temperature gauges and control devices that are,
   
   (a) accessible only to supervisory staff, and
   
   (b) capable of being adjusted to ensure that the temperature of the water supplied to the fixtures does not exceed 49°C.

### Section 7.7. Non-Potable Water Systems

### 7.7.1. Connection

#### 7.7.1.1. Non-Potable Connection

(1) Except as permitted by Sentences (2) and (3), a non-potable water system shall not be connected to a potable water system.

(2) Make-up water may be supplied to the non-potable water system by,
   
   (a) a reduced pressure backflow preventer, or
   
   (b) an air gap.

(3) Where a clothes washer is supplied by a rainwater system and a potable water system, the potable water system shall be protected by dual check valve backflow preventers conforming to CSA B64.6, “Dual Check Valve (DuC) Backflow Preventers” for,
   
   (a) area isolation, and
   
   (b) premise isolation.
7.2. Identification

7.2.1. Markings Required

(1) Non-potable water piping shall be identified by markings that are permanent, distinct and easily recognized.

(2) Non-potable water system for re-use purposes shall be marked in accordance with Section 12 of CAN/CSA-B128.1, “Design and Installation of Non-Potable Water Systems”.

(3) A sign containing the words NON-POTABLE WATER, DO NOT DRINK shall be in letters at least 25 mm high with a 5 mm stroke and posted immediately above a fixture that is permitted to receive non-potable water.

7.3. Location

7.3.1. Pipes

(1) Non-potable water piping shall not be located,
(a) where food is prepared in a food processing plant,
(b) above food-handling equipment,
(c) above a non-pressurized potable water tank, or
(d) above a cover of a pressurized potable water tank.

7.3.2. Outlets

(1) Except as permitted in Sentence 7.1.5.3.(3), an outlet from a non-potable water system shall not be located where it can discharge into,
(a) a sink or lavatory,
(b) a fixture into which an outlet from a potable water system is discharged, or
(c) a fixture that is used for a purpose related to the preparation, handling or dispensing of food, drink or products that are intended for human consumption.

7.4. Non-Potable Water Systems for Re-use Purposes

7.4.1. Conformance to Standards

(1) Non-potable water systems for re-use purposes shall be designed, constructed and installed to conform to good engineering practice appropriate to the circumstances such as described in,
(a) the ASHRAE Handbooks,
(b) ASPE Data Books, or
(c) CAN/CSA-B128.1, “Design and Installation of Non-Potable Water Systems”.
Part 8

Sewage Systems

Section 8.1. General

8.1.1. Scope

8.1.1.1. Scope

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

8.1.1.2. Definitions

(1) In this Part,

Soil means in-situ, naturally occurring, unconsolidated mineral or organic material, at the earth's surface that is at least 100 mm thick and capable of supporting plant growth, and includes material compacted or cemented by soil forming processes, but does not include displaced materials such as gravel dumps, mine spoils, or like deposits.

8.1.2. Application

8.1.2.1. Classification of Systems

(1) All sewage systems shall be classed as one of the following:
(a) Class 1 — a chemical toilet, an incinerating toilet, a recirculating toilet, a self-contained portable toilet and all forms of privy including a portable privy, an earth pit privy, a pail privy, a privy vault and a composting toilet system,
(b) Class 2 — a greywater system,
(c) Class 3 — a cesspool,
(d) Class 4 — a leaching bed system, or
(e) Class 5 — a system that requires or uses a holding tank for the retention of hauled sewage at the site where it is produced prior to its collection by a hauled sewage system.

8.1.2.2. Operation and Maintenance

(1) Operation and maintenance of sewage systems shall comply with Section 8.9.

8.1.3. Limitations

8.1.3.1. Discharge

(1) Except as provided in Sentences (2) to (6), the sewage system shall be designed and constructed to receive only sanitary sewage of domestic origin. (See Appendix A.)
(2) Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system.

(3) Where industrial process waste water is treated to the contaminant levels found in domestic sanitary sewage, it may discharge to a leaching bed provided the treatment unit and sewage system are designed in accordance with good engineering practice. (See Appendix A.)

(4) Where kitchen waste water from a restaurant has passed through an operating grease interceptor, it may discharge to a leaching bed provided the sewage system has been designed in accordance with good engineering practice.

(5) Waste water from a kitchen equipped with a garbage grinder may be directed to the sewage system provided the system has been designed to accept such waste water.

(6) Water softener and iron filter discharge may be directed to the sewage system provided the system has been designed to accept such discharges.

(7) Storm sewage shall not be discharged into a sewage system.

(8) The interceptor required in Sentence (4) shall,
(a) have a minimum flow rate as required by Sentence 7.4.4.3.(8) using a 60 second drain down time, and
(b) conform to,
   (i) CSA B481.1, “Testing and Rating of Grease Interceptors Using Lard”, or

Section 8.2. Design Standards

8.2.1. General Requirements

8.2.1.1. Scope

(1) This Subsection applies to the design of sewage systems.

8.2.1.2. Site Evaluation

(1) A site evaluation shall be conducted on every site where a new or replacement sewage system is to be installed. (See Appendix A.)

(2) The percolation time shall be determined by,
(a) conducting percolation tests, or
(b) classifying the soil according to one of the following methods,
   (i) the Unified Soil Classification System as described in MMAH Supplementary Standard SB-6, “Percolation Time and Soil Descriptions”, or
   (ii) the Soil Texture Classification as described in Chapter 3 of USDA, “Soil Survey Manual”.
(See Appendix A.)

(3) Where the percolation time is determined by a percolation test, there shall be a minimum of 3 locations selected, suitably spaced to accurately evaluate the leaching bed area, with the highest percolation time of the tests being used. (See Appendix A.)
\[ A = \frac{QT}{850} \]

where,

\( A \) = the area of contact in square metres between the base of the filter medium and the underlying soil,

\( Q \) = the total daily design sanitary sewage flow in litres, and

\( T \) = the lesser of 50 and the percolation time of the underlying soil.

(7) The stone layer required by Clause 8.7.3.3.(1)(c) shall be not less than 900 mm above the high ground water table, rock or soil with a percolation time of more than 50 minutes.

### 8.7.6. Shallow Buried Trench

#### 8.7.6.1. Construction Requirements

(1) The treatment unit used in conjunction with a leaching bed constructed as a shallow buried trench shall provide an effluent quality that does not exceed the maximum concentrations set out opposite a Level IV treatment unit in Columns 2 and 3 of Table 8.6.2.2.

(2) The effluent shall be distributed through a pressurized distribution system having a pressure head of not less than 600 mm when measured to the most distant point from the pump.

(3) The pump chamber shall be sized to provide sufficient storage volume so that the effluent is evenly dosed on an hourly basis over a 24-hour period.

(4) A shallow buried trench shall not be constructed unless the soil or leaching bed fill is sufficiently dry to resist compaction and smearing during excavation.

(5) Every chamber shall be as wide as the shallow buried trench in which it is contained, and the cross-sectional height of the chamber at its centre point shall not be less than half the width of the trench.

(6) Every chamber shall contain only one pressurized distribution pipe.

### 8.7.7. Type A Dispersal Beds

#### 8.7.7.1. Construction Requirements

(1) The treatment unit used in conjunction with a leaching bed constructed as a Type A dispersal bed shall provide an effluent quality that does not exceed the maximum concentrations set out opposite a Level IV treatment unit in Columns 2 and 3 of Table 8.6.2.2.

(2) A Type A dispersal bed shall be backfilled with leaching bed fill so as to ensure that, after the leaching bed fill settles, the surface of the leaching bed will not form any depressions.

(3) The combined thickness of the sand layer and the stone layer of a Type A dispersal bed shall not be less than 500 mm.

(4) Except as provided in Sentence (5), the sand layer shall,

(a) be comprised of sand that has,

   (i) a percolation time of at least 6 and not more than 10 min, and

   (ii) not more than 5% fines passing through a 0.074 mm (No. 200) sieve,

(b) have a minimum thickness of 300 mm, and
(c) have an area that is not less than the lesser of,
   (i) the area of the stone layer determined in accordance with Sentence (6), and
   (ii) the value determined by the formula,

\[ A = \frac{QT}{850} \]

where,

\[ A = \text{the area of contact in square metres between the base of the sand and the underlying soil}, \]
\[ Q = \text{the total daily design sanitary sewage flow in litres}, \]
\[ T = \text{the lesser of 50 and the percolation time of the underlying soil}. \]

(5) Where the underlying soil has a percolation time of more than 15 min, the sand layer referred to in Sentence (4) shall,
(a) extend to at least 15 m beyond the perimeter of the treatment unit, or distribution pipes if utilized, in any direction that the effluent entering the soil will move horizontally, and
(b) have an area that is not less than the value determined by the formula,

\[ A = \frac{QT}{400} \]

where,

\[ A = \text{the area of contact in square metres between the base of the sand and the underlying soil, or leaching bed fill if utilized}, \]
\[ Q = \text{the total daily design sanitary sewage flow in litres}, \]
\[ T = \text{the lesser of 50 and the percolation time of the underlying soil}. \]

(6) The stone layer shall,
(a) be rectangular in shape with the long dimension parallel to the site contours,
(b) have a minimum thickness of 200 mm,
(c) be protected in the manner described in Sentence 8.7.3.3.(2), and
(d) be constructed such that the bottom of the stone layer is at least 600 mm above the high ground water table, rock or soil with a percolation time of 1 min or less or greater than 50 min.
(e) have a minimum area not less than the value determined by the formula,

\[ A = \frac{Q}{B} \]

where,

\[ A = \text{the area of the stone layer in square metres}, \]
\[ B = \text{the following amount,} \]
   (i) 50, if the total daily design sanitary sewage flow exceeds 3 000 litres, or
   (ii) 75, if the total daily design sanitary sewage flow does not exceed 3 000 litres, and
\[ Q = \text{the total daily design sanitary sewage flow in litres}. \]

(7) Leaching bed fill with a percolation time not exceeding 15 min may be used to satisfy the vertical separation requirements of Clause (6)(d), provided that the leaching bed fill conforms to the requirements specified in Sentence (5) regardless of the percolation time of the underlying soil.

(8) The effluent shall be evenly distributed within the stone layer to within 600 mm of the perimeter of the stone layer. (See Appendix A.)

(9) The stone layer shall not be located closer than the minimum horizontal distances set out in Table 8.2.1.6.B. and these distances shall be increased when required by Sentence 8.7.4.2.(11).
8.9.2.5. Class 5 Sewage Systems

(1) Every Class 5 sewage system shall be operated in accordance with the agreement referred to in Sentence 8.8.1.2.(2).

(2) No Class 5 sewage system shall be operated once it is filled with sanitary sewage until such time as the sanitary sewage is removed from the sewage system.

8.9.3. Maintenance

8.9.3.1. Scope

(1) The requirements of this Subsection are in addition to the requirements of Subsection 8.9.1.

8.9.3.2. General

(1) Every sewage system shall be maintained so that,
(a) the construction of the sewage system remains in accordance with,
   (i) the basis on which the construction and use of the sewage system was approved or required under the Act or predecessor legislation, as the case may be, and
   (ii) the requirements of the manufacturer of the sewage system, and
(b) all components of the sewage system function in their intended manner.

(2) The land in the vicinity of a sewage system shall be maintained in a condition that will not cause damage to, or impair the functioning of, the sewage system.

8.9.3.3. Interceptors

(1) Every grease interceptor referred to in Article 8.1.3.1. shall be maintained in accordance with CSA B481.4, “Maintenance of Grease Interceptors”.

8.9.3.4. Class 4 Sewage Systems

(1) Septic tanks and other treatment units shall be cleaned whenever sludge and scum occupy one-third of the working capacity of the tank.

8.9.3.5. Pressurized Distribution Systems

(1) The pressure head at the furthest point from the pump in all distribution pipes shall be checked for compliance with Articles 8.7.6.1. and 8.7.8.2. and the design specification at least every 36 months.
(4) For flat insulating concrete form walls not exceeding 2 storeys in building height, and having a maximum floor to floor height of 3 m, in buildings of light-frame construction containing only a single dwelling unit, the concrete and reinforcing shall comply with Part 4 or,
(a) the concrete shall conform to CSA A23.1, “Concrete Materials and Methods of Concrete Construction”, with a maximum aggregate size of 19 mm, and
(b) the reinforcing shall,
   (i) conform to CSA G30.18, “Carbon Steel Bars for Concrete Reinforcement”,
   (ii) have a minimum specified yield strength of 400 MPa, and
   (iii) be lapped a minimum of 450 mm for 10M bars and 650 mm for 15M bars.

9.3.1.2. Cement

(1) Cement shall meet the requirements of CAN/CSA-A3001, “Cementitious Materials for Use in Concrete”.

9.3.1.3. Concrete in Contact With Sulfate Soil

(1) Concrete in contact with sulfate soil, which is deleterious to normal cement, shall conform to the requirements in Clause 4.1.1.6. of CSA A23.1, “Concrete Materials and Methods of Concrete Construction”.

9.3.1.4. Aggregates

(1) Aggregates shall,
(a) consist of sand, gravel, crushed rock, crushed air-cooled blast furnace slag, expanded shale or expanded clay conforming to CSA A23.1, “Concrete Materials and Methods of Concrete Construction”, and
(b) be clean, well-graded and free of injurious amounts of organic and other deleterious material.

9.3.1.5. Water

(1) Water shall be clean and free of injurious amounts of oil, organic matter, sediment or any other deleterious material.

9.3.1.6. Compressive Strength

(1) Except as provided elsewhere in this Part, the compressive strength of unreinforced concrete after 28 days shall be not less than,
(a) 32 MPa for garage floors, carport floors and all exterior flatwork,
(b) 20 MPa for interior floors other than those for garages and carports, and
(c) 15 MPa for all other applications.

(2) Concrete used for garage and carport floors and exterior steps shall have air entrainment of 5 to 8%.

9.3.1.7. Concrete Mixes

(1) For site-batched concrete, the concrete mixes described in Table 9.3.1.7. shall be considered acceptable if the ratio of water to cementing materials does not exceed,
(a) 0.45 for garage floors, carport floors and all exterior flatwork,
(b) 0.65 for interior floors other than those for garages and carports, and
(c) 0.70 for all other applications.

(2) The size of aggregate in unreinforced concrete mixes referred to in Sentence (1) shall not exceed,
(a) 1/5 the distance between the sides of vertical forms, or
(b) 1/3 the thickness of flatwork.
9.3.1.7. Concrete Mixes
Forming Part of Sentence 9.3.1.7.(1)

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</table>

Notes to Table 9.3.1.7.: (1) A 40 kg bag of cement contains 28 L.

9.3.1.8. Admixtures


9.3.1.9. Cold Weather Requirements

(1) When the air temperature is below 5°C, concrete shall be,
(a) kept at a temperature of not less than 10°C or more than 25°C while being mixed and placed, and
(b) maintained at a temperature of not less than 10°C for 72 h after placing.

(2) No frozen material or ice shall be used in concrete described in Sentence (1).

9.3.2. Lumber and Wood Products

9.3.2.1. Grade Marking

(1) Lumber for joists, rafters, trusses and beams and for the uses listed in Table 9.3.2.1. shall be identified by a grade stamp to indicate its grade as determined by the NLGA, “Standard Grading Rules for Canadian Lumber”.
(See Appendix A.)
(d) Use Category 4.1, where,
   (i) the wood member is used in contact with the ground,
   (ii) the wood member is used in contact with fresh water, or
   (iii) the vertical clearance between the wood element and the finished ground level is less than 150 mm and the wood elements are not separated from permeable supporting materials by a moisture barrier, or

(e) Use Category 4.2, where the wood member is used in critical structural components, including permanent wood foundations.

(7) Where wood is protected in accordance with Use Category 1 or Use Category 2 using an inorganic boron preservative, the wood shall be,
   (a) protected from direct exposure to water during and after the completion of construction, and
   (b) separated from permeable supporting materials by a moisture barrier that is resistant to all expected mechanisms of deterioration in the service environment if the vertical clearance to the ground is less than 150 mm.

(8) Wood that is required by this Article to be treated to resist termites or decay shall be identified by a mark to indicate the type of preservative used and conformance to the relevant required Use Category.

9.3.3.  Metal

9.3.3.1.  Sheet Metal Thickness

(1) Minimum thicknesses for sheet metal material required in this Part refer to the actual minimum base metal thicknesses measured at any point of the material, and in the case of galvanized steel described in Sentence 9.3.3.2.(1), include the thickness of the galvanizing coating unless otherwise indicated.

9.3.3.2.  Galvanized Sheet Steel

(1) Where sheet steel is required to be galvanized, it shall be metallic-coated with zinc or an alloy of 55% aluminum-zinc meeting the requirements of,
   (a) ASTM A653 / A653M, “Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process”, or
   (b) ASTM A792 / A792M, “Sheet Steel, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process”.

(2) Where galvanized sheet steel is intended for use in locations exposed to the weather or as a flashing material, it shall have a zinc coating not less than the G90 (Z275) coating designation or an aluminum-zinc alloy coating not less than the AZM150 coating designation, as referred to in Sentence (1).

Section 9.4. Structural Requirements

9.4.1. Structural Design Requirements and Application Limitations

9.4.1.1. General  (See Appendix A.)

(1) Subject to the application limitations defined elsewhere in this Part, structural members and their connections shall,
   (a) conform to requirements provided elsewhere in this Part,
   (b) be designed according to good engineering practice such as provided in the CWC, “Engineering Guide for Wood Frame Construction”, or
   (c) be designed according to Part 4 using the loads and deflection and vibration limits specified in,
      (i) this Part, or
      (ii) Part 4.
9.4.1.1. Where floor framing is designed in accordance with Clause (1)(b) or (c) and where supporting wall framing and fastenings, or footings, are designed according to Clause (1)(a), the specified live load on the floor according to Table 4.1.5.3. shall not exceed 2.4 kPa.

(3) Location-specific information for structural design, including snow and wind loads and seismic spectral response accelerations, shall be determined according to MMAH Supplementary Standard SB-1, “Climatic and Seismic Data”. (See Appendix A.)

9.4.2. Specified Loads

9.4.2.1. Application

(1) This Subsection applies to light-frame construction whose wall, floor and roof planes are generally comprised of frames of small repetitive structural members, and where,

(a) the roof and wall planes are clad, sheathed or braced on at least one side,
(b) the small repetitive structural members are spaced not more than 610 mm o.c.,
(c) the clear span of any structural member does not exceed 12.20 m,
(d) the maximum deflection of the structural roof members conforms to Article 9.4.3.1.,
(e) the maximum total roof area, notwithstanding any separation of adjoining buildings by firewalls, is 4 550 m², and
(f) for flat roofs, there are no significant obstructions on the roof, such as parapet walls, spaced closer than the distance calculated by,

\[ D_o = 10(H_o - 0.8 \frac{S_s}{\gamma}) \]

where,

\[ D_o = \text{minimum distance between obstructions, m,} \]
\[ H_o = \text{height of the obstruction above the roof, m,} \]
\[ S_s = \text{ground snow load, kPa, and} \]
\[ \gamma = \text{unit weight of snow, kN/m}^3. \]

(See Appendix A.)

9.4.2.2. Specified Snow Loads

(1) Except as provided in Sentences (2) and (3), specified snow loads shall be not less than those calculated using the following formula:

\[ S = C_b \cdot S_s + S_r \]

where,

\[ S = \text{specified snow load,} \]
\[ C_b = \text{basic snow load roof factor, which is 0.45 where the entire width of a roof does not exceed 4.3 m and 0.55 for all other roofs,} \]
\[ S_s = \text{1-in-50 year ground snow load in kPa, determined according to MMAH Supplementary Standard SB-1, “Climatic and Seismic Data”, and} \]
\[ S_r = \text{associated 1-in-50 year rain load in kPa, determined according to MMAH Supplementary Standard SB-1, “Climatic and Seismic Data”;} \]

(2) In no case shall the specified snow load be less than 1 kPa.
(2) The maximum area of individual panes of glass for doors shall conform to Table 9.6.1.3.

### Table 9.6.1.3.
**Maximum Glass Area for Doors**
Forming Part of Sentence 9.6.1.3.(2)

<table>
<thead>
<tr>
<th>Glass Thickness, mm</th>
<th>Maximum Glass Area, m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annealed</td>
</tr>
<tr>
<td>3</td>
<td>0.50</td>
</tr>
<tr>
<td>4</td>
<td>1.00</td>
</tr>
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</tr>
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<td>6</td>
<td>1.50</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Notes to Table 9.6.1.3.**:
(1) Not generally available.
(2) See Appendix A.

### 9.6.1.4. Types of Glass and Protection of Glass

(1) Glass sidelights greater than 500 mm wide that could be mistaken for doors, glass in storm doors and glass in sliding doors within or at every entrance to a *dwelling unit* and in public areas shall be,
(a) safety glass of the tempered or laminated type conforming to CAN/CGSB-12.1-M, “Tempered or Laminated Safety Glass”, or
(b) wired glass conforming to CAN/CGSB-12.11-M, “Wired Safety Glass”.

(2) Except as provided in Sentence (4), glass in entrance doors to *dwelling units* and in public areas, other than the entrance doors described in Sentence (1), shall be safety glass or wired glass of the type described in Sentence (1) where the glass area exceeds 0.5 m² and extends to less than 900 mm from the bottom of the door.

(3) Except as provided in Sentence (4), transparent panels that could be mistaken as a *means of egress* shall be protected by barriers or railings.

(4) Sliding glass *partitions* that separate a *public corridor* from an adjacent *occupancy* and that are open during normal working hours need not conform to Sentences (2), (3) and (5), except that such *partitions* shall be suitably marked to indicate their existence and position.

(5) Except as provided in Sentence (4), every glass or transparent door accessible to the public shall be equipped with hardware, bars or other permanent fixtures designed so that the existence and position of such doors is readily apparent.

(6) Glass, other than safety glass, shall not be used for a shower or bathtub enclosure.
Section 9.7. Windows, Doors and Skylights

9.7.1. General

9.7.1.1. Application

(1) This Section applies to,
(a) windows, doors and skylights separating conditioned space from unconditioned space or the exterior, and
(b) main entrance doors.

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

(3) For the purpose of this Section, the term “doors” includes glazing in doors and sidelights for doors.

9.7.2. Required Windows, Doors and Skylights

9.7.2.1. Entrance Doors

(1) A door shall be provided at each entrance to a dwelling unit.

(2) Main entrance doors to dwelling units shall be provided with,
(a) a door viewer or transparent glazing in the door, or
(b) a sidelight.

9.7.2.2. Other Requirements for Windows, Doors and Skylights

(1) Minimum sizes of doorways and doors within a barrier-free path of travel shall conform to Section 9.5.

(2) The protection of window and door openings against persons falling through the window or door opening shall conform to Article 9.8.8.1.

(3) Properties of windows and doors within exits shall conform to Section 9.9.

(4) Windows and doors installed to provide the required means of egress from bedrooms shall conform to Subsection 9.9.10.

(5) The location and protection of windows, doors and skylights in order to control the spread of fire shall conform to Subsection 9.10.12.

(6) Doors between dwelling units and attached garages shall conform to Article 9.10.13.15.

(7) The surface flame-spread rating for doors and skylights shall conform to Article 9.10.17.1.

(8) Windows and doors installed to provide the required access to a building for firefighting purposes shall conform to Subsection 9.10.20.

(9) Windows and skylights installed to provide required non-heating season ventilation shall conform to Article 9.32.2.1.
9.8.7.4. **Height of Handrails** (See Appendix A.)

(1) 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.

(2) Except as provided in Sentences (3) and (4), the height of handrails on stairs and ramps shall be,
   (a) not less than 865 mm, and
   (b) not more than 965 mm.

(3) Where guards are required, handrails required on landings shall be not more than 1070 mm in height.

(4) Handrails installed in addition to required handrails need not comply with Sentence (2).

9.8.7.5. **Ergonomic Design**

(1) A clearance of not less than 50 mm shall be provided between a handrail and any surface behind it.

(2) All handrails shall be constructed so as to be continually graspable along their entire length with no obstruction on
   or above them to break a handhold, except where the handrail is interrupted by newels at changes in direction.  (See
   Appendix A.)

9.8.7.6. **Projections into Stairs and Ramps**

(1) Handrails and projections below handrails, including handrail supports and stair stringers, shall not project more
   than 100 mm into the required width of a stair or ramp.

9.8.7.7. **Design and Attachment of Handrails** (See Appendix A.)

(1) Handrails and any building element that could be used as a handrail shall be designed and attached in such a manner
   as to resist,
   (a) a concentrated load at any point of not less than 0.9 kN, and
   (b) for handrails other than those serving a single dwelling unit, a uniformly distributed load of 0.7 kN/m.

(2) Where a handrail serving a single dwelling unit is attached to wood studs or blocking, the attachment shall be
deeemed to comply with Sentence (1), where,
   (a) the attachment points are spaced not more than 1.2 m apart,
   (b) the first attachment point at either end is located not more than 300 mm from the end of the handrail, and
   (c) the fasteners consist of no fewer than two wood screws at each point, penetrating not less than 32 mm into solid
       wood.

9.8.8. **Guards**

9.8.8.1. **Required Guards** (See Appendix A.)

(1) Except as provided in Sentences (2) and (3), every surface to which access is provided for other than maintenance
   purposes, including but not limited to flights of steps and ramps, exterior landings, porches, balconies, mezzanines,
galleries and raised walkways, shall be protected by a guard on each side that is not protected by a wall for the length,
where,
   (a) there is a difference in elevation of more than 600 mm between the walking surface and the adjacent surface, or
   (b) the adjacent surface within 1.2 m from the walking surface has a slope of more than 1 in 2.
(2) Guards are not required,
(a) at loading docks,
(b) at floor pits in repair garages, or
(c) where access is provided for maintenance purposes only.

(3) When an interior stair has more than two risers or an interior ramp rises more than 400 mm, the sides of the stair or ramp and the landing or floor level around the stairwell or ramp shall be protected by a guard on each side that is not protected by a wall.

(4) Doors in buildings of residential occupancy, where the finished floor on one side of the door is more than 600 mm above the floor or other surface or ground level on the other side of the door, shall be protected by,
(a) a guard in accordance with this Subsection, or
(b) a mechanism capable of controlling the free swinging or sliding of the door so as to limit any clear unobstructed opening to not more than 100 mm.

(5) Except as provided in Sentence (6), openable windows in buildings of residential occupancy shall be protected by,
(a) a guard in accordance with this Subsection, or
(b) a mechanism capable of controlling the free swinging or sliding of the openable part of the window so as to limit any clear unobstructed opening to a size that will prevent the passage of a sphere having a diameter more than 100 mm.

(6) Windows need not be protected in accordance with Sentence (5), where,
(a) the window serves a dwelling unit that is not located above another suite,
(b) the only opening having greater dimensions than those allowed by Clause (5)(b) is a horizontal opening at the top of the window,
(c) the top surface of the window sill is located more than 480 mm above the finished floor on one side of the window, or
(d) the window is located in a room or space with the finished floor described in Clause (c) located less than 1 800 mm above the floor or ground on the other side of the window.

(7) Except as provided in Sentence (8), glazing installed over stairs, ramps and landings that extends to less than 1 070 mm above the surface of the treads, ramp or landing shall be,
(a) protected by guards in accordance with this Subsection, or
(b) non-openable and designed to withstand the specified lateral loads for guards as provided in Article 4.1.5.14.

(8) In dwelling units, glazing installed over stairs, ramps and landings that extends to less than 900 mm above the surface of the treads, ramp or landing shall be,
(a) protected by guards in accordance with this Subsection, or
(b) non-openable and designed to withstand the specified lateral loads for guards as provided in Article 4.1.5.14.

(9) Glazing installed in public areas that extends to less than 1 000 mm from the floor and is located above the second storey in buildings of residential occupancy shall be,
(a) protected by guards in accordance with this Subsection, or
(b) non-openable and designed to withstand the specified lateral loads for guards as provided in Article 4.1.5.14.

9.8.8.2. Loads on Guards (See Appendix A.)

(1) Except as provided in Sentence (5), guards shall be designed to resist the specified loads prescribed in Table 9.8.8.2.
9.8.9. Construction

9.8.9.1. Loads on Stairs and Ramps

(1) Except as required in Articles 9.8.9.4. and 9.8.9.5., stairs and ramps shall be designed for strength and rigidity under uniform loading criteria to support specified loads of,
(a) 1.9 kPa for stairs and ramps serving a single dwelling unit, and
(b) 4.8 kPa for other stairs and ramps.

9.8.9.2. Exterior Concrete Stairs

(1) Exterior concrete stairs with more than two risers and two treads shall be,
(a) supported on unit masonry or concrete walls or piers not less than 150 mm in cross-section, or
(b) cantilevered from the main foundation wall.

(2) Stairs described in Sentence (1), when cantilevered from the foundation wall, shall be constructed and installed in conformance with Subsection 9.8.10.

(3) The depth below ground level for foundations for exterior steps shall conform to the requirements in Section 9.12.

9.8.9.3. Exterior Wood Steps

(1) Exterior wood steps shall not be in direct contact with the ground unless suitably treated with a wood preservative.

9.8.9.4. Wooden Stair Stringers

(1) Wooden stair stringers shall,
(a) have a minimum effective depth of 90 mm, measured perpendicularly to the bottom of the stringer at the point of minimum cross-section, and an overall depth of not less than 235 mm,
(b) be supported and secured top and bottom,
(c) be not less than 25 mm actual thickness if supported along their length and 38 mm actual thickness if unsupported along their length, and
(d) except as permitted in Sentence (2), be spaced not more than 900 mm o.c. for stairs serving not more than one dwelling unit, and 600 mm o.c. in other stairs.

(2) For stairs serving not more than one dwelling unit, where risers support the front portion of the tread, the space between stringers shall be not more than 1 200 mm.

9.8.9.5. Treads

(1) Stair treads of lumber, plywood or O-2 grade OSB within dwelling units shall be not less than 25 mm actual thickness, except that if open risers are used and the distance between stringers exceeds 750 mm, the treads shall be not less than 38 mm actual thickness.

(2) Stair treads of plywood or OSB, that are not continuously supported by the riser shall have their face grain or direction of face orientation at right angles to the stringers.

9.8.9.6. Finish for Treads, Landings and Ramps

(1) Except as required by Sentence (5), the finish for treads, landings and ramps shall be,
(a) wear-resistant,
(b) slip-resistant, and
(c) smooth, even and free from open defects.
(2) The finish for treads, landings and ramps in dwelling units, including those from an attached garage serving a single dwelling unit, shall be deemed to comply with Sentence (1) where these treads, landings or ramps are finished with,
   (a) hardwood,
   (b) vertical grain softwood,
   (c) resilient flooring,
   (d) low-pile carpet,
   (e) mat finish ceramic tile,
   (f) concrete, or
   (g) for stairs to unfinished basements and to garages, plywood.

(3) Stairs and ramps, except those serving a single dwelling unit, service rooms or service spaces, shall have a colour contrast or a distinctive visual pattern to demarcate,
   (a) the leading edge of the treads,
   (b) the leading edge of the landing, and
   (c) the beginning and end of a ramp.

(4) Except for stairs serving a single dwelling unit, service rooms or service spaces, a tactile attention indicator conforming to Article 3.8.3.18. shall be installed,
   (a) at the top of the stairs, starting one tread depth back from the edge of the top stair, and
   (b) at the leading edge of landings where a doorway opens onto stairs, starting one tread depth back from the edge of the landing.

(5) Treads and landings of interior and exterior stairs and ramps, other than those within dwelling units, shall have a slip-resistant finish or be provided with slip-resistant strips that extend not more than 1 mm above the surface.

9.8.10. Cantilevered Precast Concrete Steps

9.8.10.1. Design

(1) Exterior concrete steps and their anchorage system that are cantilevered from a foundation wall shall be designed and installed to support the loads to which they may be subjected.

9.8.10.2. Anchorage

(1) Cantilevered concrete steps referred to in Article 9.8.10.1. shall be anchored to concrete foundation walls at least 200 mm thick.

9.8.10.3. Prevention of Damage Due to Frost

(1) Suitable precautions shall be taken during backfilling and grading operations to ensure that subsequent freezing of the soil will not cause uplift forces on the underside of cantilevered concrete steps to the extent that the steps or the walls to which they are attached will be damaged.

Section 9.9. Means of Egress

9.9.1. General

9.9.1.1. Application

(1) Stairways, handrails and guards in a means of egress shall conform to the requirements in Section 9.8. as well as to the requirements in this Section.
(2) Where there is no floor assembly above, the fire-resistance rating required in Sentence (1) shall not be less than that required by Subsection 9.10.8. for the floor assembly below, but in no case shall the fire-resistance rating be less than 45 min.

(3) A fire separation common to two exits shall be smoke-tight and not be pierced by doorways, duct work, piping or any other opening that may affect the continuity of the separation.

(4) A fire separation that separates an exit from the remainder of the building shall have no openings except those for electrical wiring, noncombustible conduit and noncombustible piping that serve only the exit, and for standpipes, sprinkler piping, exit doorways and wired glass and glass block permitted in Article 9.9.4.3.

(5) The requirements in Sentence (1) do not apply to an exterior exit passageway provided the passageway has at least 50 percent of its exterior sides open to the outdoors and is served by an exit stair at each end of the passageway.

9.9.4.3. Wired Glass or Glass Block

(1) This Article applies to wired glass in doors, and wired glass or glass block in sidelights, where these are installed in fire separations between exit enclosures and floor areas.

(2) Except as provided in Sentence (3), the combined area of glazing in doors and sidelights shall not exceed 0.8 m².

(3) Where an exit enclosure connects with a floor area through an enclosed vestibule or corridor separated from the floor area by fire separations having not less than a 45 min fire-resistance rating, the glazed areas described in Sentence (1) need not be limited as required in Sentence (2).

9.9.4.4. Openings Near Unenclosed Exit Stairs and Ramps

(1) Where an unenclosed exterior exit stair or ramp provides the only means of egress from a suite, and is exposed to fire from openings in the exterior walls of another fire compartment, the openings in the exterior walls of the building shall be protected with wired glass in fixed steel frames or glass block conforming to Articles 9.10.13.5. and 9.10.13.7. when the openings in the exterior walls of the building are within 3 m horizontally and less than 10 m below or less than 5 m above the exit stair or ramp.

9.9.4.5. Openings in Exterior Walls of Exits

(1) Either openings in the exterior walls of an exit or openings in adjacent exterior walls of the building the exit serves shall be protected with wired glass in fixed steel frames or glass block installed in accordance with Articles 9.10.13.5. and 9.10.13.7., where,

(a) the exit enclosure has exterior walls that intersect the exterior walls of the building at an angle of less than 135° measured on the outside of the building, and

(b) the openings in the exterior walls of the building are within 3 m horizontally and less than 2 m above the openings in the exterior walls of the exit.  (See Appendix A.)

9.9.4.6. Openings Near Exit Doors

(1) This Article applies to,

(a) exit doors serving other than single dwelling units, and

(b) exit doors serving single dwelling units where there is no second and separate exit from the dwelling unit.

(2) Where an exterior exit door described in Sentence (1) in one fire compartment is within 3 m horizontally of an unprotected opening in another fire compartment and the exterior walls of these fire compartments intersect at an exterior angle of less than 135°, the opening shall be protected with wired glass in fixed steel frames or glass block conforming to
Articles 9.10.13.5. and 9.10.13.7. or with a rated closure conforming to Table 9.10.13.1. with respect to the rating of the fire separation between the two compartments.

9.9.4.7. Stairways in Group D or E Buildings

(1) Notwithstanding the requirements of Sentences 9.9.4.2.(1), 9.9.8.2.(1) and Article 9.10.9.5., where a suite of Group D or E occupancy is located partly on the first storey and partly on the second storey or partly on the second storey and partly on the third storey, stairways serving that suite need not be constructed as exit stairs, provided,
(a) the building is not greater than three storeys in building height,
(b) the suite is separated from other occupancies by a fire separation having a fire-resistance rating of not less than 45 min,
(c) the area occupied by the suite is not greater than 100 m² per storey, other than the exit level storey,
(d) the maximum travel distance from any point in the suite to an exterior exit is not greater than 25 m,
(e) the floor assemblies have a fire-resistance rating of not less than 45 min or are of noncombustible construction,
(f) the basement and first storey are separated by a fire separation having a fire-resistance rating of not less than 45 min, and
(g) a smoke alarm is installed on each floor of the suite, including the basement, in accordance with Subsection 9.10.19.

(2) Reserved.

9.9.5. Obstructions and Hazards in Means of Egress

9.9.5.1. Application

(1) This Subsection applies to obstructions and hazards in every means of egress except those within a dwelling unit or serving a single dwelling unit.

9.9.5.2. Occupancies in Corridors

(1) Where a corridor contains an occupancy, the occupancy shall not reduce the unobstructed width of the corridor to less than the required width of the corridor.

9.9.5.3. Obstructions in Public Corridors

(1) Except as permitted in Sentence (2), obstructions located within 1 980 mm of the floor shall not project horizontally more than 100 mm into exit passageways, corridors used by the public or public corridors in a manner that would create a hazard for persons with no or low vision travelling adjacent to walls.

(2) The horizontal projection of an obstruction in Sentence (1) is permitted to exceed 100 mm where the obstruction extends to less than 680 mm above the floor.

9.9.5.4. Obstructions in Exits

(1) Except as permitted in Subsection 9.9.6. and Article 9.8.7.6., no fixture, turnstile or construction shall project within the required width of an exit.

9.9.5.5. Obstructions in Means of Egress

(1) No obstructions such as posts or turnstiles shall be placed so as to restrict the width of a required means of egress from a floor area or part of a floor area to less than 750 mm unless an alternate unobstructed means of egress is provided adjacent to and plainly visible from the restricted egress.
9.9.9. **Egress from Dwelling Units**

9.9.9.1. **Travel Limit to Exits or Egress Doors**

(1) Except as provided in Sentences (2) and (3), every dwelling unit containing more than 1 storey shall have exits or egress doors located so that it shall not be necessary to travel up or down more than 1 storey to reach a level served by,

(a) an egress door to a public corridor, enclosed exit stair or exterior passageway, or
(b) an exit doorway not more than 1 500 mm above adjacent ground level.

(2) Where a dwelling unit is not located above or below another suite, the travel limit from a floor level in the dwelling unit to an exit or egress door is permitted to exceed 1 storey where that floor level is served by an openable window or door,

(a) providing an unobstructed opening of not less than 1 000 mm in height and 550 mm in width, and
(b) located so that the sill is not more than,
   (i) 1 000 mm above the floor, and
   (ii) 7 m above adjacent ground level.

(3) The travel limit from a floor level in a dwelling unit to an exit or egress door is permitted to exceed 1 storey where that floor level has direct access to a balcony.

9.9.9.2. **Two Separate Exits**

(1) Except as provided in Sentence 9.9.7.3.(1), where an egress door from a dwelling unit opens onto a public corridor or exterior passageway it shall be possible from the location where the egress door opens onto the corridor or exterior passageway to go in opposite directions to two separate exits unless the dwelling unit has a second and separate means of egress.

9.9.9.3. **Shared Egress Facilities**

(1) A dwelling unit shall be provided with a second and separate means of egress where an egress door from the dwelling unit opens onto,

(a) an exit stairway serving more than one suite,
(b) a public corridor,
   (i) serving more than one suite, and
   (ii) served by a single exit,
(c) an exterior passageway,
   (i) serving more than one suite,
   (ii) served by a single exit stairway or ramp, and
   (iii) more than 1.5 m above adjacent ground level, or
(d) a balcony,
   (i) serving more than one suite,
   (ii) served by a single exit stairway or ramp, and
   (iii) more than 1.5 m above adjacent ground level.

9.9.10. **Egress from Bedrooms**

9.9.10.1. **Egress Windows or Doors for Bedrooms**

(1) Except where a door on the same floor level as the bedroom provides direct access to the exterior, every floor level containing a bedroom in a suite shall be provided with at least one outside window that,

(a) is openable from the inside without the use of tools,
(b) provides an individual, unobstructed open portion having a minimum area of 0.35 m² with no dimension less than 380 mm, and
9.9.11. Signs

9.9.11.1. Application

(1) This Subsection applies to all exits except those serving not more than one dwelling unit.

9.9.11.2. Visibility of Exits

(1) Exits shall be located so as to be clearly visible or their locations shall be clearly indicated.

9.9.11.3. Exit Signs

(1) Except as required in Sentence (7), every exit door shall have an exit sign placed over it or adjacent to it if the exit serves,
   (a) a building that is 3 storeys in building height,
   (b) a building having an occupant load of more than 150, or
   (c) a room or floor area that has a fire escape as part of a required means of egress.

(2) Except as required in Sentence (6), every exit sign shall,
   (a) be visible on approach to the exit,
   (b) consist of a green pictogram and a white or lightly tinted graphical symbol meeting the colour specifications referred to in ISO 3864-1, “Graphical Symbols – Safety Colours and Safety Signs – Part 1: Design Principles for Safety Signs and Safety Markings”, and
   (c) conform to the dimensions indicated in ISO 7010, “Graphical Symbols – Safety Colours and Safety Signs – Safety Signs Used in Workplaces and Public Areas”, for the following symbols:
      (i) E001 emergency exit left,
      (ii) E002 emergency exit right,
      (iii) E005 90-degree directional arrow, and
      (iv) E006 45-degree directional arrow.
(3) Internally illuminated exit signs shall be continuously illuminated, and, where illumination of the sign is powered by an electrical circuit, be constructed in conformance with CSA 22.2 No. 141, “Emergency Lighting Equipment”, or

   (a) constructed in conformance with CAN/ULC-S572, “Photoluminescent and Self-Luminous Signs and Path Marking Systems”, and

   (b) labelled in accordance with the time duration for which they have been tested and listed.

(4) Externally illuminated exit signs shall be illuminated at all times by a light fixture supplied by an electrical circuit.

(5) The circuitry serving lighting for externally and internally illuminated exit signs shall, serve no equipment other than emergency lighting in the area where the exit signs are installed, and be connected to an emergency power supply as described in Sentences 9.9.12.3.(2), (3) and (7).

(6) An exit sign conforming to Clauses (2)(b) and (c) with an arrow or other indicator pointing at the direction of egress shall be provided where no exit is visible from, a public corridor,

   (a) a corridor used by the public, or

   (b) a principal route serving an open floor area having an occupant load of more than 150.

(7) Except for suite doors opening directly to the exterior, every exit serving a hotel shall have an exit sign placed over it or adjacent to it.

9.9.11.4. Signs for Stairs and Ramps at Exit Level

(1) In buildings that are 3 storeys in building height, any part of an exit ramp or stairway that continues up or down past the lowest exit level shall be clearly marked to indicate that it does not lead to an exit where the portion below exit level may be mistaken as the direction of exit travel.

9.9.11.5. Floor Numbering

(1) Arabic numerals indicating the assigned floor number shall be, except in hotels, mounted permanently on the stair side of the wall at the latch side of doors to exit stair shafts,

    (a) in hotels, mounted permanently on each side of the exit doors to the exit stair shaft,

    (b) not less than 60 mm high, raised approximately 0.8 mm above the surface,

    (c) located 1 500 mm from the finished floor and not more than 300 mm from the door, and

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

9.9.12. Lighting

9.9.12.1. Application

(1) This Subsection applies to the lighting of all means of egress except those within dwelling units.

9.9.12.2. Required Lighting in Egress Facilities

(1) Every exit, public corridor or corridor providing access to exit for the public shall be equipped to provide illumination to an average level of 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 be not less than 10 lx.
9.9.12.3. Emergency Lighting

(1) Emergency lighting shall be provided in,
    (a) exits,
    (b) principal routes providing access to exit in an open floor area,
    (c) corridors used by the public,
    (d) underground walkways, and
    (e) public corridors.

(2) Emergency lighting required in Sentence (1) shall be provided from a source of energy separate from the electrical supply for the building.

(3) Lighting required in Sentence (1) shall be designed to be automatically actuated for a period of not less than 30 min when the electric lighting in the affected area is interrupted.

(4) Illumination from lighting required in Sentence (1) shall be provided to average levels of not less than 10 lx at floor or tread level.

(5) The minimum value of the illumination required by Sentence (4) shall be not less than 1 lx.

(6) Where incandescent lighting is provided, lighting equal to 1 W/m² of floor area shall be considered to meet the requirement in Sentence (4).

(7) Where self-contained emergency lighting units are used, they shall conform to CSA C22.2 No. 141, “Emergency Lighting Equipment”.

Section 9.10. Fire Protection

9.10.1. Definitions and Application

9.10.1.1. Support of Noncombustible Construction

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

9.10.1.2. Sloped Roofs

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

9.10.1.3. Items Under Part 3 Jurisdiction

(1) Tents, air-supported structures, transformer vaults, walkways, elevators and escalators shall conform to Part 3.

(2) Where rooms or spaces are intended for an assembly occupancy, such rooms or spaces shall conform to Part 3.

(3) Basements containing more than 1 storey or exceeding 600 m² in area shall conform to Part 3.

(4) Where rooms or spaces are intended for the storage, manufacture or use of hazardous or explosive material, such rooms or spaces shall conform to Part 3.
(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. Rooftop Enclosures

(1) Rooftop 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.

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)

<table>
<thead>
<tr>
<th>Major Occupancy</th>
<th>Maximum Building Height, Storeys</th>
<th>Minimum Fire-Resistance Rating by Building Element, min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Floors Except Floors over Crawl Spaces</td>
<td>Mezzanine Floors</td>
</tr>
<tr>
<td>Residential (Group C)</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>All other occupancies</td>
<td>2</td>
<td>45</td>
</tr>
<tr>
<td>Column 1</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

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.

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).
9.10.13.6. **Steel Door Frames**

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

9.10.13.7. **Glass Block as a Closure**

(1) Glass block that has not been tested in accordance with Article 9.10.3.1. is permitted as a *closure* in a *fire separation* required to have a *fire-resistance rating* of not more than 1 h.

9.10.13.8. **Maximum Size of Opening**

(1) The size of an opening in an interior *fire separation*, even where protected with a *closure*, shall not exceed 11 m², with no dimension greater than 3.7 m, 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*, even where protected with a *closure*, shall not exceed 22 m², with no dimension greater than 6 m, when the *fire compartments* on both sides of the *fire separation* are sprinklered.

9.10.13.9. **Door Latch**

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

9.10.13.10. **Self-Closing Device**

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

(2) Self-closing devices are not required between *public corridors* and *suites* in *business and personal services* *occupancies*, except in,

(a) dead-end corridors, or

(b) a corridor that serves a *hotel*.

9.10.13.11. **Hold-Open Devices**

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

9.10.13.12. **Service Room Doors**

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

9.10.13.13. **Fire Dampers**

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

(2) A *fire damper* is not required where a *noncombustible* branch duct pierces a required *fire separation* provided the duct,

(a) has a melting point not below 760°C,

(b) has a cross-sectional area less than 130 cm², and
(c) supplies only air-conditioning units or combined air-conditioning and heating units discharging air at not more than 1.2 m above the floor.

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

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

(5) A duct serving commercial cooking equipment and piercing a required fire separation need not be equipped with a fire damper at the fire separation.

9.10.13.14. Fire Stop Flaps

(1) Fire stop flaps in ceiling membranes required in Sentence 9.10.5.1.(4) shall be constructed in conformance with MMAH Supplementary Standard SB-2, “Fire Performance Ratings”.

9.10.13.15. Doors Between Garages and Dwelling Units

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

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

9.10.13.16. Door Stops

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


9.10.14.1. Application

(1) Except as permitted in Subsection 9.10.15., this Subsection applies to all buildings.

9.10.14.2. Area and Location of Exposing Building Face

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

(2) For the purpose of using Table 9.10.14.4. to determine the maximum aggregate area of unprotected openings permitted in an irregularly-shaped or skewed exterior wall, the location of the exposing building face shall be taken as a
(4) Where a fire alarm system is required in a hotel, heat detectors shall be installed in every room in a suite and in every room not located in a suite in a floor area containing a hotel, other than washrooms within a suite, saunas, refrigerated areas and swimming pools.

9.10.18.5. Smoke Detectors in Recirculating Air Handling Systems

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

9.10.18.6. Portions of Buildings Considered as Separate Buildings

(1) Except as provided in Sentence (2), where a vertical fire separation having a fire-resistance rating of at least 1 h separates a portion of a building from the remainder of the building and there are no openings through the fire separation other than those for piping, tubing, wiring and conduit, the requirements for fire alarm and detection systems is permitted to be applied to each portion so separated as if it were a separate building.

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

9.10.18.7. Central Vacuum Systems

(1) 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 activation of the fire alarm system.

9.10.18.8. Open-Air Storage Garages

(1) Except as required in Article 9.10.18.1., 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.

9.10.18.9. Fire Alarm System in a Hotel

(1) If a fire alarm system is required in a building containing a hotel, a single stage fire alarm system shall be provided.

9.10.18.10. 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 of the systems.

(2) Sentence (1) does not apply to a building that contains only dwelling units and has no dwelling unit above another dwelling unit.

9.10.19. Smoke Alarms

9.10.19.1. Required Smoke Alarms (See Appendix A.)

(1) Smoke alarms conforming to CAN/ULC-S531, “Smoke Alarms”, shall be installed in each dwelling unit and in each sleeping room not within a dwelling unit.

9.10.19.1. Smoke Alarms

(2) Smoke alarms required in Sentence (1) shall have a visual signalling component conforming to the requirements in 18.5.3. (Light, Color and Pulse Characteristics) of NFPA 72, “National Fire Alarm and Signaling Code”.

(3) The visual signalling component required in Sentence (2) need not,
(a) be integrated with the smoke alarm provided it is interconnected to it,
(b) be on battery backup, or
(c) have synchronized flash rates, when installed in a dwelling unit.

(4) The luminous intensity for visual signalling components required in Sentence (2) that are installed in sleeping rooms shall be a minimum of 175 cd.

(5) Smoke alarms required in Sentence (1) shall be installed on or near the ceiling.

9.10.19.2. Sound Patterns of Smoke Alarms

9.10.19.3. Location of Smoke Alarms

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

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

(3) A smoke alarm required in Sentence (1) shall have a visual signalling component conforming to the requirements in 18.5.3. (Light, Color and Pulse Characteristics) of NFPA 72, “National Fire Alarm and Signaling Code”.

(4) The visual signalling component required in Sentence (3) need not,
(a) be integrated with the smoke alarm provided it is interconnected to it,
(b) be on battery backup, or
(c) have synchronized flash rates, when installed in a dwelling unit.

(5) The luminous intensity for visual signalling components required in Sentence (3) that are installed in sleeping rooms shall be a minimum of 175 cd.

(6) Smoke alarms required in Sentence (1) shall be installed on or near the ceiling.

9.10.19.4. Power Supply

(1) Except as provided in Sentences (2) and (3), smoke alarms required in Sentence 9.10.19.1.(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 7 days in the normal condition, followed by 4 min of alarm.

(2) Where the building is not supplied with electrical power, smoke alarms are permitted to be battery operated.
(3) Suites of residential occupancy are permitted to be equipped with smoke detectors in lieu of smoke alarms, provided the smoke detectors,
(a) are capable of independently sounding audible signals within the individual suites,
(b) except as provided by Sentence (4), are installed in conformance with CAN/ULC-S524, “Installation of Fire Alarm Systems”, and
(c) form part of the fire alarm system.

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

9.10.19.5. Interconnection of Smoke Alarms

(1) Where more than one smoke alarm is required in a dwelling unit, the smoke alarms shall be wired so that the activation of one alarm will cause all alarms within the dwelling unit to sound.
9.20.17.6. Anchoring of Roof Framing to Top of Flat Insulating Concrete Form Walls

(1) Roof framing supported on the top of flat insulating concrete form walls shall be fixed to the top plates, which shall be anchored to the wall with anchor bolts,
   (a) not less than 12.7 mm in diameter, and
   (b) spaced not more than 1.2 m o.c.

(2) The anchor bolts described in Sentence (1) shall be placed in the centre of the flat insulating concrete form wall and shall be embedded not less than 100 mm into the concrete.

(3) Attachment of roof framing to wood top plates shall be in accordance with Table 9.23.3.4.

9.20.17.7. Protection from Precipitation and Damage

(1) Above ground flat insulating concrete form walls shall be protected from precipitation and damage in conformance with Section 9.27.

Section 9.21. Masonry and Concrete Chimneys and Flues

9.21.1. General

9.21.1.1. Application

(1) This Section applies to,
   (a) rectangular masonry or concrete chimneys not more than 12 m in height serving fireplaces or serving appliances having a combined total rated heat output of 120 kW or less, and
   (b) flue pipes serving solid fuel-burning appliances.

(2) Except as provided in Sentence 9.21.1.3.(1), chimneys (other than those described in Sentence (1) and Sentence 9.21.1.2.(1)), gas vents and flue pipes serving gas-, oil- or solid fuel-burning appliances and associated equipment shall conform to Section 6.3.

9.21.1.2. Factory-Built Chimneys

(1) Factory-built chimneys serving solid fuel-burning appliances, and their installation, shall conform to CAN/ULC-S629-M, “650°C Factory-Built Chimneys”. (See Appendix A.)

9.21.1.3. Flue Pipes

(1) Flue pipes serving solid fuel-burning stoves, cooktops and space heaters shall conform to CSA B365, “Installation Code for Solid-Fuel-Burning Appliances and Equipment”.

9.21.1.4. Chimney or Flue Pipe Walls

(1) The walls of any chimney or flue pipe shall be constructed to be smoke- and flame-tight.
9.21.2. Chimney Flues

9.21.2.1. Chimney Flue Limitations

(1) A chimney flue that serves a fireplace or incinerator shall not serve any other appliance.

(2) A chimney flue that serves a solid fuel-burning appliance shall not be connected to a natural gas- or propane-fired appliance.

(3) A chimney flue that serves a solid fuel-burning appliance shall not be connected to an oil-burning appliance unless the solid fuel-burning appliance is listed for such installation and the installation of both appliances meets their respective installation requirements.

9.21.2.2. Connections of More Than One Appliance

(1) Except as required in Article 9.21.2.1., two or more fuel-burning appliances are permitted to be connected to the same chimney flue provided adequate draft is maintained for the connected appliances and the connections are made as described in Sentences (2) and (3).

(2) Where two or more solid fuel-burning appliances are connected to the same chimney flue, the appliances must be located on the same storey.

(3) The connection referred to in Sentence (2) for a solid fuel-burning appliance shall be made below connections for appliances burning other fuels.

9.21.2.3. Inclined Chimney Flues

(1) Chimney flues shall not be inclined more than 45° to the vertical.

9.21.2.4. Size of Chimney Flues

(1) Except for chimneys serving fireplaces, the size of a chimney flue shall conform to the requirements of the solid fuel-burning appliance installation standard referenced in Sentence 6.2.1.4.(1) and Article 9.33.1.2.

(2) Where a chimney flue serves only one solid fuel-burning appliance, the flue area shall be at least equal to that of the flue pipe connected to it.

9.21.2.5. Fireplace Chimneys

(1) The size of a chimney flue serving a masonry fireplace shall be within the allowable range specified in Table 9.21.2.5.A. or Table 9.21.2.5.B.
(2) A hearth for a fireplace with an opening raised not less than 200 mm from a combustible floor is permitted to be supported on that floor provided the requirements of Clauses 5.3.6.5. to 5.3.6.7. of CAN/CSA-A405-M, “Design and Construction of Masonry Chimneys and Fireplaces”, are followed.

9.22.6. Damper

9.22.6.1. Required Damper and Size

(1) The throat of every fireplace shall be equipped with a metal damper sufficiently large to cover the full area of the throat opening.

9.22.7. Smoke Chamber

9.22.7.1. Slope of Smoke Chamber

(1) The sides of the smoke chamber connecting a fireplace throat with a flue shall not be sloped at an angle greater than 45° to the vertical.

9.22.7.2. Wall Thickness

(1) The thickness of masonry walls surrounding the smoke chamber shall be not less than 190 mm at the sides, front and back, except that the portions of the back exposed to the outside may be 140 mm thick.

9.22.8. Factory-Built Fireplaces

9.22.8.1. Conformance to Standard

(1) Factory-built fireplaces and their installation shall conform to CAN/ULC-S610-M, “Factory-Built Fireplaces”.

9.22.9. Clearance of Combustible Material

9.22.9.1. Clearance to the Fireplace Opening

(1) Combustible material shall not be placed on or near the face of a fireplace within 150 mm of the fireplace opening, except that where the combustible material projects more than 38 mm out from the face of the fireplace above the opening, such material shall be at least 300 mm above the top of the opening.

9.22.9.2. Metal Exposed to the Interior

(1) Metal exposed to the interior of a fireplace such as the damper control mechanism shall have at least a 50 mm clearance from any combustible material on the face of the fireplace where such metal penetrates through the face of the fireplace.

9.22.9.3. Clearance to Combustible Framing

(1) Not less than a 100 mm clearance shall be provided between the back and sides of a solid fuel-burning fireplace and combustible framing, except that a 50 mm clearance is permitted where the fireplace is located in an exterior wall.
(2) Not less than a 50 mm clearance shall be provided between the back and sides of the smoke chamber of a solid fuel-burning fireplace and combustible framing, except that a 25 mm clearance is permitted where the fireplace is located in an exterior wall.

9.22.9.4. Heat Circulating Duct Openings

(1) The clearance of combustible material above heat circulating duct openings from those openings shall be not less than,
   (a) 300 mm where the combustible material projects not less than 38 mm from the face, and
   (b) 150 mm where the projection is less than 38 mm.

9.22.10. Fireplace Inserts and Hearth-Mounted Stoves

9.22.10.1. Appliance Standard

(1) Fireplace inserts and hearth mounted stoves vented through the throat of a fireplace shall conform to ULC-S628, “Fireplace Inserts”.

9.22.10.2. Installation

(1) The installation of fireplace inserts and hearth mounted stoves vented through the throat of a fireplace shall conform to CSA B365, “Installation Code for Solid-Fuel-Burning Appliances and Equipment”.

(2) Fireplace inserts and hearth mounted stoves vented through the throat of a fireplace described in Sentence (1) may be installed in existing fireplaces only if a minimum thickness of 190 mm of solid masonry is provided between the smoke chamber and any existing combustible materials, unless the insert is listed for lesser clearances.

(3) A fireplace insert installed in a masonry fireplace shall have,
   (a) a listed metal chimney liner installed from the insert collar to the top of the chimney, or
   (b) a direct sealed connection to the chimney flue where such provision is part of an insert conforming to Sentence 9.22.10.1.(1).

Section 9.23. Wood Frame Construction

9.23.1. Application

9.23.1.1. Limitations  (See Appendix A.)

(1) This Section applies where wall, floor and roof planes are generally comprised of lumber frames of small repetitive structural members, or engineered components, and where,
   (a) roof and wall planes are clad, sheathed or braced on at least one side,
   (b) the small repetitive structural members are spaced not more than 610 mm o.c.,
   (c) the walls do not serve as foundations,
   (d) the specified live load on supported subfloors and floor framing does not exceed 2.4 kPa, and
   (e) the span of any structural member does not exceed 12.20 m.
   (See Appendix A.)

(2) Where the conditions in Sentence (1) are exceeded for wood construction, the design of the framing and fastening shall conform to Subsection 4.3.1.
**Maximum Roof Truss Deflections**
Forming Part of Sentence 9.23.13.11.(1)

<table>
<thead>
<tr>
<th>Truss Span</th>
<th>Type of Ceiling</th>
<th>Maximum Deflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3 m or less</td>
<td>Plaster or gypsum board</td>
<td>1/360 of the span</td>
</tr>
<tr>
<td></td>
<td>Other than plaster or gypsum board</td>
<td>1/180 of the span</td>
</tr>
<tr>
<td>Over 4.3 m</td>
<td>Plaster or gypsum board</td>
<td>1/360 of the span</td>
</tr>
<tr>
<td></td>
<td>Other than plaster or gypsum board</td>
<td>1/240 of the span</td>
</tr>
</tbody>
</table>

(2) The joint connections used in trusses described in Sentence (1) shall be designed in conformance with the requirements in Subsection 4.3.1. (See Appendix A.)

(3) Where the length of compression web members in roof trusses described in Sentence (1) exceeds 1.83 m, such web members shall be provided with continuous bracing to prevent buckling.

(4) Bracing required in Sentence (3) shall consist of not less than 19 mm by 89 mm lumber nailed at right angles to the web members near their centres with at least two 63 mm nails for each member.

(5) Where the ability of a truss design to satisfy the requirements of Sentence (1) is demonstrated by testing, it shall consist of a full scale load test carried out in conformance with CSA S307-M, “Load Test Procedure for Wood Trusses for Houses and Small Buildings”.

(6) Where the ability of a truss design to satisfy the requirements of Sentence (1) is demonstrated by analysis, it shall be carried out in accordance with good engineering practice such as described in TPIC, “Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses (Limit States Design)”.


(1) Subflooring shall be provided beneath finish flooring where the finish flooring does not have adequate strength to support the design loads.


(1) Except as provided in Sentence (2), wood-based panels for subfloors shall conform to,

- CSA O121, “Douglas Fir Plywood”
- CSA O151, “Canadian Softwood Plywood”
- CSA O153-M, “Poplar Plywood”

(2) Particleboard subflooring may be used only where a building is constructed in a factory so that the subfloor will not be exposed to the weather.

(3) Subflooring described in Sentence (2) shall conform to grade D-2 or D-3 in ANSI A208.1, “Particleboard”.

(4) Subflooring described in Sentence (2) shall have its upper surface and all edges treated to restrict water absorption where the subfloor is used in bathrooms, kitchens, laundry rooms or other areas subject to periodic wetting. (See Appendix A.)
9.23.14.3. **Edge Support**

(1) Where the edges of panel-type subflooring are required to be supported, such support shall consist of tongue-and-groove panel edges or not less than 38 mm by 38 mm blocking securely nailed between framing members.

9.23.14.4. **Direction of Installation**

(1) Plywood subflooring shall be installed with the surface grain at right angles to the joists and with joints parallel to floor joists staggered.

(2) OSB subflooring conforming to CSA O325, “Construction Sheathing”, or to O-1 and O-2 grades in CSA O437.0, “OSB and Waferboard”, and waferboard subflooring conforming to R-1 grade in CSA O437.0 shall be installed so that the direction of face orientation is at right angles to the joists and the joints parallel to the floor joists are staggered. (See Appendix A.)

9.23.14.5. **Subfloor Thickness or Rating**

(1) Except as provided in Sentences (2) and (3), subfloors shall conform to Table 9.23.14.5.A. or 9.23.14.5.B.

---

### Table 9.23.14.5.A.
**Thickness of Subflooring**
Forming Part of Sentences 9.23.14.5.(1) and 9.23.15.7.(1)

<table>
<thead>
<tr>
<th>Maximum Spacing of Supports, mm</th>
<th>Plywood and OSB, O-2 Grade Minimum Thickness, mm</th>
<th>OSB, O-1 Grade, and Waferboard, R-1 Grade Minimum Thickness, mm</th>
<th>Particleboard Minimum Thickness, mm</th>
<th>Lumber Minimum Thickness, mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>406</td>
<td>15.5</td>
<td>15.9</td>
<td>15.9</td>
<td>17.0</td>
</tr>
<tr>
<td>508</td>
<td>15.5</td>
<td>15.9</td>
<td>19.0</td>
<td>19.0</td>
</tr>
<tr>
<td>610</td>
<td>18.5</td>
<td>19.0</td>
<td>25.4</td>
<td>19.0</td>
</tr>
<tr>
<td><strong>Column 1</strong></td>
<td><strong>2</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

---

### Table 9.23.14.5.B.
**Rating for Subfloor when Applying CSA O325**
Forming Part of Sentences 9.23.14.5.(1) and 9.23.15.7.(1)

<table>
<thead>
<tr>
<th>Maximum Spacing of Supports, mm</th>
<th>Subfloor, Panel Mark</th>
<th>Subfloor Used with Panel-Type Underlay, Panel Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>406</td>
<td>1F16</td>
<td>2F16</td>
</tr>
<tr>
<td>508</td>
<td>1F20</td>
<td>2F20</td>
</tr>
<tr>
<td>610</td>
<td>1F24</td>
<td>2F24</td>
</tr>
<tr>
<td><strong>Column 1</strong></td>
<td><strong>2</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

(2) Where the finished flooring consists of not less than 19 mm matched wood strip flooring laid at right angles to joists, spaced not more than 610 mm o.c., subflooring shall be permitted to consist of not less than,

(a) 12.5 mm thick plywood,
(b) 12.5 mm thick OSB conforming to O-2 grade,
(c) 12.7 mm thick OSB conforming to O-1 grade,
(d) 12.7 mm thick waferboard conforming to R-1 grade, or
(e) OSB conforming to 2R32 / 2F16 grade.
(3) Except where the flooring consists of ceramic tiles applied with adhesive, where a separate panel-type underlay or concrete topping is applied to a subfloor on joists spaced not more than 406 mm o.c., the subfloor may consist of not less than,
(a) 12.5 mm thick plywood,
(b) 12.5 mm thick OSB conforming to O-2 grade,
(c) 12.7 mm thick OSB conforming to O-1 grade,
(d) 12.7 mm thick waferboard conforming to R-1 grade, or
(e) OSB conforming to 2R32 / 2F16 grade.

9.23.14.6. Annular Grooved Nails

(1) When resilient flooring is applied directly to an OSB, waferboard, particleboard or plywood subfloor, the subfloor shall be fastened to the supports with annular grooved nails.

9.23.14.7. Lumber Subflooring

(1) Lumber subflooring shall be laid at an angle of not less than 45° to the joists.

(2) Lumber subflooring shall be fully supported at the ends on solid bearing.

(3) Lumber for subflooring shall be of uniform thickness and not more than 184 mm wide.

9.23.15. Roof Sheathing

9.23.15.1. Required Roof Sheathing

(1) Except as provided in Section 9.26., continuous lumber or panel-type roof sheathing shall be installed to support the roofing.

9.23.15.2. Material Standards

(1) Wood-based panels used for roof sheathing shall conform to the requirements of,

r3
(a) CSA O121, “Douglas Fir Plywood”,
(b) CSA O151, “Canadian Softwood Plywood”,
(c) CSA O153-M, “Poplar Plywood”,

r5
(d) CSA O325, “Construction Sheathing”, or
(e) CSA O437.0, “OSB and Waferboard”.

9.23.15.3. Direction of Installation

(1) Plywood roof sheathing shall be installed with the surface grain at right angles to the roof framing.

r5
(2) OSB roof sheathing conforming to CSA O325, “Construction Sheathing”, or to O-1 and O-2 grades as specified in CSA O437.0, “OSB and Waferboard”, shall be installed with the direction of face orientation at right angles to the roof framing members.

9.23.15.4. Joints in Panel-Type Sheathing

(1) Panel-type sheathing board shall be applied so that joints perpendicular to the roof ridge are staggered where,
(a) the sheathing is applied with the surface grain parallel to the roof ridge, and
(b) the thickness of the sheathing is such that the edges are required to be supported.
9.23.15.4.  

(2) A gap of not less than 2 mm shall be left between sheets of plywood, OSB or waferboard.

9.23.15.5.  Lumber Roof Sheathing

(1) Lumber roof sheathing shall not be more than 286 mm wide and shall be applied so that all ends are supported with end joints staggered.

9.23.15.6.  Edge Support

(1) Except as permitted in Sentence (2), where panel-type roof sheathing requires edge support, the support shall consist of,
   (a) metal H clips, or
   (b) not less than 38 mm by 38 mm blocking securely nailed between framing members.

(2) The supports referred to in Sentence (1) are not required when tongued-and-grooved edged panel-type sheathing board is used.

9.23.15.7.  Thickness or Rating

(1) The thickness or rating of roof sheathing on a flat roof used as a walking deck shall conform to either Table 9.23.14.5.A. or Table 9.23.14.5.B. for subfloors.

(2) The thickness or rating of roof sheathing on a roof not used as a walking deck shall conform to either Table 9.23.15.7.A. or Table 9.23.15.7.B.

### Table 9.23.15.7.A.

**Thickness of Roof Sheathing**

**Forming Part of Sentence 9.23.15.7.(2)**

<table>
<thead>
<tr>
<th>Maximum Spacing of Supports, mm</th>
<th>Plywood and OSB, O-2 Grade Edges Supported Minimum Thickness, mm</th>
<th>Plywood and OSB, O-2 Grade Edges Unsupported Minimum Thickness, mm</th>
<th>OSB, O-1 Grade and Waferboard, R-1 Grade Edges Supported Minimum Thickness, mm</th>
<th>OSB, O-1 Grade and Waferboard, R-1 Grade Edges Unsupported Minimum Thickness, mm</th>
<th>Lumber Minimum Thickness, mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>305</td>
<td>7.5</td>
<td>7.5</td>
<td>9.5</td>
<td>9.5</td>
<td>17.0</td>
</tr>
<tr>
<td>406</td>
<td>7.5</td>
<td>9.5</td>
<td>9.5</td>
<td>11.1</td>
<td>17.0</td>
</tr>
<tr>
<td>610</td>
<td>9.5</td>
<td>12.5</td>
<td>11.1</td>
<td>12.7</td>
<td>19.0</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

### Table 9.23.15.7.B.

**Rating for Roof Sheathing When Applying CSA O325**

**Forming Part of Sentence 9.23.15.7.(2)**

<table>
<thead>
<tr>
<th>Maximum Spacing of Supports, mm</th>
<th>Panel Mark - Edges Supported</th>
<th>Panel Mark - Edges Unsupported</th>
</tr>
</thead>
<tbody>
<tr>
<td>406</td>
<td>2R16</td>
<td>1R16</td>
</tr>
<tr>
<td>508</td>
<td>2R20</td>
<td>1R20</td>
</tr>
<tr>
<td>610</td>
<td>2R24</td>
<td>1R24</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
(3) Asphalt-coated or asphalt-impregnated fibreboard not less than 11.1 mm thick conforming to CAN/ULC-S706, “Wood Fibre Thermal Insulation for Buildings”, is permitted to be used as a roof sheathing over supports spaced not more than 406 mm o.c., provided the roofing consists of,
   (a) a continuous sheet of galvanized steel not less than 0.33 mm in thickness, or
   (b) a continuous sheet of aluminum not less than 0.61 mm in thickness.

(4) All edges of sheathing described in Sentence (3) shall be supported by blocking or framing.

9.23.16. Wall Sheathing

9.23.16.1. Required Sheathing

(1) Exterior walls and gable ends shall be sheathed when the exterior cladding requires intermediate fastening between supports or if the exterior cladding requires solid backing.

9.23.16.2. Thickness, Rating and Material Standards

(1) Where wall sheathing is required for the purpose of complying with this Section, it shall conform to Table 9.23.16.2.A. or Table 9.23.16.2.B.

<table>
<thead>
<tr>
<th>Type of Sheathing</th>
<th>With Supports 406 mm o.c. Minimum Thickness, mm(1)</th>
<th>With Supports 610 mm o.c. Minimum Thickness, mm(1)</th>
<th>Material Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibreboard (insulating)</td>
<td>9.5</td>
<td>11.1</td>
<td>CAN/ULC-S706</td>
</tr>
<tr>
<td>Gypsum Sheathing</td>
<td>9.5</td>
<td>12.7</td>
<td>CAN/CSA-A82.27-M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASTM C1177 / C1177M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ASTM C1396 / C1396M</td>
</tr>
<tr>
<td>Lumber</td>
<td>17.0</td>
<td>17.0</td>
<td>See Table 9.3.2.1.</td>
</tr>
<tr>
<td>Mineral Fibre, Rigid Board, Type 2</td>
<td>25</td>
<td>25</td>
<td>CAN/ULC-S702</td>
</tr>
<tr>
<td>OSB, O-2 Grade</td>
<td>6.0</td>
<td>7.5</td>
<td>CSA O437.0</td>
</tr>
<tr>
<td>OSB, O-1 Grade, and Waferboard, R-1 Grade</td>
<td>6.35</td>
<td>7.9</td>
<td>CSA O437.0</td>
</tr>
<tr>
<td>Phenolic, faced</td>
<td>25</td>
<td>25</td>
<td>CAN/CGSB-51.25-M</td>
</tr>
<tr>
<td>Plywood (exterior type)</td>
<td>6</td>
<td>7.5</td>
<td>CSA O121</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CSA O151</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CSA O153-M</td>
</tr>
<tr>
<td>Polystyrene, Types 1 and 2</td>
<td>38</td>
<td>38</td>
<td>CAN/ULC-S701</td>
</tr>
<tr>
<td>Polystyrene, Types 3 and 4</td>
<td>25</td>
<td>25</td>
<td>CAN/ULC-S701</td>
</tr>
<tr>
<td>Polyurethane and Polysocyanurate Type 1, faced</td>
<td>38</td>
<td>38</td>
<td>CAN/ULC-S704</td>
</tr>
<tr>
<td>Polyurethane and Polysocyanurate Types 2 and 3, faced</td>
<td>25</td>
<td>25</td>
<td>CAN/ULC-S704</td>
</tr>
</tbody>
</table>

Notes to Table 9.23.16.2.A:
(1) See also Sentences 9.27.5.1.(2) to (4).
Table 9.23.16.2.B.  
Rating For Wall Sheathing When Applying CSA O325  
Forming Part of Sentence 9.23.16.2.(1)

<table>
<thead>
<tr>
<th>Maximum Spacing of Supports, mm</th>
<th>Panel Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>406</td>
<td>W16</td>
</tr>
<tr>
<td>508</td>
<td>W20</td>
</tr>
<tr>
<td>610</td>
<td>W24</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

9.23.16.3. Attachment of Cladding to Sheathing

(1) Gypsum sheathing, rigid insulation and fibreboard shall not be used for the attachment of siding materials.

(2) Nails used in attaching the materials listed in Sentence (1) shall be not less than 3.2 mm diam with a minimum head diameter of 11 mm.

9.23.16.4. Lumber Sheathing

(1) Lumber wall sheathing shall be applied so that all ends are supported.

(2) Where lumber wall sheathing is required to provide bracing according to Article 9.23.10.2., it shall be applied with end joints staggered.

9.23.16.5. Joints in Panel-Type Sheathing

(1) A gap of not less than 2 mm shall be left between sheets of plywood, OSB, waferboard or fibreboard.

9.23.16.6. Mansard Style Roofs

(1) Where the bottom portions of mansard style roofs are vented, the vertical framing members behind the sloping portions shall be considered on the same basis as exterior wall studs and shall conform to the appropriate requirements in Articles 9.27.3.2. to 9.27.3.6.

Section 9.24. Sheet Steel Stud Wall Framing

9.24.1. General

9.24.1.1. Application

(1) This Section applies to sheet steel studs for use in non-loadbearing exterior and interior walls.

(2) Where loadbearing steel studs are used, they shall be designed in conformance with Part 4.
9.29.7. Hardboard Finish

9.29.7.1. Material Standard

(1) Hardboard shall conform to CAN/CGSB-11.3-M, “Hardboard”.

9.29.7.2. Thickness

(1) Hardboard shall be not less than,
   - (a) 3 mm thick where applied over continuous back-up,
   - (b) 6 mm thick where applied to supports spaced not more than 406 mm o.c., and
   - (c) 9 mm thick where applied to supports spaced not more than 610 mm o.c.

9.29.7.3. Nails

(1) Nails for fastening hardboard shall be casing or finishing nails not less than 38 mm long, spaced not more than 150 mm o.c. along edge supports and 300 mm o.c. along intermediate supports.

9.29.7.4. Edge Support

(1) All hardboard edges shall be supported by furring, blocking or framing where the back-up is not continuous.

9.29.8. Insulating Fibreboard Finish

9.29.8.1. Material Standard

(1) Insulating fibreboard shall conform to CAN/ULC-S706, “Wood Fibre Thermal Insulation for Buildings”.

9.29.8.2. Thickness

(1) Insulating fibreboard sheets shall be not less than 11.1 mm thick on supports not more than 406 mm o.c.

(2) Insulating fibreboard tile shall be not less than 12.7 mm thick on supports spaced not more than 406 mm o.c.

9.29.8.3. Nails

(1) Nails for fastening fibreboard sheets shall be not less than 2.6 mm shank diameter casing or finishing nails of sufficient length to penetrate not less than 20 mm into the supports.

(2) Nails shall be spaced not more than 100 mm o.c. along edge supports and 200 mm o.c. along intermediate supports.

9.29.8.4. Edge Support

(1) All fibreboard edges shall be supported by blocking, furring or framing.
9.29.9. **Particleboard, OSB or Waferboard Finish**

9.29.9.1. **Material Standard**

(1) Particleboard finish shall conform to ANSI A208.1, “Particleboard”.

(2) OSB or waferboard finish shall conform to,

rs

(a) CSA O325, “Construction Sheathing”, or

(b) CSA O437.0, “OSB and Waferboard”.

9.29.9.2. **Minimum Thickness**

(1) Except as provided in Sentences (2) and (3), the minimum thickness of O-2 grade OSB used as an interior finish shall conform to that shown for plywood in Table 9.29.6.1.

(2) Thickness listed in Table 9.29.6.1. shall permit a manufacturing tolerance of -0.4 mm.

(3) No minimum thickness is required where O-2 grade OSB is applied over continuous backing.

(4) OSB conforming to O-1 grade, waferboard conforming to R-1 grade and particleboard shall be,

rs

(a) not less than 6.35 mm thick on supports not more than 406 mm o.c.,

(b) not less than 9.5 mm thick on supports not more than 610 mm o.c., and

(c) not less than 6.35 mm thick on supports not more than 610 mm o.c. in walls where blocking is provided at midwall height.

(5) OSB conforming to CSA O325, “Construction Sheathing”, shall meet the minimum panel mark of,

rs

(a) W16, on supports not more than 406 mm o.c.,

(b) W24, on supports not more than 610 mm o.c., and

(c) W16, on supports not more than 610 mm o.c. where blocking is provided at midwall height.

9.29.9.3. **Nails**

(1) Nails for fastening particleboard, OSB or waferboard shall be not less than 38 mm casing or finishing nails spaced not more than 150 mm o.c. along edge supports and 300 mm o.c. along intermediate supports.

9.29.9.4. **Edge Support**

(1) All particleboard, OSB or waferboard edges shall be supported by furring, blocking or framing.

9.29.10. **Wall Tile Finish**

9.29.10.1. **Tile Application**

(1) Ceramic tile shall be set in a mortar base or applied with an adhesive.

(2) Plastic tile shall be applied with an adhesive.

9.29.10.2. **Mortar Base**

(1) When ceramic tile is applied to a mortar base the cementitious material shall consist of one part Portland cement to not more than one-quarter part lime by volume.
(5) A supply duct from the outdoors to the heat recovery ventilator required in Sentence (3) and a main distribution trunk duct shall be provided and shall be sized according to Part 6, except that the supply duct and the main distribution trunk duct may be sized according to Table 9.32.3.7.A. where,
(a) the total duct length from the outdoor hood to any supply register does not exceed 21 m, and
(b) the total number of fittings does not exceed 8.

Table 9.32.3.7.A.
Minimum Outdoor Air Supply and Main Trunk Duct Sizes
Forming Part of Sentence 9.32.3.7.(5)

<table>
<thead>
<tr>
<th>Number of Bedrooms in Dwelling Unit</th>
<th>Minimum Outdoor Air Supply and Main Distribution Trunk Duct Diameter, mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>150</td>
</tr>
<tr>
<td>3</td>
<td>175</td>
</tr>
<tr>
<td>4</td>
<td>175</td>
</tr>
<tr>
<td>5</td>
<td>175</td>
</tr>
<tr>
<td>More than 5</td>
<td>System must comply with Sentence 6.2.1.1.(1)</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

(6) The outside air supply duct required by Sentence (5) shall not be considered to provide combustion and/or dilution air to fuel-burning appliances.

(7) Branch supply ducts leading from the main distribution trunk duct required by Sentence (5) to the rooms to which outdoor air is to be distributed shall be provided and shall be sized according to Part 6, except that the branch supply ducts may be sized according to Table 9.32.3.7.B. where,
(a) the total duct length from the outdoor hood to any supply register does not exceed 21 m, and
(b) the total number of fittings does not exceed 8.

Table 9.32.3.7.B.
Minimum Branch Supply Duct Sizes
Forming Part of Sentence 9.32.3.7.(7)

<table>
<thead>
<tr>
<th>Room, Space or Storey Served</th>
<th>Minimum Branch Supply Duct Diameter, mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 and 2 Bedroom Dwelling Units</td>
</tr>
<tr>
<td>Master bedroom</td>
<td>100</td>
</tr>
<tr>
<td>Other bedrooms</td>
<td>75</td>
</tr>
<tr>
<td>Storey with no bedrooms or living area</td>
<td>75</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

(8) In applying Sentence (7), where the dwelling unit has more than 5 bedrooms, ducting shall be sized according to Part 6.

(9) All branch supply ducts that are not fitted with diffusers with adjustable balance stops shall be supplied with accessible dampers that can be adjusted and fixed in their adjusted positions and that include devices to indicate the positions of the dampers.

(10) Provision shall be made for the free flow of air to all rooms by leaving gaps beneath doors, using louvered doors or installing grilles in doors.
9.32.3.8. Protection Against Depressurization

(1) When determining the need to provide protection against depressurization, consideration must be given to,
(a) whether the presence of soil gas is deemed to be a problem, and
(b) the presence of solid fuel-fired combustion appliances.

(2) Where a solid fuel-fired combustion appliance is installed, the ventilation system shall include a heat recovery ventilator that is designed to operate so that the flow of exhaust air does not exceed the flow of intake air in any operating mode, and that complies with the requirements of Article 9.32.3.11.

(3) The provision of make-up air is not required for mechanical exhausting devices operating a subfloor depressurization system installed for the purpose of reducing the risk of radon ingress.

9.32.3.9. Fan Ratings

(1) Except as provided in Sentence (4), capacity ratings for required fans shall be determined in accordance with,
(a) CAN/CSA-C260-M, “Rating the Performance of Residential Mechanical Ventilating Equipment”, or
(b) HVI 916, “Airflow Test Procedure”.

(2) Sound ratings for required fans shall be determined in accordance with,
(a) CAN/CSA-C260-M, “Rating the Performance of Residential Mechanical Ventilating Equipment”, or
(b) HVI 915, “Procedure for Loudness Rating of Residential Fan Products”.

(3) Capacity ratings for required fans shall be based on a static pressure differential of 50 Pa, 25 Pa or 7.5 Pa depending on whether the fan is installed with ductwork connected on both sides, one side or neither side, respectively.

(4) Except for heat recovery ventilators, exhaust fans required to make up any part of the total ventilation capacity required by Article 9.32.3.3. shall have a sound rating not greater than that specified in Table 9.32.3.9.

<table>
<thead>
<tr>
<th>Fan Application</th>
<th>Maximum Sound Rating, sones</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Rated according to CAN/CSA-C260-M</td>
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<tr>
<td>Principal exhaust fan</td>
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</tr>
<tr>
<td>Supplemental exhaust fans installed in bathrooms and water closet rooms and their make-up air fans</td>
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<tr>
<td>Supplemental exhaust fans installed in kitchens and their make-up air fans</td>
<td>no rating required</td>
</tr>
<tr>
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<td>2</td>
</tr>
</tbody>
</table>

(5) Required fans shall be installed according to the manufacturer's instructions.

(6) Mechanical ventilation devices shall conform to CSA C22.2 No. 113, “Fans and Ventilators”.

9.32.3.10. Ducts

(1) Ventilation ducts shall conform to the requirements of Part 6 for supply ducts, except that exhaust ducts that serve only a bathroom or water closet room may be of combustible material provided the duct is reasonably airtight and constructed of a material impervious to water.

(2) Exhaust ducts shall not discharge into heated or unheated enclosed spaces.

(3) Where an exhaust duct passes through or is adjacent to unheated space, the duct shall be insulated to not less than RSI 0.5.
(7) Where air intake and exhaust openings are in exposed locations, provision shall be made to protect them from the entry of precipitation by the use of louvres, weather cowls or other suitable protection.

(8) Air intake openings shall incorporate screens or grilles to protect against the entry of animals and insects.

(9) Except for exhaust outlets serving heat recovery ventilators, exhaust outlets shall incorporate backdraft dampers.

(10) Except for clothes dryers, exhaust outlets shall be fitted with screens of mesh not larger than 15 mm, except where climatic conditions may require larger openings.

(11) Where a screen or grille required by Sentences (8) and (10) has a screen mesh less than 6 mm, the screen or grille shall be removable for cleaning.

(12) The gross area of the screens or grilles installed in intake and exhaust openings shall be three times that of the duct served.

(13) Screens and grilles shall be of corrosion-resistant material.

(14) The net free area of an air intake or exhaust outlet shall be equal to or greater than the cross-sectional area of the duct served.

9.32.3.13. Installation

(1) Installation of fans and heat recovery ventilators shall be in accordance with manufacturer’s instructions for minimizing noise and vibration transmission and achieving the required sound rating.

(2) Where flow-regulating dampers are required, they shall be adjustable and accessible without requiring the removal of fans, motors, or insulating materials and without the need for specialized tools.

(3) Ventilation equipment shall be accessible for inspection, maintenance, repair and cleaning.

(4) Ventilation equipment installed in unheated spaces shall be installed so as to avoid condensation of moisture on fans and motors in accordance with the manufacturer’s instructions.

Section 9.33. Heating and Air-Conditioning

9.33.1. General

9.33.1.1. Design and Installation Requirements (See Appendix A.)

(1) The design and installation of central heating systems, including requirements for combustion air, shall conform to Part 6 and this Section.

(2) The design and installation of air-conditioning systems shall conform to Part 6.

(3) Repairs or component replacements that change the capacity or extent of safety of an existing heating, ventilating or air-conditioning system and that alter the method of operation shall conform to this Code.
9.33.1.2. Solid Fuel-Burning Appliances

(1) The design, construction and installation, including the provision of combustion air, of solid-fuel burning appliances and equipment, including stoves, cooktops and space heaters, shall conform to CSA B365, “Installation Code for Solid-Fuel-Burning Appliances and Equipment”. (See Appendix A.)

(2) Solid fuel-burning stoves, furnaces and hydronic heating systems designed to burn solid fuels, other than coal, shall conform to the particulate emission limits of,
   (a) CSA B415.1, “Performance Testing of Solid-Fuel-Burning Heating Appliances”, or
   (b) the “Standards of Performance for New Residential Wood Heaters”, set out in Subpart AAA of Part 60 of Title 40 of the Code of Federal Regulations, published by the United States Environmental Protection Agency, as it read on November 1, 2013.

9.33.1.3. Structural Movement

(1) Where the building is in a location where the spectral response acceleration, S_a(0.2), is greater than 0.55, heating and air-conditioning equipment with fuel or power connections shall be secured to the structure to resist overturning and displacement.

9.33.2. Required Heating Systems

9.33.2.1. Residential Heating Systems

(1) Residential buildings intended for use in the winter months on a continuing basis shall be equipped with heating facilities conforming to this Section.

9.33.2.2. Equipment Sizing

(1) The heating system capacity shall be based on the heating load calculated in accordance with Sentence 6.2.1.1.(1).

(2) Where a cooling system is installed, the cooling system capacity shall be based on the cooling load calculated in accordance with Sentence 6.2.1.1.(1).

(3) The heating and cooling equipment capacities shall be determined in accordance with the requirements of CSA F280, “Determining the Required Capacity of Residential Space Heating and Cooling Appliances”.

9.33.3. Design Temperatures

9.33.3.1. Indoor Design Temperatures

(1) At the outside design temperature, required heating facilities shall be capable of maintaining an indoor air temperature of not less than,
   (a) 22°C in all living spaces,
   (b) 22°C in unfinished basements, and
   (c) 15°C in heated crawl spaces.
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 CSA G30.18, “Carbon 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

(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.

(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

(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).
### Table A-8
Maximum Spans for Built-up Floor Beams Supporting Not More than One Floor
Forming Part of Sentence 9.23.4.2.(3)

<table>
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<th>Commercial Designation</th>
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Column 1 2 3 4 5 6 7 8 9 10 11 12
### Table A-8 (Cont'd)

**Maximum Spans for Built-up Floor Beams Supporting Not More than One Floor**

Forming Part of Sentence 9.23.4.2.(3)

<table>
<thead>
<tr>
<th>Commercial Designation</th>
<th>Grade</th>
<th>Supported Length, m ( m^{(4)} )</th>
<th>Maximum Span, m ( m^{(6)} )</th>
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</table>

**Notes to Table A-8:**

1. Beam spans apply only where the floors serve residential areas as described in Table 4.1.5.3., or the uniformly distributed *live load* on the floors does not exceed that specified for residential areas as described in Table 4.1.5.3.
2. When the floors have a concrete topping of not more than 51 mm, the spans must be multiplied by 0.8.
3. Supported length means half the sum of the joists spans on both sides of the beam.
4. Straight interpolation may be used for other supported lengths.
5. Spans are clear spans between supports. For total span, add two bearing lengths.
6. 3-ply beams with supported lengths greater than 4.2 m require minimum bearing length of 114 mm. All other beams require minimum bearing length of 76 mm.
<table>
<thead>
<tr>
<th>Commercial Designation</th>
<th>Grade</th>
<th>Supported Length, ( \text{m}^{(3)(4)} )</th>
<th>Maximum Span, ( \text{m}^{(5)(6)} )</th>
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Maximum Spans for Built-up Floor Beams Supporting Not More than Two Floors\(^{(1)(2)}\)

Forming Part of Sentence 9.23.4.2.(3)

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**Notes to Table A-9:**

1. Beam spans apply only where the floors serve residential areas as described in Table 4.1.5.3., or the uniformly distributed live load on the floors does not exceed that specified for residential areas as described in Table 4.1.5.3.

2. When the floors have a concrete topping of not more than 51 mm, the spans must be multiplied by 0.8.

3. Supported length means half the sum of the joists spans on both sides of the beam.

4. Straight interpolation may be used for other supported lengths.

5. Spans are clear spans between supports. For total span, add two bearing lengths.

6. 3-ply beams require minimum bearing length of 114 mm. 4-ply and 5-ply beams with supported lengths greater than 3 m require minimum bearing length of 114 mm. All other beams require minimum bearing length of 76 mm.
Table A-10
Maximum Spans for Built-up Floor Beams Supporting Not More than Three Floors\(^{(f)(g)}\)
Forming Part of Sentence 9.23.4.2.(3)

<table>
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<th>Commercial Designation</th>
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<th>Size of Built-up Beam, mm</th>
<th>Maximum Span, m(^{(5)(6)})</th>
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Column 1 2 3 4 5 6 7 8 9 10 11 12

Effective Date: January 1, 2015
Table A-10 (Cont’d)
Maximum Spans for Built-up Floor Beams Supporting Not More than Three Floors\(^{(1)(2)}\)
Forming Part of Sentence 9.23.4.2.(3)

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Notes to Table A-10:

1. Beam spans apply only where the floors serve residential areas as described in Table 4.1.5.3., or the uniformly distributed live load on the floors does not exceed that specified for residential areas as described in Table 4.1.5.3.
2. When the floors have a concrete topping of not more than 51 mm, the spans must be multiplied by 0.8.
3. Supported length means half the sum of the joists spans on both sides of the beam.
4. Straight interpolation may be used for other supported lengths.
5. Spans are clear spans between supports. For total span, add two bearing lengths.
6. 3-ply beams with supported lengths greater than 4.2 m require minimum bearing length of 152 mm. All other beams require minimum bearing length of 114 mm.

Issued October 24, 2014
Effective Date: January 1, 2015
<table>
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<th>Lintel Size, mm&lt;sup&gt;(2)&lt;/sup&gt;</th>
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Notes to Table A-13:

1. Where structural sheathing is used, lintel spans may be increased by 15%. Structural sheathing consists of a minimum 9.5 mm thick structural panel conforming to CSA O121, CSA O151, CSA O325 or CSA O437.0 fastened with at least two rows of fasteners to the exterior face of the lintel, and a single row to the top plates and studs. Fasteners shall conform to Table 9.23.3.5.

2. A single piece of 89 mm thick lumber may be used in lieu of 2 pieces of 38 mm thick lumber on edge.

3. If floor joists span the full width of the building without support, lintel spans shall be reduced by 15% for “Roof, ceiling and 1 storey”, by 20% for “Roof, ceiling and 2 storeys”, and by 25% for “Roof, ceiling and 3 storeys”.

4. For ends of lintels fully supported by walls, provide minimum bearing length of 38 mm for lintel spans up to 3 m, or minimum bearing length of 76 mm for lintel spans greater than 3 m.

5. Spans for 0.6 m tributary width are calculated for lintels in end walls that support only a 0.6 m width of roof and ceiling, but do not support roof joists, roof rafters or roof trusses.

6. Lintel spans are calculated based on a maximum floor joist, roof joist or rafter span of 4.9 m and a maximum roof truss span of 9.8 m. Lintel spans may be increased by 5% if rafter and joist spans are not more than 4.3 m and roof truss spans are not more than 8.6 m. Spans may be increased by 10% if rafter and joist spans are not more than 3.7 m and roof trusses are not more than 7.4 m.

7. Spans apply only where the floors serve residential areas as described in Table 4.1.5.3., or the uniformly distributed live load does not exceed that specified for residential areas as described in Table 4.1.5.3.
## Table A-14

### Maximum Spans for Hem – Fir Lintels – No. 1 or No. 2 Grade – Non-Structural Sheathing

*Forming Part of Sentences 9.23.12.3.(1) and (3) and 9.37.3.1.(1)*

<table>
<thead>
<tr>
<th>Lintel Supporting</th>
<th>Lintel Size, mm(2)</th>
<th>Maximum Span, m(3)(4)</th>
<th>Exterior Walls</th>
<th>Interior Walls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Specified Snow Load, kPa</td>
<td>1.0</td>
</tr>
<tr>
<td>Limited attic storage and ceiling</td>
<td>2 – 38 × 89</td>
<td>2.68</td>
<td>2.34</td>
<td>2.13</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>4.21</td>
<td>3.68</td>
<td>3.34</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>5.50</td>
<td>4.84</td>
<td>4.39</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>6.61</td>
<td>5.97</td>
<td>5.56</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>7.66</td>
<td>6.92</td>
<td>6.44</td>
</tr>
<tr>
<td>Roof and ceiling only (tributary width of 0.6 m maximum)(5)</td>
<td>2 – 38 × 89</td>
<td>1.31</td>
<td>1.13</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>1.87</td>
<td>1.61</td>
<td>1.43</td>
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<td></td>
<td>2 – 38 × 184</td>
<td>2.27</td>
<td>1.95</td>
<td>1.74</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>2.78</td>
<td>2.39</td>
<td>2.13</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>3.23</td>
<td>2.77</td>
<td>2.47</td>
</tr>
<tr>
<td>Roof and ceiling only (tributary width of 4.9 m maximum)(6)</td>
<td>2 – 38 × 89</td>
<td>0.91</td>
<td>0.85</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>1.29</td>
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<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>1.57</td>
<td>1.44</td>
<td>1.33</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>1.90</td>
<td>1.73</td>
<td>1.60</td>
</tr>
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<td></td>
<td>2 – 38 × 286</td>
<td>2.49</td>
<td>2.22</td>
<td>2.00</td>
</tr>
<tr>
<td>Roof, ceiling and 1 storey(3)(6)(7)</td>
<td>2 – 38 × 89</td>
<td>0.85</td>
<td>0.81</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>1.21</td>
<td>1.14</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>1.43</td>
<td>1.33</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>1.72</td>
<td>1.60</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>1.95</td>
<td>1.82</td>
<td>1.72</td>
</tr>
<tr>
<td>Roof, ceiling and 2 storeys(3)(6)(7)</td>
<td>2 – 38 × 89</td>
<td>0.85</td>
<td>0.81</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>1.21</td>
<td>1.14</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>1.43</td>
<td>1.33</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>1.72</td>
<td>1.60</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>1.95</td>
<td>1.82</td>
<td>1.72</td>
</tr>
<tr>
<td>Roof, ceiling and 3 storeys(3)(6)(7)</td>
<td>2 – 38 × 89</td>
<td>0.85</td>
<td>0.81</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>1.21</td>
<td>1.14</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>1.43</td>
<td>1.33</td>
<td>1.25</td>
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<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>1.72</td>
<td>1.60</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>1.95</td>
<td>1.82</td>
<td>1.72</td>
</tr>
</tbody>
</table>

### Notes to Table A-14:

1. Where structural sheathing is used, lintel spans may be increased by 15%. Structural sheathing consists of a minimum 9.5 mm thick structural panel conforming to CSA O121, CSA O151, CSA O325 or CSA O437.0 fastened with at least two rows of fasteners to the exterior face of the lintel, and a single row to the top plates and studs. Fasteners shall conform to Table 9.23.3.5.
2. A single piece of 89 mm thick lumber may be used in lieu of 2 pieces of 38 mm thick lumber on edge.
3. If floor joists span the full width of the building without support, lintel spans shall be reduced by 15% for “Roof, ceiling and 1 storey”, by 20% for “Roof, ceiling and 2 storeys”, and by 25% for “Roof, ceiling and 3 storeys”.
4. For ends of lintels fully supported by walls, provide minimum bearing length of 38 mm for lintel spans up to 3 m, or minimum bearing length of 76 mm for lintel spans greater than 3 m.
5. Spans for 0.6 m tributary width are calculated for lintels in end walls that support only a 0.6 m width of roof and ceiling, but do not support roof joists, roof rafters or roof trusses.
6. Lintel spans are calculated based on a maximum floor joist, roof joist or rafter span of 4.9 m and a maximum roof truss span of 9.8 m. Lintel spans may be increased by 5% if rafter and joist spans are not more than 4.3 m and roof truss spans are not more than 8.6 m. Spans may be increased by 10% if rafter and joist spans are not more than 3.7 m and roof trusses are not more than 7.4 m.
7. Spans apply only where the floors serve residential areas as described in Table 4.1.5.3., or the uniformly distributed live load does not exceed that specified for residential areas as described in Table 4.1.5.3.
### Notes to Table A-15:

1. Where structural sheathing is used, lintel spans may be increased by 15%. Structural sheathing consists of a minimum 9.5 mm thick structural panel conforming to CSA O121, CSA O151, CSA O325 or CSA O437.0 fastened with at least two rows of fasteners to the exterior face of the lintel, and a single row to the top plates and studs. Fasteners shall conform to Table 9.23.3.5.

2. A single piece of 89 mm thick lumber may be used in lieu of 2 pieces of 38 mm thick lumber on edge.

3. If floor joists span the full width of the building without support, lintel spans shall be reduced by 15% for “Roof, ceiling and 1 storey”, by 20% for “Roof, ceiling and 2 storeys”, and by 25% for “Roof, ceiling and 3 storeys”.

4. For ends of lintels fully supported by walls, provide minimum bearing length of 38 mm for lintel spans up to 3 m, or minimum bearing length of 76 mm for lintel spans greater than 3 m.

5. Spans for 0.6 m tributary width are calculated for lintels in end walls that support only a 0.6 m width of roof and ceiling, but do not support roof joists, roof rafters or roof trusses.

6. Lintel spans are calculated based on a maximum floor joist, roof joist or rafter span of 4.9 m and a maximum roof truss span of 9.8 m. Lintel spans may be increased by 5% if rafter and joist spans are not more than 4.3 m and roof truss spans are not more than 8.6 m. Spans may be increased by 10% if rafter and joist spans are not more than 3.7 m and roof trusses are not more than 7.4 m.

7. Spans apply only where the floors serve residential areas as described in Table 4.1.5.5, or the uniformly distributed live load does not exceed that specified for residential areas as described in Table 4.1.5.3.

#### Table A-15

<table>
<thead>
<tr>
<th>Lintel Supporting</th>
<th>Lintel Size, mm(2)</th>
<th>Exterior Walls</th>
<th>Interior Walls</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Specified Snow Load, kPa</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>Limited attic storage and ceiling</td>
<td>2 – 38 × 89</td>
<td>2.55</td>
<td>2.23</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>4.01</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>5.27</td>
<td>4.61</td>
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<td>2 – 38 × 235</td>
<td>6.37</td>
<td>5.76</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>7.38</td>
<td>6.67</td>
</tr>
<tr>
<td>Roof and ceiling only (tributary width of 0.6 m maximum)(5)</td>
<td>2 – 38 × 89</td>
<td>1.27</td>
<td>1.11</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 140</td>
<td>1.93</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
<td>2.35</td>
<td>2.02</td>
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<tr>
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<td>2 – 38 × 235</td>
<td>2.88</td>
<td>2.47</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>3.34</td>
<td>2.87</td>
</tr>
<tr>
<td>Roof and ceiling only (tributary width of 4.9 m maximum)(6)</td>
<td>2 – 38 × 89</td>
<td>1.05</td>
<td>0.96</td>
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<td>2 – 38 × 140</td>
<td>1.49</td>
<td>1.37</td>
</tr>
<tr>
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<td>2 – 38 × 184</td>
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<td>2 – 38 × 235</td>
<td>2.22</td>
<td>2.04</td>
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<td>2 – 38 × 286</td>
<td>2.58</td>
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</tr>
<tr>
<td>Roof, ceiling and 1 storey(3)(4)(7)</td>
<td>2 – 38 × 89</td>
<td>0.94</td>
<td>0.88</td>
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<td></td>
<td>2 – 38 × 140</td>
<td>1.34</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 184</td>
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</tr>
<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>1.99</td>
<td>1.87</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>2.31</td>
<td>2.12</td>
</tr>
<tr>
<td>Roof, ceiling and 2 storeys(3)(4)(7)</td>
<td>2 – 38 × 89</td>
<td>0.88</td>
<td>0.83</td>
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<td>2 – 38 × 140</td>
<td>1.25</td>
<td>1.19</td>
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<td>2 – 38 × 184</td>
<td>1.52</td>
<td>1.44</td>
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<tr>
<td></td>
<td>2 – 38 × 235</td>
<td>1.86</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>2 – 38 × 286</td>
<td>2.11</td>
<td>1.96</td>
</tr>
</tbody>
</table>

<table>
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<th>Column 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
</table>

Issued October 24, 2014
### Table A-16

**Maximum Spans for Glued-Laminated Timber Lintels – 20f-E Stress Grade – Exterior Walls – Roof and Ceiling Load Only**

Forming Part of Sentences 9.23.12.3.(1) and (3) and 9.37.3.1.(1)

<table>
<thead>
<tr>
<th>Lintel Size, mm</th>
<th>Maximum Span, m&lt;sup&gt;1(2)(3)&lt;/sup&gt;</th>
<th>Specified Snow Load, kPa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>2.4</td>
<td>3.6</td>
</tr>
<tr>
<td>130 × 304</td>
<td>6.23</td>
<td>5.63</td>
</tr>
<tr>
<td>80 × 380</td>
<td>6.52</td>
<td>5.89</td>
</tr>
<tr>
<td>130 × 342</td>
<td>6.80</td>
<td>6.15</td>
</tr>
<tr>
<td>80 × 418</td>
<td>7.00</td>
<td>6.33</td>
</tr>
<tr>
<td>130 × 380</td>
<td>7.36</td>
<td>6.65</td>
</tr>
<tr>
<td>80 × 456</td>
<td>7.48</td>
<td>6.76</td>
</tr>
<tr>
<td>130 × 418</td>
<td>7.91</td>
<td>7.15</td>
</tr>
<tr>
<td>80 × 494</td>
<td>7.94</td>
<td>7.17</td>
</tr>
<tr>
<td>80 × 532</td>
<td>8.39</td>
<td>7.58</td>
</tr>
<tr>
<td>130 × 456</td>
<td>8.44</td>
<td>7.63</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
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</tbody>
</table>

**Notes to Table A-16:**

1. Spans are valid for glued-laminated timber conforming to CAN/CSA-O122 and CSA O177.
2. Provide a minimum bearing length of 89 mm. (Alternatively, the bearing length may be calculated in accordance with Part 4.)
3. Top edge of lintel assumed to be fully laterally supported.
4. Supported length means half the length of trusses or rafters, plus the length of overhang beyond the wall.
5. For intermediate supported lengths, straight interpolation may be used.
### Table A-25

**Maximum Spans for Steel Beams Supporting a Roof and One Floor in Dwelling Units**

Where Beams Support Interior Stud Walls or Exterior Stud Walls With Siding – 2.0 kPa Specified Roof Design Snow Load

Forming Part of Sentence 9.23.4.3.(1)

<table>
<thead>
<tr>
<th>Roof Live Load, kPa</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Supported Roof Length, m(^1)</td>
<td>2.4</td>
</tr>
<tr>
<td>Supported Floor Length, m(^2)</td>
<td>2.4</td>
</tr>
<tr>
<td>Steel Beam Section</td>
<td>W 150 × 22</td>
</tr>
<tr>
<td></td>
<td>3.81</td>
</tr>
<tr>
<td></td>
<td>3.54</td>
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<td></td>
<td>3.13</td>
</tr>
<tr>
<td></td>
<td>2.94</td>
</tr>
</tbody>
</table>

**Notes to Table A-25:**

1. Supported roof length means half the sum of the roof framing spans on both sides of the beam.
2. Supported floor length means half the sum of the floor framing spans on both sides of the beam.
Table A-26

Maximum Spans for Steel Beams Supporting a Roof and One Floor in Dwelling Units
Where Beams Support Exterior Stud Walls With Brick Veneer – 2.5 kPa Specified Roof Design Snow Load

Forming Part of Sentence 9.23.4.3.(1)

<table>
<thead>
<tr>
<th>Steel Beam Section</th>
<th>Supported Roof Length, m (1)</th>
<th>Supported Floor Length, m (2)</th>
<th>2.4</th>
<th>3.6</th>
<th>4.8</th>
<th>6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 150 × 22</td>
<td>2.71</td>
<td>3.59</td>
<td>2.55</td>
<td>2.46</td>
<td>2.43</td>
<td>2.35</td>
</tr>
<tr>
<td>W 150 × 30</td>
<td>3.04</td>
<td>2.91</td>
<td>2.87</td>
<td>2.76</td>
<td>2.73</td>
<td>2.64</td>
</tr>
<tr>
<td>W 150 × 37</td>
<td>3.32</td>
<td>3.17</td>
<td>3.13</td>
<td>3.01</td>
<td>2.97</td>
<td>2.88</td>
</tr>
<tr>
<td>W 200 × 27</td>
<td>3.49</td>
<td>3.33</td>
<td>3.29</td>
<td>3.16</td>
<td>3.13</td>
<td>3.02</td>
</tr>
<tr>
<td>W 200 × 31</td>
<td>3.72</td>
<td>3.56</td>
<td>3.51</td>
<td>3.38</td>
<td>3.34</td>
<td>3.23</td>
</tr>
<tr>
<td>W 200 × 36</td>
<td>3.82</td>
<td>3.65</td>
<td>3.61</td>
<td>3.47</td>
<td>3.43</td>
<td>3.32</td>
</tr>
<tr>
<td>W 200 × 42</td>
<td>4.05</td>
<td>3.87</td>
<td>3.82</td>
<td>3.68</td>
<td>3.64</td>
<td>3.52</td>
</tr>
<tr>
<td>W 250 × 33</td>
<td>4.31</td>
<td>4.12</td>
<td>4.07</td>
<td>3.91</td>
<td>3.87</td>
<td>3.74</td>
</tr>
<tr>
<td>W 250 × 49</td>
<td>4.87</td>
<td>4.66</td>
<td>4.60</td>
<td>4.42</td>
<td>4.37</td>
<td>4.23</td>
</tr>
<tr>
<td>W 300 × 39</td>
<td>5.19</td>
<td>4.96</td>
<td>4.89</td>
<td>4.71</td>
<td>4.65</td>
<td>4.50</td>
</tr>
<tr>
<td>W 300 × 45</td>
<td>5.46</td>
<td>5.22</td>
<td>5.15</td>
<td>4.95</td>
<td>4.90</td>
<td>4.74</td>
</tr>
<tr>
<td>W 300 × 52</td>
<td>5.80</td>
<td>5.54</td>
<td>5.47</td>
<td>5.26</td>
<td>5.21</td>
<td>5.03</td>
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<td>W 300 × 60</td>
<td>5.96</td>
<td>5.69</td>
<td>5.62</td>
<td>5.41</td>
<td>5.35</td>
<td>5.17</td>
</tr>
<tr>
<td>W 360 × 33</td>
<td>5.14</td>
<td>4.91</td>
<td>4.85</td>
<td>4.66</td>
<td>4.61</td>
<td>4.46</td>
</tr>
<tr>
<td>W 360 × 39</td>
<td>5.51</td>
<td>5.27</td>
<td>5.20</td>
<td>5.00</td>
<td>4.94</td>
<td>4.78</td>
</tr>
<tr>
<td>W 360 × 45</td>
<td>5.85</td>
<td>5.59</td>
<td>5.52</td>
<td>5.31</td>
<td>5.25</td>
<td>5.08</td>
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<tr>
<td>W 360 × 51</td>
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<td>5.87</td>
<td>5.79</td>
<td>5.57</td>
<td>5.51</td>
<td>5.33</td>
</tr>
<tr>
<td>W 360 × 57</td>
<td>6.42</td>
<td>6.13</td>
<td>6.05</td>
<td>5.82</td>
<td>5.76</td>
<td>5.57</td>
</tr>
</tbody>
</table>

Notes to Table A-26:
(1) Supported roof length means half the sum of the roof framing spans on both sides of the beam.
(2) Supported floor length means half the sum of the floor framing spans on both sides of the beam.
Table 10.3.2.2.A.  
For Evaluation of Early Warning/Evacuation  
Forming Part of Sentence 10.3.2.2.(3)

<table>
<thead>
<tr>
<th>Early Warning / Evacuation Evaluation</th>
<th>Compliance Alternative(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Warning and Evacuation to be checked against</td>
<td>EARLY WARNING</td>
</tr>
<tr>
<td>(a) access to exit widths based on occupant load in Subsection 3.3.1. or 9.9.3.;</td>
<td>(a) Compliance alternatives as listed may be used.</td>
</tr>
<tr>
<td>(b) exit widths based on occupant load in Subsection 3.4.3. or 9.9.3.;</td>
<td>EVACUATION</td>
</tr>
<tr>
<td>(c) exit signs in Subsection 3.4.5. or 9.9.11.;</td>
<td>(b) Compliance alternatives as listed to access to exit and exit widths, number of exits, door release hardware, and travel distance may be used.</td>
</tr>
<tr>
<td>(d) lighting of exits, lighting of access to exits and emergency lighting in Subsection 3.2.7. or 9.9.12.;</td>
<td></td>
</tr>
<tr>
<td>(e) fire alarm system in Subsection 3.2.4. or 9.10.18.;</td>
<td></td>
</tr>
<tr>
<td>(f) smoke alarms in Subsection 9.10.19.;</td>
<td></td>
</tr>
<tr>
<td>(g) travel distance and number of exits in other Parts of this Division;</td>
<td></td>
</tr>
<tr>
<td>(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</td>
<td></td>
</tr>
<tr>
<td>(i) door release hardware requirements in Articles 3.3.1.12. and 3.4.6.16., and deficiencies shall be upgraded.</td>
<td></td>
</tr>
</tbody>
</table>

**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 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 of noncombustible construction or to be constructed in accordance with Article 3.2.2.43A. or 3.2.2.50A.

(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.

(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.
Table 10.3.2.2.B.(1)
Additional Upgrading for Multiple Major Occupancies
Forming Part of Sentence 10.3.2.2.(9)

<table>
<thead>
<tr>
<th>New Major Occupancy</th>
<th>Code Requirements</th>
<th>Compliance Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Table 3.1.3.1. and Subsection 9.10.9. Where:</td>
<td>For Existing Building Reduce to</td>
</tr>
<tr>
<td></td>
<td>1 h rating required</td>
<td>45 min</td>
</tr>
<tr>
<td></td>
<td>2 h rating required</td>
<td>1.5 h</td>
</tr>
<tr>
<td></td>
<td>3 h rating required</td>
<td>2 h</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes to Table 10.3.2.2.B.:
(1) For buildings with multiple major occupancies only, where there is a change in major occupancy.

(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.
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

(I) 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.

11.3.5.2. Vertical Separations and Existing Sewage Systems

(I) Despite Subsections 11.3.1. to 11.3.3., where an existing sewage system is extended or is subject to material alteration or repair, the requirements respecting the vertical separation to the water table set out in Part 8 apply to the extended, altered or repaired portions of the sewage system as well as to the existing portions of the sewage system.

Section 11.4. Performance Level Evaluation and Compensating Construction

11.4.1. General

11.4.1.1. Performance Level

(I) 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

(I) 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

(I) 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

(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.

(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 of noncombustible construction or to be constructed in accordance with Article 3.2.2.43A. or 3.2.2.50A.

(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.
11.4.2.5. 2012 Building Code Compendium

(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.

11.4.2.6. Extension of Buildings of Combustible Construction

(1) The performance level of an existing building of combustible construction is reduced where the existing building is extended by adding a storey or storeys such that the extended building will be more than four storeys in building height.

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.)

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 the building to be of noncombustible construction or to be constructed in accordance with Article 3.2.2.43A. or 3.2.2.50A. 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.

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.

11.4.3.7. Extension of Buildings of Combustible Construction

1. Where the performance level of an existing building is reduced under Article 11.4.2.6., the building shall be sprinklered.
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)

<table>
<thead>
<tr>
<th>Fire-Resistance Rating</th>
<th>Type of Construction</th>
<th>C.I.</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floors over Basement</td>
<td>Other Floors</td>
<td>Roof</td>
<td></td>
</tr>
<tr>
<td>3 h</td>
<td>3 h</td>
<td>1.5 h</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>2 h</td>
<td>2 h</td>
<td>1 h</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>1 h</td>
<td>1 h</td>
<td>45 min</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>45 min</td>
<td>45 min</td>
<td>0 h</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>Heavy Timber</td>
</tr>
<tr>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>Combustible</td>
</tr>
<tr>
<td>45 min</td>
<td>0 h</td>
<td>0 h</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>45 min</td>
<td>45 min</td>
<td>0 h</td>
<td>Combustible</td>
</tr>
<tr>
<td>30 min</td>
<td>0 h</td>
<td>0 h</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>30 min</td>
<td>30 min</td>
<td>0 h</td>
<td>Combustible</td>
</tr>
<tr>
<td>0 h</td>
<td>30 min</td>
<td>0 h</td>
<td>Combustible</td>
</tr>
<tr>
<td>0 h</td>
<td>0 h</td>
<td>0 h</td>
<td>Combustible</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

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 11.2.1.1.B.(1)(4)
Hazard Index
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group A Division 1</th>
<th>Occupancy H.I.(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Dinner Theatres</td>
<td>4</td>
</tr>
<tr>
<td>Live Theatres</td>
<td>4</td>
</tr>
<tr>
<td>Motion Picture Theatres</td>
<td>4</td>
</tr>
<tr>
<td>Opera Houses</td>
<td>4</td>
</tr>
<tr>
<td>Television Studios (With Audience)</td>
<td>4</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.B.:

- **Building Size (Maximum)(2)(3)**
  - 300 occupant load maximum / 1 storey
  - 600 m² / 600 occupant load maximum / 1 storey with less than 40% 2 storey(6)
  - Any area / not exceeding 18 m high, measured between grade and the floor level of the top storey
  - Over 18 m high, measured between grade and the floor level of the top storey

- **Building** size is based on building area and building height, unless noted.
- **Building** size is based on the existing building facing one street.
- For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
- Take lowest rating for H.I. from Table for major occupancy change.
- Building may have less than 40% of its area as 2 storeys for purposes as described in Clauses 3.2.2.21.(1)(b) and (c).
<table>
<thead>
<tr>
<th>Group A Division 2</th>
<th>Occupancy H.I.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
<td>Medium</td>
</tr>
<tr>
<td>Art Galleries</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Auditoria</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Billiard Halls, Amusement Arcades</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Bowling Alleys</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Churches</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Clubs, Lodges (Non-Residential)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Community Halls</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Concert Halls</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Court Rooms</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Dance Halls</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Daycare Centres</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Exhibition Halls (Without Sales)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Exhibition Halls (With Sales)</td>
<td>See Group E</td>
<td></td>
</tr>
<tr>
<td>Gaming premises</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Gymnasia (Multi-Purpose)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Gymnasia (Athletic)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Lecture Halls</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Libraries</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Licensed Beverage Establishments</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Licensed Clubs, Lodges</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Museums</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Passenger Stations / Depots</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Public Heritage Buildings</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>Recreational Piers</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Restaurants</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Schools, Colleges</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Undertaking Premises</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
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</tbody>
</table>
Table 11.2.1.1.C. (1)(4)(6) (Cont'd)

**Hazard Index**
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Building Size (Maximum)</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 400 m² / 1 storey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 250 m² / 3 storey (Public Heritage Building)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 800 m² / 2 storey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Any area / not exceeding 18 m high, measured between grade and the floor level of the top storey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Over 18 m high, measured between grade and the floor level of the top storey</td>
<td></td>
<td></td>
<td>H.I. = 7</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.C.:

- (1) Building Size (Maximum) (2)(3)
- (2) Sizes are based on building area and building height, unless noted.
- (3) Building size is based on the existing building facing one street.
- (4) For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
- (5) Take lowest rating for H.I. from Table for major occupancy change.
- (6) Buildings which exceed 3 storeys in building height and are of combustible construction shall be sprinklered.

Table 11.2.1.1.D. (1)(4)

**Hazard Index**
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Occupancy</th>
<th>H.I.(5)</th>
</tr>
</thead>
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<tr>
<td>Small</td>
<td>Medium</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group A</th>
<th>Division 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arenas (No Occupancy On Activity Surface)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Armouries (No Occupancy On Activity Surface)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Enclosed Stadia or Grandstand</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Ice Rinks (No Occupancy On Activity Surface)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Indoor Swimming Pools</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.D.:

- (1) Building Size (Maximum) (2)(3)
- (2) Sizes are based on building area and building height, unless noted.
- (3) Building size is based on the existing building facing one street.
- (4) For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
- (5) Take lowest rating for H.I. from Table for major occupancy change.
### Table 11.2.1.1.E. (1)(3)
#### Hazard Index
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group A Division 4</th>
<th>Occupancy H.I. (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Amusement Park Structures</td>
<td>2</td>
</tr>
<tr>
<td>Bleachers</td>
<td>1</td>
</tr>
<tr>
<td>Grandstands (Open)</td>
<td>1</td>
</tr>
<tr>
<td>Reviewing Stands</td>
<td>1</td>
</tr>
<tr>
<td>Stadia (Open)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

#### Notes to Table 11.2.1.1.E.:

1. Building Size (Maximum)(2)
   - 2 500 occupant load max. / min. limiting distance of 6 m (combustible)
   - 15 000 occupant load maximum (with roof at least ½ rating if combustible)
   - Unlimited occupant load

2. Building size is based on the existing building facing one street.
3. For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
4. Take lowest rating for H.I. from Table for major occupancy change.

### Table 11.2.1.1.F. (1)
#### Hazard Index
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group B Division 1</th>
<th>Occupancy H.I. (3)(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Detention Facilities (Minimum Security)(4)</td>
<td>4</td>
</tr>
<tr>
<td>Detention Facilities (All Other Types of Security)</td>
<td>6</td>
</tr>
<tr>
<td>Police Station with Detention</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
Notes to Table 11.2.1.1.F.:

<table>
<thead>
<tr>
<th>Building Size (Maximum)(2)</th>
<th>Hazard Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any area / 1 storey</td>
<td>Small</td>
</tr>
<tr>
<td>600 m² / 1 storey (Police Station with Detention)</td>
<td>Small</td>
</tr>
<tr>
<td>Any area (noncombustible) / 2 storey</td>
<td>Medium</td>
</tr>
<tr>
<td>Any area (noncombustible); 500 m² (combustible) / 2 storey</td>
<td>Large</td>
</tr>
<tr>
<td>Over 18 m high, measured between grade and the floor level of the top storey (noncombustible)</td>
<td>H.I. = 7</td>
</tr>
<tr>
<td>Over 500 m² (combustible) / over 2 storey</td>
<td>H.I. = 7</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.G.:

<table>
<thead>
<tr>
<th>Building Size (Maximum)(2)(3)</th>
<th>Hazard Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 m² / 1 storey</td>
<td>Small</td>
</tr>
<tr>
<td>600 m² / 1 storey (Police Station with Detention)</td>
<td>Small</td>
</tr>
<tr>
<td>500 m² / 2 storey; 1 000 m² / 1 storey</td>
<td>Medium</td>
</tr>
<tr>
<td>Any area (noncombustible); 500 m² (combustible) / 2 storey</td>
<td>Medium</td>
</tr>
<tr>
<td>Any area / not exceeding 18 m high, measured between grade and the floor level of the top storey</td>
<td>Large</td>
</tr>
<tr>
<td>Over 18 m high, measured between grade and the floor level of the top storey</td>
<td>H.I. = 7</td>
</tr>
</tbody>
</table>

Table 11.2.1.1.G.(1)(4)

<table>
<thead>
<tr>
<th>Hazard Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forming Part of Sentences 11.2.1.1.(1) and (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group B Division 2</th>
<th>Occupancy H.I.(5)(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital, Long-Term Care Home (Immobile)(6)</td>
<td>4</td>
</tr>
<tr>
<td>Hospital, Long-Term Care Home (Non-Ambulatory)(6)</td>
<td>4</td>
</tr>
<tr>
<td>Hospital, Long-Term Care Home (Ambulatory)(6)</td>
<td>3</td>
</tr>
<tr>
<td>Psychiatric Facility (Maximum Confinement)</td>
<td>4</td>
</tr>
<tr>
<td>Psychiatric Facility (Minimum Confinement)</td>
<td>3</td>
</tr>
<tr>
<td>Police Station With Detention (as Permitted in Article 3.1.2.4.)</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.G.:

<table>
<thead>
<tr>
<th>Building Size (Maximum)(2)(3)</th>
<th>Hazard Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any area / 1 storey</td>
<td>Small</td>
</tr>
<tr>
<td>600 m² / 1 storey (Police Station with Detention)</td>
<td>Small</td>
</tr>
<tr>
<td>Any area (noncombustible) / 2 storey</td>
<td>Medium</td>
</tr>
<tr>
<td>Any area (noncombustible); 500 m² (combustible) / 2 storey</td>
<td>Medium</td>
</tr>
<tr>
<td>Over 18 m high, measured between grade and the floor level of the top storey (noncombustible)</td>
<td>Large</td>
</tr>
<tr>
<td>Over 500 m² (combustible) / over 2 storey</td>
<td>H.I. = 7</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.F.:

1. Building Size (Maximum)
2. Sizes are based on building area and building height, unless noted.
3. Building size is based on the existing building facing one street.
4. For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
5. When the size of a building falls into more than one category, the H.I. for the least restrictive is permitted to be used.
6. Immobile means patients are attached to life support systems and cannot be moved. Non-Ambulatory means patients are confined to bed and require transportation. Ambulatory means patients may walk on their own.
7. Care and treatment occupancy with any H.I. shall be sprinklered.
### Table 11.2.1.1.H.1

**Hazard Index**

Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group B</th>
<th>Occupancy H.I.(4)(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division 3</td>
<td>Small</td>
</tr>
<tr>
<td>Residential care facilities</td>
<td></td>
</tr>
<tr>
<td>(Ambulatory)⁶</td>
<td>3</td>
</tr>
<tr>
<td>(Non-Ambulatory)⁶</td>
<td>4</td>
</tr>
<tr>
<td>Children Custodial Homes</td>
<td>3</td>
</tr>
<tr>
<td>Convalescent Homes</td>
<td></td>
</tr>
<tr>
<td>(Ambulatory)⁶</td>
<td>3</td>
</tr>
<tr>
<td>(Non-Ambulatory)⁶</td>
<td>4</td>
</tr>
<tr>
<td>Group Homes For Adult Residents with Developmental Disabilities</td>
<td></td>
</tr>
<tr>
<td>(Minimum Confinement)</td>
<td>3</td>
</tr>
<tr>
<td>(Maximum Confinement)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Column 1**

| 2 | 3 | 4 |

**Notes to Table 11.2.1.1.H.:**

1. **Building Size (Maximum)**

   - 600 m² / 1 storey
   - 500 m² / 2 storey; 1 000 m² / 1 storey
   - Any area / not exceeding 18 m high, measured between grade and the floor level of the top storey
   - Over 18 m high, measured between grade and the floor level of the top storey

2. Sizes are based on building area and building height, unless noted.

3. Building size is based on the existing building facing one street.

4. When the size of a building falls into more than one category, the H.I. for the least restrictive is permitted to be used.

5. Care occupancy with any H.I. shall be sprinklered.

6. Non-Ambulatory means patients are confined to bed and require transportation. Ambulatory means patients may walk on their own.
### Table 11.2.1.1.I. (1)
#### Hazard Index
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group C</th>
<th>Occupancy H.I. (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Apartments</td>
<td>3</td>
</tr>
<tr>
<td>Boarding Houses/Group Homes</td>
<td>3</td>
</tr>
<tr>
<td>Clubs, Residential</td>
<td>3</td>
</tr>
<tr>
<td>Colleges, Residential</td>
<td>3</td>
</tr>
<tr>
<td>Convents</td>
<td>3</td>
</tr>
<tr>
<td>Dormitories/Hostels</td>
<td>3</td>
</tr>
<tr>
<td>Hotels</td>
<td>3</td>
</tr>
<tr>
<td>Houses</td>
<td>2</td>
</tr>
<tr>
<td>Lodging Houses</td>
<td>3</td>
</tr>
<tr>
<td>Live/work units</td>
<td>4</td>
</tr>
<tr>
<td>Monasteries</td>
<td>3</td>
</tr>
<tr>
<td>Public Heritage Buildings</td>
<td>3</td>
</tr>
<tr>
<td>Rectories</td>
<td>2</td>
</tr>
<tr>
<td>Retirement Homes</td>
<td>3</td>
</tr>
<tr>
<td>Rooming Houses</td>
<td>3</td>
</tr>
<tr>
<td>Schools, Residential</td>
<td>3</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Notes to Table 11.2.1.1.I.:**

1. **Building Size (Maximum)**
   - 600 m² / 3 storey
   - 250 m² / 3 storey (Public Heritage Building)
   - 2 000 m² / not exceeding 6 storeys
   - Any area / not exceeding 36 m high, measured between grade and the floor level of the top storey
   - Over 36 m high, measured between grade and the floor level of the top storey
   - Hotels over 18 m high, measured between grade and the floor level of the top storey

2. **Sizes** are based on **building area** and **building height**, unless noted.

3. **Buildings** which exceed 3 storeys in **building height** and are of combustible construction shall be sprinklered.

4. Take lowest rating for **H.I.** from Table for major occupancy change.
Table 11.2.1.1.J. (1)(46)
Hazard Index
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group D</th>
<th>Occupancy H.I.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
<td>Medium</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>Advertising and Sales Offices</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Automatic Bank Deposit</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Barber/Hairdresser Shops</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Beauty Parlours</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Branch Banks</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Car Rental Premises</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Chiropractic Offices</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>Communications Offices (Telecommunications)</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>Communications Offices (Courier)</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td></td>
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<tr>
<td>Computer Centres</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Construction Offices</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td></td>
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<td>Costume Rental Premises</td>
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<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Dental Offices (Denture Clinic)</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Dental Offices (Surgical/Anaesthesia)</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>Dental Offices (General)</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>Dry Cleaning Depots</td>
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<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Dry Cleaning Premises (Self-Serve)</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Health/Fitness Clubs</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Laundries (Self-Serve)</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Massage Parlours</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Medical Offices (Examination)</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Medical Offices (Surgical/Anaesthesia)</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Offices (Business)</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td></td>
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<tr>
<td>Offices (Charitable)</td>
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<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Offices (Legal/Accounting)</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Offices/Studios (Design)</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>
### Table 11.2.1.1.J. (Cont'd)

**Hazard Index**

Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group D</th>
<th>Occupancy H.I.(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Pharmacy Offices</td>
<td>3</td>
</tr>
<tr>
<td>Photographic Studios</td>
<td>3</td>
</tr>
<tr>
<td>Physiotherapy Offices</td>
<td>3</td>
</tr>
<tr>
<td>Police Stations (No Detention)</td>
<td>3</td>
</tr>
<tr>
<td>Printing and Duplicating</td>
<td></td>
</tr>
<tr>
<td>Public Heritage Buildings</td>
<td>3</td>
</tr>
<tr>
<td>Public Saunas</td>
<td>3</td>
</tr>
<tr>
<td>Radio Stations (No Audience)</td>
<td>3</td>
</tr>
<tr>
<td>Small Tool Rental Premises</td>
<td>3</td>
</tr>
<tr>
<td>Suntan Parlours</td>
<td>3</td>
</tr>
<tr>
<td>Veterinary Offices</td>
<td>3</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Notes to Table 11.2.1.1.J.:**

1. **Building Size (Maximum)**
   - 800 m² / 2 storey
   - 250 m² / 3 storey (Public Heritage Building)
   - 1 600 m² / 3 storey
   - Any area / not exceeding 18 m high, measured between grade and the floor level of the top storey
   - Over 18 m high, measured between grade and the floor level of the top storey, but not exceeding 36 m high, measured between grade and the floor level of the top storey
   - Over 36 m high, measured between grade and the floor level of the top storey

2. Sizes are based on building area and building height, unless noted.
3. Building size is based on the existing building facing one street.
4. For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
5. When the size of a building falls into more than one category, the H.I. for the least restrictive is permitted to be used.
6. Buildings which exceed 3 storeys in building height and are of combustible construction shall be sprinklered.
## Table 11.2.1.1.K.(1)(4)(6)

**Hazard Index**

<table>
<thead>
<tr>
<th>Group E</th>
<th>Occupancy H.I.(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Automotive/Hardware Department Stores</td>
<td>4</td>
</tr>
<tr>
<td>China Shops</td>
<td>3</td>
</tr>
<tr>
<td>Department Stores</td>
<td>4</td>
</tr>
<tr>
<td>Electrical Stores (Fixtures)</td>
<td>3</td>
</tr>
<tr>
<td>Exhibition Halls (With Sales)</td>
<td>4</td>
</tr>
<tr>
<td>“Fast Food” Outlets</td>
<td>3</td>
</tr>
<tr>
<td>Feed and Seed Stores</td>
<td>4</td>
</tr>
<tr>
<td>Flea Markets</td>
<td>4</td>
</tr>
<tr>
<td>Flowers Shops</td>
<td>3</td>
</tr>
<tr>
<td>“Food” and Vegetable Markets</td>
<td>3</td>
</tr>
<tr>
<td>Garden Shops</td>
<td>3</td>
</tr>
<tr>
<td>“Gas” Bars</td>
<td>4</td>
</tr>
<tr>
<td>Gift Shops</td>
<td>3</td>
</tr>
<tr>
<td>Home Improvement Stores</td>
<td>4</td>
</tr>
<tr>
<td>Kitchen/Bathroom Cupboards Stores</td>
<td>3</td>
</tr>
<tr>
<td>Plumbing Stores (Fixtures/Accessories)</td>
<td>3</td>
</tr>
<tr>
<td>“Pop” Shops</td>
<td>3</td>
</tr>
<tr>
<td><em>Public Heritage Buildings</em></td>
<td>3</td>
</tr>
<tr>
<td>Rentals (See “Group D”)</td>
<td>—</td>
</tr>
<tr>
<td>Restaurants (Not More Than 30 Persons as Permitted by Article 3.1.2.6.)</td>
<td>3</td>
</tr>
<tr>
<td>Shopping Malls</td>
<td>4</td>
</tr>
<tr>
<td>Stationery/Office Supply Stores</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Art)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Baked Goods)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Beer)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Book)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Camera)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Candy)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Column 1</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>
### Table 11.2.1.1.K. (Cont'd)

#### Hazard Index

Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group E</th>
<th>Occupancy H.I. (^{(5)})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Stores (Clothing)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Drugs)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Electronic)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Floor Coverings)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Food)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Furniture/Appliances)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Hardware)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Health)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Hobby)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Jewellery)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Paint/Wallpaper)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Pet)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Records/Tapes)</td>
<td>3</td>
</tr>
<tr>
<td>Stores (Spirits)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Toys)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Variety)</td>
<td>4</td>
</tr>
<tr>
<td>Stores (Video Sales/Rental)</td>
<td>3</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Notes to Table 11.2.1.1.K.:

1. **Building Size (Maximum)\(^{(2)(3)}\)**
   - 600 m\(^2\) / 2 storey
   - 250 m\(^2\) / 3 storey (Public Heritage Building)
   - 800 m\(^2\) / 3 storey
   - Any area / up to 18 m high, measured between grade and the floor level of the top storey
   - Over 18 m high, measured between grade and the floor level of the top storey

2. Sizes are based on **building area and building height**, unless noted.
3. **Building size** is based on the existing building facing one street.
4. For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
5. When the size of a building falls into more than one category, the H.I. for the least restrictive is permitted to be used.
6. All buildings 1 500 m\(^2\) and over are to be **sprinklered**.
<table>
<thead>
<tr>
<th>Group F Division 1</th>
<th>Occupancy H.I. (^{(3)})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Ammunition Manufacturing and Storage</td>
<td>3</td>
</tr>
<tr>
<td>Black Powder Manufacturing and Storage</td>
<td>3</td>
</tr>
<tr>
<td>Bulk Plants for Flammable Liquids</td>
<td>3</td>
</tr>
<tr>
<td>Bulk Storage Warehouse (Hazardous Substances)</td>
<td>3</td>
</tr>
<tr>
<td>Cereal and Feed Mills</td>
<td>3</td>
</tr>
<tr>
<td>Chemical Manufacturing/Processing Plant</td>
<td>3</td>
</tr>
<tr>
<td>Distilleries</td>
<td>3</td>
</tr>
<tr>
<td>Dry Cleaning Plants (Flammable)</td>
<td>3</td>
</tr>
<tr>
<td>Explosives Manufacturing and Storage</td>
<td>3</td>
</tr>
<tr>
<td>Fertilizer Manufacturing Plants</td>
<td>3</td>
</tr>
<tr>
<td>Fireworks Manufacturing and Storage</td>
<td>3</td>
</tr>
<tr>
<td>Flour Mills</td>
<td>3</td>
</tr>
<tr>
<td>Gas (Flammable) Compressor Stations</td>
<td>3</td>
</tr>
<tr>
<td>Gas (Flammable) Manufacturing and Storage</td>
<td>3</td>
</tr>
<tr>
<td>Grain Elevators</td>
<td>3</td>
</tr>
<tr>
<td>Lacquer Factories</td>
<td>3</td>
</tr>
<tr>
<td>Loading Area for all Group F, Division 1</td>
<td>3</td>
</tr>
<tr>
<td>Mattress Factories (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Paint/Varnish/Pyroxylin Factories</td>
<td>3</td>
</tr>
<tr>
<td>Petrochemical Plants</td>
<td>3</td>
</tr>
<tr>
<td>Refineries</td>
<td>3</td>
</tr>
<tr>
<td>Rubber Processing Plants</td>
<td>3</td>
</tr>
<tr>
<td>Spray Painting Operations</td>
<td>3</td>
</tr>
<tr>
<td>Waste Paper Processing Plants (Dry)</td>
<td>3</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.L.:

(1) **Building Size (Maximum)**\(^{(2)}\):

<table>
<thead>
<tr>
<th>Size</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 m² / 2 storey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600 m² / 4 storey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 500 m² / 4 storey</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) Sizes are based on building area and building height.

(3) When the size of a building falls into more than one category, the H.I. for the least restrictive is permitted to be used.

(4) All buildings 1 500 m² and over are to be sprinklered.

(5) All floor assemblies shall be fire separations.

Issued October 24, 2014

**Effective Date: January 1, 2015**
| Group F 
<table>
<thead>
<tr>
<th>Division 2</th>
<th>Occupancy H.I.(^{(5)})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Aircraft Hangars</td>
<td>3</td>
</tr>
<tr>
<td>Abattoirs</td>
<td>3</td>
</tr>
<tr>
<td>Bakeries</td>
<td>3</td>
</tr>
<tr>
<td>Body Shops</td>
<td>3</td>
</tr>
<tr>
<td>Candy Plants</td>
<td>3</td>
</tr>
<tr>
<td>Cold Storage Plants</td>
<td></td>
</tr>
<tr>
<td>Combustible Insulation</td>
<td></td>
</tr>
<tr>
<td>Flammable Refrigerant</td>
<td></td>
</tr>
<tr>
<td>Combustible Packaging</td>
<td></td>
</tr>
<tr>
<td>Combustible Insulation</td>
<td></td>
</tr>
<tr>
<td>Flammable Refrigerant</td>
<td></td>
</tr>
<tr>
<td>Noncombustible Packaging</td>
<td></td>
</tr>
<tr>
<td>Combustible Insulation</td>
<td></td>
</tr>
<tr>
<td>Non-Flammable Refrigerant</td>
<td></td>
</tr>
<tr>
<td>Noncombustible Packaging</td>
<td></td>
</tr>
<tr>
<td>Noncombustible Insulation</td>
<td></td>
</tr>
<tr>
<td>Non-Flammable Refrigerant</td>
<td></td>
</tr>
<tr>
<td>Noncombustible Packaging</td>
<td></td>
</tr>
<tr>
<td>Dry Cleaning Establishments (Non-flammable or Non-explosive)</td>
<td>3</td>
</tr>
<tr>
<td>Electrical Substations</td>
<td>3</td>
</tr>
<tr>
<td>Factories (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Freight Depots (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Helicopter Landings (On Roof)</td>
<td>3</td>
</tr>
<tr>
<td>Laboratories (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Laundries (Not Self-Serve)</td>
<td>3</td>
</tr>
<tr>
<td>Manufacturer Sales (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Mattress Factories</td>
<td>3</td>
</tr>
<tr>
<td>Meat Packing Plants</td>
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<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>
### Table 11.2.1.1.M. (Cont'd)
Hazard Index
Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group F Division 2</th>
<th>Occupancy H.I.(^{(5)})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Packaging Manufacturers (Cellulose)</td>
<td>3</td>
</tr>
<tr>
<td>Packaging Manufacturers (Noncombustible)</td>
<td>2</td>
</tr>
<tr>
<td>Packaging Manufacturers (Plastics)</td>
<td>3</td>
</tr>
<tr>
<td>Paper Processing Plants (Wet)</td>
<td>3</td>
</tr>
<tr>
<td>Planing Mills</td>
<td>3</td>
</tr>
<tr>
<td>Printing Plants</td>
<td>3</td>
</tr>
<tr>
<td><strong>Public Heritage Buildings</strong></td>
<td>3</td>
</tr>
<tr>
<td>Repair Garages</td>
<td>3</td>
</tr>
<tr>
<td>Sample Display Rooms (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Self-Service Storage Buildings</td>
<td>3</td>
</tr>
<tr>
<td>Service Stations (No Spray Painting)</td>
<td>3</td>
</tr>
<tr>
<td>Storage Rooms (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Television Studios (No Audience)</td>
<td>3</td>
</tr>
<tr>
<td>Tire Storage</td>
<td>3</td>
</tr>
<tr>
<td>Warehouses (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Welding Shops</td>
<td>3</td>
</tr>
<tr>
<td>Wholesale Rooms (High Fire Load)</td>
<td>3</td>
</tr>
<tr>
<td>Wood Working Factories</td>
<td>3</td>
</tr>
<tr>
<td>Workshops (High Fire Load)</td>
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</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes to Table 11.2.1.1.M.:

1. **Building Size (Maximum)**\(^{(2)(3)}\)
   - 600 m\(^2\) / 2 storey
   - 800 m\(^2\) / 4 storey
   - 600 m\(^2\) / 3 storey (Public Heritage Building)
   - Any area / 6 storey not exceeding 18 m high, measured between grade and the floor level of the top storey
   - Over 18 m high, measured between grade and the floor level of the top storey

2. Sizes are based on building area and building height, unless noted.
3. Building size is based on the existing building facing one street.
4. For existing buildings facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
5. When the size of a building falls into more than one category, the H.I. for the least restrictive is permitted to be used.
6. All buildings 1 500 m\(^2\) and over are to be sprinklered.
### Table 11.2.1.1.N.(1)(4)

#### Hazard Index

Forming Part of Sentences 11.2.1.1.(1) and (2)

<table>
<thead>
<tr>
<th>Group F Division 3</th>
<th>Occupancy H.I.(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
</tr>
<tr>
<td>Creameries</td>
<td>2</td>
</tr>
<tr>
<td>Factories (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Freight Depots (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Laboratories (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturers Sales (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Power Plants</td>
<td>3</td>
</tr>
<tr>
<td>Public Heritage Buildings</td>
<td>3</td>
</tr>
<tr>
<td>Sample Display Rooms (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Storage Garages</td>
<td>2</td>
</tr>
<tr>
<td>Storage Rooms (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Warehouses (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Wholesale Rooms (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Workshops (Low Fire Load)</td>
<td>2</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Notes to Table 11.2.1.1.N.**:

- **r5** (1) *Building Size (Maximum)*<sup>(2)(3)</sup>
  
  - 800 m<sup>2</sup> / 2 storey
  - 1 200 m<sup>2</sup> / 4 storey
  - 600 m<sup>2</sup> / 3 storey *(Public Heritage Building)*
  - Any area / 6 storey not exceeding 18 m high, measured between grade and the floor level of the top storey
  - Over 18 m, but not exceeding 36 m high, measured between grade and the floor level of the top storey
  - Over 36 m high, measured between grade and the floor level of the top storey

<table>
<thead>
<tr>
<th>Building Size (Maximum)</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Size 5</td>
<td>Size 6</td>
<td></td>
</tr>
</tbody>
</table>

- **r5** (2) Sizes are based on *building area and building height*, unless noted.
- (3) *Building size* is based on the existing *building facing one street*.
- (4) For existing *buildings* facing multiple streets, see Sentence 11.2.1.1.(2) and Table 11.4.3.4.A.
- (5) When the size of a *building* falls into more than one category, the *H.I.* for the least restrictive is permitted to be used.
Table 11.4.3.3.
For Evaluation and Upgrading of Early Warning/Evacuation
Forming Part of Sentences 11.4.3.3.(1) and 11.4.3.4.(3)

<table>
<thead>
<tr>
<th>Notes</th>
<th>Early Warning and Evacuation, Evaluation and Upgrading</th>
<th>Part 11 Compliance Alternative(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td>Early warning and evacuation to be checked against</td>
<td>EARLY WARNING</td>
</tr>
<tr>
<td></td>
<td>(a) access to exit widths based on occupant load in Subsection 3.3.1. or 9.9.3.;</td>
<td>(a) Compliance alternatives as listed may be used.</td>
</tr>
<tr>
<td></td>
<td>(b) exit widths based on occupant load in Subsection 3.4.3. or 9.9.3.;</td>
<td>EVACUATION</td>
</tr>
<tr>
<td></td>
<td>(c) exit signs in Subsection 3.4.5. or 9.9.11.;</td>
<td>(b) Compliance alternatives as listed to access to exit and exit widths, number of exits, door release hardware, and travel distance may be used.</td>
</tr>
<tr>
<td></td>
<td>(d) lighting of exits, lighting of access to exits and emergency lighting in Subsection 3.2.7. or 9.9.12.;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(e) fire alarm system in Subsection 3.2.4. or 9.10.18.;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(f) smoke alarms in Subsection 9.10.19.;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(g) travel distance and number of exits in other Parts; and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(h) door release hardware requirements in Articles 3.3.1.12. and 3.4.6.16., and deficiencies shall be upgraded.</td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>Early warning and evacuation to be checked against</td>
<td>ERA  LY WARNING</td>
</tr>
<tr>
<td></td>
<td>(a) access to exit widths based on occupant load in Subsection 3.3.1. or 9.9.3.;</td>
<td>(a) Compliance alternatives as listed may be used.</td>
</tr>
<tr>
<td></td>
<td>(b) exit widths based on occupant load in Subsection 3.4.3. or 9.9.3.;</td>
<td>EVACUATION</td>
</tr>
<tr>
<td></td>
<td>(c) exit signs in Subsection 3.4.5. or 9.9.11.;</td>
<td>(b) Compliance alternatives as listed to access to exit and exit widths, number of exits, door release hardware, and travel distance may be used.</td>
</tr>
<tr>
<td></td>
<td>(d) lighting of exits, lighting of access to exits and emergency lighting in Subsection 3.2.7. or 9.9.12.;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(e) fire alarm system in Subsection 3.2.4. or 9.10.18.;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(f) smoke alarms in Subsection 9.10.19.;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(g) travel distance and number of exits in other Parts;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(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</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) door release hardware requirements in Articles 3.3.1.12. and 3.4.6.16., and deficiencies shall be upgraded.</td>
<td></td>
</tr>
</tbody>
</table>

Column 1 2 3

Notes to Table 11.4.3.3.:
(1) See Tables 11.5.1.1.A. to 11.5.1.1.F. for compliance alternatives that may be used.
(2) Applies to change of major occupancy to one of equal or lesser hazard, and to increase in occupant load by 15% or less.
(3) Applies to change of major occupancy to one of greater hazard, and to increase in occupant load greater than 15%.
12.2.4. Motion Sensors

12.2.4.1. Motion Sensors

(1) Lighting installed to provide the minimum illumination levels required by this Code may be controlled by motion sensors except where the lighting,
(a) is installed in an exit,
(b) is installed in a corridor serving patients or residents in a Group B, Division 2 or Division 3 occupancy, or
(c) is required to conform to Sentence 3.2.7.1.(6).

(2) Where motion sensors are used to control minimum lighting in a public corridor or corridor providing access to exit for the public, the motion sensors shall be installed with switch controllers equipped for fail-safe operation and illumination timers set for a minimum 15-minute duration.

(3) A motion sensor shall not be used to control emergency lighting.

Section 12.3. Energy Efficiency for Buildings of Residential Occupancy Within the Scope of Part 9

12.3.1. General

12.3.1.1. Application

(1) This Section applies to the energy efficiency of a building or part of a building of residential occupancy that is within the scope of Part 9 and is intended for occupancy on a continuing basis during the winter months.

12.3.1.2. Windows and Sliding Glass Doors

(1) The energy rating and the overall coefficient of heat transfer required for windows and sliding glass doors 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”.

12.3.1.3. Temperature Control in Dwelling Units

(1) Except as provided in Sentence (3) and except where space heating energy is provided by a solid fuel-burning appliance or a ground source heat pump, the indoor air temperature in a dwelling unit shall be controlled by at least one programmable thermostatic control device.

(2) The programmable thermostatic control device required in Sentence (1) shall,
(a) allow the setting of different air temperatures for at least,
   (i) four time periods per day, and
   (ii) two different day-types per week,
(b) include a manual override, and
(c) allow the setting of the air temperature to,
   (i) 13°C or lower in heating mode, and
   (ii) 29°C or higher in cooling mode, where air-conditioning is provided.
(3) A manual thermostatic control device is permitted if it,
(a) controls a heating or cooling system where the heating or cooling capacity is not more than 2 kW, or
(b) serves an individual room or space.

12.3.1.4. Hot Water Piping Insulation

(1) Hot water pipes that are vertically connected to a hot water storage tank shall have heat traps on both inlet and outlet piping as close as practical to the tank, except where the tank,
(a) has an integral heat trap, or
(b) serves a recirculating system.

(2) The first 2.5 m of hot water outlet piping of a hot water storage tank serving a non-recirculating system shall be insulated to provide a thermal resistance of not less than RSI 0.62.

(3) The inlet pipe of a hot water storage tank between the heat trap and the tank serving a non-recirculating system shall be insulated to provide a thermal resistance of not less than RSI 0.62.

12.3.1.5. Residential Furnaces After December 31, 2014

(1) Sentence (2) applies to construction for which a permit has been applied for after December 31, 2014.

(2) A furnace serving a dwelling unit shall be equipped with a brushless direct current motor. (See Appendix A.)


(1) This Article applies to construction for which a permit has been applied for after December 31, 2014.

(2) In order to supply energy to cooking appliances and clothes dryers, every kitchen and laundry space shall be provided with,
(a) an electrical outlet,
(b) a natural gas line, or
(c) a propane line.

Section 12.4. Water Efficiency

12.4.1. General

12.4.1.1. Plumbing Systems

(1) All buildings shall conform to the water efficiency requirements of Subsection 7.6.4.
Part 1

General

Section 1.1. Administration

1.1.1. Administration

1.1.1.1. Conformance with Administrative Requirements

(1) This Code shall be administered in conformance with the Act.

Section 1.2. Design and General Review

1.2.1. Design

1.2.1.1. Application

(1) Article 1.2.1.2. applies with respect to a building described in clause 11(3)(a) or (b) of the Architects Act or subsection 12(4) or clause 12(5)(a) of the Professional Engineers Act.

1.2.1.2. Design by Architect or Professional Engineer (See Appendix A.)

(1) Where the foundations of a building are to be constructed below the level of the footings of an adjacent building and within the angle of repose of the soil, as drawn from the bottom of the footings, the foundations shall be designed by a professional engineer.

(2) A sprinkler protected glazed wall assembly described in Article 3.1.8.18. of Division B shall be designed by a professional engineer.

(3) A shelf and rack storage system described in Section 3.16. of Division B shall be designed by a professional engineer.

(4) The time-based egress analysis for a shelf and rack storage system described in Sentence 3.16.1.7.(7) of Division B shall be prepared or provided by an architect or a professional engineer or a combination of both.

(5) The supporting framing structure and anchorage system for a tent occupying an area greater than 225 m² shall be designed by a professional engineer.

(6) A sign structure attached in any manner to a building shall be designed by an architect or a professional engineer or a combination of both where it is,

(a) a projecting sign that weighs more than 115 kg, or
(b) a roof sign that has any face that is more than 10 m².
(7) A projecting sign attached in any manner to a parapet wall shall be designed by an architect or a professional engineer or a combination of both.

1.2.2. General Review

1.2.2.1. General Review by Architect or Professional Engineer (See Appendix A.)

(1) The construction, including, for greater certainty, enlargement or alteration, of every building or part of it described in Table 1.2.2.1. shall be reviewed by an architect or a professional engineer or a combination of both as set out in Column 3 of the Table.

(2) A person who intends to construct or have constructed a building or part of it required by Sentences (1) and (4) to be reviewed by an architect or a professional engineer or a combination of both, shall ensure that an architect, professional engineer or both are retained to undertake the general review of the construction of the building in accordance with the performance standards of the Ontario Association of Architects or the Association of Professional Engineers of Ontario, as applicable, to determine whether the construction is in general conformity with the plans, sketches, drawings, graphic representations, specifications and other documents that form the basis for the issuance of a permit under section 8 of the Act or any changes to it authorized by the chief building official.

(3) The architect, professional engineer or both who have been retained to undertake the general review of the construction of a building, shall forward copies of written reports arising out of the general review to the chief building official or registered code agency, as the case may be.

(4) Where the foundations of a building are to be constructed below the level of the footings of an adjacent building and within the angle of repose of the soil, as drawn from the bottom of the footings, the construction of the foundations shall be reviewed by a professional engineer.

(5) The construction of a sprinkler protected glazed wall assembly described in Article 3.1.8.18. of Division B shall be reviewed by a professional engineer.

(6) The construction of a shelf and rack storage system described in Section 3.16. of Division B shall be reviewed by a professional engineer.

(7) The construction of a supporting framing structure and anchorage system for a tent occupying an area greater than 225 m$^2$ shall be reviewed by a professional engineer.

(8) The construction of a sign structure shall be reviewed by an architect or a professional engineer or a combination of both, where the sign is,

(a) a ground sign that exceeds 7.5 m in height above the adjacent finished ground,
(b) a projecting sign that weighs more than 115 kg, or
(c) a roof sign that has any face that is more than 10 m$^2$.

(9) The construction of a projecting sign attached in any manner to a parapet wall shall be reviewed by an architect, professional engineer or a combination of both.
### Table 1.2.2.1.(4)
**General Review**
Forming Part of Sentence 1.2.2.1.(1)

<table>
<thead>
<tr>
<th>Building Classification by Major Occupancy</th>
<th>Building Description</th>
<th>General Review by:</th>
</tr>
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<tbody>
<tr>
<td>Assembly occupancy only</td>
<td>Every building</td>
<td>Architect and professional engineer(1)</td>
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<tr>
<td>Assembly occupancy and any other major occupancy except industrial</td>
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<tr>
<td>Care, care and treatment or detention occupancy only</td>
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<td>Architect and professional engineer(1)</td>
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<td>Care, care and treatment or detention occupancy and any other major occupancy except industrial</td>
<td>Every building</td>
<td>Architect and professional engineer(1)</td>
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<td>Architect and professional engineer(1)</td>
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<tr>
<td>Residential occupancy only</td>
<td>Every building</td>
<td>Architect and professional engineer(1)</td>
</tr>
<tr>
<td>Residential occupancy and any other major occupancy except assembly, care, care and treatment, detention or industrial occupancy</td>
<td>Every building that exceeds 600 m² in gross area and contains 3 or more dwelling units and has no dwelling unit above another dwelling unit</td>
<td>Architect(2)</td>
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<td>Business and personal services occupancy only</td>
<td>Every building that exceeds 600 m² in gross area or 3 storeys in building height</td>
<td>Architect and professional engineer(1)</td>
</tr>
<tr>
<td>Business and personal services occupancy and any other major occupancy except assembly, care, care and treatment, detention or industrial occupancy</td>
<td>Every building that exceeds 600 m² in gross area or 3 storeys in building height</td>
<td>Architect and professional engineer(1)</td>
</tr>
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<td>Mercantile occupancy only</td>
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<td>Architect and professional engineer(1)</td>
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<td>Mercantile occupancy and any other major occupancy except assembly, care, care and treatment, detention or industrial occupancy</td>
<td>Every building that exceeds 600 m² in gross area or 3 storeys in building height</td>
<td>Architect and professional engineer(1)</td>
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<td>Industrial occupancy only and where there are no subsidiary occupancies</td>
<td>Every building that exceeds 600 m² in gross area or 3 storeys in building height</td>
<td>Architect or professional engineer(3)</td>
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<td>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 m²</td>
<td>The non-industrial portion of every building</td>
<td>Architect and professional engineer(1)</td>
</tr>
<tr>
<td>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 m²</td>
<td>The industrial portion of every building</td>
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<td>Industrial occupancy and one or more other major occupancies</td>
<td>Every building that exceeds 600 m² in gross area or 3 storeys in building height</td>
<td>Architect or professional engineer(3)</td>
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</table>

**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 a professional engineer or a combination of 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 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 m² 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

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.

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.

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.

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Notes to Table 1.3.1.4.:

(1) See Clause 1.3.1.4.(1)(a), Subclause 3.17.1.1.(1)(a)(i) of Division B and Clause 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), Subclause 3.17.1.1.(1)(a)(ii) of Division B and Clauses 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
(b) the information contained in the application forms submitted in respect of the permits, other than the information contained in the schedules or other attachments to the application forms.

(3) Despite Sentence (2), the chief building official is not required to give to Tarion Warranty Corporation information which relates to the extension or material alteration or repair of an existing building.

(4) The buildings referred to in Sentence (2) are any building whose proposed use is classified as a Group C major occupancy and which is not a boarding, lodging or rooming house or a building containing a hotel.

(5) The chief building official shall give the information described in Sentence (2) within 45 days after the day on which the permits to which the information relates are issued.

(6) The time period described in Sentence (5) shall not include Saturdays, holidays and all other days when the offices of the principal authority are not open for the transaction of business with the public.

1.3.2. Site Documents

1.3.2.1. Permit Posting

(1) Where a permit has been issued pursuant to the Act, the person to whom it is issued shall have the permit or a copy of it posted at all times during construction or demolition in a conspicuous place on the property in respect of which the permit was issued.

1.3.2.2. Documentation on Site

(1) The person in charge of the construction of the building shall keep and maintain on the site of the construction,

(a) at least one copy of drawings and specifications certified by the chief building official or a person designated by the chief building official to be a copy of those submitted with the application for the permit to construct the building, together with changes that are authorized by the chief building official or a person designated by the chief building official,

(b) copies of authorizations of the Building Materials Evaluation Commission on the basis of which the permit was issued, and

(c) copies of rulings of the Minister, made under clause 29(1)(a) or (c) of the Act, on the basis of which the permit was issued.

1.3.3. Occupancy of Buildings

1.3.3.1. Occupancy Permit — General

(1) Except as permitted in Sentence 1.3.3.2.(1), a person may occupy or permit to be occupied any building or part of it that has not been fully completed at the date of occupation where the chief building official or a person designated by the chief building official has issued a permit authorizing occupation of the building or part of it prior to its completion in accordance with Sentence (3).

(2) Sentence (1) does not apply in respect of the occupancy of a building to which Article 1.3.3.4. or 1.3.3.5. applies.

(3) The chief building official or a person designated by the chief building official shall issue a permit authorizing occupation of a building, where,

(a) the structure of the building or part of it is completed to the roof,

(b) the enclosing walls of the building or part of them are completed to the roof,

(c) the walls enclosing the space to be occupied are completed, including balcony guards,

(d) all required fire separations and closures are completed on all storeys to be occupied,
1.3.3.1. Conditions for Building Occupancy

(e) all required exits are completed, including all fire separations, doors, door hardware, self-closing devices, guards and handrails, from the uppermost floor to be occupied down to grade level and below if an exit connects with lower storeys,
(f) all shafts including closures are completed to the floor-ceiling assembly above the storey to be occupied and have a temporary fire separation at such assembly,
(g) measures have been taken to prevent access to parts of the building and site that are incomplete or still under construction,
(h) floors, halls, lobbies and required means of egress are free of loose materials and other hazards,
(i) if service rooms should be in operation, required fire separations and closures are completed,
(j) all building drains, building sewers, water systems, drainage systems and venting systems are complete and tested as operational for the storeys to be occupied,
(k) required lighting, heating and electrical supply are provided for the suites, rooms and common areas to be occupied,
(l) required lighting in corridors, stairways and exits is completed and operational up to and including all storeys to be occupied,
(m) required standpipe, sprinkler and fire alarm systems are complete and operational up to and including all storeys to be occupied, together with required pumper connections for such standpipes and sprinklers,
(n) required fire extinguishers have been installed on all storeys to be occupied,
(o) main garbage rooms, chutes and ancillary services are completed to all storeys to be occupied,
(p) required firefighting access routes have been provided and are accessible, and
(q) the sewage system has been completed and is operational.

(4) Where a registered code agency has been appointed to perform the functions described in clause 4.1(4)(b) or (c) of the Act in respect of the construction of the building, the chief building official or a person designated by the chief building official shall issue the permit referred to in Sentence (3) after receipt of a certificate for the occupancy of a building not fully completed issued by the registered code agency in respect of the building.

1.3.3.2. Conditions for Residential Occupancy

(1) A person may occupy or permit to be occupied a building intended for residential occupancy that has not been fully completed at the date of occupation provided that,

(a) the building,
   (i) is of three or fewer storeys in building height and has a building area not exceeding 600 m²,
   (ii) has not more than 1 dwelling unit above another dwelling unit,
   (iii) has not more than 2 dwelling units sharing a common means of egress, and
   (iv) has no accommodation for tourists,
(b) the following building components and systems are complete, operational and inspected:
   (i) required exits, handrails and guards, fire alarm and detection systems, and fire separations,
   (ii) required exhaust fume barriers and self-closing devices on doors between an attached or built-in garage and a dwelling unit,
   (iii) water supply, sewage disposal, lighting and heating systems, and
   (iv) protection of foamed plastics required by Article 9.10.17.10. of Division B,
(c) the following building components and systems are complete, operational, inspected and tested:
   (i) water systems,
   (ii) building drains and building sewers, and
   (iii) drainage systems and venting systems, and
(d) where applicable, the building conforms to Article 9.1.1.7. of Division B.

(2) Sentence (1) does not apply in respect of the occupancy of a building to which Article 1.3.3.4. or 1.3.3.5. applies.

1.3.3.3. Notification

(1) Where a person has occupied or permitted the occupancy of a building under Article 1.3.3.1. or 1.3.3.2., such person shall notify the chief building official forthwith upon completion of the building.
1.3.3.4. Occupancy Permit — Certain Buildings of Residential Occupancy

(1) No person shall occupy or permit to be occupied a building described in Sentence (3), or part of it, unless the chief building official or a person designated by the chief building official has issued a permit authorizing occupation of the building or part of it in accordance with Sentence (4).

(2) This Article does not apply in respect of the occupancy of an existing building, or part of it, that has been subject to extension or material alteration or repair.

(3) A building referred to in Sentence (1) is a building intended for residential occupancy that,
   (a) is of three or fewer storeys in building height and has a building area not exceeding 600 m²,
   (b) has no accommodation for tourists,
   (c) does not have a dwelling unit above another dwelling unit, and
   (d) does not have any dwelling units sharing a common means of egress.

(4) The chief building official or a person designated by the chief building official shall issue a permit authorizing occupation of a building described in Sentence (3), where,
   (a) the structure of the building with respect to the dwelling unit to be occupied is substantially complete and ready to be used for its intended purpose,
   (b) the building envelope, including, but not limited to, cladding, roofing, windows, doors, assemblies requiring fire-resistance ratings, closures, insulation, vapour barriers and air barriers, with respect to the dwelling unit to be occupied, is substantially complete,
   (c) the walls enclosing the dwelling unit to be occupied conform to Sentence 9.25.2.3.(7) of Division B,
   (d) required electrical supply is provided for the dwelling unit to be occupied,
   (e) required firefighting access routes to the building have been provided and are accessible,
   (f) the following building components and systems are complete and operational for the dwelling unit to be occupied:
      (i) required exits, floor access and egress systems, handrails, guards, smoke alarms, carbon monoxide alarms and fire separations, including, but not limited to, fire stops,
      (ii) required exhaust fume barriers and self-closing devices on doors between an attached or built-in garage and the dwelling unit,
      (iii) water supply, sewage disposal, lighting and heating systems, and
      (iv) protection of foamed plastics required by Article 9.10.17.10. of Division B,
   (g) the following building components and systems are complete, operational and tested for the dwelling unit to be occupied:
      (i) water system,
      (ii) building drain and building sewer, and
      (iii) drainage system and venting system,
   (h) required plumbing fixtures in the dwelling unit to be occupied are substantially complete and operational, and
   (i) where applicable, the building conforms to Article 9.1.1.7. of Division B with respect to the dwelling unit to be occupied.

(5) Where a registered code agency has been appointed to perform the functions described in clause 4.1(4)(b) or (c) of the Act in respect of the construction of a building described in Sentence (3), the chief building official or a person designated by the chief building official shall issue the permit referred to in Sentence (4) after receipt of a certificate for the occupancy of a building described in Sentence 1.3.3.4.(3) of Division C issued by the registered code agency in respect of the building.
1.3.3.5. Occupancy Permit — Buildings Within the Scope of Article 3.2.2.43A. or 3.2.2.50A.

(1) No person shall occupy or permit to be occupied a building within the scope of Article 3.2.2.43A. or 3.2.2.50A. of Division B, or part of it, unless the chief building official or a person designated by the chief building official has issued a permit authorizing occupation of the building or part of it in accordance with Sentence (3).

(2) This Article does not apply in respect of the occupancy of an existing building, or part of it, that has been subject to extension or material alteration or repair.

(3) The chief building official or a person designated by the chief building official shall issue a permit authorizing occupation of a building described in Sentence (1), where,

(a) the structure of the building is completed to the roof,
(b) the building envelope, including, but not limited to, cladding, roofing, windows, doors, assemblies requiring fire-resistance ratings, closures, insulation, vapour barriers and air barriers, is complete,
(c) the walls enclosing the space to be occupied are complete, including balcony guards,
(d) all required fire separations and closures are completed,
(e) all required exits are completed, including all fire separations, doors, door hardware, self-closing devices, guards and handrails,
(f) all shafts including closures are completed,
(g) measures have been taken to prevent access to parts of the building and site that are incomplete or still under construction,
(h) floors, halls, lobbies and required means of egress are free of loose materials and other hazards,
(i) if service rooms should be in operation, required fire separations and closures are completed,
(j) all building drains, building sewers, water systems, drainage systems and venting systems are complete and tested as operational for the storeys to be occupied,
(k) required lighting, heating and electrical supply are provided for the suites, rooms and common areas to be occupied,
(l) required lighting in corridors, stairways and exits is completed and operational,
(m) required standpipe, sprinkler and fire alarm systems are complete and operational, together with required pumper connections for such standpipes and sprinklers,
(n) required smoke alarms and carbon monoxide alarms are complete and operational,
(o) required fire extinguishers have been installed,
(p) main garbage rooms, chutes and ancillary services are completed to all storeys to be occupied,
(q) required firefighting access routes have been provided and are accessible, and
(r) the sewage system has been completed and is operational.

(4) Where a registered code agency has been appointed to perform the functions described in clause 4.1(4)(b) or (c) of the Act in respect of the construction of a building described in Sentence (1), the chief building official or a person designated by the chief building official shall issue the permit referred to in Sentence (3) after receipt of a certificate for the occupancy of a building described in Sentence 1.3.3.5.(1) of Division C issued by the registered code agency in respect of the building.

1.3.4. Fire Department Inspection

1.3.4.1. Fire Department Approval

(1) Subject to Sentence (2), if the council of a municipality assigns specific responsibility for the enforcement of any portion of this Code respecting fire safety matters to an inspector who is the chief of the fire department of the municipality, the chief building official shall not issue a permit to construct a building unless the inspector approves the drawings submitted with the application for the permit as complying with that portion of this Code.
(2) If a registered code agency has been appointed under clause 4.1(4)(a) or (c) of the Act,
(a) a municipality shall not assign responsibility under Sentence (1) to the chief of the fire department with respect to a building for which the registered code agency has been appointed, and
(b) any assignment of responsibility under Sentence (1) with respect to a building for which the registered code agency is appointed shall be cancelled as of the date of the appointment.

1.3.5. Notices and Inspections

1.3.5.1. Prescribed Notices

(1) This Article sets out the notices that are required under section 10.2 of the Act.

(2) The person to whom a permit under section 8 of the Act is issued shall notify the chief building official or, where a registered code agency is appointed under the Act in respect of the construction to which the notice relates, the registered code agency of,
(a) readiness to construct footings,
(b) substantial completion of footings and foundations prior to commencement of backfilling,
(c) substantial completion of structural framing and ductwork and piping for heating and air-conditioning systems, if the building is within the scope of Part 9 of Division B,
(d) substantial completion of structural framing and roughing-in of heating, ventilation, air-conditioning and air-contaminant extraction equipment, if the building is not a building to which Clause (c) applies,
(e) substantial completion of insulation and vapour barriers,
(f) substantial completion of air barrier systems,
(g) substantial completion of all required fire separations and closures and all fire protection systems including standpipe, sprinkler, fire alarm and emergency lighting systems,
(h) substantial completion of fire access routes,
(i) readiness for inspection and testing of,
   (i) building sewers and building drains,
   (ii) water service pipes,
   (iii) fire service mains,
   (iv) drainage systems and venting systems,
   (v) the water distribution system, and
   (vi) plumbing fixtures and plumbing appliances,
(j) readiness for inspection of suction and gravity outlets, covers and suction piping serving outlets of an outdoor pool described in Clause 1.3.1.1.(1)(j) of Division A, a public pool or a public spa,
(k) substantial completion of the circulation / recirculation system of an outdoor pool described in Clause 1.3.1.1.(1)(j) of Division A, a public pool or public spa and substantial completion of the pool before it is first filled with water,
(l) readiness to construct the sewage system,
(m) substantial completion of the installation of the sewage system before the commencement of backfilling,
(n) substantial completion of installation of plumbing not located in a structure, before the commencement of backfilling,
(o) completion of construction and installation of components required to permit the issue of an occupancy permit under Sentence 1.3.3.1.(3) or to permit occupancy under Sentence 1.3.3.2.(1), if the building or part of the building to be occupied is not fully completed, and
(p) completion of construction and installation of components required to permit the issue of an occupancy permit under Sentence 1.3.3.4.(4) or 1.3.3.5.(3).
1.3.5.2. Additional Notices

(1) A by-law, resolution or regulation made by a principal authority under clause 7(1)(e) of the Act may require that notice of one or more of the following stages of construction be given by the person to whom a permit is issued under section 8 of the Act:

(a) commencement of construction of the building,
(b) substantial completion of structural framing for each storey, if the building is a type of building that is within the scope of Division B, other than Part 9,
(c) commencement of construction of,
   (i) masonry fireplaces and masonry chimneys,
   (ii) factory-built fireplaces and allied chimneys, or
   (iii) stoves, ranges, space heaters and add-on furnaces using solid fuels and allied chimneys,
(d) substantial completion of interior finishes,
(e) substantial completion of heating, ventilating, air-conditioning and air-contaminant extraction equipment,
(f) substantial completion of exterior cladding,
(g) substantial completion of site grading,
(h) substantial completion of the pool deck and dressing rooms for a public pool or public spa and readiness for inspection of the emergency stop system for a public pool or public spa,
(i) completion and availability of drawings of the building as constructed, and
(j) completion of a building for which an occupancy permit is required under Article 1.3.3.4. or 1.3.3.5.

1.3.5.3. Prescribed Inspections

(1) Except as provided in Sentence (2), an inspector or registered code agency, as the case may be, shall, not later than two days after receipt of a notice given under Sentence 1.3.5.1.(2), undertake a site inspection of the building to which the notice relates.

(2) Where a notice given under Sentence 1.3.5.1.(2) relates to matters described in Clause 1.3.5.1.(2)(l) or (m), an inspector or registered code agency, as the case may be, shall, not later than five days after receipt of the notice, undertake a site inspection of the sewage system to which the notice relates.

(3) When undertaking an inspection required under Sentence (1) or (2), the inspector or registered code agency, as the case may be, may consider reports concerning whether the building or a part of the building complies with the Act or this Code.

(4) The time periods referred to in Sentences (1) and (2) shall begin on the day following the day on which the notice is given.

(5) The time periods referred to in Sentences (1) and (2) shall not include Saturdays, holidays and all other days when the offices of the principal authority are not open for the transaction of business with the public.

1.3.5.4. Construction of Sewage Systems

(1) The following information is prescribed for the purposes of subsection 15.12(3) of the Act and must be provided to the chief building official before the commencement of the construction of a sewage system:

(a) the information described in Sentence 3.3.4.1.(2) as it relates to,
   (i) the person registered under Article 3.3.3.2., and
   (ii) the person with the qualifications described in Clause 3.3.3.2.(1)(a) who will supervise construction on-site of the sewage system, and
(b) the name and telephone number of the representative of the person described in Subclause (a)(i) who may be contacted by the chief building official in respect of the construction of the sewage system.
1.3.5.5. Orders

(1) An order issued under subsection 12(2), 13(1) or (6), 14(1) or 15.10.1(2) or clause 18(1)(f) of the Act shall be in a form approved by the Minister.

1.3.6. As Constructed Plans

1.3.6.1. Application (See Appendix A.)

(1) Where a by-law, resolution or regulation has been made by a principal authority under clause 7(1)(g) of the Act, the chief building official may require that as constructed plans for the whole of, or any part or system of, a building or any class of buildings be provided by the persons responsible for the construction.

Section 1.4. Search Warrant

1.4.1. Forms

1.4.1.1. Information & Warrant Forms

r3 (1) An information to obtain a warrant to enter and search a building, receptacle or place under subsection 21(1) of the Act shall be in Form 1.4.1.1.A.

r3 (2) A warrant to enter and search a building, receptacle or place under subsection 21(1) of the Act shall be in Form 1.4.1.1.B.
Section 2.3. Building Materials Evaluation Commission

2.3.1. Application Fee

2.3.1.1. Application Fee

(1) The fee on an application to the Building Materials Evaluation Commission is,
   (a) $5,000, for 2015,
   (b) $7,000, for 2016,
   (c) $9,000, for 2017, and
   (d) $11,000, for 2018 and subsequent calendar years.

Section 2.4. Rulings and Interpretations

2.4.1. Minister’s Rulings — Innovative Materials, Systems or Building Designs

2.4.1.1. Designated Materials Evaluation Bodies

(1) The following body is designated as a materials evaluation body for the purposes of clause 29(1)(a) of the Act: Canadian Construction Materials Centre of the National Research Council of Canada.

2.4.1.2. Fee

(1) The fee on a request for a ruling under clause 29(1)(a) of the Act is,
   (a) $560, for 2014, and
   (b) the amount determined in accordance with Sentences (2) and (3) rounded to the nearest dollar, for 2015 and subsequent calendar years.

(2) On and after January 1, 2015, the fee for a calendar year is the fee for the previous calendar year adjusted by the percentage change from year to year in the Consumer Price Index for Ontario (All-Items) as reported monthly by Statistics Canada under the authority of the Statistics Act (Canada), averaged over the 12-month period that ends on March 31 of the previous calendar year, rounded to the first decimal point.

(3) Despite Sentence (2), if the percentage change results in a negative amount, the fee for a calendar year shall remain at the same level as the previous calendar year.

2.4.2. Minister’s Rulings — Alternative Materials, Systems or Building Designs

2.4.2.1. Criteria

(1) Sentence (2) sets out criteria to be followed by the Minister when making a ruling under clause 29(1)(c) of the Act to approve the use of an alternative material, system or building design.
2.4.2.1. Interpretations By Minister

2.4.3. Interpretations By Minister

(2) The Minister’s approval of the use of an alternative material, system or building design referred to in Sentence (1) may be granted only if the approval is consistent with,
   (a) a decision of the Building Code Commission in respect of a dispute described in clause 24(1)(a) of the Act,
   (b) an approval of the use of the material, system or building design in the whole of another province or territory in accordance with the law of that province or territory, or
   (c) a revision of the CCBFC NRCC 53301, “National Building Code of Canada”, or the CCBFC NRCC 53302, “National Plumbing Code of Canada”, that has been approved by the Canadian Commission on Building and Fire Codes.

(1) Every interpretation issued by the Minister under section 28.1 of the Act shall be made available to the public,
   (a) by posting the interpretation on the Building Code website, and
   (b) by providing a written copy of the interpretation on receipt of a request for it.
# Qualifications

## 3.1. Qualifications for Chief Building Officials and Inspectors

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Part 3

Qualifications

Section 3.1. Qualifications for Chief Building Officials and Inspectors

3.1.1. Scope and Definition

3.1.1.1. Scope

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,

(b) construction of a factory-built house certified to CSA A277, “Procedure for Factory Certification of Buildings”,

(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.

3.1.1.2. Definition

In this Section,

“registered” means registered under Sentence 3.1.2.2.(1), 3.1.3.2.(1) or 3.1.4.2.(1), as applicable.

3.1.2. Chief Building Officials

3.1.2.1. Qualifications

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 must be registered with the director.
3.1.2.1. 2012 Building Code Compendium

(2) A registration shall be in a form established by the director.

(3) A person who was qualified on December 31, 2014 under Sentence 3.1.2.1.(1), as it read on that date, is deemed to have the qualification set out in Sentence (1) until the earlier of,
(a) the day the person is registered under Sentence 3.1.2.2.(1), and
(b) March 31, 2015.

3.1.2.2. Registration and Renewal of a Registration

(1) Subject to Article 3.1.5.7., the director may register an applicant, or renew a registration, if,
(a) the applicant or registered person has successfully completed 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 applicant or registered person also has the qualification set out in Sentence 3.1.4.1.(1), in the case of an applicant or registered person who, under subsection 22(2) of the Act, will also exercise any of the powers or perform any of the duties of an inspector,
(c) the application is complete, and
(d) all fees required under Article 3.1.5.3. are paid.

(2) For the purposes of a registration or a renewal of a registration, a person who was qualified on December 31, 2014 under Sentence 3.1.2.1.(1), as it read on that date, is deemed to have the qualifications set out in Clause (1)(a).

(3) If a person is given notice of a knowledge maintenance examination either after December 31, 2014 under Sentence 3.1.5.6.(1) or, on or before December 31, 2014, under Sentence 3.1.5.1.(2), as it read on that date, and does not successfully complete the knowledge maintenance examination referred in the notice by the end of the eighteenth month following the month in which the director gives notice of the knowledge maintenance examination to the person, Sentence (2) ceases to apply to the person at the end of that period.

3.1.3. Supervisors and Managers

3.1.3.1. Qualifications

(1) The following are prescribed as 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 must be registered with the director.

(2) A registration shall be in a form established by the director.

(3) A person who was qualified on December 31, 2014 under Sentence 3.1.3.1.(1), as it read on that date, is deemed to have the qualification set out in Sentence (1) until the earlier of,
(a) the day the person is registered under Sentence 3.1.3.2.(1), and
(b) March 31, 2015.

3.1.3.2. Registration and Renewal of a Registration

(1) Subject to Article 3.1.5.7., the director may register an applicant, or renew a registration, if,
(a) the applicant or registered person has successfully completed 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 applicant or registered person has successfully completed 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.,
(c) the application is complete, and
(d) all fees required under Article 3.1.5.3. are paid.
(2) For the purposes of a registration or a renewal of a registration, a person who was qualified on December 31, 2014 under Sentence 3.1.3.1.(1), as it read on that date, is deemed to have the qualifications set out in Clauses (1)(a) and (b).

(3) If a person is given notice of a knowledge maintenance examination that relates to the subject matter of an examination program referred to in Clause (1)(a) or (b), as applicable, either after December 31, 2014 under Sentence 3.1.5.6.(1) or, on or before December 31, 2014, under Sentence 3.1.5.1.(2), as it read on that date, and does not successfully complete the knowledge maintenance examination referred in the notice by the end of the eighteenth month following the month in which the director gives notice of the knowledge maintenance examination to the person, Sentence (2) ceases to apply to the person at the end of that period with respect to the qualifications set out in Clause (1)(a) or (b), as applicable.

3.1.4. Inspectors

3.1.4.1. Qualifications

(1) Except as provided in Article 3.1.4.3. or 3.1.4.4., 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 must be registered with the director.

(2) A registration shall be in a form established by the director.

(3) A person who was qualified on December 31, 2014 under Sentence 3.1.4.1.(1) in a category of qualification set out in Column 2 of Table 3.5.2.1., as they read on that date, is deemed to be registered in the class of registration that corresponds to that category of qualification until the earlier of,
   (a) the day the person is registered in that class of registration under Sentence 3.1.4.2.(1), and
   (b) March 31, 2015.

3.1.4.2. Registration and Renewal of a Registration

(1) Subject to Article 3.1.5.7., the director may register an applicant, or renew a registration, in each class of registration applied for, if,
   (a) the applicant or registered person has successfully completed 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 of qualification set out in Column 2 of Table 3.5.2.1. that corresponds to each class of registration set out in Column 1 of Table 3.5.2.1. for which application is made,
   (b) the application is complete, and
   (c) all fees required under Article 3.1.5.3. are paid.

(2) For the purposes of a registration or a renewal of a registration in a class of registration, a person who was qualified on December 31, 2014 under Sentence 3.1.4.1.(1) in a category of qualification set out in Column 2 of Table 3.5.2.1., as they read on that date, is deemed to have the qualifications set out in Clause (1)(a) in that category of qualification.

(3) If a person is given notice of a knowledge maintenance examination that relates to the subject matter of an examination program in the category of qualification either after December 31, 2014 under Sentence 3.1.5.6.(1) or, on or before December 31, 2014, under Sentence 3.1.5.1.(2), as it read on that date, and does not successfully complete the knowledge maintenance examination referred in the notice by the end of the eighteenth month following the month in which the director gives notice of the knowledge maintenance examination to the person, Sentence (2) ceases to apply to the person at the end of that period.
3.1.4.3. 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 qualification set out in Article 3.1.4.1., 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 is registered in the class of registration in respect of which the intern inspector will exercise the powers or perform the duties.

(3) An intern inspector who is exempt under Sentence (1) shall not,
(a) issue orders under the Act except orders under subsection 12(2) or 13(1) of the Act, or
(b) undertake a site inspection of a building related to a notice in respect of,
   (i) substantial completion of footings and foundations prior to commencement of backfilling, or
   (ii) completion of construction and installation of components required to permit the issuance of an occupancy permit under Sentence 1.3.3.1.(3), 1.3.3.4.(4) or 1.3.3.5.(3) or to permit occupancy under Sentence 1.3.3.2.(1), if the building or part of the building to be occupied is not fully completed.

3.1.4.4. Qualifications for Maintenance Program Inspectors

(1) A person may be appointed or remain appointed under the Act as an inspector whose duties include maintenance inspections of sewage systems, even if the person does not have the qualification set out in Article 3.1.4.1. in respect of these duties.

(2) An inspector who is exempt under Sentence (1) is authorized to conduct maintenance inspections of sewage systems only if the following conditions are met:
(a) the person is supervised by an inspector or chief building official who is registered in the class of registration described in Column 1 of Item 10 of Table 3.5.2.1., and
(b) the person does not issue orders under the Act.

3.1.5. Qualifications — Chief Building Officials, Supervisors and Managers, and Inspectors

3.1.5.1. Application for Registration or Renewal of a Registration

(1) An application for registration or renewal of a registration shall be made to the director in a form established by the director.

(2) An application for renewal of a registration shall be made at least 60 days before the expiry of the registration to be renewed.

(3) An application for registration or renewal of a registration shall include an undertaking by the applicant or registered person to comply with the conditions set out in Article 3.1.5.5.

(4) An application for registration or renewal of a registration shall,
(a) set out the applicant’s or registered person’s name, residence address, residential mailing address, if different from the residence address, and email address, if applicable,
(b) set out the name and address of every principal authority that has appointed the person as a chief building official or inspector under the Act, and
(c) contain evidence, provided by the applicant or registered person, that the applicant or registered person has the qualifications set out in Clauses 3.1.2.2.(1)(a) and (b), 3.1.3.2.(1)(a) and (b), or 3.1.4.2.(1)(a), as applicable.
3.1.5.2. Term

(1) A registration expires one year after it is issued but the director may, for the purposes of staggering the renewal dates of the registrations, issue the initial registration for a term of not less than 90 days and not more than 18 months.

3.1.5.3. Fees

(1) The fee payable for an application to take an examination that is part of an examination program referred to in Clause 3.1.2.2.(1)(a), 3.1.3.2.(1)(a) or (b) or 3.1.4.2.(1)(a) is $150.

(2) The fee for a registration or renewal of a registration is,
   (a) $105, for 2015, and
   (b) the amount determined in accordance with Sentences (3) and (4) rounded to the nearest dollar, for 2016 and subsequent calendar years.

(3) On and after January 1, 2016, the fee for a calendar year is the fee for the previous calendar year adjusted by the percentage change from year to year in the Consumer Price Index for Ontario (All-Items) as reported monthly by Statistics Canada under the authority of the Statistics Act (Canada), averaged over the 12-month period that ends on March 31 of the previous calendar year, rounded to the first decimal point.

(4) Despite Sentence (3), if the percentage change results in a negative amount, the fee for a calendar year shall remain at the same level as the previous calendar year.

3.1.5.4. Not Transferable

(1) A registration is not transferable.

3.1.5.5. Conditions

(1) The following are the conditions of a registration:
   (a) the registered person shall, within 15 days after the event, notify the director in writing of any change in the information set out in Clause 3.1.5.1.(4)(a) or (b),
   (b) in the case of a registered person who is given notice of a knowledge maintenance examination under Sentence 3.1.5.6.(1), the person shall successfully complete the knowledge maintenance examination referred to in the notice by the end of the eighteenth month following the month in which the director gives notice of the knowledge maintenance examination to the person, and
   (c) in the case of an inspector registered under Sentence 3.1.4.2.(1), the person shall exercise his or her powers and perform his or her duties only in respect of the type of buildings described in Column 3 of Table 3.5.2.1. that correspond to the class or classes of registration held by the person.

3.1.5.6. Knowledge Maintenance

(1) The director shall give notice of a knowledge maintenance examination administered or authorized by the Ministry of Municipal Affairs and Housing in respect of changes described in Sentence (2) that relate to the subject matter of an examination program referred to in Clause 3.1.2.2.(1)(a), 3.1.3.2.(1)(a) or (b) or 3.1.4.2.(1)(a), as applicable, to every person who, on December 31, 2013, has the qualifications set out in Sentence 3.1.2.1.(1), 3.1.3.1.(1) or 3.1.4.1.(1), as applicable, of Division C of Ontario Regulation 350/06 (Building Code) made under the Act.

(2) The changes referred to in Sentence (1) are changes made to the Act and Ontario Regulation 350/06 from December 31, 2006 to December 31, 2013 and changes made at the time that regulation is replaced by this Code on January 1, 2014.
3.1.5.6. The director may give the notice referred to in Sentence (1) by sending it,
(a) by regular mail to the last address of the person that has been filed with the director, or
(b) by email to the last email address of the person that has been filed with the director.

3.1.5.7. Suspension, Revocation, Refusal to Register or Renew a Registration

(1) The director may, in the circumstances set out in Sentence (2),
(a) refuse to register an applicant or to renew a registration, or
(b) suspend or revoke a registration.

(2) The circumstances referred to in Sentence (1) are,
(a) the registered person is in breach of a condition of the registration,
(b) the registration was issued on the basis of mistaken, false or incorrect information,
(c) an order under subsection 69(2) of the Provincial Offences Act is in effect directing that the registration of the
person be suspended and that no registration be issued to that person until a fine is paid,
(d) the application is incomplete, or
(e) any fees required under Article 3.1.5.3. remain unpaid.

(3) If the director proposes to refuse to register or renew a registration or proposes to suspend or revoke a registration,
the director shall serve a notice of the proposal, together with the reasons for it, on the applicant or registered person.

(4) A notice under Sentence (3) shall state that the applicant or registered person is entitled to a hearing before the
Tribunal if the applicant or registered person, within 15 days after service of the notice referred to in Sentence (3), serves
the director and the Tribunal with notice in writing requesting a hearing.

(5) If the applicant or registered person does not request a hearing by the Tribunal in accordance with Sentence (4), the
director may carry out the proposal stated in the notice under Sentence (3).

(6) If the applicant or registered person requests a hearing before the Tribunal in accordance with Sentence (4), the
Tribunal shall appoint a time for and hold a hearing and may by order direct the director to carry out the director’s
proposal or refrain from carrying it out and to take such other action as the Tribunal considers the director ought to take
in accordance with the Act and this Code, and for those purposes, the Tribunal may substitute its opinion for that of the
director.

(7) The director, the applicant or registered person who requested the hearing, and such other persons as the Tribunal
may specify, are parties to proceedings before the Tribunal.

(8) Sentences (3) to (7) do not apply and the director may cancel the registration of a registered person upon receipt of a
request in writing for cancellation from the registered person in a form established by the director.

(9) If, within the time period set out in Sentence 3.1.5.1.(2), the registered person has applied for renewal of a
registration and paid the fee required under Article 3.1.5.3., the registration is deemed to continue until the earlier of,
(a) the day the registration is renewed, and
(b) if the registered person is served with notice that the director proposes to refuse to renew the registration, the day the
time for giving notice requesting a hearing expires or, if a hearing is held, the day the Tribunal makes its order.

3.1.6. Public Register

3.1.6.1. Public Register

(1) The director shall establish and maintain a register available to the public that lists every person who has the
qualifications required by subsections 15.11(1), (2) and (3) of the Act and has been appointed as a chief building official
or inspector by a principal authority.
(d) by the end of the eighteenth month following the month in which the director gives notice of a knowledge maintenance examination to the registered person under Sentence 3.2.4.8.(1), the registered person shall ensure that the following persons have successfully completed the knowledge maintenance examination referred to in the notice:

(i) the registered person and the persons described in Clause (b) who are deemed under Sentence 3.2.4.2.(3) to have the qualifications set out in Clause 3.2.4.2.(1)(a) in the class of registration to which the notice relates, and

(ii) persons described in Clause (c) who are deemed under Sentence 3.2.4.2.(3) to have the qualifications set out in Clause 3.2.4.2.(1)(b) in respect of the class of registration to which the notice relates and who will review and take responsibility for design activities provided to the public by the registered person in the class of registration,

(e) the registered person shall ensure that a person described in Clause (c) who reviews and takes responsibility for design activities provided to the public by the registered person shall include the following information on any document submitted to a chief building official or registered code agency in the circumstances set out in subsection 15.11(5) of the Act:

(i) the name of the registered person and any registration number issued to the registered person by the director,

(ii) a statement that the person has reviewed and taken responsibility for the design activities,

(iii) the person’s name and any identifying number issued to the person by the director in respect of the qualifications described in Clause 3.2.4.2.(1)(a) or (b) that the person has, and

(iv) the person’s signature,

(f) the registered person shall, during the term of the registration, be covered by the insurance required under Subsection 3.6.2.,

(g) the registered person shall, within 15 days after the event, notify the director in writing of,

(i) any change in address of the registered person for correspondence relating to the registration, and

(ii) any change in the information set out in Sentences 3.2.4.3.(4) and (5),

(h) the registered person shall give prompt written notice to the director of any material change in any of the information, other than the information referred to in Clause (g), that is contained in or accompanies an application for registration or renewal of a registration,

(i) the registered person shall, from time to time, at the registered person’s expense, give the director such documents or information relating to the registration or to activities carried out under the registration as the director may reasonably require, and

(j) the registered person shall allow the representatives of the director access to the registered person’s books and records during normal business hours for the purpose of confirming matters related to the registration.

3.2.4.8. Knowledge Maintenance

(1) The director shall give notice of a knowledge maintenance examination administered or authorized by the Ministry of Municipal Affairs and Housing in respect of changes described in Sentence (2) that relate to the subject matter of an examination program referred to in Clause 3.2.4.2.(1)(a) or (b) to every person who is registered under Sentence 3.2.4.2.(1) in a class of registration to which the knowledge maintenance examination relates.

(2) The changes referred to in Sentence (1) are changes made to the Act and Ontario Regulation 350/06 (Building Code) from December 31, 2006 to December 31, 2013 and changes made at the time that regulation is replaced by this Code on January 1, 2014.

3.2.4.9. Suspension, Revocation, Refusal to Register or Renew a Registration

(1) The director may, in the circumstances set out in Sentence (2),

(a) refuse to register an applicant or to renew a registration, or

(b) suspend or revoke a registration.
(2) The circumstances referred to in Sentence (1) are,
(a) the registered person is in contravention of the Act or this Code,
(b) the registered person is in breach of a condition of the registration other than the condition set out in Clause 3.2.4.7.(1)(f),
(c) the registration was issued on the basis of mistaken, false or incorrect information,
(d) the director is of the opinion that the past conduct of the applicant or registered person or, if the applicant or registered person is a partnership or a corporation, the partners, officers or directors of the applicant or registered person, as the case may be, affords reasonable grounds for belief that the business that would be or is authorized by the registration will not be carried on in accordance with law,
(e) the application is incomplete, or
(f) any fees required under Article 3.2.4.5. remain unpaid.

(3) If the director proposes to refuse to register or renew a registration or proposes to suspend or revoke a registration under Sentence (1), the director shall serve a notice of the proposal, together with the reasons for it, on the applicant or registered person.

(4) A notice under Sentence (3) shall state that the applicant or registered person is entitled to a hearing before the Tribunal if the applicant or registered person, within 15 days after service of the notice referred to in Sentence (3), serves the director and the Tribunal with notice in writing requesting a hearing.

(5) If the applicant or registered person does not request a hearing by the Tribunal in accordance with Sentence (4), the director may carry out the proposal stated in the notice under Sentence (3).

(6) If the applicant or registered person requests a hearing before the Tribunal in accordance with Sentence (4), the Tribunal shall appoint a time for and hold a hearing and may by order direct the director to carry out the director’s proposal or refrain from carrying it out and to take such other action as the Tribunal considers the director ought to take in accordance with the Act and this Code, and for those purposes the Tribunal may substitute its opinion for that of the director.

(7) The director, the applicant or registered person who requested the hearing, and such other persons as the Tribunal may specify, are parties to proceedings before the Tribunal.

(8) Sentences (3) to (7) do not apply and the director may cancel the registration of a registered person upon receipt of a request in writing for cancellation from the registered person in a form established by the director.

(9) If, within the time period set out in Sentence 3.2.4.3.(2), the registered person has applied for renewal of a registration, paid the fee required under Article 3.2.4.5. and provided evidence satisfactory to the director that the registered person is covered by insurance required under Subsection 3.6.2. for the term of the renewal of the registration, the registration is deemed to continue until the earliest of,
(a) the day the registration is renewed,
(b) if the registered person is served with notice that the director proposes to refuse to renew the registration, the day the time for giving notice requesting a hearing expires or, if a hearing is held, the day the Tribunal makes its order, and
(c) the day when the registered person ceases to be covered by the insurance required under Subsection 3.6.2.

3.2.4.10. Mandatory Suspension or Revocation of Registration or Refusal to Register or Renew Registration

(1) The director shall, in the circumstances set out in Sentence (2),
(a) refuse to register an applicant,
(b) refuse to renew a registration, or
(c) suspend or revoke a registration.
(4) An application for registration or renewal of a registration shall,
(a) set out the applicant’s or registered person’s name, residence address, residential mailing address, if different from the residence address, and email address, if applicable, and
(b) contain evidence, provided by the applicant or registered person, that the applicant or registered person has the qualifications set out in Clause 3.2.5.2.(1)(a).

3.2.5.4. Term

(1) A registration expires one year after it is issued but the director may, for the purposes of staggering the renewal dates of the registrations, issue the initial registration for a term of not less than 90 days and not more than 18 months.

3.2.5.5. Fees

(1) The fee payable for an application to take an examination that is part of an examination program referred to in Clause 3.2.5.2.(1)(a) is $150.

(2) The fee for a registration or renewal of a registration is,
(a) $105, for 2015, and
(b) the amount determined in accordance with Sentences (3) and (4) rounded to the nearest dollar, for 2016 and subsequent calendar years.

(3) On and after January 1, 2016, the fee for a calendar year is the fee for the previous calendar year adjusted by the percentage change from year to year in the Consumer Price Index for Ontario (All-Items) as reported monthly by Statistics Canada under the authority of the Statistics Act (Canada), averaged over the 12-month period that ends on March 31 of the previous calendar year, rounded to the first decimal point.

(4) Despite Sentence (3), if the percentage change results in a negative amount, the fee for a calendar year shall remain at the same level as the previous calendar year.

3.2.5.6. Conditions

(1) The following are the conditions of a registration:
(a) the registered person shall carry out design activities only in respect of the type of buildings described in Column 3 of Table 3.5.2.1. that correspond to the class or classes of registration held by the registered person,
(b) in the case of a registered person who is given notice of a knowledge maintenance examination under Sentence 3.2.5.7.(1), the person shall successfully complete the knowledge maintenance examination referred to in the notice by the end of the eighteenth month following the month in which the director gives notice of the knowledge maintenance examination to the person,
(c) the registered person shall, within 15 days after the event, notify the director in writing of any change in the information set out in Clause 3.2.5.3.(4)(a),
(d) the registered person shall include the following information on any document respecting design activities that the person has reviewed and taken responsibility for and that is submitted to a chief building official or registered code agency in the circumstances set out in subsection 15.11(5) of the Act:
(i) the person’s name and any identifying number assigned to the person by the director in respect of the person’s registration,
(ii) a statement that the person has reviewed and taken responsibility for the design activities, and
(iii) the person’s signature.
3.2.5.7. Knowledge Maintenance

(1) The director shall give notice of a knowledge maintenance examination administered or authorized by the Ministry of Municipal Affairs and Housing in respect of changes described in Sentence (2) that relate to the subject matter of an examination program referred to in Clause 3.2.5.2.(1)(a) to every person who, on December 31, 2013, has the qualifications set out in Clauses 3.2.5.1.(1)(a) and (b) of Division C of Ontario Regulation 350/06 (Building Code) made under the Act.

(2) The changes referred to in Sentence (1) are changes made to the Act and Ontario Regulation 350/06 from December 31, 2006 to December 31, 2013 and changes made at the time that regulation is replaced by this Code on January 1, 2014.

(3) The director may give the notice referred to in Sentence (1) by sending it,
   (a) by regular mail to the last address of the person that has been filed with the director, or
   (b) by email to the last email address of the person that has been filed with the director.

3.2.5.8. Suspension, Revocation, Refusal to Register or Renew a Registration

(1) The director may, in the circumstances set out in Sentence (2),
   (a) refuse to register an applicant or to renew a registration, or
   (b) suspend or revoke a registration.

(2) The circumstances referred to in Sentence (1) are,
   (a) the registered person is in breach of a condition of the registration,
   (b) the registration was issued on the basis of mistaken, false or incorrect information,
   (c) an order under subsection 69(2) of the Provincial Offences Act is in effect directing that the registration of the person be suspended and that no registration be issued to that person until a fine is paid,
   (d) the application is incomplete, or
   (e) any fees required under Article 3.2.5.5. remain unpaid.

(3) If the director proposes to refuse to register or renew a registration or proposes to suspend or revoke a registration, the director shall serve a notice of the proposal, together with the reasons for it, on the applicant or registered person.

(4) A notice under Sentence (3) shall state that the applicant or registered person is entitled to a hearing before the Tribunal if the applicant or registered person, within 15 days after service of the notice referred to in Sentence (3), serves the director and the Tribunal with notice in writing requesting a hearing.

(5) If the applicant or registered person does not request a hearing by the Tribunal in accordance with Sentence (4), the director may carry out the proposal stated in the notice under Sentence (3).

(6) If the applicant or registered person requests a hearing before the Tribunal in accordance with Sentence (4), the Tribunal shall appoint a time for and hold a hearing and may by order direct the director to carry out the director’s proposal or refrain from carrying it out and to take such other action as the Tribunal considers the director ought to take in accordance with the Act and this Code, and for those purposes, the Tribunal may substitute its opinion for that of the director.

(7) The director, the applicant or registered person who requested the hearing, and such other persons as the Tribunal may specify, are parties to proceedings before the Tribunal.
3.3.3.8. Knowledge Maintenance

(1) The director shall give notice of a knowledge maintenance examination administered or authorized by the Ministry of Municipal Affairs and Housing in respect of changes described in Sentence (2) that relate to the subject matter of an examination program referred to in Clause 3.3.3.2.(1)(a) to every person who is registered under Sentence 3.3.3.2.(1).

(2) The changes referred to in Sentence (1) are changes made to the Act and Ontario Regulation 350/06 (Building Code) from December 31, 2006 to December 31, 2013 and changes made at the time that regulation is replaced by this Code on January 1, 2014.

(3) The director may give the notice referred to in Sentence (1) by sending it,
(a) by regular mail to the last address of the person that has been filed with the director, or
(b) by email to the last email address of the person that has been filed with the director.

3.3.3.9. Suspension, Revocation, Refusal to Register or Renew a Registration

(1) The director may, in the circumstances set out in Sentence (2),
(a) refuse to register an applicant or to renew a registration, or
(b) suspend or revoke a registration.

(2) The circumstances referred to in Sentence (1) are,
(a) the registered person is in contravention of the Act or this Code,
(b) the registered person is in breach of a condition of the registration,
(c) the registration was issued on the basis of mistaken, false or incorrect information,
(d) the director is of the opinion that the past conduct of the applicant or registered person or, if the applicant or registered person is a partnership or a corporation, the partners, officers or directors of the applicant or registered person, as the case may be, affords reasonable grounds for belief that the business that would be or is authorized by the registration will not be carried on in accordance with law,
(e) an order under subsection 69(2) of the Provincial Offences Act is in effect directing that the registration of the person be suspended and that no registration be issued to that person until a fine is paid,
(f) the application is incomplete, or
(g) any fees required under Article 3.3.3.5. remain unpaid.

(3) If the director proposes to refuse to register or renew a registration or proposes to suspend or revoke a registration, the director shall serve a notice of the proposal, together with the reasons for it, on the applicant or registered person.

(4) A notice under Sentence (3) shall state that the applicant or registered person is entitled to a hearing before the Tribunal if the applicant or registered person, within 15 days after service of the notice referred to in Sentence (3), serves the director and the Tribunal with notice in writing requesting a hearing.

(5) If the applicant or registered person does not request a hearing by the Tribunal in accordance with Sentence (4), the director may carry out the proposal stated in the notice under Sentence (3).
(6) If the applicant or registered person requests a hearing before the *Tribunal* in accordance with Sentence (4), the *Tribunal* shall appoint a time for and hold a hearing and may by order direct the *director* to carry out the *director’s* proposal or refrain from carrying it out and to take such other action as the *Tribunal* considers the *director* ought to take in accordance with the Act and this Code, and for those purposes the *Tribunal* may substitute its opinion for that of the *director*.

(7) The *director*, the applicant or registered person who requested the hearing, and such other persons as the *Tribunal* may specify, are parties to proceedings before the *Tribunal*.

(8) Sentences (3) to (7) do not apply and the *director* may cancel the registration of a registered person upon receipt of a request in writing for cancellation from the registered person in a form established by the *director*.

(9) If, within the time period set out in Sentence 3.3.3.3.(2), the registered person has applied for renewal of a registration and paid the fee required under Article 3.3.3.5., the registration is deemed to continue until the earlier of,

(a) the day the registration is renewed, and

(b) if the registered person is served with notice that the *director* proposes to refuse to renew the registration, the day the time for giving notice requesting a hearing expires or, if a hearing is held, the day the *Tribunal* makes its order.

### 3.3.4. Public Register

#### 3.3.4.1. Public Register

(1) The *director* shall establish and maintain a register available to the public that lists every person who has the qualifications required by subsection 15.12(1) of the Act.

(2) The register referred to in Sentence (1) shall contain the following information with respect to every registered person:

(a) the name of the registered person,

(b) any identifying number assigned by the *director* to the registered person,

(c) the business address of the registered person,

(d) the names of the person or persons who will supervise the *construction* on site, installation, repair, servicing, cleaning or emptying of *sewage systems* carried out by the registered person, and

(e) any identifying number assigned by the *director* to the person or persons referred to in Clause (d).
(4) An application for registration or renewal of a registration shall include an undertaking by the applicant or registered person to comply with the conditions set out in Article 3.4.3.7.

(5) If a partnership or a corporation is the applicant for registration or renewal of a registration, the application shall set out the names and residence addresses of all its partners, directors or officers, as the case may be.

(6) An application for registration or renewal of a registration shall contain the names of all partners, directors, officers or employees of the applicant or registered person, as the case may be, and all other persons engaged by the applicant or registered person, who,
   (a) have the qualifications set out in Clause 3.4.3.2.(1)(a),
   (b) have the qualifications set out in Clause 3.4.3.2.(1)(b) in the class or classes of registration for which the application is made, and
   (c) have the qualifications set out in Clause 3.4.3.2.(1)(c) in the class or classes of registration for which the application is made and will exercise powers and perform functions under the Act on behalf of the applicant or registered person in that class of registration.

(7) An application for registration or renewal of a registration shall contain evidence, provided by the applicant or registered person, that the persons referred to in Sentence (6) have the qualifications set out in Clause 3.4.3.2.(1)(a), (b) or (c).

(8) An application for registration or renewal of a registration shall contain evidence, provided by the applicant or registered person in such form and in such detail as may be required by the director, that the applicant or registered person is covered by the insurance required under Subsection 3.6.2. during the term of the registration applied for.

3.4.3.4. **Term**

(1) A registration expires one year after the date of its issuance.

3.4.3.5. **Fees**

(1) The fee payable for an application to take an examination that is part of an examination program referred to in Clause 3.4.3.2.(1)(a), (b) or (c) is $150.

(2) The fee for a registration is,
   (a) $395, for 2015, and
   (b) the amount determined in accordance with Sentences (5) and (6) rounded to the nearest dollar, for 2016 and subsequent calendar years.

(3) The fee for the addition of a new class of registration is,
   (a) $65, for 2015, and
   (b) the amount determined in accordance with Sentences (5) and (6) rounded to the nearest dollar, for 2016 and subsequent calendar years.

(4) The fee for renewal of a registration is,
   (a) $290, for 2015, and
   (b) the amount determined in accordance with Sentences (5) and (6) rounded to the nearest dollar, for 2016 and subsequent calendar years.

(5) On and after January 1, 2016, the fee for a calendar year is the fee for the previous calendar year adjusted by the percentage change from year to year in the Consumer Price Index for Ontario (All-Items) as reported monthly by Statistics Canada under the authority of the Statistics Act (Canada), averaged over the 12-month period that ends on March 31 of the previous calendar year, rounded to the first decimal point.
Despite Sentence (5), if the percentage change results in a negative amount, the fee for each calendar year shall remain at the same level as the previous calendar year.

3.4.3.6. Not Transferable

(1) A registration is not transferable.

3.4.3.7. Conditions

(1) The following are the conditions of a registration:
(a) the registered person shall carry out activities under the registration in accordance with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d),
(b) if the registered person is a corporation or partnership, during the term of the registration there must be,
(i) an officer, director, partner or employee of the registered person who has the qualifications set out in Clause 3.4.3.2.(1)(a), and
(ii) one or more officers, directors, partners or employees of the registered person who have the qualifications set out in Clause 3.4.3.2.(1)(b) in respect of each class of registration that is held by the registered person,
(c) by the end of the eighteenth month following the month in which the director gives notice of a knowledge maintenance examination to the registered person under Sentence 3.4.3.8.(1), the registered person shall ensure that the persons who are deemed under Clause 3.4.3.2.(3)(a) or (b) to have the qualifications set out in Clause 3.4.3.2.(1)(a) or (b), as applicable, have successfully completed the knowledge maintenance examination referred to in the notice,
(d) the registered person shall, during the term of the registration, be covered by the insurance required under Subsection 3.6.2.,
(e) the registered person shall, within 15 days after the event, notify the director in writing of,
(i) any change in address of the registered person for correspondence relating to the registration, and
(ii) any change in the information set out in Sentences 3.4.3.3.(5) and (6),
(f) the registered person shall give prompt written notice to the director of any material change in any of the information, other than the information referred to in Clause (e), that is contained in or accompanies an application for registration or renewal of a registration,
(g) the registered person shall, from time to time, at the registered person’s expense, give to the director such documents or information relating to the registration or to activities carried out under the registration as the director may reasonably require, and
(h) the registered person shall allow the representatives of the director access to the registered person’s books and records during normal business hours for the purpose of confirming matters related to the registration.

3.4.3.8. Knowledge Maintenance

(1) The director shall give notice of a knowledge maintenance examination administered or authorized by the Ministry of Municipal Affairs and Housing in respect of changes described in Sentence (2) that relate to the subject matter of an examination program referred to in Clause 3.4.3.2.(1)(a), (b) or (c) to every person who is registered under Sentence 3.4.3.2.(1) in a class of registration set out in Column 1 of Table 3.5.2.2. to which the examination relates.

(2) The changes referred to in Sentence (1) are changes made to the Act and Ontario Regulation 350/06 (Building Code) from December 31, 2006 to December 31, 2013 and changes made at the time that regulation is replaced by this Code on January 1, 2014.

(3) The director may give the notice referred to in Sentence (1) by sending it,
(a) by regular mail to the last address of the person that has been filed with the director, or
(b) by email to the last email address of the person that has been filed with the director.
3.7.1.2. Appointments

(1) A registered code agency may not be appointed under subsection 4.1(2) of the Act unless the appointment complies with the requirements of Sentences (2) and (3).

(2) An appointment described in Sentence (1) shall,
(a) be made in writing,
(b) specify the construction of the building or class of buildings in respect of which the appointment relates,
(c) specify the functions described in section 15.15 of the Act that the registered code agency is appointed to perform, and
(d) require that the registered code agency carry out its functions under the appointment in accordance with the Act and this Code and the quality management plan described in Clause 3.4.3.2.(1)(d).

(3) An appointment described in Sentence (1) may contain provisions in addition to the provisions required under Sentence (2) if the additional provisions are not inconsistent with the provisions required under that Sentence.

3.7.2. When a Registered Code Agency may not be Appointed or Continue to Act Under an Appointment

3.7.2.1. General

(1) A registered code agency may not be appointed to perform functions under section 15.15 of the Act in respect of a building or continue to act under an appointment in respect of a building if the registered code agency,
(a) is not registered under Sentence 3.4.3.2.(1) in respect of the class of registration to which the construction of the building relates, or
(b) is in breach of a condition of its registration under Article 3.4.3.7.

(2) Where the design and general review of construction of a building must be undertaken by an architect or a professional engineer or a combination of both, a registered code agency may not be appointed to perform functions under section 15.15 of the Act or continue to act under an appointment in respect of the construction of the building unless the registered code agency or an officer, director, partner or employee of the registered code agency is an architect or professional engineer or both, as the case may be.

(3) A registered code agency may not be appointed under the Act or continue to act under an appointment if the registered code agency would be in a conflict of interest.

(4) For the purposes of Sentence (3), a registered code agency would be in a conflict of interest if the registered code agency or an officer, director, partner or employee of the registered code agency or any person engaged by the registered code agency to perform functions for it,
(a) has participated or participates, in any capacity, in design activities or construction relating to any part of the building to which an appointment relates,
(b) is or has been employed within the previous 180 days by a person who carried out design activities or construction relating to any part of the building,
(c) has a professional or financial interest in,
   (i) the construction of the building to which the appointment relates,
   (ii) the building to which the appointment relates, or
   (iii) the person responsible for the design of the building to which the appointment relates, or
(d) is an elected official, officer or employee of a principal authority.

(5) For the purposes of Clause (4)(c), involvement with a building as a registered code agency and entitlement to any fee paid for acting as a registered code agency in respect of a building shall not be considered to be a professional or financial interest in the construction of the building, the building or the person responsible for the design of the building.
3.7.3. Additional Functions that Registered Code Agencies may be Appointed to Perform

3.7.3.1. General

(1) In addition to the functions described in paragraphs 1 to 5 of section 15.15 of the Act, a registered code agency may be appointed to perform the functions set out in Sentence 3.7.4.3.(5) or (6).

3.7.4. Manner in Which Registered Code Agency Shall Perform Functions

3.7.4.1. General

(1) The registered code agency shall perform the functions specified in an appointment in accordance with the Act and this Code and the quality management plan described in Clause 3.4.3.2.(1)(d).

(2) The registered code agency shall perform the functions specified in an appointment in accordance with the code of conduct set out in MMAH Supplementary Standard SC-1, “Code of Conduct for Registered Code Agencies”.

3.7.4.2. Plans Review and Inspection Activities

(1) The registered code agency shall ensure that plans review and inspection activities of the registered code agency are carried out by a person who has the qualifications set out in Clause 3.4.3.2.(1)(b) or (c) in respect of the type of building set out in Column 3 of Table 3.5.2.2. for which the person is carrying out the activities.

(2) By the end of the eighteenth month following the month in which the director gives notice of a knowledge maintenance examination to the registered code agency under Sentence 3.4.3.8.(1), the registered code agency shall ensure that the persons described in Sentence (1) who are deemed under Clause 3.4.3.2.(3)(b) or (c), as applicable, to have the qualifications set out in Clause 3.4.3.2.(1)(b) or (c), as applicable, in the category of qualification to which the notice relates and who will carry out plans review and inspection activities of the registered code agency in that category of qualification, have successfully completed the knowledge maintenance examination referred to in the notice.

(3) A registered code agency shall prepare written records of every inspection of the construction of a building that is undertaken by the registered code agency in the course of performing functions under an appointment.

(4) The record required under Sentence (3) shall include,

(a) the date of receipt of the notice of readiness for inspection, if any,
(b) the date of the inspection,
(c) the reason for the inspection, and
(d) whether non-compliance with this Code was observed in the course of the inspection and the details of the non-compliance.

(5) If a registered code agency has issued an order under subsection 12(2), 13(1) or 13(6) of the Act, the registered code agency shall prepare a written record consisting of,

(a) a copy of the order,
(b) the persons on whom the order was served and the date and manner of service,
(c) when and how the order was complied with, and
(d) if the order has not been complied with, the efforts made by the registered code agency to achieve compliance by the persons responsible for compliance.
3.7.4.3. Issuance of Certificates by Registered Code Agencies

(1) Subject to Sentence (2), every certificate issued under the Act by a registered code agency shall, in accordance with the quality management plan described in Clause 3.4.3.2.(1)(d), be signed by the registered code agency or, if the registered code agency is a corporation or partnership, by a person who has the qualifications set out in Clause 3.4.3.2.(1)(a).

(2) If the certificate is issued in respect of the construction of a building that would be required to be designed by and under the general review of an architect or a professional engineer or a combination of both, the certificate shall also be signed on behalf of the registered code agency by an architect or a professional engineer or both, as the case may be, who is an officer, director, partner or employee of the registered code agency.

(3) A registered code agency may issue a plans review certificate if the registered code agency,
(a) has been appointed to perform the functions described in clause 4.1(4)(a) or (c) of the Act in respect of the proposed construction of the building to which the plans review certificate applies,
(b) has, in conformity with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d), carried out the applicable functions for which the registered code agency was appointed, and
(c) is satisfied on reasonable grounds that, on date on which the plans review certificate is issued, the proposed construction of the building to which the plans review certificate relates is in compliance with this Code.

(4) A registered code agency may issue a change certificate if the registered code agency,
(a) has been appointed to perform the functions described in clause 4.1(4)(a), (b) or (c) of the Act in respect of the construction or proposed construction of the building to which the change certificate applies,
(b) has, in conformity with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d), carried out the applicable functions for which the registered code agency was appointed, and
(c) is satisfied on reasonable grounds that, on the date on which the change certificate is issued, the proposed construction of the building to which the change certificate relates is in compliance with this Code.

(5) A registered code agency may issue a certificate for the occupancy of a building not fully completed if the registered code agency,
(a) has been appointed to perform the functions described in clause 4.1(4)(b) or (c) of the Act in respect of the construction of the building to which the certificate for the occupancy of a building not fully completed applies,
(b) has, in conformity with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d), carried out the applicable functions for which the registered code agency was appointed, and
(c) is satisfied on reasonable grounds that, on the date on which the certificate for the occupancy of a building not fully completed is issued, the construction of the building to which the certificate for the occupancy of a building not fully completed relates is in compliance with Clauses 1.3.3.1.(3)(a) to (q).

(6) A registered code agency may issue a certificate for the occupancy of a building described in Sentence 1.3.3.4.(3) of Division C if the registered code agency,
(a) has been appointed to perform the functions described in clause 4.1(4)(b) or (c) of the Act in respect of the construction of a building described in Sentence 1.3.3.4.(3) to which the certificate applies,
(b) has, in conformity with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d), carried out the applicable functions for which the registered code agency was appointed, and
(c) is satisfied on reasonable grounds that, on the date on which the certificate for the occupancy of a building described in Sentence 1.3.3.4.(3) of Division C is issued, the construction of the building to which the certificate relates is in compliance with Clauses 1.3.3.4.(4)(a) to (i).

(7) A registered code agency may issue a certificate for the occupancy of a building described in Sentence 1.3.3.5.(1) of Division C if the registered code agency,
(a) has been appointed to perform the functions described in clause 4.1(4)(b) or (c) of the Act in respect of the construction of a building described in Sentence 1.3.3.5.(1) to which the certificate applies,
(b) has, in conformity with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d), carried out the applicable functions for which the registered code agency was appointed, and
(c) is satisfied on reasonable grounds that, on the date on which the certificate for the occupancy of a building described in Sentence 1.3.3.5.(1) of Division C is issued, the construction of the building to which the certificate relates is in compliance with Clauses 1.3.3.5.(3)(a) to (r).

(8) A registered code agency may issue a final certificate if the registered code agency,
(a) has been appointed to perform the functions described in clause 4.1 (4)(b) or (c) of the Act in respect of the construction of the building to which the final certificate applies,
(b) has, in conformity with the Act, this Code and the quality management plan described in Clause 3.4.3.2.(1)(d), carried out the applicable functions for which the registered code agency was appointed, and
(c) is satisfied on reasonable grounds that on the date on which the final certificate is issued, the construction of the building to which the final certificate relates is in compliance with this Code.

(9) Every certificate issued under the Act by a registered code agency shall be in a form approved by the Minister.

3.7.4.4. Issuance of Orders by Registered Code Agencies

(1) Orders under subsections 13(6) and 14(1) of the Act shall, in accordance with the quality management plan described in Clause 3.4.3.2.(1)(d), be signed by the registered code agency or a person who has the qualifications set out in Clause 3.4.3.2.(1)(a).

(2) Orders under subsections 12(2) and 13(1) and clause 18(1)(f) of the Act shall, in accordance with the quality management plan described in Clause 3.4.3.2.(1)(d), be signed by the registered code agency or by a person who has the qualifications set out in Clause 3.4.3.2.(1)(b) or (c).

3.7.4.5. Authorized Persons

(1) Persons who have the qualifications set out in Clause 3.4.3.2.(1)(a), (b) or (c) are prescribed for the purposes of subsection 15.17(1) of the Act.

(2) The certificate of authorization referred to in subsection 15.17(2) of the Act shall, in accordance with the quality management plan described in Clause 3.4.3.2.(1)(d), be signed by a representative of the registered code agency who has the qualifications set out in Clause 3.4.3.2.(1)(a) and shall contain the following information:
(a) the name of the registered code agency and any identifying number issued by the director to the registered code agency,
(b) the title, business address and business telephone number of a representative of the registered code agency who may be contacted to answer questions about the certificate and the authorization to which it relates, 
(c) the name of the authorized person and any identifying number issued by the director to the authorized person in respect of that person’s qualifications, 
(d) the scope of the powers that may be exercised and the functions that may be performed by the authorized person, 
(e) the date of issuance of the certificate.

(3) Every person described in Sentence (1) shall carry his or her certificate of authorization when performing duties and shall produce the certificate for inspection upon request.

3.7.4.6. Prohibition

(1) A registered code agency shall not dismiss, suspend, demote, discipline, harass or otherwise disadvantage an employee, or deny an employee a benefit of employment, by reason that,
(a) the employee, acting in good faith and on the basis of reasonable belief, has disclosed to the director that the registered code agency or any other person has contravened or intends to contravene a provision of the Act or this Code or a predecessor of this Code,
(b) the employee, acting in good faith and on the basis of reasonable belief, has refused or stated an intention of refusing to do anything that is a contravention of a provision of the Act or this Code or a predecessor of this Code,
(c) the employee, acting in good faith and on the basis of reasonable belief, has done or stated an intention of doing anything that is required to be done in order that a provision of the Act or this Code or a predecessor of this Code not be contravened, or

(d) the registered code agency believes that the employee will do anything referred to in Clause (a), (b) or (c).

(2) Nothing in this Section impairs any right of an employee either at law or under an employment contract or collective agreement.

(3) In this Article, “employee” includes an independent contractor and “employer” includes the person who retains an employee who is an independent contractor.

3.7.4.7. Information and Records

(1) The registered code agency shall maintain records of all plans review and inspection activity, of all certificates and orders and of any other activities taken in carrying out functions under an appointment in accordance with the quality management plan described in Clause 3.4.3.2.(1)(d).

(2) Any information collected by a registered code agency in the course of the exercise of powers and the performance of duties under the Act may be used only for the purpose of performing functions under an appointment under subsection 4.1(2) of the Act and may be disclosed only,

(a) to a principal authority pursuant to an agreement under subsection 4.1(1) of the Act,
(b) to a principal authority to aid the enforcement in any manner of the Act, or
(c) where required or permitted under the Act, this Code, other applicable legislation or an order of a court.

(3) A registered code agency shall ensure that any agreement under which the registered code agency engages a person to assist the registered code agency to perform functions under an appointment includes a provision that requires the person to comply with Sentences (1) and (2).

3.7.5. Termination of Appointment of a Registered Code Agency

3.7.5.1. Termination of an Appointment Made Under Subsection 4.1(2) of the Act

(1) A principal authority may, in accordance with the terms of an agreement under subsection 4.1(1) of the Act, terminate the appointment of a registered code agency before the appointment expires under section 15.19 of the Act.

3.7.6. Information to be Provided

3.7.6.1. Information to be Provided by a Principal Authority to the Director

(1) If a principal authority that has appointed a registered code agency terminates the appointment before the appointment expires under section 15.19 of the Act, the principal authority shall, as soon as possible after the termination, give the director notice of the termination and such other information concerning the circumstances of the termination and as may be required by the director.

(2) If a chief building official has issued an order under subsection 15.21(1) of the Act, the principal authority shall as soon as possible after the order is issued give the director a copy of the order and such other information concerning the circumstances of the order and as may be required by the director.
3.7.6.2. Information to be Provided by a Registered Code Agency to the Director

(1) A registered code agency that becomes or expects to become unable to carry out the functions for which the registered code agency was appointed shall as soon as possible give notice to the director of this situation.

3.7.6.3. Information to be Provided by a Registered Code Agency to the Chief Building Official

(1) A registered code agency shall notify the chief building official if the registered code agency becomes or expects to become unable to carry out the functions for which the registered code agency was appointed.

(2) A registered code agency shall give copies of the following records to the chief building official,
(a) all orders issued by the registered code agency under subsections 12(2), 13(1) and 13(6) of the Act,
(b) all written records prepared by the registered code agency under Sentences 3.7.4.2.(3), (4) and (5),
(c) all final certificates that are issued by the registered code agency,
(d) records described in Section 2.1. relating to the use of an alternative solution, and
(e) any records of information, copies of documents or things, tests, samples or photographs produced, removed, required, taken or ordered to be taken under subsection 18(1) of the Act.

(3) The documents referred to in Sentence (2) shall be given to the chief building official,
(a) within the time period specified in any agreement under Article 3.7.1.1. or appointment under Article 3.7.1.2. in respect of which the documents relate, whichever time period ends earlier,
(b) within 15 days after the expiry or termination of the appointment of the registered code agency in respect of which the documents relate, if there is no time period specified in the agreement or appointment referred to in Clause (a), or
(c) if the chief building official has given notice to the registered code agency that he or she requires the documents before the time set out in Clause (a) or (b), within 2 days after the request for documents.

(4) The requirements of Sentence (2) apply even if the registered code agency is no longer registered under Sentence 3.4.3.2.(1).

(5) If a registered code agency in the course of carrying out functions under an appointment has reason to believe that a building described in Sentence (7) is unsafe within the meaning of subsection 15.9(2) or (3) of the Act, the registered code agency shall as soon as possible give notice to the chief building official of,
(a) the location of the building, and
(b) the reason why the registered code agency has reason to believe that the building is unsafe.

(6) A registered code agency that has given a notice to the chief building official under Sentence (5) shall give the chief building official such other information about the unsafe condition as the chief building official may require.

(7) Sentence (5) applies to,
(a) a building in respect of which the registered code agency has been appointed to perform functions, and
(b) a building that has been adversely affected by the construction of a building referred to in Clause (a).

(8) For the purposes of Sentence (3), a time period referred to in Clause (3)(a), (b) or (c),
(a) does not start until the day after the day on which the obligation to provide the documents arises, and
(b) does not include Saturdays, holidays and all other days on which the offices of the principal authority are not open for the transaction of business with the public.
3.7.7. Referral of Stop Work Order

3.7.7.1. Referral

(1) A registered code agency shall refer a matter under subsection 14(5) of the Act to the chief building official by giving the chief building official, as soon as possible,

(a) a report that contains the following information:

(i) a copy of the order made under section 12 or 13 of the Act that was not complied with and of the order under section 14 of the Act,

(ii) the persons on whom the orders were served and the date and manner of service,

(iii) a statement that the orders have not been complied with, and

(iv) the efforts made by the registered code agency to achieve compliance with the orders by the persons responsible for compliance, and

(b) such other information as the chief building official may require in respect of the matter that has been referred.

(2) The report under Clause (1)(a) shall be signed, in accordance with the quality management plan described in Clause 3.4.3.2.(1)(d), by the registered code agency or, if the registered code agency is a corporation or partnership, by a person who has the qualifications set out in Clause 3.4.3.2.(1)(a).
Part 4

Transition, Amendments, Revocation and Commencement

Section 4.1. Transition Rule

4.1.1. Transition, January 2014

4.1.1.1. Transition Rule

(1) Subject to Sentence (2), Ontario Regulation 350/06 (Building Code) made under the Act, as it read on December 31, 2013, is deemed to continue in force with respect to construction for which a permit has been applied for before January 1, 2014.

(2) Sentence (1) does not apply unless the construction is commenced within six months after the permit is issued.

4.1.2. Transition, January 2015

4.1.2.1. Transition Rule

(1) Subject to Sentence (2), this Regulation, as it read on December 31, 2014, is deemed to continue in force with respect to construction for which a permit has been applied for before January 1, 2015.

(2) Sentence (1) does not apply unless the construction is commenced within six months after the permit is issued.

4.1.3. Transition, January 2017

4.1.3.1. Transition Rule

(1) Subject to Sentence (2), Item 337 (MMAH Supplementary Standard SB-5, “Approved Sewage Treatment Units”) of Table 1.3.1.2. and Sentence 8.6.2.2.(5) of Division B of this Regulation, as they read on December 31, 2016, are deemed to continue in force with respect to construction for which a permit has been applied for before January 1, 2017.

(2) Sentence (1) does not apply unless the construction is commenced within six months after the permit is issued.
Section 4.2. Amendments

4.2.1. Amendments

4.2.1.1. Amendments

(1) Clause 1.4.1.2.(1)(c) of Division A of this Regulation is amended by adding the following definition:

Lake Simcoe watershed has the same meaning as in section 2 of the Lake Simcoe Protection Act, 2008.

(2) Item 337 (MMAH Supplementary Standard SB-5, “Approved Sewage Treatment Units”) of Table 1.3.1.2. of Division B of this Regulation is revoked.

(3) Sentence 8.6.2.2.(5) of Division B of this Regulation is revoked and the following substituted:

(5) A treatment unit is deemed to comply with Sentences (1) and (2) if it has been certified to CAN/BNQ 3680-600, “Onsite Residential Wastewater Treatment Technologies” using a temperature condition listed under option a) or b) of Clause 8.2.2. of that standard.

(4) Sentence 1.10.2.3.(2) of Division C of this Regulation is amended by striking out “and” at the end of Clause (2)(a) and by adding the following Clauses:

(a.1) portions of the strip of land along the Lake Simcoe shoreline described in Sentence (3),
(a.2) the strip of land that is located along each of the following rivers, streams, lakes or ponds and that is 100 m wide measured horizontally and perpendicular to and upland from the river, stream, lake or pond,
   (i) any river or stream in the Lake Simcoe watershed that continually flows in an average year,
   (ii) any lake or pond in the Lake Simcoe watershed that is connected on the surface to a river or stream described in Subclause (i), and
   (iii) any other lake or pond in the Lake Simcoe watershed that has a surface area greater than 8 hectares, and

(5) Article 1.10.2.4. of Division C of this Regulation is amended by adding the following Sentence:

(1.1) An inspection required under Sentence 1.10.2.3.(1) shall be conducted in respect of a sewage system in an area described in Clause 1.10.2.3.(2)(a.1) or (a.2),
(a) initially, no later than,
   (i) January 1, 2021, in the case of a sewage system constructed before January 1, 2016, or
   (ii) five years after the construction of the sewage system, in the case of a sewage system constructed on or after January 1, 2016, and
(b) thereafter, every five years after the most recent inspection of the sewage system has been conducted.

Section 4.3. Revocation

4.3.1. Revocation

4.3.1.1. Revocation

(1) Ontario Regulation 350/06 is revoked.
2012 Building Code Compendium

Volume 2

January 1, 2015 update
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.

a1 Amendment made to Appendix A or B issued for January 1st, 2014.
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a2.1 Amendment made to Appendix A or B issued for January 1st, 2015.
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e1 Editorial correction issued for January 1st, 2014.
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A-3 Application of Part 3.

In applying the requirements of this Part, it is intended that they be applied with discretion to buildings of unusual configuration that do not clearly conform to the specific requirements, or to buildings in which processes are carried out which make compliance with particular requirements in this Part impracticable.

The definition of “building” as it applies to this Code is general and encompasses most structures, including those which would not normally be considered as buildings in the layman’s sense. This occurs more often in industrial uses, particularly those involving manufacturing facilities and equipment that require specialized design that may make it impracticable to follow the specific requirements of this Part. Steel mills, aluminum plants, refining, power generation and liquid storage facilities are examples. A water tank or an oil refinery, for example, has no floor area, so it is obvious that requirements for exits from floor areas would not apply.

Requirements for structural fire protection in large steel mills and pulp and paper mills, particularly in certain portions, may not be practicable to achieve in terms of the construction normally used and the operations for which the space is to be used. In other portions of the same building, however, it may be quite reasonable to require that the provisions of this Part be applied (e.g., the office portions). Similarly, areas of industrial occupancy which may be occupied only periodically by service staff, such as equipment penthouses, normally would not need to have the same type of exit facility as floor areas occupied on a continuing basis.

Firefighting Assumptions

The requirements of this Part are based on the assumption that firefighting capabilities are available in the event of a fire emergency. These firefighting capabilities may take the form of a paid or volunteer public fire department or, in some cases, a private fire brigade. If these firefighting capabilities are not available, additional fire safety measures may be required.

Firefighting capability can vary from municipality to municipality. Generally, larger municipalities have greater firefighting capability than smaller ones. Similarly, older, well established municipalities may have better firefighting facilities than newly formed or rapidly growing ones. The level of municipal fire protection considered to be adequate will normally depend on both the size of the municipality (i.e., the number of buildings to be protected) and the size of buildings within that municipality. Since larger buildings tend to be located in larger municipalities, they are generally, but not always, provided with a higher level of municipal protection.

Some level of municipal firefighting capability was assumed in developing many of the fire safety provisions in Part 3. The requirements in the Code, while developed in the light of commonly prevailing municipal fire protection levels, do not attempt to relate the size of building to the level of municipal protection. The responsibility for controlling the maximum size of building to be permitted in a municipality in relation to local firefighting capability rests with the municipality.

The municipality may, in light of its firefighting capability, elect to introduce zoning restrictions to ensure that the maximum building size is related to available municipal fire protection facilities. This decision should be made in consultation with the local firefighting service, who are aware of their capability to fight fires.

The requirements of Subsection 3.2.3. are intended to prevent fire spread from thermal radiation assuming there is adequate firefighting available. It has been found that periods of from 10 to 30 minutes usually elapse between the outbreak of fire in a building that is not protected with an automatic sprinkler system and the attainment of high radiation levels. During this period, the specified spatial separations are intended to inhibit ignition of an exposed building face or the interior of an adjacent building by radiation. Subsequently, however, reduction of the fire intensity by firefighting and the protective wetting of the exposed building face will often be necessary as supplementary measures to inhibit fire spread.

In the case of a building that is sprinklered, the automatic sprinkler system is intended to control the fire to an extent that radiation to neighbouring buildings should be minimal. Although there will be some radiation effect on a sprinklered building from a fire in a neighbouring building, the internal sprinkler system should control any fires that might be ignited in the building and thereby minimize the possibility of the fire spreading into the exposed building. NFPA 80A, “Recommended Practice for Protection of Buildings from Exterior Fire Exposures”, provides additional information on the possibility of fire spread at building exteriors.
The water supply requirements for fire protection installations depend on the requirements of any automatic sprinkler installations and on the number of fire streams that may be needed at any fire, having regard to the length of time the streams will have to be used. Both these factors are largely influenced by the conditions at the building to be equipped, and the quantity and pressure of water needed for the protection of both the interior and exterior of the building. These considerations must be ascertained before the water supply is decided upon.

Acceptable water supplies may be:

- a public waterworks system that has adequate pressure and discharge capacity,
- automatic fire pumps,
- pressure tanks,
- manually controlled fire pumps in combination with pressure tanks,
- gravity tanks, and/or
- manually controlled fire pumps operated by remote control devices at each hose station.

(See also A-3.2.5.7. Water Supply)

A-3.1.2. Use Classification.

The purpose of classification is to determine which requirements apply. This Code requires classification in accordance with every major occupancy for which the building is used or intended to be used. Where necessary, an application clause has been inserted in this Part to explain how to choose between the alternative requirements that multiple occupancy classification may present.

A-3.1.2.1.(1) Major Occupancy Classification.

The following are only examples of the major occupancy classifications described in Table 3.1.2.1. To ensure the correct classification, refer to the definitions for each occupancy in Part 1 of Division A.

**Group A, Division 1**
- Motion picture theatres
- Opera houses
- Television studios admitting a viewing audience
- Theatres, including experimental theatres

**Group A, Division 2**
- Art galleries
- Auditoria
- Bowling alleys
- Child care facility
- Churches and similar places of worship
- Clubs, nonresidential
- Community halls
- Courtrooms
- Dance halls
- Exhibition halls (other than classified in Group E)
- Gymnasia
- Lecture halls
- Libraries
- Licensed beverage establishments
- Museums
- Passenger stations and depots
- Recreational piers
- Restaurants
- Schools and colleges, nonresidential
- Undertaking premises

**Group A, Division 3**
- Arenas
- Indoor swimming pools
- Rinks

**Group A, Division 4**
- Amusement park structures (not elsewhere classified)
- Bleachers
- Grandstands
- Reviewing stands
- Stadia

**Group B, Division 1**
- Jails
- Penitentiaries
- Police stations with detention quarters
- Prisons
- Psychiatric hospitals with detention quarters
- Reformatories with detention quarters
Group B, Division 2
- Facilities for people with developmental disabilities
- Homes for the aged
- Hospitals
- Infirmaries
- Long term care
- Nursing homes
- Psychiatric hospitals without detention quarters
- Reformatories without detention quarters
- Sanatoria without detention quarters

Group B, Division 3 (See also Sentence 3.1.2.5.(1.))
- Children’s custodial homes
- Convalescent homes
- Group homes for people with developmental disabilities
- Residential care facilities
- Sanatoria without detention quarters

Group C
- Apartments
- Boarding houses
- Camps for housing workers
- Clubs, residential
- Colleges, residential
- Convents
- Dormitories
- Group homes
- Halfway houses, drug and alcohol treatment
- Hostels
- Hotels
- Houses
- Lodging houses
- Monasteries
- Motels
- Open and semi-secure detention for youth
- Recreational camps
- Rooming houses
- Schools, residential
- Shelters for homeless
- Shelters for women

Group D
- Banks
- Barber and hairdressing shops
- Beauty parlours
- Dental offices
- Dry cleaning establishments, self-service, not using flammable or explosive solvents or cleaners
- Laundries, self-service
- Medical offices
- Offices
- Police stations without detention quarters
- Radio stations
- Small tool and appliance rental and service establishments

Group E
- Department stores
- Exhibition halls
- Markets
- Restaurants with an occupant load not more than 30 persons consuming food and drink
- Shops
- Stores
- Supermarkets

Group F, Division 1
- Bulk plants for flammable liquids
- Bulk storage warehouses for hazardous substances
- Cereal mills
- Chemical manufacturing or processing plants
- Distilleries
- Dry cleaning plants using flammable or explosive solvents or cleaners
- Feed mills
- Flour mills
- Grain elevators
- Lacquer factories
- Paint, varnish and pyroxylin product factories
- Rubber processing plants
- Spray painting operations

Group F, Division 2
- Aircraft hangars
- Cold storage plants
- Dry cleaning establishments not using flammable or explosive solvents or cleaners
- Electrical substations
- Freight depots
- Helicopter landing areas on roofs
- Laboratories
- Laundries, except self-service
- Planing mills
- Printing plants
- Repair garages
- Self-service storage buildings
- Service stations
- Storage rooms
- Television studios not admitting a viewing audience
- Tire storage
- Warehouses
- Woodworking factories

Group F, Division 3
- Creameries
- Laboratories
- Power plants
- Storage garages, including open air parking garages
- Storage rooms
- Warehouses
A-3.1.3.2.(3) Food Premises.
This requirement is intended to apply to facilities where food is being prepared, stored, processed or served, such as restaurants, commercial kitchens, cafeterias, camps, milk plants and bakeries.

A-3.1.4.2.(1)(c) Thermal Barrier in Combustible Construction.
Any thermal barrier that is accepted under the requirements of Sentence 3.1.5.12.(2) for noncombustible construction is also acceptable for combustible construction.

A-3.1.4.3. Wire and Cable Equivalence.
Electrical wires and cables that conform to the requirements of Sentence 3.1.5.18.(1) are deemed to satisfy the requirements of Sentence 3.1.4.3.(1).

A-3.1.4.3.(1)(b)(i) Raceway Definition.
The term raceway is defined in Ontario Electrical Safety Code and includes both rigid and flexible conduit.

A-3.1.5.4.(1) Skylight Spacing.
The minimum spacing dimensions for skylight assemblies are based on the distance that flame must travel along a flat ceiling surface. If ceilings have projecting beams or other features that would increase the distance the flame would have to travel along the surface, the distances specified may be measured accordingly.

A-3.1.5.5.(1) Combustible Elements.
These requirements allow for exterior wall assemblies incorporating combustible elements on buildings of noncombustible construction. Since the tested assemblies must be representative of actual construction, the performance of the entire assembly is assessed with regard to its ability to resist flame propagation up the outside of a building. The thermal barrier protection limits the impact of an interior fire on the wall assembly.

These requirements, in combination, thus allow for wall assemblies containing both combustible cladding elements and non-loadbearing combustible framing members. These wall assemblies can be used as infill or panel type walls between structural elements, or attached directly to a loadbearing noncombustible structural system. These requirements, however, do not waive others specifically intended for the protection of combustible insulation in buildings of noncombustible construction.

These requirements are predicated upon the assumption that the manufacturing process and field installation procedure are both carried out under an independent quality assurance program designed to confirm that the product and its application are consistent with the system as tested.

A-3.1.5.5.(3) Flame-Spread Distance.
The maximum flame-spread distance refers to the distance between the top of the opening and the highest observable instance of flaming along the wall assembly and thus allows intermittent flaming to a height of 5 m above the opening.

A-3.1.5.5.(4) Heat Flux Measurement.
The heat flux to the assembly referred to in Sentence 3.1.5.5.(3) is the maximum one-minute averaged heat flux measured by transducers located 3.5 m above the top of the opening. The intent of this criterion is to limit the spread of fire on the wall assembly to a height of 3.5 m above the opening.

Since the exact location of flaming on the exterior surface of a wall assembly can be influenced by the presence of furring strips, cavities, etc., in the assembly, which could channel the flame away from a heat flux transducer, sufficient transducers should be located at any given height to intercept any flaming that could occur along the assembly. The exact position of the transducers will depend on the location of cavities, joints, studs or furring strips in the assembly.
fact, restricted to concrete or masonry. Sentences 3.1.10.2.(3) and (4) are intended to retain both of the characteristics of firewalls, while permitting greater flexibility in the use of materials and designs. The fire-resistance rating and damage protection attributes of a firewall may be provided by a single fire- and damage-resistant material such as concrete or masonry, by a fire- and damage-resistant membrane on a structural frame, or by separate components - one that provides the fire-resistance rating and another one that protects the firewall against damage.

If the firewall is composed of separate components, the fire-resistance rating of the fire-resistive component needs to be determined for this assembly on its own. In addition, if the damage protection component is physically attached to the fire-resistive component (for example, as a sacrificial layer), then, for the purposes of determining the overall performance of the assembly, it is also necessary to determine through testing whether failure of the damage protection component during a fire affects the performance of the fire-resistive component.

A-3.1.11.5.(1) Fire Blocks in Combustible Construction.
Combustible construction referred to in Sentence 3.1.11.5.(1) includes all types of construction that do not comply with the requirements for noncombustible construction. All of the elements within the concealed space can be combustible, unless required to be of noncombustible materials (e.g., certain categories of pipework and ducts). However, the value of the flame-spread rating of the combustible materials determines the permitted extent of the concealed space between fire blocks. The materials to be considered should include all construction materials regulated by this Code, including the framing and building services that are located in the concealed space. Consideration should be given when designing fire blocking to avoid restricting venting capabilities within concealed spaces. (See also A-5.6.2.1.)

A-3.1.11.7.(6) Integrity of Fire Blocks.
Sentence 3.1.11.7.(6) together with Article 3.1.9.1., is intended to ensure that the integrity of fire blocks in maintained at areas where they are penetrated. This requirement is satisfied by the use of generic fire stops such as mineral wool, gypsum plaster or Portland cement mortar, as well as rated fire stops.

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

A-3.1.15.1.(1) Roof Covering.
The tests described in CAN/ULC-S107 are intended to measure the relative fire-performance of roof coverings when exposed to a fire originating from sources outside the building. When metal deck or a similar noncombustible rigid roof surface is directly exposed to the exterior (a covering material on its exterior surface has not been provided), the requirements of this Sentence need not apply.

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

A-3.2.1.1.(9) Accessible Service Space.
These service spaces are often referred to as interstitial spaces and are designed to allow service personnel to enter and undertake maintenance or installation within the space. Catwalks or flooring are usually included to provide a walking or access surface. Even when flooring is included, it is not intended that the interstitial space should be considered as a storey for the purposes of the Code unless the space is used for purposes other than servicing or the storage of materials and equipment to be used for building services within that space.

A-3.2.2.2.(1) Special and Unusual Structures.
Examples of structures which cannot be identified with the descriptions of buildings in Articles 3.2.2.20. to 3.2.2.83. include grain elevators, refineries and towers. Publications that may be consulted to establish good engineering practice for the purposes of Article 3.2.2.2. include the NFPA Fire Protection Handbook, Factory Mutual Data Sheets, and publications of the Society for Fire Protection Engineering.
A-3.2.2.18.(1) Sprinkler Extent.

It is not the intent of Article 3.2.2.6. and Sentences 3.2.2.4.(1) and (2) to require the installation of an automatic sprinkler system throughout all storeys of a building regardless of the options in Articles 3.2.2.20. to 3.2.2.83. in order to construct one or more storeys without the installation of sprinklers.

Furthermore, unlike the model National Building Code, it is not the intent of this Code to require an automatic sprinkler system in storeys below a storey where an automatic sprinkler system is required. Similarly, if the uppermost storey or storeys of a building can be constructed without the installation of an automatic sprinkler system it is not necessary that an automatic sprinkler system required in a lower storey be extended into the upper storey or storeys.

A-3.2.2.43A.(5) and A-3.2.2.50A.(4) Five– and Six–Storey Buildings of Combustible Construction.

This Sentence and the exemptions noted in Sentences 3.2.2.6.(1) and 3.2.2.7.(1) permit a building within the scope of Articles 3.2.2.43A. and 3.2.2.50A. to be entirely of combustible construction and include certain assembly and mercantile occupancies and storage garages below the third storey.

A-3.2.3. Fire Protection Related to Limiting Distance Versus Separation Between Buildings.

Building Code provisions that address protection against fire spread from building to building use the limiting distance (see definition in Article 1.4.1.2. of Division A) for a building rather than using the distance between adjacent buildings on separate properties, so that the design and construction of a building on one property does not affect the design and construction of a building on an adjacent property.

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

The Building Code has more stringent requirements for buildings having lesser limiting distance with regards to the maximum area and spacing of unprotected openings, and the construction, cladding and fire resistance of walls. This increased stringency recognises that the fire hazard is greater where the buildings are close together and that adjacent buildings may have exposing building faces of different sizes, configurations or limiting distances, which could further increase the hazard.

The enforcement authority may also address limiting distances through legal agreements with parties involved that stipulate that the limiting distance be measured to a line that is not the property line. Such agreements would normally be registered with the titles of both properties.

A-3.2.3.1.(4) Spatial Separation Design.

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

Sentence (4) applies to the calculation of the allowable percentage of unprotected openings based upon projection onto a plane that is in front of all unprotected openings. The application of these two Sentences is shown in Figure A-3.2.3.1.(4). The modifications permitted by Article 3.2.3.12. would be applied, if applicable, to the area of unprotected openings derived from Sentence (4).
A-3.2.3.6.(2) Protection of Roof Soffits Near Property Lines.
Sentences 3.2.3.6.(2) to (4) provide requirements for the protection of soffits where the soffit of the subject building is located close to the property line or to an imaginary line between two buildings on the same property. Fire from inside the roof space of the subject building can exit unprotected soffits and expose the adjacent building to flames.

A-3.2.3.12.(1) Increased Openings Permitted.
No increase of the maximum area of unprotected openings in an exposing building face should be applied until the requirements of Article 3.2.3.7. have been satisfied in determining the construction of the exposing building face.

A-3.2.3.14. Wall Exposed to Another Wall.
The intent of this Article is to ensure that the control of fire spread by the interior fire separations between adjacent fire compartments is not defeated through the spread of fire by thermal radiation outside the building. Minimum separations ($D_a$) are specified between unprotected openings in separate fire compartments of the building where the exterior faces of these compartments are deemed to expose each other to a thermal radiation hazard. This situation may arise where the angle, $\theta$, between the intersecting planes of the exposing building faces is less than 135 degrees and both of these faces have unprotected openings. The exterior walls of the fire compartments do not have to intersect in order to apply Article 3.2.3.14. Rather, the critical factor is the angle, $\theta$, between the planes formed by the exterior walls. Examples are shown in Figures A-3.2.3.14.A., A-3.2.3.14.B. and A-3.2.3.14.C. of situations which would be addressed by this Article.
The exterior unprotected openings in the fire compartments are not deemed to expose each other to a thermal radiation hazard if:

- the angle formed between the planes of the exposing building faces is 135° or more, or
- the fire compartments are sprinklered.

In order to apply Sentence 3.2.3.14.(1), both of the exterior walls must have unprotected openings. Sentence (1) does not apply where the exterior wall of only one fire compartment has unprotected openings. The separation of exterior unprotected openings in adjacent fire compartments is not required if the openings in both compartments are in the same plane (θ = 180°).

Sentence 3.2.3.14.(2) requires the exterior walls of each fire compartment within the distance, Do to have a fire-resistance rating. The fire-resistance rating must be at least equal to the required interior separation between the fire compartments. Thermal radiation from an opening is substantially reduced at angles less than 45° from the plane of the unprotected opening. This may be shown schematically in Figure A-3.2.3.14.D.:
A-3.2.4.20.(3) Audibility of Alarm Systems.  
It is very difficult to specify exactly what types of sound patterns are considered to be “significantly different” from one another.  The intent is to ensure that there is a noticeable or measurable difference between the alert signals and the alarm signals such that it reduces the possibility of confusion.

A-3.2.4.20.(5) Residential Sound Level.  
In a building in which corridors or hallways serve more than one suite or dwelling unit, there will be situations in which an audible signal device cannot be placed in the corridor or hallway to alert persons sleeping in suites and dwelling units, because the sound level in the vicinity of the device would exceed that permitted by Sentence 3.2.4.20.(4).

In these situations it will be necessary to supplement the building fire alarm system with an audible signal device in the suite or dwelling unit.  These devices could be piezoelectric devices similar to the sounding units in many smoke alarms, subject to the device emitting the appropriate temporal pattern required by Sentence 3.2.4.20.(2).

The sound pressure level required in this Sentence should be measured when the suite is unfurnished and unoccupied.

A-3.2.4.20.(9) Disconnect Device for Dwelling Units.  
In order to minimize the annoyance caused by false and unwanted alarms, the disconnect is intended to permit a person to silence the local audible device within the dwelling unit.  At that time the person would be aware of sounds from devices in common spaces and could plan appropriate action.

A-3.2.4.20.(10) Signal Circuits.  
Clause 3.2.4.20.(10)(a) permits Class A wiring, or Class B wiring with signal circuit isolators located outside of the suites, to serve audible signal devices within residential suites.  Clause 3.2.4.20.(10)(b) permits a separate signal circuit to serve each suite without the need for signal circuit isolators or Class A wiring.  Open circuits and Class A and Class B wiring circuits are terms defined in CAN/ULC-S524, “Installation of Fire Alarm Systems.”

A-3.2.4.20.(13) Separate Signal Circuits.  
Sentence 3.2.4.20.(10) in combination with Sentence 3.2.4.20.(11) require separate audible signal circuits for dwelling units.  It allows the designer the option to wire the audible signal devices in a dwelling unit on an individual circuit that serves each suite only or to wire the audible signal devices in a common circuit that serves the dwelling units within the floor area and is
separate from the circuit that serves the audible devices outside the dwelling unit. Compliance with either of the above two options would meet the intent of a separate circuit required in Sentence 3.2.4.20.(13).

A-3.2.4.21.(1) Visual Alarm Pattern.
CAN/ULC-S526, “Visible Signal Devices for Fire Alarm Systems Including Accessories”, published by Underwriters’ Laboratories of Canada, applies to visual signalling units. This document is referenced by the most recent standard for the installation of fire alarm systems and would automatically apply. Visual signalling devices with the same temporal pattern as required for audible devices are available from some sources and they should become available in Canada. Not all units that comply with the ULC standard will have sufficient power to adequately cover large areas; care will have to be taken to specify units with adequate power when large spaces are being designed.

A-3.2.4.21.(2) Visual Signal.
If staff located in each zone or compartment can see each sleeping room door, visual signals could be located above each door. If staff cannot see every door, it is intended that the visual signals be provided at the location where the staff are normally in attendance.

A-3.2.4.22.(5) Smoke Alarm Installation.
Ontario’s Electrical Safety Code permits a smoke alarm to be installed on most residential circuits that carry lighting outlets and receptacles. It is the intent of the Building Code that any other item on a circuit with a smoke alarm should be unlikely to be overloaded and trip the breaker with a resultant loss of power that is not sufficiently annoying for the breaker to be restored to the on position. It is considered that an interior bathroom light or a kitchen light fulfills this intent, but that circuits restricted to receptacles do not fulfill this intent.

A-3.2.4.22.(7) Smoke Detectors in Lieu of Smoke Alarms.
It is intended that the smoke detector in this application will function as per the requirements of a smoke alarm; specifically, it will be a localized alarm to the suite. The advantage of this type of installation is that the detector would be monitored by the fire alarm panel, which would provide notification to the supervisory personnel and be inspected as per CAN/ULC-S524, “Installation of Fire Alarm Systems.” It is not intended that smoke detectors used in lieu of smoke alarms will activate the fire alarm panel to send a signal to the fire department.

A-3.2.4.22.(13) Smoke Alarms with a Visual Signalling Component.
Smoke alarms with a visual signaling component can alert people who are deaf, deafened or hard of hearing to the presence of smoke in the dwelling just as the alarm sound provides an alert to people with no or low vision or who are sighted. The visual signal provides an extra level of safety alerts to building residents.

A-3.2.4.23.(1)(b) Voice Messages.
The concept of intelligibility expressed in Clause 3.2.4.23.(1)(b) is intended to mean that a person with average hearing and cognitive abilities is able to understand the messages that are transmitted into the space occupied by the person. The intelligibility of the message depends on the speech level, the background level, and the reverberation time of the space. ISO 7731, “Ergonomics - Danger Signals for Public and Work Areas - Auditory Danger Signals”, addresses audibility. The standard suggests that an A-weighted sound level at least 15 dB above the ambient is required for audibility, but allows for more precise calculations using octave or ⅓ octave band frequencies to tailor the alarm signal for particular ambient noise conditions. Design of the alarm system is limited to ensuring that all areas receive an adequately loud alarm signal. If a public address system is to be used to convey instructions during an emergency, then the requirements of the system are less straightforward.

A-3.2.4.23.(2) Voice Intelligibility.
Common intelligibility scale measuring requirements and guidance on the proper design of intelligible voice and alarm systems can be found in Annex A7.4.1.4 of NFPA 72, “National Fire Alarm and Signaling Code”. 

Issued October 24, 2014
Effective Date: January 1, 2015
Further clarification of intent and sample problems and solutions are contained in the “Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code”. This guideline may be obtained through the Office of the Fire Marshal’s web site at: “www.ofm.gov.on.ca”

**A-3.2.5.13.(1) Sprinkler System Design.**

In NFPA 13, “Installation of Sprinkler Systems”, reference is made to other NFPA standards which contain additional sprinkler design criteria. These criteria apply to industrial occupancies with high fire loads, including warehouses with high piled storage, and industrial occupancies intended for the use, manufacture or storage of highly flammable materials. Therefore, while only NFPA 13 is called up directly by Sentence 3.2.5.13.(1), the additional criteria in the other NFPA standards are included automatically.

In some NFPA standards, certain aspects of sprinkler protection are dependent on the fire-resistance rating of the vertical structural members. In these cases, the sprinkler system design options can be affected by the fire-resistance rating of these elements. For example, in buildings used for the storage of rubber tires, sprinklers directed at the sides of a column are required if the column does not have the required fire-resistance rating.

Other NFPA standards may require that certain occupancies be sprinklered in conformance with NFPA 13, as in the case of some garages. These requirements do not supersede the requirements in the Building Code. An occupancy is required to be sprinklered only when this is specified in the Building Code, but when it is so required, it must be sprinklered in conformance with NFPA 13 and its referenced standards.

**A-3.2.5.13.(6) Sprinklering of Roof Assembly.**

Sprinkler protection for roof assemblies in lieu of fire resistance is based on the assumption that the sprinklers will protect the roof assembly from the effects of fire in spaces below the roof. If a ceiling membrane is provided, the sprinklers would have to be located below the membrane in order to react quickly to the fire. In certain instances, however, sprinklers may be required within the concealed spaces as well as below the membrane. NFPA 13, “Installation of Sprinkler Systems”, requires sprinklers in certain concealed spaces.
According to NFPA 13 and 13R, rooms and closets within a dwelling unit in a sprinklered building, including those in the storey immediately below the roof assembly do not require sprinklers. However, the Building Code requires sprinkler protection within all rooms and closets immediately below the roof so as to control any fire that might start in that space and thereby limit the probability of the fire spreading into the roof assembly.

Moreover, NFPA 13D, “Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes,” also allows the omission of sprinklers in such rooms and closets under certain circumstances, provided the building is sprinklered in conformance with this standard. In this case, the Building Code concurs with the provisions of the NFPA 13D standard.

A-3.2.5.13.(7) Balconies and Decks.
The intent of this provision is to suppress or control a fire starting on a balcony or deck which could spread to the balcony above, roof assembly or other parts of the building. It is not intended to apply to a roof top deck or uppermost balcony where there are no parts of the building above.

A-3.2.5.13.(8) Sprinkler Rating.
The requirements of this Sentence can be met by using sprinklers with a rating of 79°C to 107°C.

A-3.2.5.14.(1) Hazard Classification for Sprinkler Selection.
The reference to light hazard occupancies is based on the descriptions of these occupancies given in NFPA 13, “Installation of Sprinkler Systems” and is intended only for use in the design of sprinkler systems. These descriptions should not be confused with the occupancy classifications in the Building Code.

In NFPA 13 a light hazard occupancy is one in which the quantity or combustibility of contents is low and fires with relatively low rates of heat release are expected. Typical buildings or parts of buildings include: churches; clubs; eaves and overhangs, if of combustible construction with no combustibles beneath; educational buildings; hospitals; institutional buildings; libraries, except very large stack rooms; museums; long term care or convalescent homes; offices, including data processing rooms; residential buildings; restaurant seating areas; theatres and auditoria, excluding stages and proscenia; and unused attics.

Although NFPA 13R, “Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height”, and NFPA 13D, “Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes”, as referenced by NFPA 13, are concerned with specific types of residential occupancy, namely apartment buildings up to four storeys, one and two family dwellings, and mobile homes, for the purpose of acceptance of combustible sprinkler piping these occupancies are considered to be included in the category of residential buildings under light hazard occupancies.

A-3.2.5.19.(1) Fire Pumps.
In order to ensure an adequate water supply, it may be necessary to install a fire pump for a building that has either a standpipe system or an automatic sprinkler system installed. Reference to NFPA 20, “Installation of Stationary Pumps for Fire Protection”, provides the necessary guidance to designers.

A-3.2.6. High Buildings.
It is assumed that buildings regulated by Subsection 3.2.6. will be in an area served by a fire department capable of an early response and that all firefighting and rescue situations will be under the direct control of the officer-in-charge of the fire department responding to the emergency.

Measures that relate to limiting or controlling the movement of smoke caused by a building fire are described in the Supplementary Standard SB-4. Adoption of one of these measures is considered to be an acceptable means of complying with the requirements of this Subsection.

A-3.2.6.4.(6)(a) Elevator Recall.
Automatic emergency recall actuation that is dependent on the operation of 2 smoke detectors in the elevator lobby meets the intent of this requirement. Such an arrangement may reduce the frequency of nuisance recalls.
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A-3.4.5.1.(5) Photoluminescent Exit Signs.
An external lighting source is required to properly charge photoluminescent signs. These types of signs must be lit in conformance with the charging requirements stated in CAN/ULC-S572, “Photoluminescent and Self-Luminous Exit Signs and Path Marking Systems”.

A-3.4.5.2.(2) Stairwell Signs.
Past experience indicates that some persons attempt to exit at the roof level of a building in the event of an emergency. Rescue from the roof of a building more than six storeys high is rarely possible from the exterior of a building. In order to avoid instances of persons getting trapped by smoke at the top of a stairwell that has no access to a roof, signs are required within the stairwell (at least one sign immediately above the highest normally occupied floor level) to indicate that the stairwell does not provide an exit at the roof level. The sign should consist of a graphic and text to indicate that there is no exit to the roof.

The requirements in Subsection 3.4.6. apply to interior and exterior exits, as well as to ramps, stairways and passageways used by the public as access to exit. The treads, risers, landings, handrails and guards for the latter access to exit facilities must thus be provided in conformance with the appropriate requirements for exit facilities.
A-3.4.6.1.(2) Surface Finish of Ramps and Stairs.

A tactile attention indicator strip signals a warning to people with no or low vision that they are approaching a change in level. The strip is set back from the leading edge of the stair to provide sufficient warning of the change in level in advance.

Figure A-3.4.6.1.(2)
Tactile Indicator at Stairs and Ramps

A-3.4.6.5.(3) Continuity of Handrail.

Persons with vision loss rely on handrails to guide them on stairways. A continuous handrail will assist them in negotiating stairs at changes in direction. The extended handrail is useful to persons with physical disabilities to steady themselves before using the stairs. Handrails should, however, return to the wall, floor or post, so as not to constitute a hazard to persons with vision loss.

A-3.4.6.8.(5) Stair Tolerances.

The term “shall not differ significantly” assumes normal construction tolerances.

A-3.4.6.10.(5) Door Swing.

Although it is required that the door on the right hand side of a pair of doors shall swing in the direction of travel through the exit, the direction of swing of the door on the left side will depend on the function of the horizontal exit. If the horizontal exit provides for movement from one building to the adjacent building but does not require movement in the reverse direction, both doors must swing in the direction of travel to the adjacent building. If the design is based upon both buildings providing complementary movement in either direction, then the doors must swing in opposite directions. Location of a required exit sign directly above a door that swings in the direction of travel is deemed to meet the intent of Clause 3.4.6.10.(5)(b).

A-3.4.6.11.(3) Exit Concealment.

Hangings or draperies placed over exit doors may conceal or obscure them.

A-3.4.6.16.(1) Fastening Device.

Turnpieces of a type which must be rotated through an angle of more than 90° before releasing a locking bolt are not considered to be readily openable. The release of a locking bolt should allow the door to open without having to operate other devices on the door.
A-3.4.6.16.(4) Electromagnetic Locks.
Electromagnetic locks are intended for use where there is a need for security additional to that provided by traditional exit hardware. They are not intended for indiscriminate use as alternative locking devices.

The design of these devices requires evaluation to ensure that their operation will be fail-safe in allowing exiting in the event of foreseeable emergencies.

If more than one locking device is used in a building, it is expected that one switch will release and reset all devices simultaneously. If more than one such switch is provided in a building, at least one switch must be installed in the annunciator panel located at the main entrance of the building or, in the case of a building within the scope of Subsection 3.2.6., in the central alarm and control facility for easy access of fire department personnel.

Most importantly, electromagnetic locks are not to be used where panic hardware must be installed. This will ensure that a large number of occupants can exit a building quickly in emergency situations created by either fire or non-fire conditions. It will also ensure that occupants in buildings containing highly hazardous substances can exit quickly unimpeded in an emergency.

In care and treatment facilities, such as hospitals and long term care homes, and residential care facilities, however, because the occupant load is relatively low and the level of staff supervision is generally high, electromagnetic devices may be installed on exit doors at the bottom of exit stairways where panic hardware is required by code to maintain security where necessary.

When installed on doors in fire separations, electromagnetic locking devices must used in conjunction with positive latching devices designed to hold the doors in the closed position since these locks do not incorporate latches and are released in an emergency. In a fire, keeping doors in fire separations closed is essential to control the spread of fire and smoke.

To enable exiting without delay (especially important in non-fire emergency situation), a manual pull station must be installed in close proximity to the door equipped with an electromagnetic locking device. The operation of this manual pull station will immediately release the electromagnetic locking device and, at the same time, activate the building fire alarm system.

Precautionary measures should be in place to ensure that by-pass switches would be deactivated at the completion of each fire alarm testing. An audible and a visual signal at the annunciator panel and at the monitory station should provide such assurance.

A-3.4.6.19.(1)(d) Colour Contrast.
The identification of floor and other signs intended to facilitate orientation for visually-impaired persons should offer maximum colour contrast to be effective. For this reason, it is recommended that white on black or black on white be used, as this combination produces the best legibility. It is also recommended that the sign surfaces be processed to prevent glare.

A-3.5.4.1.(1) Elevator Car Dimensions.
In some circumstances, it is necessary to maintain a patient on a stretcher in the prone position during transit to a hospital or to treatment facilities. Inclining the stretcher to load it into an elevator could be fatal or at the very least detrimental to the patient’s health. Many ambulance services use a 2 010 mm long by 610 mm wide mobile patient stretcher. As well as space for the stretcher in the elevator, there should be sufficient additional space for at least two attendants who may also be providing treatment during transit. Common elevator units that can satisfy this requirement include:

- a 1 134 kg elevator car with minimum interior dimensions of 2 032 mm wide and 1 295 mm deep with a right or left hand access door. The minimum access door width is 1 067 mm and it must be on the 2 032 mm side of the car.
- a 1 134 kg elevator car with minimum interior dimensions of 2 032 mm deep and 1 295 mm wide with a minimum 915 mm wide access door located on the 1 295 mm side.

A-3.6.2.1.(1) Location of Fuel-Fired Appliances.
Sentence 3.6.2.1.(1) requires that fuel-fired appliances be located in service rooms. It does not allow for their installation in service spaces.
A-3.6.2.5.(1) Combustible Refuse Storage.
Storage of refuse consisting of combustible materials including waste paper, cardboard and plastic, and noncombustible materials such as glass and metallic containers can be accumulated in these rooms for the purpose of recycling. This storage is allowed in consideration of a less stringent collection schedule when compared to that of garbage or refuse, which is collected regularly.

A-3.6.3.1.(1) Vertical Service Spaces.
Sentence 3.6.3.1.(1) does not prohibit the internal subdivision of a vertical service space to allow different building services to be installed in physically separated spaces unless other requirements apply (see, for example, Article 3.2.7.10.). Fire separation requirements apply to the perimeter of the group of service spaces. Article 3.6.3.3. has special requirements for linen chutes and refuse chutes.

A-3.6.4.2.(2) Ceiling Membrane Rating.
In construction assemblies that utilize membrane ceiling protection and have been assigned a fire-resistance rating on the basis of a fire test, the membrane is only one of the elements that contribute to the performance of the assembly and does not in itself provide the protection implied by the rating. For the fire-resistance rating of membrane materials used in this form of construction, reference should be made to the results of fire tests which have been conducted to specifically evaluate the performance of this element.

A-3.7.2.1.(1) Window Area Limit.
Part 9 requirements for windows cover a number of subjects, however, this Article refers only to the area limits.

A-3.7.4.2.(1) Sanitary Facilities.
It is assumed that if the sanitary facilities are provided on every storey, the occupant load for the determination of the number of fixtures would be the anticipated occupant load of that storey. If the washrooms are provided in a central location, the number of fixtures should then be based on the total anticipated occupant load for the areas that are served by that washroom.

A.7.4.2.(8) Plumbing Fixtures for Small, Low Occupancy Uses.
For small restaurants, retail and other small assembly uses with low occupancy loads, the number of washrooms provided may be reduced, where permitted, to provide some flexibility for space planning provided at least one universal washroom is provided in compliance with Sentence 3.8.3.12.(6) and one single washroom is provided and neither washroom is signed for gender.

A-3.7.4.13.(1) Washrooms for Public Use.
The definition of public use clarifies that facilities for public use must have unrestricted access. Since a washroom in a hotel room is restricted for the use of the hotel guest only, it is an example of a washroom that would be exempt from requiring a floor drain. Also, the definition of private use includes a washroom in a hotel suite.

A-3.7.4.15.(1) Clearances for Water Closets.
The minimum clearance in front of a water closet is intended to be measured from the front edge of the seat to:
- the nearest point of the wall or cubicle enclosure,
- another fixture, or
- the washroom door or stall door when the door is in the closed position.

A-3.7.5.3.(1) Shielding of X-Ray Equipment.
Every installation of an x-ray machine or x-ray equipment used for the exposure of persons shall be shielded with a primary and a secondary protective barrier to protect any person who could be exposed to radiation. This protection is required for:
- x-ray workers
- persons other than patients undergoing an application of therapeutic or diagnostic x-rays
- persons in adjacent buildings
- persons located outdoors of buildings containing x-ray equipment.
These protective barriers should be designed and installed to comply with requirements of The Healing Arts Radiation Protection Act. Applications for approval for these installations should be addressed to the Ministry of Health and Long-Term Care.

Similarly, every installation of an x-ray machine or x-ray equipment for industrial or veterinary applications shall be shielded with a primary and a secondary protective barrier to protect any person who could be exposed to radiation. This protection is required for:
- x-ray workers,
- persons other than x-ray workers,
- persons in adjacent buildings, and
- persons located outdoors of buildings containing x-ray equipment.

The protective barriers should be designed and installed to comply with requirements of The Occupational Health and Safety Act. Applications for approval for these installations should be addressed to the Ministry of Health and Long-Term Care.

This Section contains minimum provisions to accommodate a person using a typical manual wheelchair or other manual mobility assistance devices such as walking aids, including canes, crutches, braces and artificial limbs. The Code also includes provisions to address needs of people with sensory disabilities.

A-3.8.1.1.(1)(b) Industrial Occupancies.
Industrial buildings often pose a greater risk to their occupants due to the presence of significant quantities of dangerous materials or the use of hazardous processes. For example, plants which are classified as Group F, Division 2 or 3, may store and use toxic or highly flammable substances in significant quantities, or house processes which involve very high temperatures and which may have a high degree of automation. In some facilities, particularly in primary industries such as forestry and metallurgy, the construction normally used and the operations carried out within the space can make compliance with the requirements of Section 3.8 impractical. It is therefore intended that these requirements be applied with discretion in buildings of Group F, Division 2 or 3 major occupancy. However, where industrial buildings contain subsidiary occupancies, such as offices or showrooms, it is reasonable to require that accessibility be provided in these spaces.

The exemption of camps for housing of workers from barrier-free design requirements is intended to exempt accommodations for seasonal workers such as agricultural workers or emergency workers such as firefighters working in remote areas.

A barrier-free path of travel should be provided from the sidewalk or roadway and parking areas to a barrier-free building entrance. This route should be located so that persons with disabilities do not have to pass behind parked cars. The number of barrier-free entrances to a building must be not less than the minimum number required in Table 3.8.1.2. in order to provide more general and equitable access to the building and should include the principal entrance. For the purpose of determining the number of entrances to a building, several adjacent doors in a bank of doors are considered to be a single entrance. The principal entrance to the building is the entrance that is normally used by the public or the building occupants.

A-3.8.1.3.(4) Unobstructed Space.
The 1800 mm by 1800 mm space spaced every 30 m provides a layby area where two wheelchairs can pass.

A-3.8.1.3.(5) and (6)(b) Reduced Headroom.
Wherever an overhead obstruction occurs within or adjacent to a barrier-free path of travel such as the underside of a stairway or escalator or a building structural element, a cane-detectable barrier will provide an effective warning to people with no or low vision that headroom is reduced and the path is obstructed to prevent them from moving toward the obstruction.
In some buildings, escalators and inclined moving walks are installed to provide transportation from one floor level to another floor level so as to increase the capacity to move large numbers of persons. Some buildings located on a sloping site are accessible from street level on more than one storey and an escalator or inclined moving walk is provided for internal movement from floor to floor. In both these situations, a person with a physical disability must be provided with an equally convenient means of moving between the same floor levels within the building. A wheelchair user should not be required to travel outside the building in order to gain access to another level. This can be accomplished by providing an elevator or a platform-equipped passenger-elevating device.

A-3.8.1.5.(1) Controls.
Building controls that are intended to be operated by the occupants include thermostats, light switches, intercoms and other controls for building use and comfort. It is not intended to include those controls that are secured for use by building operations, maintenance and management personnel.

Light switches, intercoms and similar devices located within a barrier-free path of travel should be located between 900 mm and 1100 mm above the finished floor. Thermostats should be mounted at 1200 mm on centre above the finished floor for the optimal operation.

A-3.8.2.1.(1) Access to Rooms and Facilities.
If barrier-free access is required into suites or rooms in Subsection 3.8.2., it is intended that access be provided, with some exceptions identified in Sentence 3.8.2.1.(3), throughout each room or suite. Some examples of where barrier-free access is required are as follows:

- within rooms or areas that serve the public or are designated for use by visitors, including areas in assembly occupancies with fixed seats, display areas and merchandising departments,
- within rooms or areas for student use in assembly occupancies,
- within general work areas, including office areas,
- within general use or general service areas, including shared laundry areas in residential occupancies, recreational areas, cafeterias, lounge rooms, lunch rooms and infirmaries,
- within sleeping rooms in hospitals and long term care homes,
- (if installed), into at least one passenger elevator or elevating device conforming to Article 3.8.3.5.,
- into washrooms described in Article 3.8.2.3.,
- to any facility required by this Section to be designed to accommodate persons with physical disabilities,
- onto every balcony provided in conformance with Sentence 3.3.1.7.(2),
- to service counters used by the general public (examples include ticket counters, refreshment stands, drinking fountains, cafeteria counters, checkout counters and bank service counters)
- into 10% of hotel suites, (not more than 20 suites required), and
A-3.8.2.1.(6) Residential Bathrooms.
The intent of the barrier-free features required in 15% of apartment bathrooms, is to provide basic manoeuvrability into, and within, the space for a wheelchair user. The door swing may overlap the turning circle within the bathroom as long as there is sufficient space for a wheelchair user to clear the door and close the door. The bathroom is not required to include a barrier-free bathtub or barrier-free shower meeting the requirements of Article 3.8.3.13. The intent is not to provide accessibility for a full range of disabilities which may require additional features to accommodate the specific needs of an individual resident. However, stud wall reinforcement for the future installation of grab bars is required in the main bathroom in all dwellings as set out in Articles 9.5.2.3. and 3.3.4.9.

A-3.8.2.1.(7) Distribution of Apartments with Accessible Features.
The intent is to provide a variety of suite sizes and locations and not locate all suites with barrier-free design features on the same floor. The intention is to provide a level of visitability to apartments. Given the broad range of disabilities and the specific needs of people with disabilities in their home settings, the accessibility provisions may not provide all of the features required by an individual’s personal needs that cannot be anticipated when the building is constructed initially.

The intent behind Sentence 3.8.2.1.(7) is that, in determining the proportion of barrier-free suites by unit size, the total number of barrier-free suites and the percentage of suites of each type (by number of bedrooms) should be calculated first. Those percentages should be multiplied by the total number of barrier-free suites required. For example, in a 40 unit apartment building with 30 one-bedroom and 10 two-bedroom units, 6 suites in total would be required to be barrier-free. The proportional breakdown of required barrier-free suites would be 75% or 5 one-bedroom suites and 25% or one two-bedroom suite. The proportion of units is also determined based on whole numbers and not based on fractions of units as long as the total number of barrier-free suites are provided.

A Studio or bachelor apartments are a specific type suite and are intended to be counted separately when determining the proportion of suites, by type and size, in a building. Where studio or bachelor suites are provided, a proportionate number of studio or bachelor suites should also be accessible even though those suite types do not include a separate bedroom. For example, if 25% of the units in a building are studios, 50% are one-bedroom units and 25% are two-bedroom units, the same proportions should be reflected in the 15% of total units required to include barrier-free design features. The Building Code does not differentiate one- or two-bedroom units from one- or two-bedroom units with dens. The intent is that a range of unit types and sizes are available as accessible units.
Access to Exterior Parking.

It is not intended that a separate accessible entrance must be provided from the exterior parking area. The designer may choose to designate the entrance leading to the exterior parking area as the required entrance or provide a properly identified and unobstructed path of travel from the parking area to the entrance which is accessible. The entrance chosen should, in any case, be one normally used by the occupants of the building. Long paths of travel are not recommended.

A-3.8.2.3. Washrooms.

The primary intent of this requirement is that all regular washrooms be made accessible to all persons, including persons with disabilities, primarily persons who must use a wheelchair.

The exception in Clause (5)(b) recognizes situations where several washrooms may be provided on a large floor area. In such a case, not all washrooms need to be barrier-free, provided that a barrier-free washroom is available within a reasonable distance (45 m) of one that is not barrier-free and that the location of that barrier-free washroom is clearly indicated as required by Sentence 3.8.3.1.(3).

Clause 3.8.2.3.(5)(c) is intended to address “strip malls” (a shopping mall with no public corridor). Section 3.7. which requires plumbing facilities, does not address the concept of suite and could permit, for instance, a shopping mall containing only Group E occupancies (assuming the mall is more than 100 m²) to have only one washroom for each sex located in any one of the suites. It is desirable however that such washrooms be located so as to be accessible at all times, since the owner or tenant of one suite has no control over the activities of another. Such buildings may either provide public barrier-free washrooms in a central location or washrooms which can accommodate disabled persons in each suite. This arrangement relieves any one tenant from having to provide “public” washrooms. Hence, the exception for suites of less than 300 m² is meant as a relaxation to avoid an unnecessary burden on small facilities but should not be construed as meaning that such buildings need not provide accessible washrooms.

A-3.8.2.3.(2) Minimum Number of Universal Washrooms.

The requirements for the number of universal washrooms in buildings are set out in Article 3.8.2.3. and Table 3.8.2.3.A. Sentence 3.8.2.3.(2) refers back to Subsection 3.7.4. which sets out the number of washrooms required in buildings by occupancy.

The intent of the new requirements in Table 3.8.2.3.A is to provide additional universal washrooms in uses and occupancies where washrooms are required and not to require washrooms where they had not been required previously. For that reason the requirements are linked back to Subsection 3.7.4. For example, in the case of a high-rise apartment building, floors with only apartment units and without any common amenity spaces, would not require a universal washroom, nor would 3 levels of underground parking below the building.

Using the ratio of ‘1 universal washroom for every 3 storeys’ is a way to determine the number of universal washrooms in a building but without specifying where they should be located. The intent of the Code is to provide designers and building owners flexibility to locate the washrooms as appropriate to the building design and operation. For example, a six storey office building would require 2 universal washrooms (1 per 3 storeys) but those could both be on the same storey or on different storeys – not necessarily on the first and fourth floors or on every third storey.

A-3.8.2.3.(3) Minimum Number of Barrier-Free Water Closet Stalls.

Washrooms that contain barrier-free washroom stalls and barrier-free lavatories, typically meet the needs of single users with disabilities. The requirements for universal washrooms, in addition to barrier-free washrooms, accommodate people with disabilities who require assistance from a same or opposite gender care giver.

A-3.8.2.3.(5)(b) Individual Washrooms.

Washrooms, in excess of those required under Subsection 3.7.4., that are provided for private or individual use within an individual suite where washrooms for public use are provided elsewhere in the building, are not required to meet barrier-free design requirements. This could include a single user washroom that is part of a private office or a small retail store.

A-3.8.2.3.(6) Ambulatory Water Closet Stalls.

Washrooms on storeys that are not required to have a barrier-free path of travel are still required to provide a washroom stall in each washroom that includes certain barrier-free design elements in order to accommodate people with disabilities who are ambulatory but still need some supports.
A.3.8.3.3.(11)(b) Doors in a Series.
Where there are doors in a series such as an entry or washroom vestibule, there must be a full 1500 mm diameter turning circle or a linear dimension of 1500 mm provided within the vestibule that is clear of the door swing to ensure that persons using wheelchairs or other mobility devices can close the door behind them before proceeding through the next door in the series.

A.3.8.3.3.(17)(c) Vertical Power Door Operators.
The height range permitted for the location of a power door operators in Subclause 3.8.3.3.(17)(c)(ii) allows for the installation of vertical power door operators, either wall- or floor-mounted, that can be operated by a closed fist, a foot or other pressure anywhere within the height of the door operating device.
A-3.8.3.3.(18) Proximity Scanners as Door Operators.
Where a proximity scanner is utilized it must be set to scan a lower height to ensure that a person using a seated mobility device will trigger the opening of the door.

The door opening device referred to in Clause 3.8.3.3.(19)(b) is not required to be a power door operator. A manual door opener with lever handles will meet the intent of the Code.

A-3.8.3.4.(1)(b) Ramp Slopes.
Although Article 3.8.3.4. permits slopes on ramps as great as 1 in 12 for distances of up to 9 m, gradients of 1 in 20 are safer and less strenuous. When limited space is available, as may be the case during renovations, ramps of up to 1 in 12 should be restricted to lengths not exceeding 3 m whenever possible.

A-3.8.3.4.(1)(c) Landing Design at Doorways Leading to Ramps.
A level landing surface at doorways leading to ramps provides a level and stable surface for people using wheeled mobility devices and other mobility aids to stop and manoeuvre clear of the door swing.

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**Figure A-3.8.3.4.(1)(c)**
Landing Design at Doorways Leading to Ramps

A-3.8.3.4.(2) Fixed Seating on Sloped Floors.
In an assembly room with fixed seating on a sloped floor, such as a theatre, the limitation on floor slope is intended to apply only to the required barrier-free access leading to spaces for persons using wheelchairs described in Sentence 3.8.2.1.(3) and not to aisles and portions of floors serving only fixed seating for ambulatory persons.

A-3.8.3.4.(3) Sloped Floors.
A floor with a slope of 1:20 or less need not be designed as a ramp.

A-3.8.3.6.(1)(c) Locating Wheelchair Spaces, Adaptable and Companion Seating.
People with disabilities who require either a wheelchair space or an adaptable seat may attend an event with a companion who needs no special seating accommodation. For that reason, the companion seat required beside a wheelchair space is intended to be a standard seat provided for the facility.
A-3.8.3.8.(1)(f) **Washroom Clearances.**

![Diagram of washroom stall door pulls and clearances]

Figure 3.8.3.8.(1)(b)(v)
Washroom Stall Door Pulls

Figure A-3.8.3.8.(1)(f)
Washroom Clearances
### A-3.8.3.8.(2)(b) Transfer Space on Both Sides of Water Closet.

![Diagram of transfer space on both sides of water closet]

#### A-3.8.3.8.(3) Additional Grab Bars.
Designers may exceed the minimum requirements found in the Building Code and specify the installation of additional grab bars in other locations. These additional grab bars may be of different configurations and can be installed in other orientations.

#### A-3.8.3.8.(5) L-Shaped Grab Bar.
L-shaped grab bars provide greater support for people who rely on grab bars to assist them in transferring to and from a standing or seated position. Diagonally mounted grab bars may not be suitable for the downward force necessary for support or for pulling upward. Hands can slip along the bar if it is set in a diagonal position. The use of two straight grab bars located at a 90° angle to one another is not permitted.

![Permitted Continuous L-Shaped Grab Bar](image1)

![Not Permitted Discontinuous L-Shaped Grab Bar](image2)
A-3.8.3.8.(8) Fold-Down Grab Bars.
A fold-down grab bar is required to resist a load of 1.3 kN applied either vertically or horizontally and will require blocking in the wall so that the grab bar remains anchored to the wall when in use.

A-3.8.3.8.(10) Ambulatory Water Closet Stalls.
An ambulatory water closet stall is designed to accommodate people requiring some mobility assistance using aids such as canes or crutches but who do not use wheelchairs. Ambulatory stalls include features such as a higher water closet seat height, grab bars and some additional space for mobility aids such as a cane. A door pull should be provided on both faces of the stall door.

Figure A-3.8.3.8.(10)
Ambulatory Washroom Stall

Article 7.2.2.5. applies to water closets referenced in Articles 3.8.3.8., 3.8.3.9. and 3.8.3.12.

A shelf or projection should not be located behind a water closet such that it could present a hazard.

A-3.8.3.9.(1)(c) Back Support at Water Closets.
The purpose of the back support is to reduce the chance of imbalance or injury caused by a user leaning against exposed flush valves or pipes. A toilet seat lid, where provided, may be a suitable back support.

A-3.8.3.9.(1) Water Closets.
Wall-mounted water closets or floor models with receding bases are preferable because they provide the least amount of obstruction.

A-3.8.3.10. Barrier-Free Urinals.
Where provided, barrier-free urinals require both properly mounted and supported grab bars and privacy screens. Privacy screens alone should not be used as both a privacy and support element.
A-3.8.3.11. **Washroom Accessories.**

Washroom accessories for barrier-free water closets and lavatories must be located within arm’s reach of a person in a seated position. Placement of towel dispensers and hand dryers should not require that a person seated in a wheelchair must travel beyond the reach range of the lavatory to dry his or her hands.

A-3.8.3.11.(1)(c) **Clearances Beneath a Lavatory.**

Barrier-free lavatories require sufficient knee and toe clearance below to permit a person in a wheelchair to move close enough to the faucet to easily access the water stream.

In order to meet the clearances contained in this Clause, and depending on the lavatory to be installed, it may be necessary to install an offset P.O. lavatory drain.
A-3.8.3.11.(1)(d) Pipe Protection.
The pipes referred to in Clause 3.8.3.11.(1)(d) include both supply and waste pipes. The hazard can be prevented by insulating the pipes, by locating the pipes in enclosures, or avoided by limiting the temperature of the hot water to a maximum of 43°C.

A-3.8.3.11.(1)(f) Clear Space at Lavatory.
The clear space required for the wheelchair user to pull into the fountain may overlap with an adjacent barrier-free path of travel but should not prevent other building users from passing when the barrier-free lavatory is in use.
A-3.8.3.12.(1)(d) Transfer Space.
The transfer space beside a water closet or the approach space at a lavatory must be a clear space with no obstruction or potential obstruction of the space from adjacent elements such as a fold-down change table, or other fixture. The exception to this would be a fold-down grab bar where provided. If a fold down change table is not returned to the folded up position after use, the next user of the space should not be inconvenienced from using the water closet or lavatory due to the transfer or approach spaces being blocked.

A-3.8.3.12.(1) and (3) Universal Washroom.
Unobstructed areas in front of the lavatory, in front of the water closet and on one side of the water closet are necessary for manoeuvrability of a wheelchair. The door swing may overlap the turning circle within the universal washroom as long as there is sufficient space for a wheelchair user to manoeuvre to clear the door and close the door from a front approach position.

The space for an adult size change table may encroach upon the 1700 mm turning circle only where the change table is movable and is not permanently fixed or stored within the washroom. In that case the table, such as a hospital gurney is brought into the washroom when needed and removed after use. A permanently fixed table may not be appropriate for certain building occupancies due to operational and maintenance considerations.

A-3.8.3.12.(2) Emergency Call System.
The purpose of the emergency call system is to notify other building occupants that a person using the universal washroom requires assistance. The visual signal and alarm should be different from the building fire and smoke alarms and visual signals, where installed, as this call system is for personal, not building, emergencies.
The emergency call button is intended to provide a local visual signal outside of the washroom to alert others that someone in the washroom needs assistance. It is not required to be linked to a central monitoring station. Where central monitoring is not provided, such as in the case of a small building or a standalone washroom in a park, an additional sign informing the washroom users that there is no central monitoring may be appropriate.


The permission for a smaller universal washroom to be provided in small buildings recognizes the limited space available for construction of service and amenity spaces while still balancing available space with the needs of people with disabilities.

### A-3.8.3.13.(1) Minimum Number of Barrier-Free Showers.

The intent of the requirement for one or more barrier-free showers in a group of showers is to address the increased demand for accessible facilities in publicly accessible buildings such as arenas, community recreation centres and private health and fitness facilities where the accessible shower stall is located in the same room as non-accessible showers. It is not the intent of the Code to require single shower stalls or single private use showers that are part of a private office suite to be barrier-free accessible.

### A-3.8.3.13.(2)(b) Clear Space at Entrances to Showers.

The clear space at the entrance to a shower may be encroached upon by fixtures such as a wall hung sink which does not interfere with the leg rests of the wheelchair. However, this sink could restrict movement for persons who need to make a lateral transfer if it were installed at the seat end of the shower.

![Shower Design](Image)

**Figure A-3.8.3.13.(2)(b)
Shower Design**

### A-3.8.3.13.(2)(e) and (f) Shower Seat and Grab Bars.

Only one grab bar is required, to be installed on the wall next to the seat; a grab bar behind the seat prevents the user from leaning against the wall, while one located on the wall opposite the seat cannot be reached from the seated position.

The use of two straight grab bars installed at a 90° angle to one another is not acceptable. The Code requires a continuous L-shaped grab bar. The seat itself may be used in conjunction with the bar for transfer. If design flexibility is required, fold away grab bars may be used as an alternative.

A grab bar installed within a barrier-free shower stall on the same wall as the shower controls should have 900 mm long horizontal and vertical components.
A-3.8.3.13.(4) Showers and Bathtubs.

The grab bars and their mounting position must facilitate getting in and out of the bathtub from a seated or standing position, as appropriate, to limit the need for twisting the body.
Case 2

Distance between classrooms: less than 6 m
3.2.2. applies to each classroom
3.2.3. applies to each classroom
i.e. rating and construction of facing walls determined by limiting distance

Extinguisher required
Access; street; hydrant; fire alarm; - not required

Case 3

Distance between classrooms: less than 6 m
No. of classrooms in group: 6 max.
Distance between groups: not less than 12 m
3.2.2. applies to each group
3.2.3. does not apply between classrooms within a group if the facing walls have a rating of 45 min, on the inside
3.2.3. applies between groups

Extinguisher required
Access; street; hydrant; fire alarm - not required

Case 4

Distance between classrooms: less than 6 m
No. of classrooms in group: 6 max.
Distance between groups: not less than 12 m
3.2.2. applies to each group
3.2.3. does not apply between classrooms within a group
3.2.3. applies between groups

Extinguisher required
Fire alarm required (extension of main system)
Access; street; hydrant; - not required
Case 5

Distance between classrooms: less than 6 m
No. of classrooms in group: 6 max.
Distance between groups: not less than 12 m
3.2.2. applies to each group
3.2.3. does not apply between classrooms within a group
3.2.3. applies between groups

Extinguisher required
Fire alarm required (extension of main system)
Access; street; hydrant; - not required

All other cases require:  - Fire extinguisher
- Access
- Street
- Hydrant
- Fire alarm: extension of existing system

A-3.11.3.1.(9)(a) Barrier-Free Path of Travel at Pool Deck.
The barrier-free path of travel throughout the pool deck area may be included in the 1800 mm wide pool deck space. The width of the barrier-free path of travel must not be reduced where a column or other obstruction interrupts the pool deck space.

A-3.11.3.1.(14) Tactile Indicator at Pool Deck.
The tactile indicator at the end of the pool deck, signals a warning to people with no or low vision that they have reached the water’s edge. The tactile indicator may be built-in or applied but must not present a tripping hazard. The indicator should be a continuous band installed parallel to the outside edge of the gutter around the pool perimeter.

A-3.11.3.2.(1) Outdoor Pool Deck.
Where an outdoor pool deck is provided, a barrier-free path that is an exterior walk is required between the building and the outdoor pool, including access from change rooms and showers, and throughout the pool deck area.

A-3.11.3.3.(4) Pool Lift Space Requirements.
The clear space required to transfer from a wheelchair to the pool lift may overlap the required barrier-free path of travel within the pool deck.

A-3.11.5.1.(8)(b) Ramps into Public Swimming Pools.
Despite the requirement that the hard surface area piercing the pool deck and leading to a submerged ramp must be at least 750 mm wide, it is recommended that the clear width of the access point to the ramp be at least the same width of the ramp and consistent with Clause 3.8.3.4.(1)(d).
A-5.1.4.1. Application of Structural Design to Other Building Elements.

Part 4, as currently written, applies primarily to buildings as a whole and to structural members. Requirements defining structural loads and design to accommodate or resist those loads, however, apply not only to buildings as a whole and components that are traditionally recognized as structural members, but also apply to other elements of the building that are subject to structural loading. This is addressed to some extent in Part 4 by the requirements that pertain, for example, to wind loads on cladding. A range of structural loads and effects, as defined in Subsection 4.1.2., may be imposed on non-loadbearing elements such as backing walls, roofing, interior partitions and their connections. These must generally be addressed using the same load determination and structural design procedures as used for structural members.

Responsibility for the structural design of buildings as a whole and their structural members is commonly assigned to the designer of record. The application of Part 4 reflects this, and as such, “non-structural” elements are not explicitly identified in the Part 4 provisions. Rather, the application of Part 4 to these elements is specified in cross-references from other Parts of the Code, e.g. Part 5, which recognizes the fact that the structural design of these elements is often carried out by designers other than the designer of record.

Part 4 applies to the design of the connections of building services to address earthquake loads (See Article 4.1.8.17.).

A-5.1.4.1.(4) Past Performance as Basis for Compliance with Respect to Structural Loads.

As discussed in Appendix Note A-5.1.4.1., a range of structural loads and effects can be imposed on materials, components and assemblies in environmental separators and assemblies exposed to the exterior. In many instances, compliance with Sentence 5.1.4.1.(1) for structural loads must be determined based on the loads and calculation methods described in Part 4 as specified in Sentence 5.1.4.1.(2) and the referenced Subsection 5.2.2., e.g. for cladding. In practice, compliance for some materials, components or assemblies of environmental separators and assemblies exposed to the exterior is determined by relying on provisions governing the use of alternative solutions (such as Clause 1.2.1.1.(l)(b) of Division A).

For some very common building elements and installations, however, there is a very large body of evidence of proven performance over a long period of time. In these cases, imposing the degree of analysis, or documentation of performance, required by Part 4 or Section 2.1. of Division C would be unnecessary and onerous. Clause 5.1.4.1.(4)(b) is intended to address these particular cases. Because these common building elements and assemblies are so widely accepted throughout the industry and the body of evidence is so substantial (though not necessarily documented in an organized fashion), detailed analysis or documentation is unnecessary.

Whether compliance of a particular material, component or assembly may be determined based on past performance depends not only on the type of material, component or assembly, but also on its intended function, the particular loads to which it will be subject and the magnitude of those loads. Because the possible number of combinations and permutations is astronomical, only guidelines can be provided as to when past performance is a reasonable basis for determining compliance.

In determining compliance based on past performance, the period of past performance considered should be a substantial number of years. For example, 30 years is often used to do life-cycle cost analysis of the viability of investments in building improvements. This period is more than long enough for most deficiencies to show up. There should be no question as to the structural adequacy of a material, component or assembly that has been successfully used in a given application for such a period.

The determination of compliance may be based on past performance only where the functional of the material, component or assembly is identical to that of the materials, components or assemblies used as a reference, and where the expected loads do not exceed those imposed on the reference materials, components or assemblies. For example, the acceptance of gypsum board, and its fastening, to serve as part of the backing wall supporting cladding cannot be based on the performance of gypsum board that has served only as an interior finish.

The determination of compliance may be based on past performance only where the properties of the material, component or assembly are identical or superior to those of the materials, components or assemblies used as a reference. For example, where a component of a certain gauge of a particular metal has provided acceptable performance, the same component made of the same metal or a stronger one would be acceptable.
Compliance with respect to various loads may be determined individually. A particular material may have to be designed to Part 4 to establish acceptable resistance to wind or earthquake loads, for example, but past performance may be adequate to determine that the material and normal fastening will support the material’s dead load and will resist loads imposed by thermal and moisture-related expansion and contraction.

Past performance is a reasonable basis for determining compliance for lighter materials, components or assemblies not subject to wind load; for example, semi-rigid thermal insulation installed in wall assemblies where other materials, components or assemblies are installed to resist air pressure loads.

Past performance is an appropriate basis for determining compliance for some smaller elements that will be subject to wind loads but are continually supported or fastened behind elements that are designed for wind loads, for example, standard flashing over wall penetrations.

It should be noted that this particular approach to demonstrating compliance pertains only to the resistance or accommodation of structural loads described in Part 4. The resistance or accommodation of environmental loads, resistance to deterioration, and material compatibility must still be addressed in accordance with Part 5.

A.5.1.4.1.(5)(b) and (c) Accommodating Movement.

It is well understood that the deflection of the backing assembly in a wall can have significant effects on the performance of the cladding. For example, Clauses 9.14.3 and 10.14.3 of CSA S304.1, “Design of Masonry Structures”, specifies the maximum deflection criteria for backing assemblies to masonry veneer. Clauses 5.1.4.1.(5)(b) and (c) are written in very general terms in recognition that not only can the deflection of cladding affect the performance of the backing assembly, but that the excessive deflection of any element has the potential to adversely affect the performance of any adjacent element. Similarly, inter-storey drift has the potential to adversely affect the performance of components and assemblies such as fenestrations. Such effects should be avoided or accommodated.

A.5.1.4.2. Deterioration.

Environmental loads that must be considered include but are not limited to: sound, light and other types of radiation, temperature, moisture, air pressure, acids and alkalis.

Mechanisms of deterioration include:
- structural (impact, air pressure)
- hygrothermal (freeze-thaw, differential movement due to thermal expansion and contraction, ice lensing)
- electrochemical (oxidation, electrolytic action, galvanic action, solar deterioration)
- biochemical (biological attack, intrusion by insects and rodents).

Information on the effects of deformations in building elements can be found in the Commentary entitled “Effects of Deformations in Building Components” in the User’s Guide - NBC 2010, Structural Commentaries (Part 4 of Division B).

Resistance to deterioration may be determined based on field performance, accelerated testing or compliance with guidelines provided by evaluation agencies recognized by the authority having jurisdiction.

Building components must be designed with some understanding of the length of time over which they will effectively perform their intended function. Actual service life will depend on the materials used and the environment to which they are exposed. The design should take into consideration these factors, the particular function of the component and the implications of premature failure, the ease of access for maintenance, repair or replacement, and the cost of repair or replacement.

Many buildings are designed such that access for maintenance, repair or replacement is not possible without damaging or seriously risking damaging other building elements. This can become a considerable deterrent to proper maintenance thus compromising the performance of the subject materials, components and assemblies, or other elements of the building. In cases where it is known or expected that maintenance, repair or replacement is likely to be required for certain elements before such time as the building undergoes a major retrofit, special consideration should be given to providing easy access to those elements.
A-5.5.1.2.(1) Vapour Barrier Materials and Installation.
In the summer, many buildings are subject to conditions where the interior temperature is lower than the exterior temperature. Vapour transfer during these periods is from the exterior to the interior. In general, in Canada, the duration of these periods is sufficiently short, the driving forces are sufficiently low, and assemblies are constructed such that any accumulated moisture will dissipate before deterioration will occur.

Buildings such as freezer plants, however, may operate for much of the year at temperatures that are below the ambient exterior temperature. In these cases, the “warm” side of the assembly would be the exterior and a detailed analysis on an annual basis is required.

Steady state heat transfer and vapour diffusion calculations may be used to determine acceptable permeance levels for the vapour barrier and to identify appropriate positions for the vapour barrier within the building assembly.

A-5.6.1.1. Required Protection from Precipitation.
Windows, cast-in-place concrete walls, and metal and glass curtain wall systems are examples of components and assemblies that, when properly designed and constructed, are expected to prevent the ingress of precipitation into a building. Assemblies such as roofs and veneer walls consist of materials specifically intended to screen precipitation.

Components and assemblies separating interior conditioned space from the exterior are generally required to provide protection from the ingress of precipitation. Components and assemblies separating interior unconditioned space from the exterior may or may not be required to provide protection from the ingress of precipitation. Buildings such as stadia, parking garages and some seasonally occupied buildings, for example, may not require complete protection from the ingress of precipitation. The degree of protection will depend to a large extent on the materials selected for the building elements that will be exposed to precipitation.

The word “minimize” is used in Sentence 5.6.1.1.(1) because not all moisture ingress or accumulation in an assembly need be of concern. The penetration of wind-driven rain past the cladding may not affect the long-term performance of the assembly, provided the moisture dries out or is drained away before it initiates any deterioration of building materials. When the design service life of a material or component is longer than the design service life of the overall assembly, taking into account the expected exposure to moisture, initiating deterioration of the material should not be of concern. That is to say, provided the material or component continues to provide the necessary level of performance for its intended service life and does not adversely affect the service life of the assembly of which it is a part, the deterioration of the material or component is not an issue.

A-5.6.1.2.(3) Ice Damming.
Water leakage through sloped roofs is often due to the formation of ice dams at the eaves, which can be limited by controlling the transfer of heat to the roof through a combination of insulation and venting to dissipate heat. See Subclause 5.3.1.2.(1)(a)(iv).

A-5.6.2.1. Sealing and Drainage.
Providing a surface-sealed, durable, watertight cover on the outside of a building is difficult. Where there is a likelihood of some penetration by precipitation into a component or assembly, drainage is generally required to direct the moisture to the exterior.

The degree of protection against precipitation ingress needed in any particular case and the approach taken to provide that protection will depend on factors such as,
- the exterior loads imposed on the assembly,
- the materials selected for the backing assembly,
- the use of the enclosed space, and
- the level of maintenance that will be acceptable to the owners.

Where exterior loads are greater, it may be prudent to select a precipitation protection system whose small potential failures will not be as likely to have an immediate impact on the building or its occupants. For example, drained and vented assemblies are typical for low-rise residential buildings. More robust drained and vented assemblies are recommended for mid- and high-rise buildings where the cost of maintenance and repair could be high.
Where materials with a greater resistance to moisture are used in the assembly, a less rugged precipitation protection system or a less rigorous maintenance schedule may be acceptable. This might be the case, for example, where the wall or backing wall is concrete or masonry.

For spaces that are not intended for on-going human occupancy, some rainwater leakage may be of lesser concern. This may be the case for certain warehouse spaces for example, depending on how the spaces are used and conditioned.

Information on the installation of flashing to drain water to the exterior of roof and wall assemblies may be found in a number of publications including, but not limited to:

- "High-Rise Residential Construction Guide", Tarion Warranty Corporation (formerly Ontario New Home Warranty Program)
- Technical Notes, National Concrete Masonry Association
- Roofing Specifications, Canadian Roofing Contractors' Association
- Technical Notes on Brick Construction, Brick Industry Association

As a consequence of increased building height, wood construction buildings exceeding 4 storeys may experience increased loadings on environmental separators and may require different design considerations than common approaches used by industry for buildings of 4 storeys or less. These considerations include but are not limited to, the following:

- air barrier assemblies,
- fenestration selection,
- protection from precipitation,
- differential movement due to wood shrinkage,
- roofing selection and design, and
- risk of deterioration due to longer exposure of materials to the elements during construction.

A-5.8.1.1.(1) Required Drainage.
A wall or floor located below the water table or in the path of a watercourse will be subject to continuous hydrostatic pressure. In such cases, the provision of drainage will be ineffective and the wall or floor must be made waterproof to prevent water ingress.

Where a wall or floor is subject to intermittent hydrostatic pressure, as may result from seasonal flooding, proper drainage will facilitate the drying out of the soil. In some cases, reducing exposure to high moisture levels will extend the life of the moisture protection.

Where a wall or floor is not subject to hydrostatic pressure, drainage again reduces the exposure to high moisture levels and allows less than waterproof treatment of the wall or floor.

Moisture protection for building elements in contact with the ground is generally categorized as either waterproofing or dampproofing. Waterproofing provides a continuous protection against water ingress and is intended to resist hydrostatic load. Dampproofing, on the other hand, does not provide a seal against water ingress and cannot withstand hydrostatic pressure.

In general, Part 5 requires walls, floors and roofs in contact with the ground to be waterproofed. Properties of waterproofing are specified in Sentences 5.8.2.2.(2) to (5), and waterproofing material standards are referenced in Table 5.10.1.1. Materials intended to be used as dampproofing rather than waterproofing are generally not permitted [Sentence 5.8.2.2.(6)]. Standards for installing waterproofing are also specified [Sentence 5.8.2.3.(1)].

Part 5 permits the use of dampproofing in lieu of waterproofing where the substrate is cast-in-place concrete, a drainage layer is installed and where the assembly will not be exposed to hydrostatic pressure. Material standards are referenced in Clause 5.8.2.2.(7)(b) and installation methods in Sentence 5.8.2.3.(2).
A-5.8.2.1. **Required Moisture Protection.**

The control of the ingress of moisture from the ground into interior space is not related to the type of building, the use of the space, or whether or not the space is conditioned. This recognizes the potential adverse effects of high humidity levels, with or without standing water, on both the health of the building occupants and the durability of the building structure.

Although a subject interior space may not be occupied, the assembly separating this space from occupied space often cannot be relied upon to provide adequate protection for the building occupants. Depending on the construction of the separating assembly, it may also be subject to moisture-related deterioration.

The exceptions to this requirement stated in Sentence 5.8.2.1.(2) recognize only those cases where the subject interior space is not occupied and where the assembly separating this space from occupied space will provide the required protection and be resistant to a high humidity environment, or where the moisture loads are sufficiently limited as to not adversely affect the building or its occupants.

A-5.8.2.2.(7) **Drainage Layers.**

Drainage layers reduce both structural and moisture loading on the building envelope by breaking capillary flow and allowing water to percolate quickly to the drainage system. A drainage layer may consist of permeable materials including granular backfill, geosynthetic drainage products or mineral fibreboard with oriented fibres to facilitate drainage. Where a granular material is used, it should be protected from contamination by fines from the adjacent native soil or additional material should be installed to ensure that an adequate thickness of the granular material remains free of fines.

A-5.9. **Required Protection from Noise.**

Sentence 5.9.1.2.(1) applies to the separation of dwelling units from other dwelling units with regard to sound transmission irrespective of Clause 5.1.2.1.(1)(b), which deals with the separation of dissimilar environments. It is understood that, at any time, there is the potential for sound levels to be quite different in adjoining dwelling units.

A-5.9.1.1.(1) **Sound Transmission.**

The Tables in MMAH Supplementary Standard SB-3 provide information on the typical sound transmission class ratings of a number of building assemblies. In the absence of test information or results for a specific assembly of materials, the values in these Tables are considered to satisfy the intent of Sentence 5.9.1.1.(1).

A-5.10.1.1.(1) **Selection of Materials and Components and Compliance with Referenced Standards.**

Note that Sentence 5.10.1.1.(1) is drafted in such a way that the selection of materials and components is not limited to those traditionally recognized as serving particular functions or those for which a standard is identified in Table 5.10.1.1. This approach permits more flexibility than is provided by similar requirements in Part 9. As long as the selected material meets the performance requirements stated elsewhere in Part 5, the material may be used to serve the required function. However, where the selected material or component, or its installation, falls within the scope of any of the standards listed in Table 5.10.1.1., the material, component or installation must comply with that standard. For example, if some resistance to heat transfer is required between two interior spaces and standard partition construction will provide the necessary resistance, the installation of one of the “thermal insulation” materials identified in the standard list is not required. If, on the other hand, one decides to install glass fibre insulation, the material must conform to CAN/ULC-S702, “Mineral Fibre Thermal Insulation for Buildings”.

A-Table 5.10.1.1. **Selection and Installation of Sealants.**

Analysis of many sealant joint failures indicates that the majority of failures can be attributed to improper joint preparation and deficient installation of the sealant and various joint components. The following ASTM guidelines describe several aspects that should be considered when applying sealants in unprotected environments to achieve a durable application:

- ASTM C 1193, “Use of Joint Sealants”;
- ASTM C 1299, “Selection of Liquid-Applied Sealants”;
- ASTM C 1472, “Calculating Movement and Other Effects When Establishing Sealant Joint Width”.

The sealant manufacturer’s literature should always be consulted for recommended procedures and materials.
**A-5.10.2.1.(3) Airtightness and Watertightness of Wired Glass Windows.**

Fixed wired glass assemblies are sometimes permitted as closures in vertical fire separations. The airtightness and watertightness requirements are waived for these windows when used in such an application, in recognition of the fact that the availability of assemblies that meet both the requirements of the window standards and the requirements for fire resistance may be limited. However, control of air and water leakage should not be ignored: measures should be taken to attempt to comply with applicable requirements.

**A-5.10.2.2. Manufactured Windows, Doors and Skylights.**

**Design Values**

CSA A440S1 requires that the individual performance levels achieved by the product for structural resistance, water penetration resistance and air leakage resistance be reported on the product’s performance label.

**Storm Doors and Windows**

Where storm doors and storm windows are not incorporated in a rated window or door assembly, they should be designed and constructed to comply with the applicable requirements of Part 5 regarding such properties as appropriate air leakage and structural loads.

**Forced Entry Test**

Even though the performance label on rated windows, doors and skylights does not explicitly indicate that the product has passed the forced entry resistance test, products are required to pass this test in order to be rated.

**A-5.10.2.4.(3) Heat Transfer through Fire-Rated Glazed Assemblies.**

Thermal bridging through fire-rated glazed assemblies should not be ignored; measures should be taken to minimize condensation consistent with the intent of Sentence 5.10.2.4.(2).

**A-6 Crawl Spaces Used as Warm Air Plenums.**

The requirements for crawl spaces used as warm air plenums have not been included in this Part. Crawl spaces may be used as warm air plenums if design measures are taken to prevent moisture, soil or radon gases from entering the crawl space and being distributed throughout the space.

**A-6.1.1.1.(2) Repairs and Alterations.**

This requirement is to ensure that minimum life safety and health requirements are maintained when the operation and/or design is modified on existing heating, ventilating or air-conditioning systems. For example, this provision would apply to such cases as

(a) the conversion of a heating appliance from oil to gas where venting and clearance requirements differ for chimneys and

(b) the branching of a new duct from a main supply duct in which the new duct now penetrates a fire separation.

**A-6.2.1.3. Structural Movement.**

This Article is intended to remind designers and installers of mechanical systems of one aspect of the “good engineering practice” referred to in Article 6.2.1.1. In determining how to accommodate structural movement, there are two important principles to bear in mind:

- The prime concern of the Code is the safety of people in and around the building, as opposed to protection of the mechanical systems and equipment.
- The nature of the accommodation will vary with the type of movement being considered, taking into account particularly how often the movement is likely to be encountered over the life of the building.
Additional treatment options that are available in this standard, but are not currently required by the Building Code, are as follows:

<table>
<thead>
<tr>
<th>Class of Treatment</th>
<th>Fecal Coliforms or E. Coli (CFU/100 mL)(^{(1)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-I</td>
<td>50 000</td>
</tr>
<tr>
<td>D-II</td>
<td>200</td>
</tr>
<tr>
<td>D-III</td>
<td>ND(^{(2)})</td>
</tr>
</tbody>
</table>

Notes to Table:

(1) Maximum concentration in CFU/100 mL based on 30 day average.
(2) ND means non-detectable (median < 10 CFU/100 mL)

<table>
<thead>
<tr>
<th>Class of Treatment</th>
<th>Total Phosphorus(^{(1)}), mg/L</th>
<th>Total Nitrogen Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-I</td>
<td>1.0</td>
<td>—</td>
</tr>
<tr>
<td>P-II</td>
<td>0.30</td>
<td>—</td>
</tr>
<tr>
<td>N-I</td>
<td>—</td>
<td>50%</td>
</tr>
<tr>
<td>N-II</td>
<td>—</td>
<td>75%</td>
</tr>
</tbody>
</table>

Notes to Table:

(1) Maximum concentration in mg/L based on 30 day average.

**A-8.6.2.2.(5) Other Treatment Units.**

The temperature options that apply to the testing of treatment units are as follows:

Clause (a) is a non-controlled temperature.

Clause (b) is controlled temperature so that the influent wastewater is heated to 11°C ±1°C, whenever necessary to assure a minimum temperature of 10°C. This temperature is the typical temperature at the outlet of the septic tank and, as well, it is required for testing nitrogen reduction treatment technologies.

**A-8.7.4.2.(1) Fill Material.**

Any leaching bed fill added to meet the requirements of 8.7.4.2.(1) shall be regarded as part of the sewage system and this fill must be contained on the lot or parcel of land in which the sewage system is located.

**A-8.7.5.3.(2) Spacing of Distribution Pipes.**

In order to evenly apply the effluent when a filter bed is used, the maximum spacing of distribution pipes should not be greater than 1.2 m.

**A-8.7.6.1. Trench Construction.**

Care must be taken when constructing a shallow buried trench system. Soils have to be dry and protected to ensure smearing of the trench does not take place. If smearing does take place additional measure will need to be undertaken to ensure that the permeability of the soil is not affected in the trench.
a3 A-8.7.7.1.(5) Extension of Sand Layer.
Where the underlying soil has a percolation time greater than 15 minutes, Sentence (5) requires the sand layer described in Sentence (4) be extended 15 m beyond the perimeter of the treatment unit in any direction that the effluent may move horizontally. Consideration may be given to whether the top 300 mm of native soil has the properties required in Sentence (4) prior to removing the existing soil and replacing with sand.

This would also apply to the additional loading area required in Clause (5)(b) of QT/400.

a3 A-8.7.7.1.(8) Open Bottom Treatment Units.
Where an open bottom treatment unit is used in conjunction with a Type A dispersal bed, the placement of the unit is important to achieve even distribution and consideration may be given to the following:
1) the treatment unit is placed in the centre of the stone layer where the topography is flat, or
2) uphill of the centre of the stone layer on sloping topography.

A-8.7.8.3. Type B Dispersal Beds.
The design of a Type B dispersal bed may be based on the use of Table 2-8 of the BCMOH Sewerage System Standard Practice Manual. The Building Code requires the effluent to be of Level IV effluent for a Type B dispersal bed. The loading rates to be used pertain to Type 2 effluent within Table 2-8. The percolation time given in this Table is in min/2.54 cm (inch) not min/cm and must be converted by dividing by 2.54.

Manufactured buildings intended for residential occupancy must comply with all appropriate Code requirements. Only those building components that are designed and constructed in manufacturing plants in accordance with the specified standards (CSA Z240.2.1 and CSA A277) are deemed to comply with the Code. Building components designed and constructed outside the place of manufacture (e.g. masonry chimneys, basement stairs, foundations, etc.) must conform to the requirements of the Code. The Code also applies to the site installation of manufactured buildings in terms of tie-down, spatial separation, grading, plumbing connections to street services, etc.

CSA standard CSA A277, “Procedures for Factory Certification of Buildings”, describes a procedure whereby an independent certification agency can review the quality control procedures of a housing factory and make periodic, unannounced inspections of its products and thus, through suitable labelling, provide assurance to authorities at the final site that the components that cannot be inspected on site comply with the code indicated on the label. It is not a building code, only a procedure for certifying compliance of factory-built components with a building code or other standard. If a factory-built house bears the label of a creditable certification agency indicating that compliance with the National Building Code has been certified using the A277 procedure, the accepting authority will have some assurance that the hidden components do not need to be inspected again on site.
A-9.3.2.1.(1) Grade Marking of Lumber.

Lumber is generally grouped for marketing into the species combinations contained in Table A-9.3.2.1.(1)A. The maximum allowable spans for those combinations are listed in the span tables for joists, rafters and beams. Some species of lumber are also marketed individually. Since the allowable span for the northern species combination is based on the weakest species in the combination, the use of the span for this combination is permitted for any individual species not included in the Spruce-Pine-Fir, Douglas Fir-Larch and Hemlock-Fir combinations.

Facsimiles of typical grade marks of lumber associations and grading agencies accredited by the Canadian Lumber Standards (CLS) Accreditation Board to grade mark lumber in Canada are shown in Table A-9.3.2.1.(1)B. Accreditation by the CLS Accreditation Board applies to the inspection, grading and grade marking of lumber, including mill supervisory service, in accordance with CSA O141, “Softwood Lumber”. The grade mark of a CLS accredited agency on a piece of lumber indicates its assigned grade, species or species combination, moisture condition at the time of surfacing, the responsible grader or mill of origin and the CLS accredited agency under whose supervision the grading and marking was done.

<table>
<thead>
<tr>
<th>Commercial Designation of Species or Species Combination</th>
<th>Abbreviation Permitted on Grade Stamps</th>
<th>Species Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douglas Fir — Larch</td>
<td>D Fir — L (N)</td>
<td>Douglas Fir, Western Larch</td>
</tr>
<tr>
<td>Hemlock — Fir</td>
<td>Hem — Fir (N)</td>
<td>Western Hemlock, Amabilis Fir</td>
</tr>
<tr>
<td>Northern Species</td>
<td>North Species</td>
<td>Any Canadian softwood covered by the NLGA Standard Grading Rules</td>
</tr>
</tbody>
</table>

Canadian lumber is graded to the NLGA Standard Grading Rules for Canadian Lumber, published by the National Lumber Grades Authority. The NLGA rules specify standard grade names and grade name abbreviations for use in grade marks to provide positive identification of lumber grades. In a similar fashion, standard species names or standard species abbreviations, symbols or marks are provided in the rules for use in grade marks.

Grade marks denote the moisture content of lumber at the time of surfacing. “S-Dry” in the mark indicates the lumber was surfaced at a moisture content not exceeding 19%. “MC 15” indicates a moisture content not exceeding 15%. “S-GRN” in the grade mark signifies that the lumber was surfaced at a moisture content higher than 19% at a size to allow for natural shrinkage during seasoning.

Each mill or grader is assigned a permanent number. The point of origin of lumber is identified in the grade mark by use of a mill or grader number or by the mill name or abbreviation. The CLS certified agency under whose supervision the lumber was grade marked is identified in the mark by the registered symbol of the agency.
### Table A-9.3.2.1.(1)B.
Facsimiles of Grade Marks Used by Canadian Lumber Manufacturing Associations and Agencies
Authorized to Grade Mark Lumber in Canada

<table>
<thead>
<tr>
<th>Facsimiles of Grade Mark</th>
<th>Association or Agency</th>
</tr>
</thead>
</table>
| **A.F.P.A® 00**          | Alberta Forest Products Association  
500—10709 Jasper Avenue  
Edmonton, Alberta T5J 3N3  
www.albertaforestproducts.ca |
| **CMSA® No 1**          | Canadian Mill Services Association  
#200, 601—6th Street  
New Westminster, British Columbia V3L 3C1  
www.canserve.org |
| **CSI® No 1**           | Canadian Softwood Inspection Agency Inc.  
1047—250A Street  
Aldergrove, British Columbia V4W 2S8 |
| **CFPDA® 26**           | Central Forest Products Association Inc.  
c/o Reimer & Co., Chartered Accountants  
PO Box 146  
Swan River, Manitoba R0L 1Z0 |
| **COF® 1**              | Council of Forest Industries  
Southern Region:  
360—1855 Kirschner Road  
Kelowna, British Columbia V1Y 4N7  
Northern Region:  
400—1488 Fourth Avenue  
Prince George, British Columbia V2L 4Y2  
www.cofi.org |
A-9.8.7.5.(2) Handrail Sections.
Handrails are intended to provide guidance and support to stair users. To fulfil this intent, handrails must be “graspable”. Acceptable handrail sections include, but are not limited to, those shown in Figure A-9.8.7.5.(2).

![Handrail Sections](image)

Figure A-9.8.7.5.(2)
Handrail Sections

Handrails are intended to provide guidance and support to the stair user and to arrest falls. The loads on handrails may therefore be considerable. The attachment of handrails serving a single dwelling unit may be accepted on the basis of experience, structural design, or the prescriptive requirements of Sentence 9.8.7.7.(2).

The requirements relating to guards stated in Part 9 are based on the premise that, wherever there is a difference in elevation of 600 mm or more between two floors, or between a floor or other surface to which access is provided for other than maintenance purposes and the next lower surface, the risk of injury in a fall from the higher surface is sufficient to warrant the installation of some kind of barrier to reduce the chances of such a fall. A wall along the edge of the higher surface will obviously prevent such a fall, provided the wall is sufficiently strong that a person cannot fall through it. Where there is no wall, a guard must be installed. Because guards clearly provide less protection than walls, additional requirements apply to guards to ensure that a minimum level of protection is provided. These relate to the characteristics described in notes A-9.8.8.3., A-9.8.8.5.(1) and (2), A-9.8.8.5.(3) and A-9.8.8.6.

Examples of such surfaces where the difference in elevation could exceed 600 mm and consequently where guards would be required include, but are not limited to, landings, porches, balconies, mezzanines, galleries, and raised walkways. Especially in exterior settings, surfaces adjacent to walking surfaces, stairs or ramps often are not parallel to the walking surface or the surface of the treads or ramps. Consequently, the walking surface, stair or ramp may need protection in some locations but not in others. (See Figure A-9.8.8.1.) In some instances, grades are artificially raised close to walking surfaces, stairs or ramps to avoid installing guards. This provides little or no protection for the users. That is why the requirements specify differences in elevation not only immediately adjacent to the construction but also for a distance of 1 200 mm from it by requiring that the slope of the ground be within certain limits. (See Figure A-9.8.8.1.)
A-9.8.8.1. (5) Height of Window Sills Above Floors or Ground.
The primary intent of the requirement is to minimize the likelihood of small children falling significant heights from open windows. Reflecting reported cases, the requirement applies only to dwelling units and generally those located on the second floor or higher of residential or mixed use buildings where the windows are essentially free-swinging or free-sliding.

Free-swinging or free-sliding means that a window that has been cracked open can be opened further by simply pushing on the openable part of the window. Care must be taken in selecting windows, as some with special operating hardware can still be opened further by simply pushing on the window.

Casement windows with crank operators could, in some cases, be considered to conform to Clause (1)(b). To provide additional safety, where slightly older children are involved, occupants can easily remove the crank handles from these windows. Awning windows with scissor hardware, however, may not keep the window from swinging open once it is unlatched. Hopper windows would be affected only if an opening is created at the bottom as well as at the top of the window. The requirement will impact primarily on the use of sliding windows which do not incorporate devices in their construction that can be used to limit the openable area of the window.

The 100 mm opening limit is consistent with widths of openings that small children cannot fall through. Again, care must be taken in selecting a window. At some position, scissor hardware on an awning window may break up the open area such that there is no unobstructed opening with dimensions greater than 100 mm. At another position, however, though the window is not open much more, the hardware may not adequately break up the opening. The 480 mm height off the floor recognizes that furniture is often placed under windows and small children are often good climbers.

Guards must be constructed so as to be strong enough to protect persons from falling under normal use. Many guards installed in dwelling units or on exterior stairs serving one or two dwelling units have demonstrated acceptable performance over time. The loading specified in the first row of Table 9.8.8.2. is intended to be consistent with the performance provided by these guards. Guards constructed in accordance with MMAH Supplementary Standard SB-7 are deemed to meet the requirements of Article 9.8.8.2.

The load on guards within dwelling units, or on exterior guards serving not more than two dwelling units, is to be imposed over an area of the guard such that, where standard balusters are used and installed at the maximum 100 mm spacing permitted for required guards, 3 balusters will be engaged. Where the balusters are wider, only two may be engaged unless they are spaced closer together. Where the guard is not required, and balusters are installed more than 100 mm apart, fewer balusters may be required to carry the imposed load.

Guard heights are generally based on the waist heights of average persons. Generally, lower heights are permitted in dwelling units because the occupants become familiar with the potential hazards, and situations which lead to pushing and jostling under crowded conditions are less likely to arise.
### Figure A-9.10.15.4.(2)-B

Example of Determination of Criteria for the Exposing Building Face of a Skewed Wall of a House With Some Arbitrary Division of the Wall

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

1. To simplify the calculations, choose the column for the lesser limiting distance nearest to the actual limiting distance. Interpolation for limiting distance is also acceptable and may result in a slightly larger permitted area of glazed openings. Interpolation can only be used for limiting distances greater than 1.2 m.
Figure A-9.10.15.4.(2)-C
Example of Determination of Criteria for the Exposing Building Face of a Skewed Wall of a House With a Different Arbitrary Division of the Wall

Note to Figure A-9.10.15.4.(2)-C:
(1) To simplify the calculations, choose the column for the lesser limiting distance nearest to the actual limiting distance. Interpolation for limiting distance is also acceptable and may result in a slightly larger permitted area of glazed openings. Interpolation can only be used for limiting distances greater than 1.2 m.

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

Note that, because the cross-reference relating to sprinkler systems in Sentence 9.10.1.3.(8) refers to conformance with Sentence 3.2.5.7.(1), Articles 3.2.5.13. to 3.2.5.16. and Article 3.2.5.18., the requirements of Subsection 3.2.4. regarding electrical supervision and monitoring do not normally apply to sprinkler systems in Part 9 buildings. However, where a sprinkler system is installed in lieu of heat and smoke detectors according to Sentence 9.10.18.4.(3) electrical supervision and monitoring of the sprinkler system must comply with the provisions in Subsection 3.2.4.

Smoke alarms with a visual signalling component can alert people who are deaf, deafened or hard of hearing to the presence of smoke in the dwelling just as the alarm sound provides an alert to people with no or low vision or who are sighted. The visual signal provides an extra level of safety alerts to building residents.
A-9.10.19.3.(1) Location of Smoke Alarms.
Statistics have shown that next to kitchen fires, fires originating in bedrooms within dwelling units account for the second highest causes of fire deaths in homes.

The requirement for smoke alarms in sleeping rooms (bedrooms) provides early detection and warning of fires originating in sleeping rooms. Smoke alarms located outside sleeping rooms are required as they are better capable of detecting a fire originating outside of the room.

A smoke alarm is not required on each level in a split-level dwelling unit as each level does not count as a separate storey. Determine the number of storeys in a split-level dwelling unit and which levels are part of which storey as follows:
1. establish grade, (See definition of “grade” in Sentence 1.4.1.2.(1) of Division A.);
2. identify the first storey, (See definition of “first storey” in Sentence 1.4.1.2.(1) of Division A.);
3. identify the basement, (See definition of “basement” in Sentence 1.4.1.2.(1) of Division A.);
4. identify the second storey and, where applicable, the third storey.

Additional Smoke Alarms Outside of Sleeping Areas
As a minimum, one smoke alarm is required to be installed on each storey, preferably on the upper level of each one. As noted above, however, when the dwelling unit contains more than one sleeping area, a smoke alarm must be installed to serve each area. Where the sleeping areas are on two levels of a single storey in a split-level dwelling unit, an additional smoke alarm must be installed so that both areas are protected. See Figure A-9.10.19.3.(1).

Figure A-9.10.19.3.(1)
Two-Storey Split-Level Building

Notes to Figure A-9.10.19.3.(1):
(1) One smoke alarm required for each of the basement, first storey and second storey.
(2) An additional smoke alarm is required on the lower level of the second storey outside the sleeping rooms.

A-9.10.20.3.(1) Fire Department Access Route Modification.
In addition to other considerations taken into account in the planning of fire department access routes, special variations could be permitted for a house or residential building that is protected with an automatic sprinkler system. The sprinkler system must be designed in accordance with the appropriate NFPA standard and there must be assurance that water supply pressure and quantity are unlikely to fail. These considerations could apply to buildings that are located on the sides of hills and are not conveniently accessible by roads designed for fire fighting equipment and also to infill housing units that are located behind other buildings on a given property.
A-9.11.1.1.(1) Sound Transmission Class Ratings.
The specified STC rating of 50 is considered the minimum acceptable value, but many builders prefer to design for STC 55 or more in high quality accommodation.

Another reason to choose assemblies rated higher than STC 50 is that the STC ratings of assemblies are based on laboratory tests, but the sound transmission of any assembly as constructed in the field may be significantly less than its rating. This can be due to sound leaks, departures from design, poor workmanship or indirect (flanking) transmission paths overlooked in design. To provide a margin of safety to compensate for these, builders often select wall and floor systems that have been rated at least 5 points higher than the design STC rating in laboratory tests.

Sound leaks can occur where one wall meets another, the floor, or the ceiling. Leaks may also occur where the wall finish is cut for the installation of equipment or services. Avoid back-to-back electrical outlets or medicine cabinets. Carefully seal cracks or openings so structures are effectively airtight. Apply sealant below the plates in stud walls, between the bottom of drywall sheets and the structure behind, around all penetrations for services and, in general, wherever there is a crack, a hole or the possibility of one developing. Sound-absorbing material inside a well-designed wall decreases sound transmission. It has another advantage; it also helps to reduce the effects of leaks due, perhaps, to poor workmanship.

Indirect or flanking transmission arises where the parts of a building are rigidly connected together and where cavities in hollow walls or floors, or continuous lightweight layers connect apartments. Sound travels in cavities, as vibration along surfaces and through walls, ceilings and floors to adjacent rooms. Many paths other than the direct one through the party wall or floor may be involved. To achieve good sound insulation, transmission along flanking paths must be minimized by introducing breaks and resilient connections in the construction. Some examples of bad and good details are shown in Figure 9.11.1.1.(1).

![Figure A-9.11.1.1.(1) Cross Section Through Wall/floor Junctions Impact Noise](image)

Changes to construction should not be made without consultation with someone competent in the field of acoustical design. Adding extra layers of drywall to walls in an attempt to reduce sound transmission, can actually increase it if done incorrectly. For example, attaching drywall on resilient channels directly to an existing wall or ceiling usually increases low frequency sound transmission. Adding an additional layer of drywall inside a double layer wall will also seriously increase sound transmission. Adding blocking inside walls to reduce the risk of fire spread should be done so it does not increase vibration transmission from one part of a wall or floor to the other.

To verify that acoustical privacy is being achieved, a field test can be done at an early stage in the construction; ASTM E336, “Measurement of Airborne Sound Attenuation Between Rooms in Buildings” will give a complete measurement. A simpler and less expensive method is ASTM E597, “Determining a Single Number Rating of Airborne Sound Insulation in Multi Unit Building Specifications”. The rating provided by this test is usually within 2 points of the STC obtained from ASTM E336. It is useful for verifying performance and finding problems during construction. Alterations can then be made prior to project completion.
Impact Noise

Section 9.11. has no requirements for control of impact noise transmission. Footstep and other impacts can cause severe annoyance in multi-family residences. Builders concerned about quality and reducing occupant complaints will ensure that floors are designed to minimize impact transmission. A recommended criterion is that bare floors (tested without a carpet) should achieve an impact insulation class (IIC) of 55. Some lightweight floors that satisfy this requirement may still cause complaints about low frequency impact noise transmission. Adding carpet to a floor will always increase the IIC rating but will not necessarily reduce low frequency noise transmission. Good footstep noise rejection requires fairly heavy floor slabs or floating floors.


A-11.3.1.2.(1) New and Extension of Existing Building System.
Generally, new or extended building systems should follow the Building Code for new construction, and where necessary, may seek some relief through compliance alternatives, alternative measures or match existing.

A-11.3.3.1. Basic Renovation.
The basic renovation is the simplest form of renovation; the work area is limited in size (within a suite or room), and does not involve a decrease in performance level of the building. The limit in size assures that accesses to exits, corridor separations, or other life safety systems are left intact, where less than a full floor area is under renovation.

A-11.3.3.2. Extensive Renovation.
In cases where extensive renovation of the building is proposed, there is generally no reason why the new systems should not comply with new construction requirements; in this case the applicant may seek relief only through “alternative measures”, should a construction difficulty arise that requires such relief. This would apply to the substantial renovation of the entire building.

A-11.3.3.2.(3) Application of Limited Barrier-Free Design Requirements in Renovations.
Certain barrier-free design provisions must be incorporated into all renovations where new interior walls or floor assemblies are installed other than in a suite described in Sentence (2) or in a suite in a building described in Sentence 3.8.1.1.(1). This includes construction within suites less than 300 m² and suites on storeys or floor levels not accessible by a barrier-free path of travel. In those cases, any new construction is subject to the barrier-free design provisions listed in 11.3.3.2.(3). Sentence 1.1.2.7.(1) of Division A continues to apply, so that any existing construction that is not being materially altered as part of the renovation need not include barrier-free design features.

The intent of these provisions is to make more suites and buildings accessible for people with sensory and other non-mobility disabilities. Not every person with a disability uses a wheelchair. Many people who use mobility aids such as canes or service animals or who have sensory disabilities are able to navigate stairs but would benefit from certain barrier-free elements such as lever door handles or an ambulatory washroom stall.

A-11.4.3.1. Compensating Construction.
Where the performance level of the building or part of the building is reduced through Subsection 11.4.2., compensating construction will be required to restore the performance level to its former state, of the early warning and evacuation systems, the fire and structural protection construction of the building. The amount of upgrading required depends on the results of a performance level evaluation.

The extent, or areas covered, of this upgrading include the protection of the surrounding existing areas from the portion being renovated, and the means of egress from the building if adversely affected by the renovation.

A-11.4.3.2.(1) Structural.
Provides, subject to any of three conditions, for adequacy of support for floors that will be receiving increased dead or live loads: options are restriction of loads, or upgrading of support systems.

A-11.4.3.3. Increase in Occupant Load.
Where the increase is greater than 15%, and construction takes place, the performance level is reduced and must be restored as required in Table 11.4.3.3.

Where the increase is 15% or less, and construction takes place, the performance level is reduced. Where the new occupant load is more than 15% above the exit capacity or for which a fire alarm system is required. The performance level must be restored as required by Table 11.4.3.3.

Smaller buildings, of 14 persons or less in boarding houses, and 16 persons or less in dwelling units, are exempt.
A-11.4.3.4. Change in Major Occupancy.
Provided construction takes place, a change in major occupancy to one of a greater hazard index reduces the performance level. An increase of the hazard index will trigger the classification of the entire building as to its construction index and hazard index under Table 11.4.3.3., Table 11.4.3.4.A. and B, to determine what upgrading, if any is required to ensure that the building will support that new hazard.

Subsection 11.5.1. allows compliance alternatives to be used, in lieu of certain requirements in other Parts of Division B. Alternatives to requirements in Part 3, 4, 6 or 8 may be used subject to the chief official’s satisfaction, while alternatives to Parts 9 and 12 requirements are not subject to this condition.

A-12.3.1.5.(2) Residential Furnaces.
Where an existing furnace without a brushless direct current motor is replaced in a dwelling unit, replacement with a furnace with similar characteristics would provide an acceptable performance level, since the furnace flow rate and ductwork size would be compatible and this alteration to the heating and cooling system would not reduce the performance level.

Explanatory Material for Division C

A-1.2.1.1. Design by Architect or Professional Engineer.
The practice of architecture is regulated by the Architects Act. The practice of professional engineering is regulated by the Professional Engineers Act. Professional design requirements related to the design of buildings are regulated by the Professional Engineers Act and the Architects Act.

Certain foundations, sprinkler protected glazed wall assemblies, shelf and rack storage systems, tent framing and sign structures are required to be designed by a suitably qualified and experienced person. Refer to Article 1.2.2.1. for general review by an Architect or a Professional Engineer of these assemblies and systems.

Refer to the “Use of the Professional Engineer’s Seal” published by Professional Engineers Ontario for guidance on the proper use of a Professional Engineer’s seal.

A-1.2.2.1. General Review by Architect or Professional Engineer.
In addition to the general review of the construction of buildings described in Table 1.2.2.1. by an Architect or Professional Engineer, Sentences 1.2.2.1.(4) to (9) require general review by an Architect or a Professional Engineer of certain foundations, sprinkler protected glazed wall assemblies, shelf and rack storage systems, tent framing and sign structures. These assemblies and systems are required to be designed by a suitably qualified and experienced person, as detailed in Article 1.2.2.1.

A-1.3.6.1. As Constructed Plans.
The intent of the provision for as constructed plans is to provide the municipality with authority to ask for information that is necessary for the enforcement of the Act and the Building Code. The intent of the provision is not to duplicate the permit approval process and require similar information to be filed upon completion of the project. Similarly, the provision is not intended to require information and documentation beyond those that are normally generated in the building permit approval process.

A-3.2.2.2.(1) Other Designers.
The qualifications for the designer of a public pool located in a building are based on the size and occupancy of the building. An outdoor public pool is a designated structure. The occupancy of an outdoor public pools depends on the major occupancy of the building it serves. In the case where the outdoor public pool is a stand-alone structure with ancillary change facilities, the major occupancy of the pool would be Group A, Division 4 where it is used for social, education, recreational or similar purposes.
MMAH Supplementary Standard SA-1

Objectives and Functional Statements Attributed to the Acceptable Solutions

September 2, 2014 update

Effective Date: January 1, 2015
COMMENCEMENT

MMAH Supplementary Standard SA-1 comes into force on the 1st day of January, 2014.

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.

SA-1 as amended by Ontario Regulation 361/13 comes into force on the 1st day of January, 2014.

SA-1 as amended by Ontario Regulation 361/13 corresponding to Ontario Regulation 361/13 provisions that come into force on the 1st day of January, 2015.

SA-1 as amended by Ontario Regulation 368/13 corresponding to Ontario Regulation 368/13 provisions that come into force on the 1st day of January, 2015.

SA-1 as amended by Ontario Regulation 191/14 comes into force on the 1st day of January, 2015.

EDITORIAL


1. Scope

This standard specifies, for the purposes of Article 1.2.1.1. of Division A of the Building Code, the objectives and functional statements that have been attributed to acceptable solutions provided in Division B of the Building Code.

2. Objectives and Functional Statements

The objectives listed in this standard are those set out in Part 2 of Division A of the Building Code.

The functional statements listed in this standard are set out in Part 3 of Division A of the Building Code.

3. Attribution to Acceptable Solutions

For the purposes of compliance with the Building Code, as required in Sentence 1.2.1.1.(2) of Division A of the Building Code, the objectives and functional statements attributed to the acceptable solutions in Division B shall be the objectives and functional statements listed in Tables 3 to 12.
### Table 3
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 3 of Division B

<table>
<thead>
<tr>
<th>Acceptable Solutions</th>
<th>Objectives and Functional Statements</th>
</tr>
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<tbody>
<tr>
<td>3.1.1.1. Scope</td>
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<td>3.1.1.2. Radon</td>
<td>[F40, F50-OH1.1]</td>
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<td>3.1.1.3. Building in Flood Plains</td>
<td>(a) [F20-OP2.1] (a) [F20-OS2.1, OS2.3] (a) [F61-OH1.3] (b) [F10, F12-OS3.1] [F10, F30-OS3.7]</td>
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<td>3.1.2.1. Classification of Buildings</td>
<td>(1) (2)</td>
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<tr>
<td>3.1.2.2. Occupancies of the Same Classification</td>
<td>(1)</td>
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<td>3.1.2.3. Arena Type Buildings</td>
<td>(1)</td>
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<tr>
<td>3.1.2.4. Police Stations</td>
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<td>3.1.2.5. Group B, Division 3 Occupancies</td>
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<td>3.1.2.6. Restaurants</td>
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<td>3.1.3.1. Separation of Major Occupancies</td>
<td>(1) [F03-OP1.2] [F03-OS1.2]</td>
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3.1.10.3. Continuity of Firewalls

(1) [F03-OP1.2] Applies to portion of Code text: “A firewall shall extend from the ground continuously through, or adjacent to, all storeys of a building or buildings so separated…”

(2) [F03-OP3.1] Applies to portion of Code text: “A firewall shall extend from the ground continuously through, or adjacent to, all storeys of a building or buildings so separated…”

(3) [F03-OS1.2] Applies to portion of Code text: “A firewall shall extend from the ground continuously through, or adjacent to, all storeys of a building or buildings so separated…”

3.1.10.4. Parapets

(1) [F03-OP1.2] [F03-OP3.1] [F03-OS1.2]

3.1.10.5. Maximum Openings

(1) [F03-OP1.2] Applies to portion of Code text: “… the aggregate width of openings shall be not more than 25% of the entire length of the firewall.”

(2) [F03-OP3.1] Applies to portion of Code text: “… the aggregate width of openings shall be not more than 25% of the entire length of the firewall.”

(3) [F03-OS1.2] Applies to portion of Code text: “… the aggregate width of openings shall be not more than 25% of the entire length of the firewall.”

3.1.10.6. Exposure Protection for Adjacent Walls

(1)

3.1.10.7. Combustible Projections

(1) [F03-OP1.2] Applies to portion of Code text: “Combustible material shall not extend across the end of a firewall…”

(2) [F03-OP3.1] Applies to portion of Code text: “Combustible material shall not extend across the end of a firewall…”

(3) [F03-OS1.2] Applies to portion of Code text: “Combustible material shall not extend across the end of a firewall…”

3.1.11.1. Separation of Concealed Spaces

(1) [F03-OP1.2] [F03-OS1.2]

3.1.11.2. Fire Blocks in Wall Assemblies

(1) [F03-OP1.2] [F03-OS1.2]

3.1.11.3. Fire Blocks between Nailing and Supporting Elements

(1) [F03-OP1.2] [F03-OS1.2]

(2) [F03-OP1.2] [F03-OS1.2]

3.1.11.4. Fire Blocks between Vertical and Horizontal Spaces

(1) [F03-OP1.2] [F03-OS1.2]
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<td>[F02-OP1.2, OP1.3] [F02-OS1.2, OS1.3]</td>
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<td>3.2.1.6. Mezzanines</td>
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<td>3.2.2.1. Application</td>
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<td>3.2.2.2. Special and Unusual Structures</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.3. Exceptions to Structural Fire Protection</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.4. Buildings with Multiple Major Occupancies</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.5. Applicable Building Height and Area</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.6. Multiple Major Occupancies</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.7. Superimposed Major Occupancies</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.8. Exceptions for Major Occupancies</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.9. Crawl Spaces</td>
<td>[F02, F03, F04-OP1.2, OP1.3] [F02, F03, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.10. Streets</td>
<td>[F12-OP1.2] [F12-OS1.2, OS1.5]</td>
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<td>3.2.2.11. Exterior Balconies</td>
<td>[F02, F04-OP1.2, OP1.3] [F02, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.12. Exterior Passageways</td>
<td>[F02, F04-OP1.2, OP1.3] [F02, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.13. Occupancy on Roof</td>
<td>[F02, F04-OP1.2, OP1.3] [F02, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.14. Roof-Top Enclosures</td>
<td>[F02, F04-OP1.2, OP1.3] [F02, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.15. Storeys Below Ground</td>
<td>[F02, F04-OP1.2, OP1.3] [F02, F04-OS1.2, OS1.3]</td>
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<td>3.2.2.16.</td>
<td>Heavy Timber Roof Permitted</td>
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<td>Sprinklers in Lieu of Roof Rating</td>
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<td>Buildings Containing Impeded Egress Zones</td>
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<td>3.2.2.20.</td>
<td>Group A, Division 1, Any Height, Any Area, Sprinklered</td>
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<td>3.2.2.21.</td>
<td>Group A, Division 1, One Storey, Limited Area</td>
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<td>3.2.2.22.</td>
<td>Group A, Division 1, One Storey</td>
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<td>3.2.2.23.</td>
<td>Group A, Division 2, Any Height, Any Area, Sprinklered</td>
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<td>3.2.2.24.</td>
<td>Group A, Division 2, up to 6 Storeys, Any Area, Sprinklered</td>
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<td>Acceptable Solutions</td>
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| (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,"  
(F02, F04-OP1.2) [F04-OP1.3]  
(F02, F04-OS1.2) [F04-OS1.3]  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [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-OP1.2, OS1.3) Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [F04-OS1.3] |
| (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-OS1.2, OS1.3] Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [F04-OS1.3] |
| 3.2.2.38.           | Group B, Division 2 or Division 3, Any Height, Any Area, Sprinklered  
(1)                      |  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [F04-OS1.3] |
| (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-OS1.2, OS1.3] Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [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-OP1.2, OS1.3) Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [F04-OS1.3] |
| (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-OS1.2, OS1.3] Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.2) [F04-OS1.3] |
| 3.2.2.40.           | Group B, Division 2 or Division 3, 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-OP1.2, OS1.3) Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.3) |
| (2)                  | (a) [F03, F04-OP1.2] [F04-OP1.3]  
(a) [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-OP1.2, OS1.3) Applies to portion of Code text: "a) the building shall be sprinklered,"  
(F02-OP1.2) [F04-OP1.3]  
(F02-OS1.3) |
| 3.2.2.42.           | Group C, Any Height, Any Area, Sprinklered  
(1)                      |  
(F04-OP1.3)  
(F04-OS1.3) |
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<th>Objectives and Functional Statements</th>
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<td>(2)</td>
<td>[F02-OP1.2] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction.&quot;</td>
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<td>[F02-OS1.2] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction.&quot;</td>
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<td>[F02,F04-OP1.2, OP1.3] Applies to portion of Code text: &quot;...the building shall be sprinklered...&quot;</td>
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<td>(a), (c)</td>
<td>[F03-OP1.2] [F04-OP1.2, OP1.3]</td>
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<td>[F03-OS1.2] [F04-OS1.2, OS1.3]</td>
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<td>(c), (d)</td>
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<td>(3)</td>
<td><strong>3.2.2.43.</strong> Group C, up to 6 Storeys, Sprinklered, Noncombustible Construction</td>
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<td>[F02,F04-OP1.2, OP1.3] Applies to portion of Code text: &quot;...the building shall be sprinklered...&quot;</td>
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<td>[F02,F04-OS1.2,OP1.3] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction...&quot;</td>
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<td>[F02-OP1.2] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction...&quot;</td>
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<td>[F02-OS1.2] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction...&quot;</td>
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<td>[F03-OS1.2] [F04-OS1.2, OS1.3]</td>
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<td><strong>3.2.2.43A.</strong> Group C, up to 6 Storeys, Sprinklered, Combustible Construction</td>
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<td>[F02,F04-OP1.2, OP1.3] Applies to portion of Code text: &quot;...the building shall be sprinklered...&quot;</td>
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<td>[F02,F04-OS1.2,OP1.3] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction...&quot;</td>
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<td>(2)</td>
<td>[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: &quot;a) floor assemblies shall be fire separations with a fire-resistance rating not less than 1 h,&quot; and to Clause (f).</td>
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<td>[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: &quot;a) floor assemblies shall be fire separations with a fire-resistance rating not less than 1 h,&quot; and to Clause (f).</td>
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<td>[F03-OP1.2] [F04-OP1.2, OP1.3]</td>
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<td>[F03, F06-OS1.2] [F05, F06-OS1.5]</td>
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<td>[F02, F03-OS1.2] [F10-OS1.5]</td>
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<td>3.2.2.44.</td>
<td><strong>Group C, up to 4 Storeys, Noncombustible Construction</strong></td>
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<td>[F02-OP1.2] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction...&quot;</td>
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<td>[F02-OS1.2] Applies to portion of Code text: &quot;...the building referred to in Sentence (1) shall be of noncombustible construction...&quot;</td>
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<td>[F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: &quot;a) floor assemblies shall be fire separations with a fire-resistance rating not less than 1 h,&quot; and to Clause (d).</td>
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<td>[F03, F04-OS1.2] [F04-OS1.3] Applies to portion of Code text: &quot;a) floor assemblies shall be fire separations with a fire-resistance rating not less than 1 h,&quot; and to Clause (d).</td>
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<td>[F04-OP1.3]</td>
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### Acceptable Solutions

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<td>[F02, F04 – OP1.2, OP1.3]  [F02, F04 – OS1.2, OS1.3]</td>
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</tbody>
</table>

### Objectives and Functional Statements

#### 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.”

(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).

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

(1) [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).

(2) [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).

#### 3.2.2.47. Group C, up to 3 Storeys

(1) [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).

(2) [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).

#### 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.”

(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).

#### 3.2.2.49. Group D, Any Height, Any Area

(1) [F02-OP1.2] Applies to portion of Code text: “... the building referred to in Sentence (1) shall be of noncombustible construction.”

(2) [F02-OS1.2] Applies to portion of Code text: “... the building shall be noncombustible ...”
### Acceptable Solutions

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<tr>
<th>(2) (Cont’d)</th>
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<td>(c) [F04-OP1.3]</td>
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<td>(c) [F04-OS1.3]</td>
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### 3.2.2.50. Group D, up to 6 Storeys

#### (1)

- (b) [F02-OP1.2] Applies to portion of Code text: "The building referred to in Sentence (1) shall be of noncombustible construction;"
- (c) [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).
- (c) [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).

#### (2)

- (a), (d) [F03, F04-OP1.2] [F04-OP1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered...

### 3.2.2.50A. Group D, up to 6 Storeys, Sprinklered

#### (1)

- (b), (c), (d) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a) ...the building shall be sprinklered;"
- (c) [F04-OP1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"
- (b), (c), (d), (f) [F04-OP1.3] Applies to portion of Code text: "...the building shall be sprinklered,"

#### (2)

- (b), (c), (d), (f) [F04-OS1.3] Applies to portion of Code text: "...the building shall be sprinklered,"
- (a), (f) [F03-OP1.2] [F04-OP1.2, 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 (f).
- (a), (f) [F03-OS1.2] [F04-OS1.2, 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 (f).

#### (3)

- (a), (c), (f) [F03-OP1.2] [F04-OP1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"
- (c) [F04-OP1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"

#### (4)

- (a), (c), (f) [F03-OS1.2] [F04-OS1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"
- (a), (c), (f) [F03-OP1.2] [F04-OP1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"
- (a), (c) [F04-OP1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"
- (a), (c) [F04-OS1.3] Applies to portion of Code text: "...a) ...the building shall be sprinklered;"

### 3.2.2.51. Group D, up to 6 Storeys, Sprinklered, Noncombustible Construction

#### (1)

- (b), (c), (d) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a) ...the building is sprinklered;"
- (c) [F04-OP1.3] Applies to portion of Code text: "...a) ...the building is sprinklered;"
- (b), (c), (d), (f) [F04-OP1.3] Applies to portion of Code text: "...the building is sprinklered,"

#### (2)

- (b), (c), (d), (f) [F04-OS1.3] Applies to portion of Code text: "...the building is sprinklered,"
- (a), (c) [F03-OP1.2] [F04-OP1.3] Applies to portion of Code text: "...the building is sprinklered,"
- (a), (c) [F04-OP1.3] Applies to portion of Code text: "...the building is sprinklered,"
- (a), (c) [F04-OS1.3] Applies to portion of Code text: "...the building is sprinklered,"
- (a), (c) [F04-OS1.3] Applies to portion of Code text: "...the building is sprinklered,"

### 3.2.2.52. Group D, up to 4 Storeys, Sprinklered

#### (1)

- (a), (c) [F02, F04-OP1.2, OP1.3] Applies to portion of Code text: "a)...the building is sprinklered,""n
- (a), (c) [F02, F04-OS1.2, OS1.3] Applies to portion of Code text: "a)...the building is sprinklered,""n
- (a), (c) [F04-OP1.3] Applies to portion of Code text: "a)...the building is sprinklered,""n
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- (b) [F04-OP1.3] Applies to portion of Code text: "a)...the building is sprinklered,""n
- (b) [F04-OS1.3] Applies to portion of Code text: "a)...the building is sprinklered,""n
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<td>[F04-OS1.3] Applies to portion of Code text: &quot;c) roof assemblies shall have, if of combustible construction, a fire-resistance rating not less than 45 min,...&quot; and to Clause (d).</td>
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#### 3.2.5.1. Access to Above Grade Storeys

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Effective Date: January 1, 2015
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| (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]  
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| (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]  
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| (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]  
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3.4.2.2. Mezzanine Exiting

| (1)     | [F05-OS1.5] |
| (2)     |             |
| (3)     |             |
| (4)     |             |

3.4.2.3. Distance between Exits

| (1)     | [F05, F10-OS1.5] |
| (2)     |                 |
| (3)     |                 |
| (4)     |                 |

3.4.2.4. Travel Distance

| (1)     | [F10-OS3.7] |
| (2)     |             |
| (3)     |             |
| (4)     |             |

3.4.2.5. Location of Exits

| (1)     | [F10-OS3.7] |
| (2)     |             |
| (3)     |             |

3.4.2.6. Principal Entrance

| (1)     | [F10-OS3.7] |

3.4.3.1. Exit Width Based on Occupant Load

| (1)     | [F10-OS3.7] |
| (2)     |             |
| (3)     |             |

3.4.3.2. Exit Width

| (1)     | [F10-OS3.7] |
| (2)     |             |
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3.4.3.3. Exits from Interconnected Floor Space

| (1)     |             |

3.4.3.4. Exit Width Reduction

<p>| (1)     | [F12-OS1.2] |
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3.4.6.7. Ramp Slope

| (1)                 | [F30-OS3.1] [F10-OS3.7]              |

3.4.6.8. Treads and Risers

| (1)                 | [F30-OS3.1] [F10-OS3.7]              |
| (2)                 | [F30-OS3.1] [F10-OS3.7]              |
| (3)                 | [F30-OS3.1] [F10-OS3.7]              |
| (4)                 | [F30-OS3.1] [F10-OS3.7]              |
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| (6)                 | [F30-OS3.1] [F10-OS3.7]              |
| (7)                 | [F30-OS3.1] [F10-OS3.7]              |
| (8)                 | [F30-OS3.1]                          |
| (9)                 | [F10-OS3.7] [F30-OS3.1]              |
| (10)                | [F30-OS3.1]                          |

3.4.6.9. Curved Stairs

| (1)                 | [F30-OS3.1] [F10-OS3.7]              |
| (2)                 | [F30-OS3.1] [F10-OS3.7]              |

3.4.6.10. Horizontal Exits

| (1)                 | [F10-OS3.7]                          |
| (2)                 | [F10-OS3.7]                          |
| (3)                 |                                     |
| (4)                 | [F10, F73-OS3.7]                     |
| (5)                 | [F10-OS3.7]                          |
| (6)                 |                                     |
| (7)                 | [F10-OS1.5]                          |

3.4.6.11. Doors

| (1)                 | [F30-OS3.1] [F10-OS3.7]              |

| (2)                 | [F30-OS3.1] [F10-OS3.7]              |

| Applies to portion of Code text: “No exit door shall open directly onto a step…” |
| [F10, F81-OS3.7] Applies where there is a danger of blockage from ice or snow. |
| (3)                 | [F10-OS3.7]                          |
| (4)                 | [F10, F12-OS3.7]                     |

3.4.6.12. Direction of Door Swing

| (1)                 | [F10-OS3.7]                          |
| (2)                 | [F10-OS3.7]                          |

3.4.6.13. Self-Closing Devices

| (1)                 | [F06-OS1.2] [F05, F06-OS1.5]         |
| (2)                 | [F03, F06-OP1.2]                     |

3.4.6.14. Sliding Doors

| (1)                 |                                     |
| (2)                 | [F12-OS3.7]                          |

3.4.6.15. Revolving Doors

<p>| (1)                 | [a] [F30-OS3.1] [F10-OS3.7]          |
| (b)                 | [F10, F12-OS3.7]                     |
| (c)                 | [F10-OS3.7]                          |
| (d)                 | [F30-OS3.1] [F10-OS3.7]              |</p>
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3.8.3.9. Water Closets

| (1) | [F72-OH2.1] [F74-OA2] |
| (2) | [F74-OA2] |

3.8.3.10. Urinals

| (1) | [F74-OA2] |
| (2) | [F74-OS2] [F31-OS3.2] |
| (3) | [F74-OA2] |
| (4) | [F74-OA2] [F101-OH3.2] |
| (5) | [F74-OA2] |

3.8.3.11. Lavatories

| (1) | [F71-OH2.3] [F74-OA2] [F31-OS3.2] |
| (2) | [F74-OA2] |
| (3) | [F74-OA2] |
| (4) | [F74-OA2] |
| (5) | [F74-OA2] |

3.8.3.12. Universal Washrooms

| (1) | [F72-OH2.1] [F71-OH2.3] [F74-OA2] |
| (b) | [F74-OA2] Applies to portion of Code text: "... b) ... a door capable of being locked from the inside ..." |
| (g) | [F30-OS3.1] Applies to the requirement for a coat hook. |
| (h) | [F131-OR2] |
| (j) | [F73-OA1] |
| (k) | [F36-OS3.6] |
| (2) | [F36-OS3.6] |
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| (b) | [F20-OS3.1] |
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3.8.3.13. Showers and Bathtubs

| (1) | [F74-OA2] |
| (2) | [F74-OA2] |
| (3) | (e) [F20-OS3.1] |
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| (1)                  | [F74-OA2]                            |
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| (2)                  | [F30-OS3.1]                          |

3.8.3.18. Tactile Attention Indicators

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| (2)                  | [F30-OS3.1]                          |

3.9.1.1. Application

3.9.1.2. Heating Systems

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3.9.2.1. Flame-Spread Rating

| (1)                  | [F02-OP1.2]                          |
| (2)                  | [F02-OS1.2]                          |

3.9.3.1. Building Areas

| (1)                  | [F02-OP1.1]                          |
| (2)                  | [F02-OS1.1]                          |

3.9.3.2. Spatial Separations

| (1)                  | [F03-OP3.1]                          |
| (2)                  | [F03-OS1.1]                          |

3.9.3.3. Fire Alarm Systems

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| (2)                  | [F12-OS1.2, OS1.5]                   |
| (3)                  | [F12-OS1.2, OS1.5]                   |

3.9.3.4. Provisions for Firefighting

| (1)                  | [F12-OP1.2]                          |
| (2)                  | [F12-OP1.2]                          |
| (3)                  | [F12-OP1.2]                          |

3.9.3.5. Portable Fire Extinguishers

| (1)                  | [F02, F12, F81-OP1.2]                |
| (2)                  | [F02, F12, F81-OS1.2]                |

3.9.3.6. Means of Egress

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### 4.1.8.4. Site Properties

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### 4.1.8.5. Importance Factor

| (1) | [F20-OS2.1] [F20-OP2.1] [F22-OP2.4] |

### 4.1.8.6. Structural Configuration

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| (2) | [F20-OS2.1] [F20-OP2.1] [F22-OP2.4] |

### 4.1.8.7. Methods of Analysis

| (1) | [F20-OS2.1] [F20-OP2.1] [F22-OP2.4] |

### 4.1.8.8. Direction of Loading

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| (1) | [F20-OS2.1] [F20-OP2.1] [F22-OP2.4] |
| (2) | [F20-OS2.1] [F20-OP2.1] [F22-OP2.4] |
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### 4.1.8.10 Additional System Restrictions

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### Dynamic Analysis Procedure

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### Deflections and Drift Limits

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9.10.15.5. Construction of Exposing Building Face of Houses

| (1)               | [F02, F03-OP3.1]                     |
| (2)               | [F02, F03-OP3.1]                     |
| (3)               | [F02, F03-OP3.1]                     |
| (4)               | [F03-OP3.1]                          |

9.10.16.1. Required Fire Blocks in Concealed Spaces

| (1) to (4)        | [F03-OP1.2]                          |
| (5)               | [F02, F03-OP1.2]                     |
| (6)               | [F02, F03-OS1.2]                     |

9.10.16.2. Required Fire Blocks in Wall Assemblies

| (1)               | [F03-OP1.2]                          |
| (2)               | [F03-OP1.2]                          |

9.10.16.3. Fire Block Materials

| (1)               | [F03-OP1.2]                          |
| (2)               | [F03-OP1.2]                          |
| (3)               | [F04-OP1.2]                          |

9.10.16.4. Penetration of Fire Blocks

| (1)               | [F03-OP1.2]                          |
| (2)               | [F03-OS1.2]                          |

9.10.17.1. Flame-Spread Rating of Interior Surfaces

| (1)               | [F02-OS1.2]                          |
| (2)               | [F02-OS1.2]                          |
| (3)               | [F02-OS1.2]                          |

9.10.17.2. Ceilings in Exits or Public Corridors

| (1)               | [F05-OS1.5]                          |

9.10.17.3. Walls in Exits

| (1)               | [F05-OS1.5]                          |
| (2)               | [F05-OS1.5]                          |

9.10.17.4. Exterior Exit Passageways

| (1)               | [F05-OS1.5]                          |

9.10.17.5. Walls in Public Corridors

| (1)               | [F05-OS1.5]                          |

9.10.17.6. Calculation of Wall and Ceiling Areas

| (1)               | [F05-OS1.5]                          |

9.10.17.7. Corridors Containing an Occupancy

| (1)               | [F05-OS1.5]                          |

9.10.17.8. Light Diffusers and Lenses

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|          | [F01, F02-OS1.2] [F01, F02, F05-OS1.5] |

| 9.31. | Applies to plumbing facilities serving Part 9 dwelling units. |
|       | [F44, F62-OH1.1] [F40, F41, F62-OH1.2, OH1.3] [F70, F71, F72, F80-OH2.1] [F41-OH2.2] [F70, F71, F72, F80, F81-OH2.3] [F01-OS1.1] [F31, F80-OS2.3] [F20-OS3.1] [F23-OS3.4] |

| 9.32. | Applies to ventilation in Part 9 residential occupancies. |
|       | [F40, F42, F50, F52, F53, F61, F80, F81, F82-OH1.1] [F42, F51, F52, F80, F81-OH1.2] [F42, F80-OH2.5] [F82-OP1.1] [F131-OR2] [F02, F03, F80, F82-OS1.1] [F42, F53, F61, F63-OH1.3] [F40, F43, F44, F50, F53, F81-OH1.3] |

| 9.34.1. | [F01-OS1.1] [F10-OS3.1] [F32, F81-OS3.3] Applies to electrical facilities in Part 9 buildings. |

| 9.34.2. | [F30-OH1.3] Applies to lighting outlets for Part 9 buildings. |

| 9.34.3. | [F34-OH1.3] Applies to lighting outlets for Part 9 buildings. |

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### 10.3.2.2. Reduction in Performance Level

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MMAH Supplementary Standard SB-1

Climatic and Seismic Data

September 2, 2014 update

Effective Date: January 1, 2015
COMMENCEMENT

MMAH Supplementary Standard SB-1 comes into force on the 1st day of January, 2014.

SB-1 as amended by Ontario Regulation 191/14 comes into force on the 1st day of January, 2015.

EDITORIAL

SB-1 Climatic and Seismic Data

Introduction

The great diversity of climate in Ontario has a considerable effect on the performance of buildings; consequently, building design must reflect this diversity. This Supplementary Standard briefly describes how climatic design values are computed and provides recommended design data for a number of cities, towns, and lesser populated locations. Through the use of such data, appropriate allowances can be made for climate variations in different localities of Ontario and the 2012 Building Code can be applied provincially.

The climatic design data provided in this Supplementary Standard are based on weather observations collected by the Atmospheric Environment Service, Environment Canada. The climatic design data have been researched and analyzed for the Canadian Commission on Building and Fire Codes by Environment Canada, and appear at the end of this Supplementary Standard in Table 1.2, Design Data for Selected Locations in Ontario.

As it is not practical to list values for all municipalities in Ontario, recommended climatic design values for locations not listed can be obtained by contacting the Atmospheric Environment Service, Environment Canada, 4905 Dufferin Street, Downsview, Ontario M3H 5T4, (416) 739-4365. It should be noted, however, that these recommended values may differ from the values accepted by municipal building authorities based on local experience.

The information on seismic hazard in spectral format has been provided by the Geological Survey of Canada of Natural Resources Canada. Information for municipalities not listed may be obtained through the Natural Resources Canada Web site at www.EarthquakesCanada.ca, or by writing to the Geological Survey of Canada at 7 Observatory Crescent, Ottawa, Ontario K1A OY3, or at P.O. Box 6000, Sidney, B.C. V8L 4B2.

General

The choice of climatic elements tabulated in this Supplementary Standard and the form in which they are expressed have been dictated largely by the requirements for specific values in several sections of the 2012 Building Code. These elements include the Ground Snow Loads, Wind Pressures, Design Temperatures, Heating Degree-Days, One-Day and 15-Minute Rainfalls, the Annual Total Precipitation values and Seismic Data. The following notes briefly explain the significance of these particular elements in building design, and indicate which weather observations were used and how they were analyzed to yield the required design values.

In Table 1.2, Design Data for Selected Locations in Ontario, design weather recommendations are listed for over 230 locations, which have been chosen based on a variety of reasons. Many incorporated cities and towns with significant populations are included unless located close to larger cities. For sparsely populated areas, many smaller towns and villages are listed. Other locations have been added to the list when the demand for climatic design recommendations at these sites has been significant. The named locations refer to the specific latitude and longitude defined by the Gazetteer of Canada (Natural Resources Canada), available from Publishing and Depository Services Canada, Public Works and Government Services Canada, Ottawa, Ontario K1A OS5.

Almost all of the weather observations used in preparing Table 1.2 were, of necessity, observed at inhabited locations. To estimate design values for arbitrary locations, the observed or computed values for the weather stations were mapped and interpolated appropriately. Where possible, adjustments have been applied for the influence of elevation and known topographical effects. Such influences include the tendency of cold air to collect in depressions, for precipitation to increase with elevation, and for generally stronger winds near large bodies of water. Elevations have been added to the Table because of their potential to significantly influence climatic design values.

Since interpolation from the values in Table 1.2 to other locations may not be valid due to local and other effects, Environment Canada will provide climatic design element recommendations for locations not listed in Table 1.2. Local effects are particularly significant in mountainous areas, where the values apply only to populated valleys and not to the mountain slopes and high passes, where very different conditions are known to exist.

Effective Date: January 1, 2015

Issued October 24, 2014
Changing and Variable Climates

Climate is not static. At any location, weather and climatic conditions vary from season to season, year to year, and over longer time periods (climate cycles). This has always been the case. Evidence is mounting that the climates of Ontario are changing and will continue to change significantly in the future. When estimating climatic design loads, this variability can be considered using appropriate statistical analysis, data records spanning sufficient periods, and meteorological judgement. The analysis generally assumes that the past climate will be representative of the future climate.

Past and ongoing modifications to atmospheric chemistry (from greenhouse gas emissions and land use changes) are expected to alter most climatic regimes in the future despite the success of the most ambitious greenhouse gas mitigation plans. Some regions could see an increase in the frequency and intensity of many weather extremes, which will accelerate weathering processes. Consequently, many buildings will need to be designed, maintained and operated to adequately withstand ever changing climatic loads.

Similar to global trends, the last decade in Canada was noted as the warmest in instrumented record. Canada has warmed, on average, at almost twice the rate of the global average increase, while the western Arctic is warming at a rate that is unprecedented over the past 400 years. Mounting evidence from Arctic communities indicates that rapid changes to climate in the North have resulted in melting permafrost and impacts from other climate changes have affected nearly every type of built structure. Furthermore, analyses of Canadian precipitation data shows that many regions of the country have, on average, also been tending towards wetter conditions. In the United States, where the density of climate monitoring stations is greater, a number of studies have found an unambiguous upward trend in the frequency of heavy to extreme precipitation events, with these increases coincident with a general upward trend in the total amount of precipitation. Climate change model results, based on an ensemble of global climate models worldwide, project that future climate warming rates will be greatest in higher latitude countries such as Canada.

January Design Temperatures

A building and its heating system should be designed to maintain the inside temperature at some pre-determined level. To achieve this, it is necessary to know the most severe weather conditions under which the system will be expected to function satisfactorily. Failure to maintain the inside temperature at the pre-determined level will not usually be serious if the temperature drop is not great and if the duration is not long. The outside conditions used for design should, therefore, not be the most severe in many years, but should be the somewhat less severe conditions that are occasionally but not greatly exceeded.

The January design temperatures are based on an analysis of January air temperatures only. Wind and solar radiation also affect the inside temperature of most buildings and may need to be considered for energy-efficient design.

The January design temperatures are defined as the lowest temperature at or below which only a certain small percentage of the hourly outside air temperatures in January occur. In the past, stations with records from all or part of the period 1951-66 formed the basis for calculation of the 2.5 and 1% January temperatures. Where necessary, the data were adjusted for consistency. Since most of the temperatures were observed at airports, design values for the core areas of large cities could be 1 or 2°C milder, although the values for the fringe areas are probably about the same as for the airports. No adjustments were made for this urban heat island effect. The design values for the next 20 to 30 years will probably differ from these tabulated values due to year-to-year climate variability and global climate change resulting from the impact of human on atmospheric chemistry.

The design temperatures were reviewed and updated using hourly temperature observations from stations for a 25-year period up to 2006 with at least 8 years of complete data. These data are consistent with data shown for Canadian locations in the 2009 Handbook of Fundamentals published by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). The most recent 25 years of record were used to provide a balance between accounting for trends in the climate and the sampling variation owing to year-to-year variation. The 1% and 2.5% values used for the design conditions represent percentiles of the cumulative frequency distribution of hourly temperatures and correspond to January temperatures that are colder for 8 and 19 hours, respectively, on average over the long term.
Table 1.2
Design Data for Selected Locations in Ontario

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<tr>
<th>Location</th>
<th>Elevation, m</th>
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<th>15 Min Rainfall, mm</th>
<th>One Day Rainfall, 1/50, mm</th>
<th>Annual Total Precipitaion, mm</th>
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Table 1.2 (Cont'd)
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Table 1.2 (Cont'd)  
Design Data for Selected Locations in Ontario  
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Table 1.2 (Cont'd)  
Design Data for Selected Locations in Ontario

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Table 1.2 (Cont’d) Design Data for Selected Locations in Ontario
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<th>Annual Rainfall, mm</th>
<th>Annual Total Precipitation, mm</th>
<th>Driving Rain Pressures, kPa</th>
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Effective Date: January 1, 2015

Issued October 24, 2014

Location

85

95

300

Pickering
(Dumbarton)

Picton

Plattsville

2

195

Petrolia

Column 1

200

230

Pelham
(Fonthill)

135

215

Parry Sound

Peterborough

205

Parkhill

Petawawa

245

Paris

130

185

Pagwa River

Perth

215

Owen Sound

125

70

Ottawa (Orleans)

220

125

Ottawa (MacDonaldCartier Int’l Airport)

Penetanguishene

98

Ottawa (Kanata)

Pembroke

70

98

Ottawa (City Hall)

Elevation,
m

Ottawa (Barrhaven)

Ottawa
(Metropolitan)

r5

3

-19

-21

-19

-16

-23

-29

-25

-24

-28

-15

-24

-16

-18

-35

-19

-26

-25

-25

-25

-25

2.5%,
°C

4

-21

-23

-21

-18

-25

-31

-27

-26

-31

-17

-26

-18

-20

-37

-21

-28

-27

-27

-27

-27

1%,
°C

January

5

29

29

30

31

30

30

30

29

30

30

28

31

30

28

29

30

30

30

30

30

Dry,
°C

6

23

23

23

24

23

23

23

23

23

23

22

23

23

21

22

23

23

23

23

23

Wet,
°C

July 2.5%

Design Temperature

7

4150

3980

3800

3640

4400

4980

4540

4200

4980

3690

4640

3800

4000

6500

4030

4500

4500

4520

4500

4440

Degree
Days
Below
18°C

8

28

23

23

25

25

23

25

25

23

23

23

25

23

20

28

23

24

25

25

23

9

103

92

92

108

92

92

92

97

105

96

97

103

96

86

113

91

89

92

92

86

10

820

770

730

810

710

640

730

720

640

820

820

800

790

540

760

750

750

730

750

750

15 Min One Day Annual
Rainfall, Rainfall, Rainfall,
mm
mm
1/50, mm

900

11

950

940

825

920

840

825

900

1050

825

950

1050

925

925

825

1075

900

900

900

900

160

12

140

160

140

180

140

100

140

160

100

160

160

180

160

80

160

160

160

160

160

13

1.9

2.0

1.0

1.3

2.0

2.6

2.3

2.8

2.5

2.3

2.8

2.1

1.4

2.4

2.8

2.4

2.4

2.5

2.4

2.4

Ss

14

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

0.4

Sr

Annual Driving Rain Snow Load,
Wind
Total
kPa, 1/50
Precipita- Pressures,
Pa, 1/5
tion, mm

Table 1.2 (Cont’d)
Design Data for Selected Locations in Ontario

15

0.33

0.38

0.37

0.36

0.32

0.27

0.32

0.30

0.27

0.33

0.30

0.39

0.33

0.23

0.37

0.32

0.32

0.32

0.32

0.32

1/10

16

0.42

0.49

0.48

0.47

0.41

0.35

0.41

0.39

0.35

0.42

0.39

0.50

0.42

0.30

0.48

0.41

0.41

0.41

0.41

0.41

1/50

Hourly Wind
Pressures, kPa

17

0.150

0.260

0.180

0.130

0.190

0.630

0.360

0.140

0.630

0.340

0.160

0.120

0.018

0.095

0.120

0.630

0.630

0.620

0.630

0.640

Sa(0.2)

18

0.096

0.160

0.120

0.079

0.130

0.300

0.210

0.110

0.300

0.190

0.110

0.079

0.100

0.057

0.085

0.310

0.310

0.300

0.300

0.310

Sa (0.5)

19

0.058

0.088

0.069

0.049

0.078

0.130

0.110

0.064

0.130

0.068

0.065

0.051

0.060

0.026

0.055

0.140

0.140

0.130

0.140

0.140

Sa(1.0)

Seismic Data

20

0.018

0.028

0.022

0.015

0.025

0.043

0.036

0.022

0.044

0.022

0.022

0.016

0.019

0.009

0.018

0.046

0.046

0.045

0.045

0.046

Sa(2.0)

21

0.069

0.110

0.078

0.048

0.062

0.320

0.140

0.041

0.320

0.200

0.050

0.041

0.084

0.036

0.036

0.320

0.320

0.320

0.320

0.320

PGA


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<th>Snow Load, kPa, 1/50</th>
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<td>1/50, mm</td>
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<td>Wet, °C</td>
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Table 1.2 (Cont’d)
Design Data for Selected Locations in Ontario

Issued October 24, 2014
Effective Date: January 1, 2015
### Table 1.2 (Cont’d)
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**Note:** The table continues with similar entries for various locations in Ontario, detailing data on elevation, design temperature, degree days, rainfall, annual total precipitation, wind pressures, snow load, and seismic data. The entries are consistent, providing a comprehensive view of design data for selected locations in Ontario.
Table 1.2 (Cont’d)
Design Data for Selected Locations in Ontario

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MMAH Supplementary Standard SB-2

Fire Performance Ratings

September 2, 2014 update

Effective Date: January 1, 2015
COMMENCEMENT


SB-2 as amended by Ontario Regulation 191/14 comes into force on the 1st day of January, 2015.

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SB-2 Fire-Performance Ratings

Section 1 General

This Supplementary Standard is based in large measure on Appendix D of the National Building Code of Canada 2010. The content of Appendix D was prepared on the recommendations of the Standing Committee on Fire Performance Ratings, which was established by the Canadian Commission on Building and Fire Codes (CCBFC) for this purpose.

1.1. Introduction

1.1.1. Scope

(1) This fire-performance information is presented in a form closely linked to the performance requirements and the minimum materials specifications of the 2012 Building Code.

(2) The ratings have been assigned only after careful consideration of all available literature on assemblies of common building materials, where they are adequately identified by description. The assigned values based on this information will, in most instances, be conservative when compared to the ratings determined on the basis of actual tests on individual assemblies.

(3) The fire-performance information set out in this Supplementary Standard applies to materials and assemblies of materials which comply in all essential details with the minimum structural design standards described in Part 4 of Division B in the 2012 Building Code. Additional requirements, where appropriate, are described in other Sections of this Supplementary Standard.

(4) Section 2 of this Supplementary Standard assigns fire-resistance ratings for walls, floors, roofs, columns and beams related to CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials", and describes methods for determining these ratings.

(5) Section 3 assigns flame-spread ratings and smoke developed classifications for surface materials related to CAN/ULC-S102, "Test for Surface Burning Characteristics of Building Materials and Assemblies" and CAN/ULC-S102.2, "Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies".

(6) Section 4 describes noncombustibility in building materials when tested in accordance with CAN/ULC-S114, "Test for Determination of Non-Combustibility in Building Materials".

(7) Section 5 contains requirements for the installation of fire doors and fire dampers in fire-rated stud wall assemblies and the installation of fire stop flaps in fire-rated membrane ceilings.

(8) Section 6 contains background information regarding fire test reports, obsolete materials and assemblies, assessment of archaic assemblies and the development of the component additive method.
1.1.2. Referenced Documents

(1) Where documents are referenced in this Supplementary Standard, they shall be the editions designated in Table 1.1.2.

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</table>

### 1.1.3. Applicability of Ratings

(1) The ratings shown in this document apply if more specific test values are not available. The construction of an assembly that is the subject of an individual test report must be followed in all essential details if the fire-resistance rating reported is to be applied for use with the Building Code.

### 1.1.4. Higher Ratings

(1) The authority having jurisdiction may allow higher fire-resistance ratings than those derived from this Supplementary Standard, where supporting evidence justifies a higher rating. Additional information is provided in summaries of published test information and the reports of fire tests carried out by the Institute for Research in Construction, National Research Council of Canada, included in Section 6, Background Information.

### 1.1.5. Additional Information on Fire Rated Assemblies

(1) Assemblies containing materials for which there is no nationally recognized standard are not included in this Supplementary Standard. Many such assemblies have been rated by Underwriters Laboratories (UL), Underwriters' Laboratories of Canada (ULC) or Intertek Testing Services NA Ltd. (ITS). The UL "Fire Resistance Directory", Volume 1, can be obtained from UL, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 U.S.A. The ULC information is published in their "List of Equipment and Materials - Fire Resistance". Copies of this document may be obtained from ULC, 7 Underwriters Road, Toronto, Ontario M1R 3B4. ITS’ Directory of Listed Products can be obtained from ITS, 3210 American Drive, Mississauga, Ontario L4V 1B3.
1.2. Interpretation of Test Results

1.2.1. Limitations

(1) The fire-performance ratings set out in this Supplementary Standard are based on those that would be obtained from the standard methods of test described in the Building Code. The test methods are essentially a means of comparing the performance of one building component or assembly with another in relation to its performance in fire.

(2) Since it is not practicable to measure the fire resistance of constructions in situ, they must be evaluated under some agreed test conditions. A specified fire-resistance rating is not necessarily the actual time that the assembly would endure in situ in a building fire, but is that which the particular construction must meet under the specified methods of test.

(3) Considerations arising from departures in use from the conditions established in the standard test methods may, in some circumstances, have to be taken into account by the designer and the authority having jurisdiction. Some of these conditions are covered at present by the provisions of the Building Code.

(4) For walls and partitions, the stud spacings previously specified as 16 and 24 inch on centre have been converted to 406 and 610 mm respectively to represent actual stud spacing used in the field to accommodate modular sheathing panel dimensions. These metric dimensions are deemed to comply with test results based on reported stud spacing of 400 mm or 600 mm on centre.

1.3. Concrete

1.3.1. Aggregates in Concrete

(1) Low density aggregate concretes generally exhibit better fire performance than natural stone aggregate concretes. A series of tests on concrete masonry walls, combined with mathematical analysis of the test results, has allowed further distinctions between certain low density aggregates to be made.

1.4. Types of Concrete

1.4.1. Description

(1) For purposes of this Supplementary Standard, concretes are described as Types S, N, L, L₁, L₂, L₄₀S, L₁₂₀S or L₂₂₀S as described in Sentences (2) to (8).

(2) Type S concrete is the type in which the coarse aggregate is granite, quartzite, siliceous gravel or other dense materials containing at least 30% quartz, chert or flint.

(3) Type N concrete is the type in which the coarse aggregate is cinders, broken brick, blast furnace slag, limestone, calcareous gravel, trap rock, sandstone or similar dense material containing not more than 30% of quartz, chert or flint.

(4) Type L concrete is the type in which all the aggregate is expanded slag, expanded clay, expanded shale or pumice.

(5) Type L₁ concrete is the type in which all the aggregate is expanded shale.

(6) Type L₂ concrete is the type in which all the aggregate is expanded slag, expanded clay or pumice.

(7) Type L₄₀S concrete is the type in which the fine portion of the aggregate is sand and low density aggregate in which the sand does not exceed 40% of the total volume of all aggregates in the concrete.

(8) Type L₁₂₀S and Type L₂₂₀S concretes are the types in which the fine portion of the aggregate is sand and low density aggregate in which the sand does not exceed 20% of the total volume of all aggregates in the concrete.
1.4.2. Determination of Ratings

(1) Where concretes are described as being of Type S, N, L, L₁ or L₂, the rating applies to the concrete containing the aggregate in the group that provides the least fire resistance. If the nature of an aggregate cannot be determined accurately enough to place it in one of the groups, the aggregate shall be considered as being in the group that requires a greater thickness of concrete for the required fire resistance.

1.4.3. Description of Aggregates

(1) The descriptions of the aggregates in Type S and Type N concretes apply to the coarse aggregates only. Coarse aggregate for this purpose means that retained on a 5 mm sieve using the method of grading aggregates described in CSA A23.1 / A23.2, "Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete".

(2) Increasing the proportion of sand as fine aggregate in low density concretes requires increased thicknesses of material to produce equivalent fire-resistance ratings. Low density aggregates for Type L and Types L-S concretes used in loadbearing components shall conform to ASTM C330 / C330M, "Lightweight Aggregates for Structural Concrete".

(3) Non-loadbearing low density components of vermiculite and perlite concrete, in the absence of other test evidence, shall be rated on the basis of the values shown for Type L concrete.

1.5. Gypsum Wallboard

1.5.1. Types of Wallboard

(1) Where the term gypsum wallboard is used in this Supplementary Standard, it is intended to include, in addition to gypsum wallboard, gypsum backing board and gypsum base for veneer plaster as described in
   (a) CSA A82.27-M, "Gypsum Board", or
   (b) ASTM C1396 / C1396M, "Gypsum Board".

(2) Where the term Type X gypsum wallboard is used in this Supplementary Standard, it applies to special fire-resistant board as described in
   (a) CSA A82.27-M, "Gypsum Board", or
   (b) ASTM C1396 / C1396M, "Gypsum Board".

1.6. Equivalent Thickness

1.6.1. Method of Calculating

(1) The thickness of solid-unit masonry and concrete described in this Supplementary Standard shall be the thickness of solid material in the unit or component thickness. For units that contain cores or voids, the Tables refer to the equivalent thickness determined in conformance with Sentences (2) to (10).

(2) Where a plaster finish is used, the equivalent thickness of a wall, floor, column or beam protection shall be equal to the sum of the equivalent thicknesses of the concrete or masonry units and the plaster finish measured at the point that will give the least value of equivalent thickness.

(3) Except as provided in Sentence (5), the equivalent thickness of a hollow masonry unit shall be calculated as equal to the actual overall thickness of a unit in millimetres multiplied by a factor equal to the net volume of the unit and divided by its gross volume.

(4) Net volume shall be determined using a volume displacement method that is not influenced by the porous nature of the units.
(5) Gross volume of a masonry unit shall be equal to the actual length of the unit multiplied by the actual height of the unit multiplied by the actual thickness of the unit.

(6) Where all the core spaces in a wall of hollow concrete masonry or hollow-core precast concrete units are filled with grout, mortar, or loose fill materials such as expanded slag, burned clay or shale (rotary kiln process), vermiculite or perlite, the equivalent thickness rating of the wall shall be considered to be the same as that of a wall of solid units, or a solid wall of the same concrete type and the same overall thickness.

(7) The equivalent thickness of hollow-core concrete slabs and panels having a uniform thickness and cores of constant cross section throughout their length shall be obtained by dividing the net cross-sectional area of the slab or panel by its width.

(8) The equivalent thickness of concrete panels with tapered cross sections shall be the cross section determined at a distance of 2 t or 150 mm, whichever is less, from the point of minimum thickness, where t is the minimum thickness.

(9) Except as permitted in Sentence (10), the equivalent thickness of concrete panels with ribbed or undulating surfaces shall be
   (a) \( t_a \) for \( s \) less than or equal to \( 2t \),
   (b) \( t + (4 \frac{t}{s} - 1)(t_a - t) \) for \( s \) less than \( 4t \) and greater than \( 2t \), and
   (c) \( t \) for \( s \) greater than or equal to \( 4t \)
   where
      \[ t = \text{minimum thickness of panel}, \]
      \[ t_a = \text{average thickness of panel (unit cross-sectional area divided by unit width), and} \]
      \[ s = \text{centre to centre spacing of ribs or undulations}. \]

(10) Where the total thickness of a panel described in Sentence (9), exceeds \( 2t \), only that portion of the panel which is less than \( 2t \) from the non-ribbed surface shall be considered for the purpose of the calculations in Sentence (9).

1.7. Contribution of Plaster or Gypsum Wallboard Finish to Fire Resistance of Masonry or Concrete

1.7.1. Determination of Contribution

(1) Except as provided in Sentences (2) to (5), the contribution of a plaster or gypsum wallboard finish to the fire resistance of a masonry or concrete wall, floor or roof assembly shall be determined by multiplying the actual thickness of the finish by the factor shown in Table 1.7.1., depending on the type of masonry or concrete to which it is applied. This corrected thickness shall then be included in the equivalent thickness as described in Subsection 1.6.

(2) Where a plaster or gypsum wallboard finish is applied to a concrete or masonry wall, the calculated fire-resistance rating of the assembly shall not exceed twice the fire-resistance rating provided by the masonry or concrete because structural collapse may occur before the limiting temperature is reached on the surface of the non-fire-exposed side of the assembly.

(3) Where a plaster or gypsum wallboard finish is applied only on the non-fire-exposed side of a hollow clay tile wall, no increase in fire resistance is permitted because structural collapse may occur before the limiting temperature is reached on the surface of the non-fire-exposed side of the assembly.

(4) The contribution to fire resistance of a plaster or gypsum wallboard finish applied to the non-fire-exposed side of a monolithic concrete or unit masonry wall shall be determined in conformance with Sentence (1), but shall not exceed 0.5 times the contribution of the concrete or masonry wall.
MMAH Supplementary Standard SB-3

Fire and Sound Resistance of Building Assemblies

September 2, 2014 update

Effective Date: January 1, 2015
COMMENCEMENT

MMAH Supplementary Standard SB-3 comes into force on the 1st day of January, 2014.

SB-3 as amended by Ontario Regulation 191/14 comes into force on the 1st day of January, 2015.
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<th>Typical Impact Insulation Class (IIC)</th>
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Table 2 (Cont’d)  
Fire and Sound Resistance of Floors, Ceilings and Roofs

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| Wood Roof Trusses | R1         | • wood roof trusses spaced not more than 610 mm o.c.  
• 1 layer 15.9 mm Type X gypsum board | 45 min | — | — |
| Roofs - Rating Provided by Membrane Only | | | | | |
| M1               |              | • supporting members spaced not more than 610 mm o.c.  
• 1 layer 15.9 mm Type X gypsum board | 30 min | — | — |
| M2               |              | • supporting members spaced not more than 610 mm o.c.  
• 2 layers 15.9 mm Type X gypsum board | 1 h | — | — |

Notes to Table 2:

1. For assemblies with a ceiling consisting of a single layer of gypsum board on resilient metal channels to obtain the listed ratings, the resilient metal channel arrangement at the gypsum board butt end joints should be as shown in Figure 1.

2. For assemblies with a ceiling consisting of 2 layers of gypsum board on resilient metal channels to obtain the listed ratings, the fastener and resilient metal channel arrangement at the gypsum board butt end joints should be as shown in Figure 2.

3. The fire-resistance rating and sound transmission class values given are for a minimum thickness of subfloor or deck as shown. Minimum subfloor thickness required is determined by structural member spacing (see Table 9.23.14.5.A. of Division B. Thicker subflooring or decking is also acceptable.

4. Sound absorptive material includes
   (i) fibre processed from rock, slag or glass, and
   (ii) loose-fill or spray-applied cellulose fibre.

   To obtain the listed sound transmission class rating, the nominal insulation thickness is 150 mm for rock, slag, or glass fibres or loose-fill cellulose fibre, and 90 mm for spray-applied cellulose fibre, unless otherwise specified. Absorptive material will affect the sound transmission class by approximately adding or subtracting 1 per 50 mm change of thickness. However, no additional sound transmission class value is achieved by adding a greater thickness of insulation than the depth of the assembly.

5. The fire-resistance rating and sound transmission class values are based on the spacing of ceiling supports as noted. [See also Table Note (9)]. A narrower spacing will be detrimental to the sound transmission class rating, but not to the fire-resistance rating.

6. To obtain the listed rating, the type and spacing of fasteners are as described in and installed in accordance with Subsection 9.29.5. of Division B or CSA A82.31-M:
   (i) fastener distance to board edges and butt ends shall be no less than 38 mm, except for fasteners on the butt ends of the base layer in ceilings with two layers (see Figure 2); and
   (ii) fasteners are spaced not more than 305 mm o.c.

7. See Sentence 1.2.1.(2) in Supplementary Standard SB-2 for the significance of fire-resistance ratings.
(8) The sound transmission class values given in the Table are for the minimum depth of structural member noted in the description and applicable Table notes. To obtain sound transmission class values for structural members deeper than that minimum, add 1 to the sound transmission class value in the Table for each 170 mm increase in structural member depth.

(9) The sound transmission class values given in the Table are for structural member spacing of 305 mm o.c., unless otherwise noted in the description and applicable Table notes. To obtain sound transmission class values for assemblies with structural members spaced more than 500 mm o.c., add 1 to the sound transmission class value in the Table.

(10) The impact insulation class values given are for floor assemblies tested with no finished flooring.

(11) Wood floor joists are:
   (i) wood joists with a minimum member size of 38 mm (width) x 235 mm (depth), except as otherwise noted [See Table Note (14)];
   or
   (ii) wood I-joists with a minimum flange size of 38 mm x 38 mm, a minimum OSB or plywood web thickness of 9.5 mm, and a minimum joist depth of 241 mm.

(12) Except where assemblies with wood I-joists are tested according to CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials", the fire-resistance rating values apply only to I-joists that have been fabricated with a phenolic-based structural wood adhesive complying with CSA O112.10, "Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure)". For I-joists with flanges made of laminated veneer lumber (LVL), the fire-resistance rating values apply only where the adhesive used in the LVL fabrication is a phenolic-based structural wood adhesive complying with CSA O112.9, "Evaluation of Adhesives for Structural Wood Products (Exterior Exposure)".

(13) The fire-resistance rating value within square brackets is achieved only where absorptive material includes spray-applied cellulose fibre with
   (i) adhesive that is capable of providing a minimum cohesive/adhesive bond strength per unit area of 5 times the weight of the material under the test plate when tested in accordance with ASTM E736,
   (ii) a minimum density of 35 kg/m², and
   (iii) a minimum thickness of 90 mm on the underside of the subfloor or deck, of 90 mm on the sides of the structural members, and for cold-formed steel joists, of 13 mm on the underside of the bottom flange other than at resilient metal channel locations.

(14) The fire-resistance rating value within square brackets only applies to assemblies with solid wood joists and is achieved only where absorptive material includes:
   (i) fibre processed from rock or slag with a minimum thickness of 90 mm and a minimum surface area mass of 2.8 kg/m²; or
   (ii) spray-applied cellulose fibre with a minimum density of 50 kg/m³ and a minimum depth of 90 mm on the underside of the subfloor and of 90 mm on the sides of the floor joists.

(15) The fire-resistance rating, sound transmission class and impact insulation class values given are also applicable to assemblies with 38 mm (width) x 184 mm (depth) solid wood joists.

(16) The fire-resistance rating value within square brackets is achieved only where absorptive material includes:
   (i) fibre processed from rock or slag with a minimum thickness of 90 mm and a minimum surface area mass of 2.8 kg/m²; or
   (ii) spray-applied cellulose fibre with a minimum density of 50 kg/m³ and a minimum depth of 90 mm on the underside of the subfloor and of 90 mm on the webs or the sides of the structural members.

(17) The fire-resistance rating, sound transmission class and impact insulation class values within the square brackets only apply to assemblies with solid wood joists and are achieved only where absorptive material includes dry-blown cellulose fibre with a minimum density of 40 kg/m³ filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390 which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood joists with metal staples having legs that are 50 mm long.
(18) The fire-resistance rating and sound transmission class values are achieved only where absorptive material includes:

(i) fibre processed from rock or slag that fills the joist cavity and has a minimum surface area mass of 2.8 kg/m², and for structural members at least 270 mm in depth, the fibre includes three layers each of which has a minimum thickness of 90 mm; or

(ii) dry-blown cellulose fibre with a minimum density of 40 kg/m³ filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390 which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood joists or wood I-joists with metal staples having legs that are 50 mm or 30 mm long, respectively.

(19) The fire-resistance rating value only applies to assemblies with wood I-joists with flanges with a minimum thickness of 38 mm and a minimum width of 63 mm.

(20) The fire-resistance rating and sound transmission class values are achieved only where absorptive material includes:

(i) fibre processed from rock or slag that fills the joist cavity and has a minimum surface area mass of 2.8 kg/m², and for structural members at least 270 mm in depth, the fibre includes three layers each of which has a minimum thickness of 90 mm; or

(ii) dry-blown cellulose fibre with a minimum density of 40 kg/m³ filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390 which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood joists with metal staples having legs that are 50 mm long.

(21) The fire-resistance rating values given only apply to assemblies with solid wood joists spaced not more than 406 mm o.c. No information is available for assemblies constructed with wood I-joists.

(22) Wood floor trusses are:

(i) metal plate-connected wood trusses with wood framing members not less than 38 mm x 64 mm, metal connector plates not less than 1 mm (nominal) thick with teeth not less than 8 mm long, and a minimum truss depth of 305 mm;

(ii) metal web wood trusses with wood chords not less than 38 mm x 64 mm, V-shaped webs made from galvanized steel of 1 mm (nominal) thickness with plate areas having teeth not less than 8 mm long, and a minimum truss depth of 286 mm; or

(iii) finger-joined wood trusses with glued finger-joined connections, chord members not less than 38 mm x 64 mm, web members not less than 38 mm x 38 mm and a minimum truss depth of 330 mm, all of which is glued together with an R-14 phenol-resorcinol resin conforming to CSA O112.10.

(23) The fire-resistance rating value within square brackets is achieved only where absorptive material includes fibre processed from rock or slag with a minimum thickness of 90 mm and a minimum surface area mass of 2.8 kg/m².

(24) The fire-resistance rating and sound transmission class values within square brackets are achieved only where absorptive material includes dry-blown cellulose fibre with a minimum density of 40 kg/m³ filling the entire cavity; the cellulose fibre is supported on zinc-coated (galvanized) steel poultry fence fabric conforming to ASTM A390 which has 25 mm wide hexagonal mesh openings and 0.81 mm thick (20-gauge) wire and is attached to wood trusses with metal staples that are 38 mm long.

(25) Cold-formed steel floor joists (C-shaped joists) are members with a minimum size of 41 mm (width) x 203 mm (depth) x 1.22 mm (material thickness).

(26) The fire-resistance rating value within square brackets is achieved only where absorptive material includes spray-applied cellulose fibre with a minimum density of 50 kg/m³ and a minimum thickness of 90 mm on the underside of the subfloor, of 90 mm on the sides of the cold-formed steel floor joists, and of 13 mm on the underside of the bottom flange other than at resilient metal channel locations.
MMAH Supplementary Standard SB-12

Energy Efficiency For Housing

September 2, 2014 update

Effective Date: January 1, 2015
COMMENCEMENT

MMAH Supplementary Standard SB-12 comes into force on the 1st day of January, 2014.

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.

SB-12 as amended by Ontario Regulation 191/14 comes into force on the 1st day of January, 2015.

EDITORIAL


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Chapter 2

Acceptable Solutions for Energy Efficiency Compliance Before January 1, 2017

(Appplies 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., 2.1.1.3. and 2.1.1.10.

(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>
<thead>
<tr>
<th>Furnace Fuel Source</th>
<th>Minimum AFUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas</td>
<td>90%</td>
</tr>
<tr>
<td>Propane</td>
<td>90%</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

(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.
(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., 2.1.1.3. and 2.1.1.10. 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>
<thead>
<tr>
<th>Component</th>
<th>Maximum U-Values</th>
<th>Minimum Energy Ratings, (ER)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U-Value, W/m²•K</td>
<td>(Btu/h • ft² • °F)</td>
</tr>
<tr>
<td>Skylights</td>
<td>2.8 (0.50)</td>
<td>—</td>
</tr>
<tr>
<td>Windows and Sliding Glass Doors</td>
<td>2.0 (0.35)</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>1.8 (0.32)</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>1.6 (0.28)</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>1.4 (0.25)</td>
<td>29</td>
</tr>
<tr>
<td>Column 1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
(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 be designed to this Subsection and comply with the applicable requirements of
(a) the Tables referenced in Article 2.1.1.2. or 2.1.1.3., or
(b) Table 2.1.1.10. in lieu of the Tables referenced in Sentences 2.1.1.1.(7) and (8).
(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.)
(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".
Commentary: Chapter 3 sets out options that could be used to achieve compliance with the energy efficiency requirements in Article 12.2.1.2. of Division B of the Building Code (O. Reg. 332/12) in relation to construction for which a permit is applied for after December 31, 2016. As with past Building Code energy efficiency requirements, the Ministry will continue to review available energy efficiency options, and changes may be made or additional options may be included prior to December 31, 2016.

Chapter 3


(Appplies 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)

<table>
<thead>
<tr>
<th>Component</th>
<th>Compliance Package</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Ceiling with Attic Space</td>
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</tr>
<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>10.56</td>
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<tr>
<td></td>
<td>(R60)</td>
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<tr>
<td>Ceiling Without Attic Space</td>
<td>5.46</td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>(R31)</td>
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<tr>
<td>Exposed Floor</td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>(R31)</td>
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<tr>
<td>Walls Above Grade</td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>3.34 + 1.32 ci</td>
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<tr>
<td>Walls Above Grade</td>
<td></td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>(R19 + R7.5 ci)</td>
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<tr>
<td>Basement Walls</td>
<td></td>
</tr>
<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>3.52 + 1.40 ci</td>
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<td>Basement Walls</td>
<td></td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>(R20 + R8 ci)</td>
</tr>
<tr>
<td>Below Grade Slab</td>
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<td>Entire Surface &gt; 600 mm Below Grade</td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
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<tr>
<td>Edge of Below Grade Slab ≤ 600 mm Below Grade</td>
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<td>Minimum RSI (R)-Value(^{(1)})</td>
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<td>(R10)</td>
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<td>Heated Slab or Slab ≤ 600 mm Below Grade</td>
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<tr>
<td>Minimum RSI (R)-Value(^{(1)})</td>
<td>1.76</td>
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<td>(R10)</td>
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<tr>
<td>Windows and Sliding Glass Doors</td>
<td>1.6</td>
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<td>Maximum U-Value(^{(2)})</td>
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<tr>
<td>Skylights</td>
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<tr>
<td>Maximum U-Value(^{(2)})</td>
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<tr>
<td>Space Heating Equipment</td>
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<td>Minimum AFUE</td>
<td></td>
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<tr>
<td>HRV</td>
<td>55%</td>
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<td>Minimum Efficiency</td>
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<td>Domestic Hot Water Heater</td>
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<td>Minimum EF</td>
<td></td>
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<td>Column 1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Notes to Table 3.1.1.2.A:**

The following definitions apply:  
\(\text{ci} = \text{continuous insulation}\)

1. The values listed are minimum RSI-Values for the thermal insulation component only. RSI-Values are expressed in \((\text{m}^2 \cdot \text{K})/\text{W}\).
2. U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in \(\text{W}/(\text{m}^2 \cdot \text{K})\). See exceptions and use of alternative Energy Ratings (ER) in Article 3.1.1.8.
A-2.1.1.10.(3) Sunroom Additions to Existing Houses.

A sunroom addition to an existing house referred to 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).


For the purpose of the prescriptive trade off provisions in Subsection 2.1.1., the term “all showers” includes the case where there is only one shower in a dwelling unit. If there is only one shower, that shower is required to be connected to a drain water heat recovery unit. Where there are two or more showers, drain water from at least two showers are required to be connected to a single drain water heat recovery unit or to two individual drain water heat recovery units.

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.

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.