Updated to December 1 2024
This document has official status.

chapter B-1.1, r. 2

Construction Code

Building Act
(chapter B-1.1, ss. 173, 176, 176.1, 178, 179, 185 and 192).

Note *The fees prescribed in the Regulation have been indexed as of 1 January 2024 pursuant to the notices published in Part 1 (French) of the Gazette officielle du Québec of 18 November 2023, pages 737 to 739. (ss. 2.17, 3.06 [2.2.5.1], 5.05 [2-008], 8.14, 9.14)*

Note *See Chapter III of the Regulation respecting the temporary implementation of the amendments made by chapter 7 of the Statutes of 2021 in connection with the management of flood risks (chapter Q-2, r. 32.2)*

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CHAPTER I

BUILDING

O.C. 953-2000, c. I; O.C. 293-2008, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

DIVISION I

SCOPE

O.C. 953-2000, Div. I; O.C. 293-2008, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.01. In this chapter, unless the context indicates otherwise, “Code” means the National Building Code of Canada 2015” (NRCC 56190), published by the Canadian Commission on Building and Fire Codes, National Research Council of Canada, including revisions and errata of September 2018 published by that body.

The Code is incorporated into this Chapter by reference, subject to the amendments specified in section 1.09.

O.C. 953-2000, s. 1; O.C. 961-2002, s. 1; O.C. 120-2006, s. 9; O.C. 293-2008, s. 1; O.C. 939-2009, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.02. Subject to the exemptions in section 1.04, this Chapter applies to all construction work that is performed on a building to which the Building Act (chapter B-1.1) applies and to any facility intended for use by the public designated in section 1.03 and to the vicinity of that building or facility.

For the purposes of this Division, the definitions set out in the Code apply, unless otherwise provided.

O.C. 953-2000, s. 2; O.C. 961-2002, s. 1; O.C. 293-2008, s. 1; O.C. 858-2012, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.021. *(Replaced).*

O.C. 858-2012, s. 1; O.C. 347-2015, s. 1.

1.022. *(Replaced).*

O.C. 858-2012, s. 1; O.C. 347-2015, s. 1.

1.03. The following facilities are intended for use by the public for the purposes of section 10 of the Building Act (chapter B-1.1):

(1) stands, grandstands or exterior terraces whose highest point, above the ground, is more than 1.2 m and whose load capacity is more than 60 persons;

(2) tents or air-supported structures used

(a) as dwellings or care, treatment or detention occupancies whose floor area is 100 m^2 or more; or

(b) as assembly occupancies or mercantile occupancies whose floor area is more than 150 m^2 or whose load capacity is more than 60 persons;

(3) belvederes built with materials other than backfill and constituted of horizontal platforms linked by their construction elements whose total area is more than 100 m^2 or whose load capacity is more than 60 persons including access facilities.

O.C. 953-2000, s. 3; O.C. 961-2002, s. 1; O.C. 293-2008, s. 1; O.C. 1263-2012, s. 2; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.04. The following buildings, other than private seniors' residences, are exempted from the application of this Chapter if used solely for one of the major occupancies provided for in the Code:

(1) an assembly occupancy not covered by subparagraph 6 that accommodates not more than 9 persons;

(2) a care or detention occupancy that constitutes

(a) a prison;

(b) a supervised education centre with or without detention facilities used to shelter or accommodate not more than 9 persons; or

(c) a convalescent home, a care occupancy or assistance occupancy or a rehabilitation centre used to shelter or accommodate not more than 9 persons;

(3) a residential occupancy that constitutes

(a) a rooming house or an outfitter offering no lodgings that has not more than 9 rooms;

(b) a single-family dwelling in which a bed and breakfast is operated by a natural person, which is also used as the person's residence, having not more than 5 bedrooms offered for rent;

(c) a single-family dwelling in which a school that accommodates less than 15 students at a time is operated by a natural person, which is also used as the person's residence;

(d) a monastery, a convent or a novitiate whose owner is a religious corporation incorporated under a special Act of Québec or the Religious Corporations Act (chapter C-71), where that building or part of the building divided by a firewall is occupied by not more than 30 persons and has not more than 3 storeys in building height;

(e) a shelter used to shelter or accommodate not more than 9 persons; or

(f) a building used as a dwelling unit having

i. not more than 2 storeys in building height; or

ii. not more than 8 dwelling units;

(4) a business and personal services occupancy having not more than 2 storeys in building height;

(5) a mercantile occupancy having a total floor area of not more than 300 m^2;

(6) a day care centre used to shelter or accommodate not more than 9 persons;

(7) a subway station;

(8) an agricultural facility; and

(9) an industrial occupancy.

Despite the exemption provided for in the first paragraph, the energy efficiency requirements contained in Part 11 of the Code apply to the construction work performed on every building

(1) having a building area not more than 600 m^2;

(2) having a building height not more than 3 storeys; and

(3) having a Group C major occupancy and housing only dwelling units.

O.C. 953-2000, s. 4; O.C. 961-2002, s. 2; O.C. 872-2005, s. 1; O.C. 293-2008, s. 1; O.C. 858-2012, s. 2; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

DIVISION II

REFERENCES

O.C. 953-2000, Div. II; O.C. 293-2008, s. 1; O.C. 858-2012, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.05. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 953-2000, s. 5; O.C. 961-2002, s. 3; O.C. 293-2008, s. 1; O.C. 858-2012, s. 3; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

DIVISION III

PREFABRICATED BUILDINGS

O.C. 953-2000, Div. III; O.C. 293-2008, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.06. In this Division, “prefabricated building” means any building all of whose sections or panels are manufactured.

O.C. 953-2000, s. 6; O.C. 961-2002, s. 4; O.C. 293-2008, s. 1; O.C. 939-2009, s. 2; O.C. 858-2012, s. 4; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.07. A prefabricated building must not be sold, rented, exchanged or acquired, unless it has been certified to CAN/CSA Standard A277, Procedure for certification of prefabricated buildings, modules, and panels, published by the Canadian Standards Association.

O.C. 953-2000, s. 7; O.C. 961-2002, s. 4; O.C. 293-2008, s. 1; O.C. 858-2012, s. 5; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.08. Every prefabricated building that has received certification by a certification organization accredited by the Standards Council of Canada and whose certification seal or label attests to compliance with CAN/CSA Standard A277, Procedure for certification of prefabricated buildings, modules, and panels, is deemed to be certified.

O.C. 293-2008, s. 1; O.C. 858-2012, s. 6; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

DIVISION IV

AMENDMENTS TO THE CODE

O.C. 293-2008, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.09. The amendments to the Code are as follows:

Articles	Amendments
Division A Part 1	
1.1.1.1.	Replace Sentence (1) by the following: “**(1)** The NBC applies to the construction work performed on every *building* and facility intended for use by the public as provided in section 1.02 of Chapter I of the Construction Code (chapter B-1.1, r. 2) made pursuant to the Building Act (chapter B-1.1) (see Note A-1.1.1.1.(1)).”;
	Strike out Sentence (2).
1.2.1.1.	Insert the following after “acceptable solutions” in Clause (1)(b): “approved by the Régie du bâtiment du Québec or, in the case of *buildings* or facilities over which the Régie does not have jurisdiction, by the *authority having jurisdiction*”.
1.3.3.1.	Replace the title by the following: “**Application of Parts 1, 7, 8, 10 and 11**”;
	Add the following Sentences: “**(2)** Part 10 of Division B applies to every *building* under *alteration*, maintenance or repair that has been built for not less than 5 years, in accordance with section 1.02. **(3)** Part 11 of Division B on energy efficiency applies to the construction and addition work of all *buildings* covered by the NBC (a) having a *building area* not more than 600 m^2, (b) having a *building height* not more than 3 *storeys*, and (c) having a Group C *major occupancy* and housing only *dwelling units*. (See Article 1.1.1.1. and Note A-1.3.3.1.(3).)”.

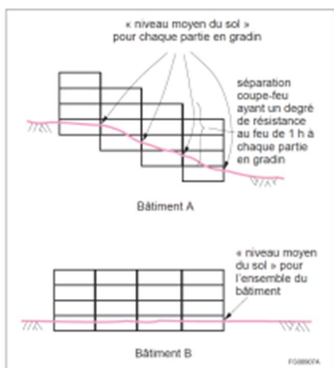
1.3.3.2.	Add the following sentence: “**(2)** Parts 3, 4, 5 and 6 of Division B apply to every facility intended for use by the public as provided in section 1.03 of Chapter I of the Construction Code (chapter B-1.1, r. 2).”.
1.3.3.4.	Replace Clause (2)(a) by the following: “(a) each separated portion is not more than 3 *storeys* in *building height* and is used only for *residential services occupancies*, and”.
1.4.1.1.	Replace “9” in Sentence (3) by “11”.
1.4.1.2.	Replace the respective definitions of the following terms in Sentence (1) by the following definitions: “***Air-supported structure*** means a movable structure consisting of a pliable membrane which achieves and maintains its shape and support by internal air pressure that is erected for a maximum period of 6 months.”; “***Authority having jurisdiction*** means the Régie du bâtiment du Québec, a regional county municipality or a local municipality.”; “***Boiler*** means pressure equipment equipped with a direct power source used to heat a heat-carrying liquid or transform it into steam.”; “***Care*** means the provision of assistance services other than *treatment* by or through care facility management to residents who require these services because of cognitive, physical or behavioural limitations (see Note A-1.4.1.2.(1)).”; “***Care occupancy*** means a *building* or part thereof where *care* is provided to residents or of a *building* or part thereof occupied by a *private seniors’ residence* (see Note A-1.4.1.2.(1)).”; “***Dwelling unit*** means a suite used or intended to be used by one or more persons as a residence and usually containing sanitary, cooking, eating and sleeping facilities.”; “***Grade*** means the lowest of the average levels of finished ground, measured along each exterior wall of a *building* that must face a street in conformance with Subsection 3.2.2. or Subsection 9.10.20.”; “***Plenum*** means a chamber forming part of an air duct system.”;

	“***Stage*** means a space that is designed primarily for public performances with provision for quick change scenery and overhead lighting, including environmental control for a wide range of lighting and sound effects and that is traditionally, but not necessarily, separated from the audience by a proscenium wall and curtain opening.”; “***Theatre*** means a place of assembly intended for public performances of viewing of plays, operas, cinematographic works or other similar performances or viewing consisting of an auditorium with permanently fixed seats intended solely for a viewing audience.”; “***Treatment occupancy*** (Group B, Division 2) means a *building* or part thereof for the provision of treatment (see Note A-1.4.1.2.(1)).”; “***Vertical service space*** means a shaft oriented essentially vertically that is provided in a *building* to facilitate the installation of *building* services including mechanical, electrical and plumbing installations and facilities such as elevators, freight elevators, refuse chutes and linen chutes.”;
	Replace the corresponding term defined in Sentence (1) by the following: “***Fire separation*** means a construction assembly, with or without *fire-resistance rating,* that acts as a barrier against the spread of fire. (See Note A-1.4.1.2.(1).)”;
	Insert the following definitions in Sentence (1), in alphabetical order: “***Ambulatory clinic occupancy*** means a Group B, Division 2 *treatment occupancy*, other than a hospital, that provides *treatment* for a period not exceeding one day and does not provide overnight accommodation (see Note A-1.4.1.2.(1)).”; “***Overall thermal transmittance*** **(*U-value*)** means the rate at which heat is transferred through a building assembly that is subject to a temperature difference. The *overall thermal transmittance* represents the amount of heat transferred through a unit area in a unit of time induced under steady-state conditions by a unit temperature difference between the environments on its two faces. The U-value reflects the capacity of all elements to transfer heat through the thickness of the assembly, as well as, for instance, through air films on both faces of above-ground components.”; “***Private seniors’ residence*** (Group B, Division 3) means a private seniors’ residence as defined in the Act respecting health services and social services (chapter S-4.2).”; “***Single-family type care occupancy*** means a single-family dwelling not more than 2 *storeys* in *building height* in which a natural person who resides in that dwelling operates a *care occupancy* and lodges no more than 9 persons. A *single-family type private seniors’ residence* is a *single-family type care occupancy*.”;

	"***Single-family type private seniors' residence*** (Group B, Division 3) means a single-family dwelling not more than 2 *storeys* in *building height* in which a natural person who resides in that dwelling operates a *private seniors' residence* and lodges no more than 9 persons."; "***Thermal bridge*** means a heat conductive member that results in a reduction of the *total thermal resistance* of a separation or a part of the *building* envelope."; "***Total thermal resistance*** **(*RSI_T value*)** means the thermal resistance of a separation equal to the sum of the thermal resistance of all the layers of material or little or unventilated air composing the separation, calculated through the insulated portion of the separation (see Note A-1.4.1.2.(1))."; "***Tent*** means a flexible, portable shelter made of canvas set up outdoors for not more than 6 months."; --- Add "(see Note A-1.4.1.2.(1))" at the end of the definition of "**Alteration**" in Sentence (1).
Division A Part 2	
2.1.1.2.	Replace Clause (5)(a) by the following: "(a) detached houses, semi-detached houses, houses with a *secondary suite*, duplexes, triplexes, townhouses and row houses (see Note A-1.4.1.2.(1), Secondary Suite),"; --- Replace Sentence (6) by the following: "**(6)** Objective OE, Environment, as well as Objectives OE1, Resources, OE1.1, excessive use of energy, and OE1.2, excessive use of water, apply only to (a) *buildings* covered by Part 11 of Division B, (b) the Sentences included in that Part, and (c) air conditioning or drinking water cooling systems.".

2.2.1.1.	Add the following objective under objective “OE 1.1 – excessive use of energy” in Sentence 1: “OE1.2 – excessive use of water”.
Division A Part 3	
3.1.1.2.	Replace Clause (3)(a) by the following: “(a) detached houses, semi-detached houses, houses with a *secondary suite*, duplexes, triplexes and townhouses and row houses (see Note A-1.4.1.2.(1), Secondary Suite),”; <hr>Replace Sentence (4) by the following: “**(4)** Functional Statements F92, F98 and F130 apply only to (a) *buildings* covered by Part 11 of Division B, (b) the Sentences included in that Part, and (c) air conditioning or drinking water cooling systems.”.
3.2.1.1.	Add the following functional statements in Sentence (1): “**F130** To limit excessive water consumption.”.
Division A Notes in Part 1	
A-1.1.1.1.(1)	Replace the Note by the following: “**A-1.1.1.1.(1) Application of NBC to buildings.** **Existing building** It is permitted to apply Part 10 of the NBC as provided for in Article 1.3.3.1. of Division A during the alteration, maintenance, repair or change of occupancy of an existing building that has been built for not less than 5 years.

	Building built in Nunavik Considering that the construction of buildings in permafrost differs from the construction practices described in the NBC, it is recommended to refer to the document Housing Construction in Nunavik – Guide to Good Practices, Second Edition (2018), published by the Société d'habitation du Québec for that type of construction and available at http://www.habitation.gouv.qc.ca/fileadmin/internet/documents/English/ HousingConstructionInNunavik.pdf.".
A-1.1.1.1.(2)	Strike out the Note.
A-1.2.1.1.(1)(b)	Add the following after "alternative solution" at the end of the first sentence in the first paragraph: "and be approved by the Régie on the conditions it sets pursuant to section 127 of the Building Act or, in the case of buildings or facilities over which the Régie does not have jurisdiction, by the authority having jurisdiction.".
	Insert the following Note: "**A-1.3.3.1.(3) Application of Part 11**. Part 11 applies to the construction of new buildings having a building area not more than 600 m^2, a building height not more than 3 storeys and housing dwelling units only. Part 11 also applies to the addition work of existing buildings to the extent where the building area, after the addition work, is not more than 600 m^2, the building height is not more than 3 storeys and the building houses dwelling units only. Part 11 does not apply to the installation of new ventilation appliances in existing buildings or to the replacement of openings. Nor does it apply to the renovation of existing buildings. However, addition work representing 50% or more of the initial building area must meet the ventilation requirements for the additional portion only. A parking garage for more than 4 cars does not have to meet the ventilation requirements in Part 11 even if the parking garage serves dwelling units of a building having a building area not more than 600 m^2 and the number of storeys in building height is not more than 3 storeys. The parking garage must meet the ventilation requirements in Part 6.".

A-1.3.3.4.(1)	Replace the Note by the following: “**A-1.3.3.4.(1) Buildings Divided by Firewalls**. This concept relates to the requirements in Section 3.2.2. of the NBC for determining dimensions only. For the other requirements, the designer determines whether a building divided by a firewall or 2 separate buildings as defined in Article 1.4.1.2. are to be built. Where the designer designs 2 separate buildings, each building must conform to all the requirements in the NBC.”.
A-1.3.3.4.(2)	Replace the Note by the following: “**A-1.3.3.4.(2) Buildings on Sloping Sites**. Application of the definition of grade to stepped buildings on sloping sites often results in such buildings being designated as being greater than 3 storeys in building height even though there may be only 2 or 3 storeys at any one location. Figure A-1.3.3.4.(2) below illustrates this application compared to a similar building on a flat site.  **Figure A-1.3.3.4.(2)** **Application of the definition of grade** According to that Sentence, the building can be considered has as being 3 storeys in building height instead of 6 storeys in building height. Both Building A and B are comparable with regard to fire safety and egress. This relaxation applies to the determination of building height only. All other requirements continue to apply as appropriate.”.

A-1.4.1.2.(1)	Replace the following Appendix Notes by the following Notes, respectively: "**Care Occupancy**. Support services rendered by or through care facility management refer to care provided by the organization that is responsible for the care for a period exceeding 24 consecutive hours. They do not refer to care arranged directly by residents with outside agencies. They do not include services provided to a family member. In the context of care occupancies, these services may include a daily assessment of residents' functioning, awareness of their whereabouts, the making of appointments for residents and reminding them of those appointments, the ability and readiness to intervene if a crisis or emergency arises for a resident, supervision in areas of nutrition or medication, provision of transient medical services, and assistance in case of emergency or building evacuation. Services may also include activities of daily living such as bathing, dressing, feeding, and assistance in the use of washroom facilities, etc. No actual treatment is provided by or through care facility management. Care occupancies offering lodging in rooms include nursing homes, rehabilitation centres, palliative care facilities, convalescent homes, birthing centres and private seniors' residences. Care occupancies offering lodging in dwellings include private seniors' residences where services or care may be provided. Care occupancies do not include residential and long-term care centres (CHSLDs) within the meaning of the Act respecting health services and social services (chapter S-4.2) or any other occupancy with a similar use."; "**Treatment Occupancy**. "Treatments" may include such things as surgery, intensive care and emergency medical intervention. Treatment services differ from the services provided by care occupancies, like personal care assistance or the administration of medication, and from those provided by business and personal services occupancies, like dentistry. Treatment occupancies include residential and long-term care centres (CHSLDs) within the meaning of the Act respecting health services and social services (chapter S-4.2) and any other occupancy with a similar use."; "**Suite**. The term "suite" applies to both rental and ownership tenure. In a condominium arrangement, for example, dwelling units are considered separate suites. In order to be of complementary use, a series of rooms

	that constitute a suite must be in reasonably close proximity to each other and have access to each other either directly by means of a common doorway or indirectly by a corridor, vestibule or other similar arrangement. The term "suite" does not apply to rooms such as service rooms, common laundry rooms and common recreational rooms that are not leased or under a separate tenure in the context of the NBC. Similarly, the term "suite" is not normally applied in the context of buildings such as schools and hospitals, since the entire building is under a single tenure. However, a room that is individually rented is considered a suite. A compartment or warehousing unit in a mini-warehouse is a suite. For certain requirements in the NBC, the expression "room or suite" is used (e.g., travel distance). This means that the requirement applies within the rooms of suites as well as to the suite itself and to rooms that may be located outside the suite. In other places the expression "suite, and rooms not located within a suite" is used (e.g., for the installation of smoke and heat detectors). This means that the requirement applies to individual suites as defined, but not to each room within the suite. The rooms "not within a suite" would include common laundry rooms, common recreational rooms and service rooms, which are not considered as tenant-occupied space. A room occupied by a patient or resident in a care or treatment occupancy is not a suite within the meaning of the NBC. A room is a single sleeping room that may include sanitary facilities.”;
	Insert the following Notes, in alphabetical order: “**Alteration**. An alteration does not include the types of work such as work required to bring the building into conformance with the regulations in force and the maintenance and repairs that do not affect the characteristics and functions of the elements involved. It does, however, include the following types of intervention: (1) a change of occupancy without modification, including a change in the same Group or Division. (2) a change such as an addition, restoration, rehabilitation, renovation or retrofitting related in particular to (a) an increase in building height, (b) an increase in building area, (c) an increase in floor area, (d) the creation of an interconnected floor space,

	(e) the installation of a barrier-free access to a building or a barrier-free path of travel in the building, (f) a modification of the provisions for firefighting, or (g) a modification or addition affecting the safety and health conditions of a building or part of a building. "**Ambulatory Clinic Occupancy**. The occupancies covered are care units where surgical or medical procedures are performed and may result in limitations making it impossible for a person to move or direct himself or herself unassisted in case of evacuation. Such procedures include a local or general anesthesia, administration of a sedative through a catheter or by other means, or treatment that requires a special procedure to terminate it. Dialysis, medical examinations and medical imaging may take place in ambulatory clinic occupancies. Any pre-existing conditions a person who enters a building may have do not affect the building's designation as an ambulatory clinic occupancy. Occupancies covered by this definition are variously called • day clinics, • outpatient clinics, • day surgery clinics, • ambulatory surgery clinics, • kidney dialysis clinics, • oncology clinics, • specialized medical centres (SMCs) (surgery). To be eligible under the provisions relating to ambulatory clinic occupancies, an occupancy must not offer accommodation. If it does, it is subject to the requirements applicable to a treatment occupancy classified as Group B, Division 2."; "**Care**. Personal assistance services may be required for some residents. Assistance services are intended to compensate for a temporary or permanent disability in order to provide for personal hygiene, feeding, grooming, the use of personal property, the movement or rehabilitation of a person, and services to supervise medication or manage a crisis, emergency or building evacuation situation. In a private seniors' residence, assistance services include personal assistance services such as • feeding, daily personal hygiene, dressing and bathing assistance services, • the care services involved in assistance with activities of daily living.

<table>
<tr><td></td><td>Some services provided by a care facility are not care, including
• domestic help services such as
  o housekeeping services in rooms or apartments,
  o laundry services for clothing and bedding,
• recreation services such as
  o organized recreation or entertainment services to promote socialization, in particular in the form of physical, mental, social or creative activities,
• meal services such as the supply, on a daily basis, of one or more meals,
• security services such as the full-time presence in a residence of a staff member providing supervision or the supply to residents of a call-for-help system.”;
“Total Thermal Resistance. The method for calculating the total thermal resistance of a component of the building envelope having a wood frame, for example, consists in determining the thermal resistance of the various materials as part of the component along a line crossing the insulated part and in adding the values obtained. The interior and exterior surface air film of the envelope are part of the building assembly.”;<hr>Strike out the Note on grade.</td></tr>
<tr><td>A-2.1.1.2.(6)</td><td>Strike out the Note.</td></tr>
<tr><td>Division B
Part 1</td><td></td></tr>
<tr><td>1.2.1.1.</td><td>Replace “9” in Sentence (3) by “11”.<hr>Add the following Sentence:
“(4) Alternative solutions referred to in Division C are those referred to in Clause 1.2.1.1.(1)(b) of Division A.”.</td></tr>
<tr><td>1.3.1.2.</td><td>Replace the relevant standards in Table 1.3.1.2 by the following standards:
“AHRI
ANSI/AHRI 1060 (I-P)-2018</td></tr>
</table>

	Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment 6.2.2.9.(8)”; “ASHRAE ANSI/ASHRAE 62-2001 Ventilation for Acceptable Indoor Air Quality (except Addendum n) A-9.25.5.2.”; “ASHRAE ANSI/ASHRAE 62.1-2004 Ventilation for Acceptable Indoor Air Quality 6.3.1.1.(2) 6.3.2.2.(1)”; “ASHRAE ANSI/ASHRAE 140-2011 Evaluation of Building Energy Analysis Computer Programs A-11.2.2.1.(3)”; “ASME/CSA ASME A17.1-2007/CSAB44-07 Safety Code for Elevators and Escalators 3.2.6.7.(2) 3.5.2.1.(1) 3.5.2.1.(3) 3.5.2.1.(4) 3.5.4.1.(3) 3.5.4.2.(1) A-3.5.2.1.(1) Table 4.1.5.11. Table 4.1.8.18.”; “ASTM C 1363-11 Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus

	A-5.9.4.1.(1) A-11.2.2.1.(1)"; "ASTM D 2898-10 Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing 3.1.5.5.(3) 3.1.5.24.(1) 3.2.3.7.(4) 9.10.14.5.(3) 9.10.15.5.(3)"; "CCBFC NRC-CONST-56215 National Energy Code of Canada for Buildings 2017 A-2.2.1.1.(1)[(4)] A-3.2.1.1.(1)[(4)]"; "CCBFC NRCC 56192 National Fire Code of Canada 2015 1.4.1.2.(1)[(4)] 2.1.1.2.(4)[(4)] A-2.2.1.1.(1)[(4)] A-3.2.1.1.(1)[(4)] 1.1.4.1.(1) 3.1.13.1.(1) 3.2.3.21.(1) 3.2.5.16.(1) 3.3.1.2.(1) 3.3.1.10.(1) 3.3.2.3.(1) 3.3.2.16.(1) 3.3.4.3.(4)

	3.3.5.2.(1) 3.3.6.1.(1) 3.3.6.3.(1) 3.3.6.3.(2) 3.3.6.4.(1) 3.3.6.4.(2) 3.3.6.6.(1) 3.7.3.1.(1) A-3.1.2.3.(1) A-3.2.4.6.(2) A-3.2.6. A-3.2.7.8.(3) A-3.3. A-3.3.1.7.(1) A-3.3.3.1.(1) A-3.3.6.1.(1) A-3.9.3.1.(1) 6.3.4.3.(1) 6.3.4.4.(1) 6.9.1.2.(1) 9.10.20.4.(1) Appendix C”; “CCBFC NRCC 56193 National Plumbing Code of Canada 2015 2.1.1.2.(4)[(4)] A-2.2.1.1.(1)[(4)] A-3.2.1.1.(1)[(4)] A-4.1.6.4.(3) 5.6.2.2.(2) 6.3.2.15.(5)

	7.1.2.1.(1) 9.31.6.2.(1) Appendix C”; “CCBFC NRCC 56194 Structural Commentaries (User's Guide – NBC 2015: Part 4 of Division B) A-4.1.1.3.(1) A-4.1.1.3.(2) A-4.1.2.1. A-4.1.2.1.(1) A-4.1.3. A-4.1.3.2.(2) A-4.1.3.2.(4) A-4.1.3.2.(5) A-4.1.3.3.(2) A-4.1.3.4.(1) A-4.1.3.5.(1) A-4.1.3.5.(3) A-4.1.3.6.(1) A-4.1.3.6.(2) A-4.1.3.6.(3) A-4.1.5.8. A-4.1.5.17. A-4.1.6.2. A-4.1.6.3.(2) A-4.1.6.4.(1) A-4.1.7.2. A-4.1.7.3.(5)(c) A-4.1.7.3.(10) A-4.1.7.9.(1)

	A-4.1.8.2.(1) A-4.1.8.3.(4) A-4.1.8.3.(6) A-4.1.8.3.(7)(b) and (c) A-4.1.8.3.(8) A-4.1.8.4.(3) and Table 4.1.8.4.-A A-Table 4.1.8.5. A-Table 4.1.8.6. A-4.1.8.7.(1) A-4.1.8.9.(4) A-4.1.8.9.(5) A-4.1.8.10.(4) A-4.1.8.10.(5) A-4.1.8.10.(7) A-4.1.8.11.(3) A-4.1.8.12.(1)(a) A-4.1.8.12.(1)(b) A-4.1.8.12.(3) A-4.1.8.12.(4)(a) A-4.1.8.13.(4) A-4.1.8.15.(1) A-4.1.8.15.(3) A-4.1.8.15.(4) A-4.1.8.15.(5) A-4.1.8.15.(6) A-4.1.8.15.(7) A-4.1.8.15.(8) A-4.1.8.16.(1) A-4.1.8.16.(4) A-4.1.8.16.(6)(a)

	A-4.1.8.16.(7) A-4.1.8.16.(8)(a) A-4.1.8.16.(10) A-4.1.8.17.(1) A-4.1.8.18. A-4.1.8.18.(13) A-4.1.8.18.(14) and (15) A-4.1.8.19.(3)(a) A-4.1.8.19.(4) and 4.1.8.21.(5) A-4.1.8.21.(4)(a) A-4.2.4.1.(3) A-4.2.4.1.(5) A-4.2.5.1.(1) A-4.2.6.1.(1) A-4.2.7.2.(1) A-4.3.6.1.(1) A-4.4.2.1.(1) A-5.1.4.2. A-5.2.2.2.(4)"; "CSA AAMA/WDMA/CSA 101/I.S.2/A440-17 North American Fenestration Standard (NAFS)/Specification for Windows, Doors, and Skylights 5.9.2.2.(1) A-5.3.1.2. A-5.9.2.3.(1) A-5.9.3.1.(1) Table 9.7.3.3. 9.7.4.1.(1) 9.7.4.2.(1) 9.7.5.1.(1) 9.7.5.3.(1)

	A-9.7.4.2.(1) 11.2.2.4.(2)”; “CSA A440S1-19 Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights 5.9.2.2.(1) 5.9.3.5.(3) A-5.9.2.2. A-5.9.3.5.(3) 9.7.4.2.(1) A-9.7.4.2.(1)”; “CSA A440.2-14/A440.3-19 Fenestration Energy Performance/User Guide to CSA A440.2-19, Fenestration Energy Performance 11.2.2.4.(1)”; “CSA A440.3-19 User guide to CSA A440.2-19, Fenestration energy performance A-5.3.1.2.”; “CSA CSA-A440.4-19 Window, door, and skylight installation A-5.9.2.3.(1) 9.7.6.1.(1) A-9.7.4.2.(1)”; “CSA B52-13 Mechanical Refrigeration Code 3.6.3.1.(6)

	6.2.1.5.(1) 9.33.5.2.(1)”; “CSA B149.1-15 Natural gas and propane installation code 6.2.1.5.(1) 9.10.22.1.(1) 9.31.6.2.(2) 9.33.5.2.(1) A-9.10.22.”; “CSA B214-16 Installation code for hydronic heating systems 6.2.1.1.(1) 9.33.4.2.(1)”; “CSA B355-09 Private Residence Lifts for Persons With Physical Disabilities A-3.8.2.3.(2)(j) 3.8.3.7.(1) 3.8.3.7.(2)(d) 3.8.3.7.(3) A-3.8.3.7.(1)”; “CSA C22.1-18 Canadian Electrical Code, Part I 3.2.4.5.(1) 3.3.6.2.(4) 3.6.1.2.(1) 3.6.2.1.(6) 3.6.2.7.(1)

	A-3.1.4.3.(1)(b)(i) A-3.2.4.5.(1) A-3.2.4.20.(7)(a) A-3.3.6.2.(4) 6.2.1.5.(1) 9.31.6.2.(2) 9.33.5.2.(1) 9.34.1.1.(1) A-9.10.22. A-9.34.2. A-9.35.2.2.(1)”; “CSA C22.2 No. 0.3-09 Test Methods for Electrical Wires and Cables 3.1.4.3.(1) 3.1.4.3.(3) 3.1.5.21.(1) 3.1.5.21.(3) 3.1.5.21.(5) 9.34.1.5.(1)”; “CSA CAN/CSA-C439-09 Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators 6.3.1.8.(8) 9.32.3.10.(4) 9.32.3.10.(5)”; “CSA F280-12 Determining the required capacity of residential space heating and cooling appliances 9.33.5.1.(1)”;

	"CSA Z240.2.1-09 Structural Requirements for Manufactured Homes 9.12.2.2.(6) 9.15.1.3.(1)"; "CSA Z240.10.1-16 Site Preparation, Foundation, and Installation of Buildings 9.15.1.3.(1) 9.23.6.3.(1)"; "NFPA 13-2013 Installation of Sprinkler Systems 3.1.9.1.(4) 3.1.11.5.(3) 3.2.4.8.(2) 3.2.4.15.(1) 3.2.5.12.(1) 3.3.2.14.(3) A-3.1.11.5.(3) A-3.2.4.9.(3)(f) A-3.2.5.12.(1) A-3.2.5.12.(6) A-3.2.5.13.(1) A-3.2.8.2.(3) 9.10.9.6.(11)"; "NFPA 13D-2016 Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes 3.2.4.1.(2) 3.2.5.12.(3)

	A-3.2.5.12.(6) A-3.2.5.13.(1) 9.10.18.2.(3)"; "CGSB CAN/CGSB-149.10-M86 Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method A-11.2.1.2.(6)"; "SMACNA ANSI/SMACNA 006-2006 HVAC Duct Construction Standards – Metal and Flexible 9.33.6.5.(2)"; "ULC CAN/ULC-S139-12 Standard Method of Fire Test for Evaluation of Integrity of Electrical Power, Data and Optical Fibre Cables 3.2.7.10.(2) 3.2.7.10.(3) 3.2.6.5.(6)"; "ULC CAN/ULC-S524-19 Installation of Fire Alarm Systems 3.1.8.11.(3) 3.1.8.14.(3) 3.2.4.5.(1) 3.2.4.20.(8) 3.2.4.20.(13) A-3.2.4.5.(1) A-3.2.4.7.(4) A-3.2.4.18.(8) and (9) A-3.2.4.20.(8) 9.10.19.4.(3)

	9.10.19.6.(2)”; “ULC CAN/ULC-S537-19 Verification of Fire Alarm Systems 3.2.4.5.(2)”; “ULC CAN/ULC-S540-13 Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance 3.2.4.1.(2) 3.2.4.5.(3) 9.10.19.8.(1)”; “ULC CAN/S701.1-17 Thermal Insulation, Polystyrene Boards Table 5.9.1.1. 9.15.4.1.(1) Table 9.23.17.2.-A 9.25.2.2.(1)”; “ULC CAN/ULC-S702-14 Mineral Fibre Thermal Insulation for Buildings Table 5.9.1.1. A-5.9.1.1.(1) Table 9.23.17.2.-A 9.25.2.2.(1)”; “ULC CAN/ULC-S703-09 Standard for Cellulose Fibre Insulation (CFI) for Buildings Table 5.9.1.1. 9.25.2.2.(1)”; “ULC

	CAN/ULC-S704-11 Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced Table 5.9.1.1. Table 9.23.17.2.-A 9.25.2.2.(1)”; “ULC CAN/ULC-S705.1-15 Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density – Material Specification Table 5.9.1.1. 9.25.2.2.(1)”; “ULC CAN/ULC-S710.1-11 Thermal Insulation – Bead-Applied One Component Polyurethane Air Sealant Foam, Part 1: Material Specification Table 5.9.1.1.”; “ULC CAN/ULC-S711.1-11 Thermal Insulation – Bead-Applied Two Component Polyurethane Air Sealant Foam, Part 1: Material Specification Table 5.9.1.1.”; “ULC CAN/ULC-S741-08 Air Barrier Materials – Specification 5.4.1.2.(1)”;
	Insert the following standards in Table 1.3.1.2., respecting the order of the organizations: “AHRI ANSI/AHRI 1061(SI)- 2018 Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation

	6.2.2.9.(8)”; “ANSI ANSI/BHMA A 156.10-2005 Power Operated Pedestrian Doors A-3.8.3.6.(6) and (7)”; “BNQ NQ 2621-905/2018 Ready-Mix Concrete - Certification Program 4.1.1.6.(1) 9.3.1.1.(5)”; “BNQ NQ 2560-500/2003 Granulats – Détermination de l’indice pétrographique du potentiel de gonflement sulfatique des matériaux granulaires – Méthode d’essai pour l’évaluation de l’IPPG A-4.2.5.8.(2)”; “BNQ NQ 2560-510/2003 Granulats – Guide d’application de la méthode d’essai pour la caractérisation du potentiel de gonflement sulfatique des matériaux granulaires A-4.2.5.8.(2)”; “BNQ 3624-120/2016 Polyethylene (PE) Pipe and Fittings - Smooth Inside Wall Open Profile Pipes for Storm Sewer and Soil Drainage - Characteristics and Test Methods 9.14.3.1.(1)”; “BNQ NQ 3624-130/2015 Unplasticized Poly(Vinyl Chloride) (PVC) Rigid Pipe and Fittings, 150 mm in Diameter or Smaller, for Underground Sewage Applications 9.14.3.1.(1)”; “BNQ

	NQ 3624-135/2015 Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings - Pipes of 200 mm to 600 mm in Diameter for Underground Sewage and Soil Drainage - Characteristics and Test Methods 9.14.3.1.(1)”; “BNQ BNQ 3661-500/2012 Dépôts d’ocre dans les systèmes de drainage des bâtiments – Partie I : Évaluation du risque pour la construction de nouveaux bâtiments et diagnostic pour des bâtiments existants et Partie II : Méthodes d’installation proposées pour nouveaux bâtiments et bâtiments existants A-4.2.2.1.(1) A-5.7.1.2.(1) A-9.14.2.1.(1)”; “CSA CAN/CSA-Z91-17 Health and safety code for suspended equipment operations 3.5.5.1.(1)”; “CSA CAN/CSA-Z271-10 (C2015) Safety Code for Suspended Elevating Platforms 3.5.5.1.(1)”; “NFPA 45-2011 Fire Protection for Laboratories Using Chemicals 3.1.8.8.(3) 6.3.4.3.(1)”; “NFPA 92-2018 Standard for Smoke Control Systems A-3.2.6.2.(3)”; “NFPA 701-2019

	Fire Tests for Flame-Resistant Textiles and Films 3.1.6.5.(1)”; “ULC CAN/ULC-S533-08 Egress Door Securing and Releasing Devices 3.4.6.16.(8)”; “ULC ULC/ORD-C263.1-99 Sprinkler-Protected Window Systems 3.1.7.6.(1)”;
	Strike out the following standards in Table 1.3.1.2.: “ACGIH 28th Edition Industrial Ventilation: A Manual of Recommended Practice for Design 6.2.1.1.(1) 6.3.2.14.(2) A-6.3.1.6.”; “AHAM ANSI/AHAM RAC-1-1982 Room Air Conditioners Table 9.36.3.10.”; “AHRI ANSI/AHRI 210/240-2008 Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment Table 9.36.3.10.”; “AHRI BTS-2000 Efficiency of Commercial Space Heating Boilers Table 9.36.3.10.”; “ANSI/CSA

	ANSI Z21.10.3-2013/CSA 4.3-2013 Gas-Fired Water Heaters, Volume III, Storage Water Heaters With Input Ratings Above 75,000 Btu Per Hour, Circulating and Instantaneous Table 9.36.4.2."; "ANSI/CSA ANSI Z21.56-2013/CSA 4.7-2013 Gas-Fired Pool Heaters Table 9.36.4.2."; "ANSI/CSA ANSI Z83.8-2013/CSA 2.6-2013 Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-Fired Duct Furnaces Table 9.36.3.10."; "ASHRAE 2013 ASHRAE Handbook – Fundamentals A-9.36.2.4.(1)"; "ASHRAE ANSI/ASHRAE 103-2007 Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers Table 9.36.3.10."; "ASTM C 177-13 Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus 9.36.2.2.(1)"; "ASTM C 518-10 Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 9.36.2.2.(1)"; "ASTM

	E 2357-11 Determining Air Leakage of Air Barrier Assemblies 9.36.2.9.(1) A-9.36.2.9.(1)”; “CCBFC NRCC 35951 Guidelines for Application of Part 3 of the National Building Code of Canada to Existing Buildings A-1.1.1.1.(1)[(4)]”; “CCBFC NRCC 38730 Model National Energy Code of Canada for Houses 1997 A-9.36.3.10.(1) A-9.36.4.2.(1)”; “CCBFC NRCC 40383 User's Guide – NBC 1995, Fire Protection, Occupant Safety and Accessibility (Part 3) A-1.1.1.1.(1)[(4)]”; “CCBFC NRCC 43963 User's Guide – NBC 1995, Application of Part 9 to Existing Buildings A-1.1.1.1.(1)[(4)]”; “CSA A277-16 Procedure for Certification of Prefabricated Buildings, Modules, and Panels A-1.1.1.1.(2)[(4)]”; “CSA B140.12-03 Oil-Burning Equipment: Service Water Heaters for Domestic Hot Water, Space Heating, and Swimming Pools

	Table 9.36.4.2.”; “CSA CAN/CSA-B211-00 Energy Efficiency of Oil-Fired Storage Tank Water Heaters Table 9.36.4.2.”; “CSA B212-00 Energy Utilization Efficiencies of Oil-Fired Furnaces and Boilers Table 9.36.3.10.”; “CSA B415.1-10 Solid-Fuel-Burning Heating Appliances Table 9.36.3.10.”; “CSA CAN/CSA-C191-04 Performance of Electric Storage Tank Water Heaters for Domestic Hot Water Service Table 9.36.4.2.”; “CSA C368.1-14 Energy Performance of Room Air Conditioners Table 9.36.3.10.”; “CSA C656-14 Split-System and Single-Package Air Conditioners and Heat Pumps Table 9.36.3.10.”; “CSA CAN/CSA-C745-03 Energy Efficiency of Electric Storage Tank Water Heaters and Heat Pump Water Heaters Table 9.36.4.2.”; “CSA

	CAN/CSA-C746-06 Rating Large and Single Packaged Vertical Air Conditioners and Heat Pumps Table 9.36.3.10.”; “CSA C748-13 Direct-Expansion (DX) Ground-Source Heat Pumps Table 9.36.3.10.”; “CSA CAN/CSA-C749-07 Performance of Dehumidifiers Table 9.36.3.10.”; “CSA C828-13 Thermostats Used with Individual Room Electric Space Heating Devices 9.36.3.6.(3)”; “CSA CAN/CSA-C13256-1-01 Water-Source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-Air and Brine-to-Air Heat Pumps (Adopted ISO 13256-1:1998, with Canadian Deviations) Table 9.36.3.10.”; “CSA CAN/CSA-C13256-2-01 Water-Source Heat Pumps - Testing and Rating for Performance - Part 2: Water-to-Water and Brine-to-Water Heat Pumps (Adopted ISO 13256-2:1998, with Canadian Deviations) Table 9.36.3.10.”; “CSA CAN/CSA-P.2-13 Measuring the Annual Fuel Utilization Efficiency of Residential Gas-Fired or Oil-Fired Furnaces and Boilers Table 9.36.3.10.”;

	“CSA CAN/CSA-P.3-04 Measuring Energy Consumption and Determining Efficiencies of Gas-Fired Storage Water Heaters Table 9.36.4.2.”; “CSA P.6-09 Measuring Thermal Efficiency of Gas-Fired Pool Heaters Table 9.36.4.2.”; “CSA CAN/CSA-P.7-10 Measuring Energy Loss of Gas-Fired Instantaneous Water Heaters Table 9.36.4.2.”; “CSA CAN/CSA-P.8-09 Thermal Efficiencies of Industrial and Commercial Gas-Fired Package Furnaces Table 9.36.3.10.”; « CSA CAN/CSA-P.9-11 Performance of Combined Space and Water Heating Systems(Combos) 9.36.3.10.(3) Table 9.36.3.10. Table 9.36.4.2. Table 9.36.5.15.-C”; “CSA P.10-07 Performance of Integrated Mechanical Systems for Residential Heating and Ventilation 9.36.3.9.(2) Table 9.36.3.10. Table 9.36.4.2.

	Table 9.36.5.15.-C”; “CSA CAN/CSA-P.11-07 Measuring Efficiency and Energy Consumption of Gas-Fired Unit Heaters Table 9.36.3.10.”; “CSA Z240 MH Series-16 Manufactured Homes A-1.1.1.1.(2)(4)”; “CTI STD-201RS-04 Certification of Water-Cooling Tower Thermal Performance Table 9.36.3.10.”; “DOE 10 CFR, Part 430-2011 Energy, Energy Conservation Program for Consumer Products Table 9.36.4.2.”; “DOE 10 CFR, Part 431-2011 Energy, Energy Efficiency Program for Certain Commercial and Industrial Equipment Table 9.36.4.2.”; “EPA 40 CFR, Part 60-2008 Protection of Environment, Standards of Performance for New Stationary Sources Table 9.36.3.10.”; “HRAI SAR-G1 HRAI Digest 2005 6.2.1.1.(1) 9.32.2.3.(4)

	9.32.3.2.(1) 9.33.4.1.(1) A-9.36.3.2.(1) A-9.36.3.2.(2) A-9.36.3.4.(1)”; “HVI HVI Publication 911 Certified Home Ventilating Products Directory A-9.36.3.9.(3)”; “ICC 400-2012 Design and Construction of Log Structures 9.36.2.2.(5) A-9.36.2.2.(5)”; “IRC-CNRC DCC 230F Application des codes aux bâtiments existants A-1.1.1.1.(1)(4)”; “NFRC 100-2010 Determining Fenestration Product U-factors 9.36.2.2.(3)”; “NFRC 200-2010 Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence 9.36.2.2.(3)”; “NRCA 2nd Edition, 2009 Vegetative Roof Systems Manual A-5.6.1.2.(2)”; “UL

	731-1995 Oil-Fired Unit Heaters Table 9.36.3.10."; "ULC CAN/ULC-S712.1-17 Thermal Insulation - Light Density, Open Cell Spray Applied Semi-Rigid Polyurethane Foam - Material Specification A-9.36.2.4.(1)"; "ULC CAN/ULC-S742-11 Air Barrier Assemblies – Specification 9.36.2.9.(1) A-9.36.2.9.(1) A-9.36.2.10.(5)(b)"; "ULC CAN/ULC-S770-15 Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams A-9.36.2.4.(1)"; "U.S. Congress National Appliance Energy Conservation Act of 1987 Table 9.36.4.2. Table 9.36.5.16.".
	Insert the following in Sentence (1), in alphabetical order: "NBC 1995 am. Québec Construction Code of Québec, Chapter I, Building, and National Building Code of Canada 1995 (amended), National Building Code - Canada 1995 (NRCC 38726), including the revisions of July 1998 and November 1999 and the Code national du bâtiment - Canada 1995 (CNRC 38726F), including the revisions of July 1998 and November 1999, published by the Canadian Commission on Building and Fire Codes of the National Research Council of Canada (O.C. 953-2000, 2000-07-26)";

1.3.2.1.	“NBC 2005 am. Québec Construction Code of Québec, Chapter I, Building, and National Building Code of Canada 2005 (amended), National Building Code - Canada 2005 (NRCC 47666) and Code national du bâtiment-Canada 2005 (CNRC 47666F) published by the Canadian Commission on Building and Fire Codes of the National Research Council of Canada (O.C. 293-2008, 2008-03-19)”; “NBC 2010 am. Québec Construction Code of Québec, Chapter I, Building, and National Building Code of Canada 2010 (amended), National Building Code of Canada 2010 (NRCC 53301) and Code national du bâtiment-Canada 2010 (CNRC 53301F) published by the Canadian Commission on Building and Fire Codes of the National Research Council of Canada (O.C. 347-2015, 2015-04-15)”.
Division B Part 3	
Table of Contents	Add the following Subsections in numerical order: “**3.5.5. Window Cleaning Systems**”; “**3.7.4. Windows**”.
3.1.2.5.	Strike out the Article.
	Add the following Article: “**3.1.2.7. Ambulatory Clinic Occupancy** **(1)** Despite the provisions on *treatment occupancies* and except as permitted by Sentences (2) to (6), an *ambulatory clinic occupancy* is permitted to be built in compliance with the *business and personal services occupancy* requirements. **(2)** The *floor area* of a *building* of *combustible construction* containing an *ambulatory clinic occupancy* shall be sprinklered if the *ambulatory clinic occupancy* is located above the *first storey* or in the *basement*. **(3)** The *floor area* of a *building* of *noncombustible construction* containing an *ambulatory clinic occupancy* shall be sprinklered if (a) the *ambulatory clinic occupancy* is located above the *first storey* and the floor of the *storey* on which the *ambulatory clinic occupancy* is located forms a *fire separation* with *no fire-resistance rating*,

	(b) the *ambulatory clinic occupancy* is located above the second *storey* and the floor of the *storey* on which the *ambulatory clinic occupancy* is located forms a *fire separation* with a *fire-resistance rating* not more than 1 h, or (c) the *ambulatory clinic occupancy* is located in the *basement*. **(4)** The *ambulatory clinic occupancy* shall meet the requirements in Subsection 3.3.3. **(5)** The treatment area of an *ambulatory clinic occupancy*, which includes the operating, treatment or recovery rooms, shall be separated from the remainder of the *floor area* by a *fire separation* having a *fire-resistance rating* not less than 1 h such that it forms one or more *fire compartments* having an area not exceeding (a) 250 m^2 if the *floor area* is not *sprinklered*, (b) 500 m^2 if the *floor area* is *sprinklered*, or (c) 1000 m^2 if the *floor area* is *sprinklered* and has a smoke-control system in conformance with Clause 3.3.3.6.(1)(b). **(6)** Except as provided by Sentence (7), a treatment area contained within an *ambulatory clinic occupancy* shall provide direct access to at least one *exit*. **(7)** An *ambulatory clinic occupancy* whose treatment area provides direct access to a *public corridor* meets the requirements in Sentence (6) if (a) the part of the *public corridor* providing access to the *exit* is separated from the remainder of the *floor area* by *fire separations* having a *fire-resistance rating* not less than 1 h, or (b) the *floor area* of the *ambulatory clinic occupancy* is *sprinklered*.”.
3.1.3.1.	Add in the column “Minimum *Fire-Resistance Rating* of *Fire Separation*, h” in Table 3.1.3.1., under Adjoining *Major Occupancy* D, for *Major Occupancy* E, the reference to Note “(7)”; Add in the column “Minimum *Fire-Resistance Rating* of *Fire Separation*, h” in Table 3.1.3.1., under Adjoining *Major Occupancy* E, for *Major Occupancy* D, the reference to Note “(7)”; Replace “2 h” in notes (3) and (4) of Table 3.1.3.1. by “1 h 30”;

	Add the following note in Table 3.1.3.1.: “(7) In the case of buildings built in conformance with Article 3.2.2.50. or 3.2.2.58., a *fire separation* with a 1 h 30 *fire-resistance rating* is required between the Group D and Group E, *major occupancies*.”.
3.1.3.2.	Replace Sentences (3) and (5) by the following: “**(3)** A *building* conforming to Sentence 3.2.2.50.(3) shall not contain (a) except as provided in Sentence (5), a Group A, Division 1 or 3, or Group B *major occupancy*, an *ambulatory clinic occupancy* referred to in Article 3.1.2.7., or Group F, Division 2 or 3 *major occupancy*, or (b) a Group A, Division 2 or Group E *major occupancy* above the second *storey*. **(4)** A *building* conforming to Article 3.2.2.58. shall not contain (a) a Group A, Division 1 or 3, or Group B *major occupancy*, an *ambulatory clinic occupancy* referred to in Article 3.1.2.7., or Group F *major occupancy*, or (b) a Group A, Division 2 or Group E *major occupancy* above the second *storey*. **(5)** A *building* conforming to Article 3.2.2.50. or 3.2.2.58. is permitted to contain a *storage garage* below the fourth *storey*.”.
3.1.4.1.	Replace “A *building*” at the beginning of Sentence (1) by “Except as required by Sentence (3), a *building*”; Add the following Sentence: “**(3)** The *exit* stairwells of a *building* conforming to Sentence 3.2.2.50. or 3.2.2.58 shall be of *noncombustible construction*.”.
3.1.4.2.	Strike out “(See Note A-3.1.4.2.(1).)” at the end of Sentence (1).
3.1.4.8.	Replace the Article by the following: “**3.1.4.8. Combustible Terrace** **(1)** A terrace constructed on a *building* conforming to Sentence 3.2.2.50. or 3.2.2.58. may have *combustible loadbearing* elements and floor provided

	(a) the space between the underside of the terrace floor and the roofing is not more than 150 mm, (b) the floor of the terrace is not more than 18 m above *grade*, and (c) no combustible component is more than 25 m above *grade*.”.
3.1.5.2.	Replace Clauses (g) and (h) by the following: “(g) wood blocking within wall assemblies intended for the attachment of window components, (h) wood blocking within wall assemblies intended for the attachment of handrails, fixtures, and similar items mounted on the surface of the wall, and (i) similar minor components.”.
3.1.5.7.	Add the following Sentence: “**(4)** Factory-assembled panels containing foamed plastic insulation used for the construction of air ducts network or air handling units that are part of a ventilation system are permitted to be used in a *sprinklered building* for which a *noncombustible construction* is required, provided (a) the panels (i) are factory-assembled, (ii) contain only thermosetting foamed plastic insulation in the core, (iii) have the core protected on both sides by corrosion-resistant steel sheet not less than 0.38 mm thick, (iv) do not have any air space, (v) have a *flame-spread rating* of not more than 75 for the foamed plastic and not more than 25 for the panel, and (vi) have a smoke developed classification of not more than 500 for the foamed plastic and not more than 50 for the panel, (b) the air-handling unit (i) is manufactured, assembled or preassembled, (ii) complies with CSA-C22.2 No. 236, “Heating and cooling equipment”, and (iii) if it contains foamed plastic, complies with the requirements of Clause (a) in each of the parts containing foamed plastic.”.

3.1.5.8.	Replace the title in the French text by the following: “**Bandes et fonds de clouage**”; Add the following Sentences: “**(2)** Wood nailing elements for covering a roof or a bead-type copper wall are permitted in a *building* required to be of *noncombustible construction*, provided they are installed directly on Type X gypsum board that is at least 15.9 mm thick. **(3)** Continuous wood nailing elements in the walls of a washroom or a bathroom for the installation of grab bars or accessories around a bathtub, a shower, a lavatory or a water closet are permitted in a *building* required to be of *noncombustible construction*.”.
3.1.5.12.	Add the following Sentence: “**(5)** Ceilings consisting of a heavy timber roof, as permitted in Article 3.2.2.16., shall be authorized in a *building* for which a *non-combustible construction* is required, provided the heavy timber has a *flame-spread rating* of not more than 150.”.
3.1.5.21.	Add the following Sentence: “**(5)** The requirements in Clause (1)(a) are met if the wires or cables exhibit a horizontal flame distance of not more than 1.5, an average optical smoke density of not more than 0.15, and a peak optical smoke density of not more than 0.5 when tested in conformance with CAN/ULC-S102.4, “Test for Fire and Smoke Characteristics of Electrical Wiring, Cables and Non-Metallic Raceways,” (FT6 rating).”.
3.1.5.22.	Replace the title of the Article in the French text by the following: “**Câbles d’accompagnement combustibles d’ascenseurs, de monte-charges et de petits monte-charges**”; Replace the title of the Article by the following: “**Combustible Travelling Cables for Elevators and Dumbwaiters**”; Strike out “dumbwaiters” after “elevating devices” in Sentence (1).

3.1.6.1.	Replace Sentence (1) by the following: “**(1)** Except as permitted by Sentences (2) and 3), *tents* and *air-supported structures* shall conform to Sections 3.3. and 3.4.”; --- Add the following Sentences: “**(2)** *Tent* doors need not swing on a vertical axis. **(3)** Where the clearance between adjacent facilities or between a facility and a property line serves as a *means of egress*, the minimum unobstructed width shall meet the requirements for a *means of egress* but not be less than 3 m.”.
3.1.6.2.	Replace Sentence (1) by the following: “**(1)** *Tents* and *air-supported structures* shall not be erected inside or on a *building*.”; --- Replace Sentence (3) by the following: “**(3)** Except as permitted by Sentence (4), *tents* or *air-supported structures* shall be designed as open floor space without interior walls, *mezzanines*, intermediate floors or other similar construction.”; --- Add the following Sentence: “**(4)** Canvas panels are permitted to be installed to divide space inside a *tent* or an *air-supported structure* provided the panels are installed not less than 1 m from the ceiling (see Note A-3.1.6.2.(4)).”.
3.1.6.3.	Replace “Except as permitted by Sentences (2), (3) and (4)” at the beginning of Sentence (1) by “Except as permitted by Sentence (2)”; --- Strike out “,except as permitted by Sentences (3) and (4)” in Clause (2)(a); --- Strike out Sentences (3) and (4).

3.1.6.4.	Replace Sentence (1) by the following: “**(1)** The ground enclosed by a *tent* or an *air-supported structure* and not less than 3 m of the ground outside the structure shall be cleared of (a) all flammable material or vegetation that will spread fire, and (b) all tanks containing gas or *flammable liquids*.”.
3.1.6.5.	Add the following after “Films” in Sentence (1): “or NFPA 701, “Fire Tests for Flame-Resistant Textiles and Films”.”.
	Add the following Articles: “**3.1.6.8. Fire Alarm and Detection Systems** **(1)** *Tents* or *air-supported structures* designed to accommodate more than 1000 people shall be provided with a fire alarm system and a one-way voice communication system. **3.1.6.9. Bleachers** **(1)** Where a *tent* or an *air-supported structure* contains bleachers, the latter shall conform to Subsection 4.1.5. **3.1.6.10. Plumbing Facilities** **(1)** Except as permitted by Sentence (2), the minimum number of water closets required shall conform to Article 3.7.2.2. **(2)** Chemical toilets and similar sanitary facilities are permitted to be used instead of water closets provided they are located at a minimum distance of 3 m from the *tent* or *air-supported structure*. **3.1.6.11. Access for Firefighting** **(1)** Every *tent* or *air-supported structure* shall have a fire access route. **3.1.6.12. Heat-Producing Equipment** **(1)** It is prohibited to install cooking equipment or a combustion *appliance* in a *tent* or an *air-supported structure* that is accessible to the public. **(2)** A special fire extinguishing system conforming to Article 2.1.3.5. of the NFC shall be provided where cooking equipment is installed inside a *tent* or an *air-supported structure* not open to the public and consists of more than 2 deep fryer baskets (see Note A-3.1.6.12.(2)). **3.1.6.13. Structural Soundness** **(1)** The structure of a *tent* or an *air-supported structure* shall be designed and erected so as to withstand the applicable loads (see Note A-3.1.6.13(1)).”.

3.1.7.5.	Replace “Except for *noncombustible* roof assemblies required by Clauses 3.2.2.50.(2)(c) and 3.2.2.58.(2)(c), if” in Sentence (3) by “If”.
	Add the following Article: “**3.1.7.6. Sprinkler-Protected Fixed Glass Walls** (See Note A-3.1.7.6.) **(1)** The *fire-resistance rating* of a fixed glass wall system may be ensured by a *sprinkler* system designed in compliance with ULC/ORD-C263.1, “Sprinkler-Protected Window Systems”. **(2)** A *sprinklered* fixed glass wall system shall not be installed in (a) a *fire separation* required to have a *fire-resistance rating* of more than 2 h, (b) a *firewall*, (c) a *fire separation* with a *fire-resistance rating* separating a patients’ or residents’ sleeping room in a Group B, Division 2 or 3 *occupancy*, (d) a *fire separation* with a *fire-resistance rating* separating an area of refuge described in Article 3.3.3.6, (e) a *high-risk industrial occupancy*, or (f) any part of an *exit*. **(3)** A *sprinklered* fixed glass wall system is permitted to be installed in a *building* provided the *building* is *sprinklered* throughout.”.
3.1.8.5.	Insert “or in the *fire separations* of a *fire compartment* provided for partial egress of the *building* in a *care occupancy*” after “in Sentence 3.3.3.5.(4)” in Clause (6)(b); Strike out “that are a *horizontal exit* referred to in Sentence 3.3.3.5.(3)” in Clause (6)(d).
3.1.8.8.	Add the following Sentence: “**(3)** An exhaust duct of a chemical hood that penetrates 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 exhaust duct conforms to NFPA 45, “Standard on Fire Protection for Laboratories Using Chemicals”, and

	(b) at least one hanger supporting the duct conforms to good practice such as that described in the SMACNA Manuals, and is installed less than 500 mm from the wall of the *vertical service space*.”.
3.1.8.13.	Replace Clauses (2)(c) and (2)(d) by the following: “(c) a patients’ or residents’ sleeping room and a corridor serving the patients’ or residents’ sleeping room, provided the room and corridor are within a *fire compartment* that complies with the requirements of Article 3.3.3.5., or (d) a patients’ or residents’ sleeping room and an adjacent room that serves the patients’ or residents’ sleeping room, provided these rooms are within a *fire compartment* that complies with the requirements of Article 3.3.3.5.”.
3.1.8.14.	Replace Sentence(1) by the following: “**(1)** Except as provided in Sentences 3.1.8.10.(2) and 3.1.8.11.(3), a hold-open device is permitted to be used on a *closure* in a required *fire separation*, other than on an *exit* stair door serving more than 3 *storeys* and on a door for a vestibule required by Article 3.3.5.7., provided the device is designed to release the *closure* in conformance with this Article.”; --- Insert “, or in a *fire compartment* provided for partial egress of the *building* in a *care occupancy*” after “or Sentence 3.3.3.5.(4)” in Clause (3)(e).
3.1.10.2.	Replace Sentence (3) by the following: “**(3)** The required *fire-resistance rating* of a *firewall*, except for *closures*, shall be provided by masonry or concrete.”; --- Strike out Sentence (4).
3.1.10.7.	Replace “2.4 m of *combustible* projections and window or door openings of the adjacent *building*” at the end of Sentence (2) by “1.2 m of the centreline of the *firewall*”.
3.1.11.5.	Replace “and as required in” in Sentence (1) by “and except as provided in”; ---

	Replace Sentence (3) by the following: “**(3)** Horizontal concealed spaces within a floor assembly or roof assembly of a *building* conforming to Article 3.2.2.50. or 3.2.2.58. shall (a) be filled with *noncombustible* insulation, or (b) be *sprinklered* in conformance with NFPA 13, “Installation of Sprinkler Systems”. (See Note A-3.1.11.5.(3).)”; Strike out Sentence (4).
3.1.13.7.	Insert “ou de monte-charge” after “pour les cabines d’ascenseur” in Sentence (2) of the French text; Add “ou de monte-charge” in Table 3.1.13.7. of the French text, under the column “Endroit ou composant” in line “Cabines d’ascenseur”.
3.1.13.11.	Replace the Article in the French text by the following: “**3.1.13.11. Cabines d’ascenseurs et de monte-charges** **1)** Les parois et le plafond des cabines d’ascenseurs et de monte-charges doivent avoir un *indice de propagation de la flamme* d’au plus 75. **2)** Les parois, le plafond et le plancher des cabines d’ascenseurs et de monte-charges doivent avoir un indice de dégagement des fumées d’au plus 450.”.
3.1.15.2.	Strike out Clauses (2)(a) and (2)(b); Replace Sentence (3) by the following: “**(3)** Where a *building* conforming to Article 3.2.2.50. or 3.2.2.58. has a rooftop terrace, the roof covering the *building* must have a Class A classification.”; Strike out Sentence (4).

<table>
<tr>
<td>3.1.17.1.</td>
<td>
In Table 3.1.17.1, under “Type of Use of Floor Area or Part Thereof”, add the following uses at the end of the list of “Assembly uses”:
“Arcades
Dance floors
Exhibition halls and interpretation centres
Gymnasiums and physical fitness facilities
Libraries, museums and skating rinks
Swimming pools”;
In Table 3.1.17.1., under “Area per person, m^2”, add the following values opposite
Arcades, “1.85”;
Dance floors, “0.40”;
Exhibition halls and interpretation centres, “3.00”;
Gymnasiums and physical fitness facilities, “9.30”;
Libraries, museums and skating rinks, “3.00”;
Swimming pools, the reference to Note “(2)””;
<hr>
In Table 3.1.17.1., in the column “Type of Use of Floor Area or Part Thereof”, replace the term “suites” under “Care, treatment or detention uses” by “dwelling units”;
<hr>
In Table 3.1.17.1, in the column “Area per person, m^2”,
replace the reference to Note “(2)" opposite “suites” by a reference to Note “(3)”;
replace the reference to Note “(3)” opposite “public corridors intended for occupancies in addition to pedestrian travel” by “(4)”;
<hr>
Replace the Notes to Table 3.1.17.1. by the following:
“(1) See Clause 3.1.17.1.(1)(a).
(2) The occupant load in a swimming pool is obtained by allowing 1.40 m^2 of water area per person in the part of the pool where the depth is 1.40 m or less, and 2.20 m^2 in the other part.
(3) See Clause 3.1.17.1.(1)(b) (apply values for dwelling units to sleeping rooms in care occupancies).
(4) See Note A-3.3.”.
</td>
</tr>
</table>

3.2.1.1.	Replace “, les escaliers” in Sentence (1) of the French text by “ou de monte-charge, les escaliers, les vestibules d’ascenseur”; ——— Replace “a stairway” in Sentence (1) by “a stairway, a passenger elevator vestibule”.
3.2.1.2.	Replace “in conformance with Clause 3.1.10.2.(4)(a), except as permitted by Sentence (2). (See Notes A-3.1.10.2.(4) and A-3.2.5.12.(2).)” at the end of Sentence (1) by “in conformance with Sentence 3.1.10.2.(3), except as permitted by Sentence (2). (See Note A-3.2.1.2.(1).)”.
3.2.2.3.	Insert “de monte-charges,” after “guides d’ascenseurs,” in Clause (1)(d) of the French text.
3.2.2.7.	Replace Sentences(3) and (4) by the following: “**(3)** A *building* conforming to Article 3.2.2.50. or 3.2.2.58. shall comply with the requirements of Article 3.1.3.2. **(4)** A *building* conforming to Article 3.2.2.50. or 3.2.2.58. having *major occupancies* above other *major occupancies* shall be built in accordance with the type of construction and the dimensions described in those Articles.”.
3.2.2.8.	Insert “they are not *private seniors’ residences* or” after “this Subsection, provided” in Sentence (1).
3.2.2.10.	Replace “*street* or *streets*” at the end of Sentence (3) by “a *street* (see Note A-3.2.2.10.(3))”.
3.2.2.14.	Insert “ou de monte-charge” after “machinerie d’ascenseur” in Sentence (1) of the French text; ——— Insert “ou de monte-charge” after “machinerie d’ascenseur” in Sentence (2) of the French text.
3.2.2.18.	Strike out Articles “3.2.2.45.” and “3.2.2.46.” in Sentence (1); ———

	Insert “or Sentences” after “Articles” in Sentence (1); --- Add the following Article and Sentences in numerical order in Sentence (1): “3.2.2.46.(3)”, “3.2.2.46.(4)” and “3.2.2.58.”; --- Insert the following before “3.2.2.20.” in Sentence (2): “3.1.2.7.,”.
3.2.2.44.	Replace the Article by the following: “**3.2.2.44. Group B, Division 3, up to 2 Storeys, Sprinklered** **(1)** A *building* classified as Group B, Division 3 is permitted to conform to Sentence (2) provided (a) except as permitted by Sentences 3.2.2.7.(1) and 3.2.2.18.(2), the building is *sprinklered* throughout, (b) it is not more than 2 *storeys* in *building height*, (c) it has a *building area* not more than (i) 2400 m^2 if 1 *storey* in *building height*, or (ii) 1600 m^2 if 2 *storeys* in *building height*, and (d) it has no *mezzanines* or *interconnected floor spaces*. **(2)** The *building* referred to in Sentence (1) is permitted to be of *combustible construction* and (a) floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min, and (b) struck out, (c) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly.”.
3.2.2.45.	Replace the Article by the following: “**3.2.2.45. Group B, Division 3, 1 Storey** **(1)** A *building* classified as Group B, Division 3, is permitted to conform to Sentence (2) provided (a) it is not more than1 *storey* in *building height*, (b) it has a *building area* not more than 600 m^2, (c) it has residential accommodation for not more than 16 persons, (d) it has not more than 8 *dwelling units*, and

	(e) it has no *mezzanines* or *interconnected floor spaces*. **(2)** The *building* referred to in Sentence (1) is permitted to be of *combustible construction* and (a) floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 45 min, (b) its roof shall have 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.”.
3.2.2.46.	Replace the Article by the following: “**3.2.2.46. Group B, Division 3, up to 2 Storeys** **(1)** A *building* classified as Group B, Division 3, is permitted to conform to Sentence (2) provided (a) it is not more than 2 *storeys* in *building height*, (b) the *building* consists of a *single-family type care occupancy*, and (c) except as provided in Sentence (4), each *storey* accessible to the persons provided with lodging is served by 2 *means of egress*, one of which (i) is an exterior doorway conforming to Article 3.3.3.8., and (ii) leads to another *floor area* separated from adjoining spaces by a *fire separation*. **(2)** The *building* referred to in Sentence (1) is permitted to be of *combustible construction* and (a) the floor structure shall be entirely covered by plaster board, and (b) the *loadbearing* walls, columns and arches shall be covered by plaster board. **(3)** A *single-family type care occupancy* other than a *single-family type private seniors’ residence* shall be *sprinklered* throughout. **(4)** The exterior doorway on the second *storey* and the separation of adjoining spaces of the second *means of egress* are not required in a *single-family type private seniors’ residence* that is *sprinklered* throughout.”.

3.2.2.50.	Replace the Article by the following: “**3.2.2.50. Group C, up to 6 Storeys, Sprinklered** **(1)** A *building* classified as Group C is permitted to conform to Sentence (2) provided (a) the *building* is *sprinklered* throughout, (b) it is not more than 6 *storeys* in *building height*, (c) it has a height (i) not more than 18 m, measured between *grade* and the uppermost floor level, and (ii) not more than 25 m, measured between *grade* and the highest point of the roof assembly (see Note A-3.2.2.50.(1)(c)(ii)), and (d) it has a *building area* not more than (i) 9000 m^2 if 1 *storey* in *building height*, (ii) 4500 m^2 if 2 *storeys* in *building height*, (iii) 3000 m^2 if 3 *storeys* in *building height*, (iv) 2250 m^2 if 4 *storeys* in *building height*, (v) 1800 m^2 if 5 *storeys* in *building height*, or (vi) 1500 m^2 if 6 *storeys* in *building height*. **(2)** The *building* referred to in Sentence (1) is permitted to be of *combustible construction*, and (a) except as permitted in Sentence (3), floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h, (b) the roof assembly shall have a *fire-resistance rating* not less than 1 h, (c) *exit* stairwells and their rooftop enclosure extension must be of *noncombustible construction*, (d) *mezzanines* shall have a *fire-resistance rating* not less than 1 h, (e) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly, (f) except as permitted in Sentence (4), any *floor area* of a *storage garage* shall be of *noncombustible construction*, (g) cladding on the exterior wall shall be *noncombustible* not less than 2 m above and 1 m either side of an *unprotected opening* and any opening or element capable of spreading fire, and

	(h) pipes, wires, cables and ducts must be *noncombustible* or conform to Articles 3.1.5.18., 3.1.5.21. and 3.1.5.23. **(3)** In a *building* that contains *dwelling units* that have more than one *storey*, subject to 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)** A *floor area* of a *storage garage* conform to Sentence 3.3.4.2.(4) may be of combustible construction.”.
3.2.2.58.	Replace the Article by the following : “**3.2.2.58. Group D, up to 6 Storeys, Sprinklered** **(1)** A *building* classified as Group D is permitted to conform to Sentence (2) provided (a) the *building* is *sprinklered* throughout, (b) it is not more than 6 *storeys* in *building height*, and (c) it has a height (i) not more than 18 m between *grade* and the uppermost floor level, and (ii) not more than 25 m between *grade* and the highest point of the roof assembly (see Note A-3.2.2.50.(1)(c)(ii)), and (d) it has a *building area* not more than (i) 18 000 m^2 if 1 *storey* in *building height*, (ii) 9000 m^2 if 2 *storeys* in *building height*, (iii) 6000 m^2 if 3 *storeys* in *building height*, (iv) 4500 m^2 if 4 *storeys* in *building height*, (v) 3600 m^2 if 5 *storeys* in *building height*, or (vi) 3000 m^2 if 6 *storeys* in *building height*. **(2)** The *building* referred to in Sentence (1) is permitted to be of *combustible construction* 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) *exit* stair shafts and their roof-top enclosure shall be of *noncombustible construction*, (d) *mezzanines* shall have a *fire-resistance rating* not less than 1 h,

	(e) *loadbearing* walls, columns and arches shall have a *fire-resistance rating* not less than that required for the supported assembly, (f) a *floor area* with a *storage garage* shall be of *noncombustible construction*, (g) the cladding of an exterior wall shall be *noncombustible* not less than 2 m above and 1 m on each side of an *unprotected opening* or any component that could spread fire, and (h) ducts, wires, cables and raceways shall be *noncombustible* or conform to Articles 3.1.5.18., 3.1.5.21. and 3.1.5.23.”.
3.2.3.1.	Insert “B, Division 3,” after “for Groups A,” in Table 3.2.3.1.-B, in the title of the column on the right.
3.2.3.6.	Replace Sentence (1) by the following: “**(1)** Except for a *building* containing one or 2 *dwelling units* only, *combustible* projections on the exterior of a wall that could expose an adjacent *building* to fire spread and are more than 1 m above ground level, including balconies, platforms, canopies and stairs, shall not permitted within 1.2 m of (a) a property line or the centreline of a *public way*, or (b) any imaginary line used to determine the *limiting distance* between 2 *buildings* located on the same property.”; --- Add the following Sentence: “**(7)** The underside of balconies on a *building* conforming to Article 3.2.2.50. or 3.2.2.58. shall be covered with a *noncombustible* finish material.”.
3.2.3.7.	Strike out the reference to Note “(1)” in Table 3.2.3.7., in the column “Type of Cladding Required”; --- Strike out Note (1) in Table 3.2.3.7. --- Replace “Except as provided in Article 3.1.4.8., the” at the beginning of Sentence (3) by “The”; --- Replace “Except as provided in Article 3.1.4.8., the” at the beginning of Sentence (4) by “The”.

3.2.3.16.	Replace “patients’” in Sentence (1) by “patients’ or residents’”.
3.2.3.20.	Replace Sentence (1) by the following: “**(1)** An underground *walkway* shall not be designed or used for any purpose other than pedestrian travel, unless (a) the *walkway* is *sprinklered*, (b) the *occupancies* are limited to *major occupancies* in Groups D and E, a restaurant or a licensed beverage establishment, and (c) the walkway and spaces occupied by the *occupancies* referred to in Clause (b) are in conformance with the requirements in the NBC regarding *floor areas* and *occupancy* separation. (See Sentence 3.8.1.2.(5) that contains requirements regarding accessibility.)”.
3.2.4.1.	Add “; in a *single-family type care occupancy*, a residential fire warning system conforming to CAN/ULC-S540, “Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance” shall be installed and shall comply with the requirements in Article 3.2.4.21” after “comply with Sentence (1)” at the end of Sentence (2); Replace “*Buildings*” at the beginning of Sentence (3) by “Except *single-family type care occupancies*, *buildings*”; Replace Clause (4)(d) by the following: “(d) an *occupant load* more than 150, in the case of a Group A, Division 1 *building*, or 300 in all other cases, except in open air seating areas,”; Replace Clauses (4)(k) and (4)(l) by the following: “(k) a *high-hazard industrial occupancy* with an *occupant load* more than 25, (l) an *occupant load* more than 300 below an open air seating area, (m) a *building* with an *ambulatory clinic occupancy* referred to in Article 3.1.2.7., or (n) a *care occupancy* except a *single-family type private seniors’ residence*.”.

3.2.4.2.	Add the following at the end of Sentence (1): “(See Note A-3.2.4.2.(1).)”.
3.2.4.3.	Replace Clauses (1)(b) and (1)(c) by the following: “(b) a 2-stage system (i) except as permitted in Clause (c), in a Group B *occupancy*, and (ii) where there is at least one *horizontal exit* that is an *exit* from one *building* to another by means of a doorway in a *firewall*, or (c) a single- or 2-stage system in a Group B, Division 3 *occupancy* where the *building* is 3 *storeys* or less in *building height* and the *floor area* is not divided for evacuation purposes, and”.
3.2.4.5.	Add the following after “Alarm Systems”” at the end of Sentence (1): “and, notwithstanding section 1.05 of the Construction Code (chapter B-1.1, r. 2), the provisions on fire alarm systems in Section 32 of CSA C22.1, “Canadian Electrical Code, Part I” (See Note A-3.2.4.5.(1).)”; --- Replace “Vérification des réseaux avertisseurs d’incendie” in Sentence (2) of the French text by “Vérification des systèmes d’alarme incendie”; --- Add the following Sentence: “**(3)** Residential fire alarm systems shall be installed, inspected and tested in accordance with CAN/ULC-S540, “Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance”, and, notwithstanding section 1.05 of the Construction Code (chapter B-1.1, r. 2), with the provisions on fire alarm systems in Section 32 of CSA C22.1, “Canadian Electrical Code, Part I”.”.
3.2.4.7.	Replace “and Sentence (1)” in Sentence (5) by “and any of Sentences (1), (7) or (8)”; --- Add the following Sentences: “**(7)** A fire alarm system installed in a *building* containing an *ambulatory clinic occupancy* referred to in Article 3.1.2.7. shall be designed to notify the fire department, in conformance with Sentence (4), that an *alarm signal* has been initiated.

	(8) A single-stage fire alarm system installed in a *care occupancy* shall be designed to notify the fire department, in conformance with Sentence (4), that an *alarm signal* has been initiated.”.
3.2.4.8.	Replace Clauses (2)(h) and (2)(i) by the following: “(h) *fire compartment* required by Sentence 3.3.3.5.(2) or for egress purposes in a *care occupancy,* (i) *walkway* having an *occupancy* permitted by Sentence 3.2.3.20.(1), (j) *ambulatory clinic occupancy* referred to in Article 3.1.2.7., (k) sprinkler-protected window system installed in conformance with Article 3.1.7.6., and (l) *floor area* on either side of a *horizontal exit*. (See Note A-3.2.4.8.(2).)”; Replace Clauses (5)(b) and (5)(c) by the following: “(b) that has an aggregate area for all *storeys* of not more than 2000 m^2, (c) that is not more than 3 *storeys* in *building height*, and (d) that has a single-stage fire alarm system.”.
3.2.4.10.	Replace Clauses (2)(e) and (2)(f) by the following: “(e) elevator hoistways and dumbwaiter shafts, (f) laundry rooms in *buildings* of *residential occupancy*, but not those within *dwelling units*, (g) rooms or premises not intended for the public of a *building* classified as Group A, Division 1 *major occupancy*, (h) *suites* whose *major occupancy* is Group C and the whose detector must be installed near a doorway, (i) rooms not within a *suite* in a *building* classified as a Group C *major occupancy*, and (j) elevator landings located inside a *dwelling unit.*”;

	Add the following Sentence: “**(5)** *Fire detectors* required by Clauses (2)(e),(f),(g),(h) and (j) and Sentence (4) shall be minimum fixed temperature and rate-of-rise heat detectors.”.
3.2.4.11.	Strike out “except as permitted in Sentence (2),” in Clause (1)(a); Replace Clauses (1)(f) and (1)(g) by the following: “(f) the vicinity of draft stops required by Article 3.2.8.6., (g) elevator machine rooms, (h) intake openings for a linen and refuse chutes conforming to Sentence 3.6.3.3.(6), and (i) a *floor area* having an *ambulatory clinic occupancy* referred to in Article 31.2.7. (i) in the *public corridor* serving the *ambulatory clinic occupancy*, and (ii) in the corridor inside the *ambulatory clinic occupancy* or if there is no corridor, near accesses to the treatment area, which includes treatment, operating or recovery rooms.”; Strike out Sentence (2); Replace “rappeler les ascenseurs desservis par le local de machinerie d’ascenseur” in Sentence (4) of the French text by “rappeler les ascenseurs ou monte-charges desservis par le local de machinerie d’ascenseur ou de monte-charge”.
3.2.4.14.	Add “et monte-charges” at the end of the title of the Article in the French text; Insert “ou monte-charges” after “ayant des ascenseurs” at the beginning of Sentence (1) of the French text; Insert “ou monte-charges” after “rappel des ascenseurs” at the end of Sentence (1) of the French text;

	Add the following Sentence: “**(4)** Upon activation of the fire alarm, all elevators of the *building* equipped with automatic emergency recall shall be recalled to the recall level.”.
3.2.4.16.	Replace “toute *aire de plancher* située” in Sentence (1) of the French text by “chaque *aire de plancher*”; --- Strike out “ that is *sprinklered* throughout” in Sentence (2); --- Replace Sentence (3) by the following: “**(3)** In a *building* not more than 3 *storeys* in *building height* containing only *dwelling units*, a manual station is not required at each egress doorway from a *dwelling unit*.”; --- Insert “or the landing of an *exit* stair shaft on which a *dwelling unit* door opens directly” after “shared interior corridors” in Sentence (4).
3.2.4.18.	Replace Sentence (4) by the following: “**(4)** The *fire alarm* signal sound pressure level shall be not more than 95 dBA measured at a distance of 3 m from each audible signal device.”; --- Replace Sentences (8) and (9) by the following: “**(8)** Audible signal devices within a *dwelling unit* or a *suite* of *residential occupancy* or a *dwelling unit* of *care occupancy* shall be connected to the fire alarm system (a) in a manner such that a single open circuit at one device will not impair the operation of other audible signal devices on that same circuit that serve the other *dwelling units* or *suites* of *residential occupancy* or other *dwelling units* of *care occupancy*, or (b) on separate signal circuits that are not connected to the devices in any other *dwelling unit*, *public corridor* or *suite* of *residential occupancy* or in other *dwelling units* or *public corridors* of *care occupancy*. (See Note A-3.2.4.18.(8) and (9).) **(9)** In a *building* or part thereof classified as a *residential* or *care occupancy*,

	(a) separate circuits shall be provided for audible signal devices on each *floor area*, and (b) audible signal devices within *dwelling units* or *suites* of *residential occupancy* or in *dwelling units* of *care occupancy* shall be wired on separate signal circuits from those not within *dwelling units* or *suites* of *residential occupancy* or *dwelling units* of *care occupancy*. (See Note A-3.2.4.18.(8) and (9).)”.
3.2.4.19.	Add the following Sentence: “**(3)** Visual signal devices connected to the alarm system shall be installed near each audible signal installed in a *dwelling unit* or a *suite* of a *residential occupancy* and in each *dwelling unit* of a *care occupancy*.”.
3.2.4.20.	Replace Sentence (2) by the following: “**(2)** Except as required by Sentences (5) and (8), *smoke alarms* conforming to CAN/ULC-S531, “Smoke Alarms”, shall be installed (a) in each *dwelling unit* and in each sleeping room not within a *dwelling unit*, except (i) patients’ or residents’ rooms in a *care* or *treatment occupancy* designed in accordance with Sentences 3.3.3.5.(2) to (13), (ii) sleeping rooms not within a *dwelling unit* of a *detention occupancy*, and (iii) a *single-family type care occupancy sprinklered* according to NFPA 13D, and (b) in a *single-family type private seniors’ residence* not equipped with a *residential fire alarm system* (i) on each *storey* of the *building*, (ii) in each sleeping room, (iii) in a location between the sleeping rooms and the remainder of the *suite* and if the sleeping rooms are served by a hallway within the *suite*, the *smoke alarm* shall be located in the hallway, (iv) in each corridor, and (v) in each rest or common activity area.”; Strike out “or *suite* of *care occupancy*” at the end of Sentence (3);

	Replace Sentence (5) by the following: “**(5)** *Smoke alarms* in a *single-family type private seniors’ residence* shall be (a) photoelectric, (b) interconnected and connected to visual signal devices that allow personnel assigned to the sleeping rooms to see where the *smoke alarm* is triggered, and (c) connected to the fire department in accordance with CAN/ULC-S561, “Installation and Services for Fire Signal Receiving Centres and Systems”.”; Replace Sentence (9) by the following: “**(9)** *Smoke detectors* permitted to be installed in lieu of *smoke alarms* as stated in Sentence (8) (a) are permitted to sound localized alarms within individual *suites*, and need not sound an alarm throughout the rest of the *building*, and (b) shall sound localized alarms within *dwelling units* or *suites* with cooking equipment, and need not sound an alarm throughout the rest of the *building* and shall not sound an *alert signal*.”.
3.2.4.21.	Replace the Article by the following: “**3.2.4.21. Residential Fire Alarm Systems** **(1)** A residential fire alarm system (a) shall be installed in a *single-family type care occupancy sprinklered* in accordance with NFPA 13D, (b) may be installed in a *single-family type private seniors’ residence* not *sprinklered* in accordance with NFPA 13D, and (c) may be installed in a *dwelling unit* provided the *building* is not equipped with a fire alarm system, whether or not it is required. **(2)** In a *single-family type care occupancy sprinklered* in accordance with NFPA 13D, the residential fire alarm system shall (a) be equipped with *smoke detectors* (i) on each *storey* of the *building*, (ii) in sleeping rooms, the *smoke detectors* shall be connected to visual alarms that allow personnel assigned to the rooms to see where the *smoke detector* has been actuated, and

	(iii) in corridors, (b) be single stage and, upon the operation of any manual station, waterflow detecting device, or *fire detector*, cause an *alarm signal* to sound on all audible signal devices in the system, (c) be designed so that when an *alarm signal* is actuated, it cannot be silenced automatically before a period of time has elapsed that is not less than 20 min, (d) be designed to notify the fire department, in conformance with Sentence 3.2.4.7.(4), that an *alarm signal* has been initiated, (e) be equipped with a display that shall (i) be installed near the main exit door, and (ii) indicate the sprinklers and *smoke detectors*, (f) be equipped with a control centre, (g) be electrically supervised, as well as the sprinkler system, (h) be equipped with a manual station at the main entrance, (i) be conform to Article 3.2.4.18. for audibility of signals, (j) be equipped with visual signal devices conform to Sentence 3.2.4.19.(3), and (k) be connected to an emergency power supply, (i) capable of providing supervisory power for not less than 24 h and, immediately following that period, emergency power under full load for not less than 5 min, and (ii) designed so that, in the event of a failure of the normal power source, there is an immediate automatic transfer to emergency power. **(3)** In a *single-family type private seniors' residence* not *sprinklered*, the residential fire alarm system shall (a) be equipped with photoelectric *smoke detectors* (i) on each *storey* of the *building*, (ii) in sleeping rooms, the *smoke detectors* shall be connected to visual alarms that allow personnel assigned to the rooms to see where the *smoke detector* has been actuated, (iii) in each rest or common activity area, and (iv) in corridors, (b) be single-stage and, upon the operation of any manual station or *fire detector*, cause an *alarm signal* to sound on all audible signal devices in the system,

	(c) be designed so that when an *alarm signal* is actuated, it cannot be silenced automatically before a period of time has elapsed that is not less than 20 min, (d) be designed to notify the fire department, in conformance with Sentence 3.2.4.7.(4), that an *alarm signal* has been initiated, (e)be equipped with a display that shall (i) be installed near the main exit door, and (ii) indicate the *smoke detectors*, (f) be equipped with a control centre, (g) be electrically supervised, (h) be equipped with a manual station at the main entrance, (i) be conform to Article 3.2.4.18. for audibility of signals, (j) be equipped with visual signal devices conform to Sentence 3.2.4.19(3), and (k) be connected to an emergency power supply (i) capable of providing supervisory power for not less than 24 h and, immediately following that period, emergency power under full load for not less than 30 min, and (ii) designed so that, in the event of a failure of the normal power source, there is an immediate automatic transfer to emergency power. **(4)** In a *dwelling unit*, *smoke alarms* required by Article 3.2.4.20. are permitted to be replaced by a residential fire alarm system that shall (a) be equipped with *smoke detectors* (i) on each *storey* of the *dwelling unit*, (ii) in sleeping rooms, and (iii) in a location between the sleeping rooms and the remainder of the *storey* and if the sleeping rooms are served by a hallway within the *storey*, the *smoke alarm* shall be located in the hallway, (b) be single-stage and, upon the operation of any manual station or *fire detector*, cause an *alarm signal* to sound on all audible signal devices in the system, (c) be equipped with a manual station at the main entrance, (d) be conform to Article 3.2.4.18. for audibility of signals, (e) be equipped with visual signal devices conform to Sentence 3.2.4.19.(3),

	(f) be designed so that when an *alarm signal* is actuated, it cannot be silenced automatically before a period of time has elapsed that is not less than 20 min, and (g) be connected to an emergency power supply (i) capable of providing supervisory power for not less than 24 h and, immediately following that period, emergency power under full load for not less than 5 min, and (ii) designed so that, in the event of a failure of the normal power source, there is an immediate automatic transfer to emergency power.”.
3.2.4.22.	Insert “Two-way” before “Voice Communication” in the title of the Article; Insert “ou de monte-charge” after “cabines d’ascenseur” in Clause (1)(b) of the French text.
3.2.4.23.	Replace “unilatérale” wherever it appears in the Article and its title in the French text by “unidirectionnelle”; Replace “and whose *occupant load* exceeds 1 000” in Sentence (1) by “and (a) whose *occupant load* exceeds 1000, or (b) where are *fire resistant compartments* are provided for the partial egress of the *building* in a *care occupancy*”; Insert “ou de monte-charge” after “cabines d’ascenseur” in Clause (2)(b) of the French text.
3.2.5.3.	Replace “On” at the beginning of Sentence (1) by “Except as permitted by Sentence (2), on”; Add the following Sentence: “**(2)** The roof of a *building* conforming to Article 3.2.2.50. or 3.2.2.58 shall be provided with access by a stairway (see note A-3.2.5.3.(2)).”.

3.2.5.6.	Replace “uppermost floor level” at the end of Sentence (2) by “the highest floor level”.
3.2.5.9.	Add the following Sentence: “**(7)** The connection of a standpipe system to the potable water system shall be protected against back-siphonage or back pressure backflow in conformance with the NPC.”.
3.2.5.12.	Replace Sentences (2) and (3) by the following: “**(2)** Despite Sentence (1), NFPA-13R, “Installation of Sprinkler Systems in Low-Rise Residential Occupancies”, is permitted to be used for the design, construction and installation of an automatic sprinkler system installed in a *residential occupancy* not more than 4 *storeys* in *building height* conforming to Article 3.2.2.47., 3.2.2.48., 3.2.2.51. or 3.2.2.54. (See Note A-3.2.5.12.(2).) **(3)** Despite Sentence (1), NFPA-13D, “Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes”, is permitted to be used for the design, construction and installation of an automatic sprinkler system installed in (a) in a *building* of *residential occupancy* throughout containing not more than 2 *dwelling units*, or (b) a *single-family type care occupancy* whose water supply capacity for the sprinkler system is not less than 30 min.”; Replace “referenced in Sentences (1) and (2)” in Sentence (7) by “referenced in Sentence (1)”; Insert “, where they are of combustible construction,” after “balconies and decks” in Sentence (7); Insert “ou de monte-charge” after “machinerie d’ascenseur” in Sentence (8) of the French text;

	Add the following Sentences: “**(9)** Despite Sentence (1) and subject to Sentence (6), sprinklers are not required in a toilet room or a washroom of a *suite* of a *residential occupancy* or a *dwelling unit* of a *care occupancy* (a) having an area of not more than 5.1 m^2, and (b) that does not contain equipment such as washers, dryers, a heating or ventilation equipment or service water heaters. **(10)** Despite Sentence (1) and subject to Sentence (6), sprinklers are not required in a closet or a clothes closet of a *suite* of a *residential occupancy* or a *dwelling unit* of a *care occupancy* (a) having an area of not more than 2.2 m^2, and (b) that does not contain equipment such as washers, dryers, a heating or ventilation equipment or service water heaters. **(11)** The connection of a sprinkler system to the potable water system shall be protected against back-siphonage or back-pressure backflow in accordance with the NPC.”.
3.2.5.13.	Replace “sprinkler systems” in Sentence (1) by “wet pipe system”.
3.2.6.2.	Replace Sentence (6) by the following: “**(6)** Except as provided in Article 3.2.4.12., air-handling systems used to provide make-up air to *public corridors* serving *suites* in a Group C *major occupancy* shall not shut down automatically upon activation of the fire alarm so as to maintain corridor pressurization (see Note A-3.2.6.2.(6)).”.
3.2.6.4.	Replace the title of the Article by the following: “**3.2.6.4. Emergency Operation of Passenger Elevators**”; Insert “passenger” before “elevator” wherever that word appears in the Article.
3.2.6.5.	Replace the title of the Article by the following: “**3.2.6.5. Passenger Elevator for Use by Firefighters**”;

	Insert “passenger” before “elevator” wherever that word appears in the Article; Replace Clause (6)(b) by the following: “(b) conform to CAN/ULC-S139, “Standard Method of Fire Test for Evaluation of Integrity of Electrical Power, Data and Optical Fibre Cables” including the hose stream application, to provide a circuit integrity level of at least 1h, from the service entrance of the emergency power supply, or the normal service entrance of the normal power supply, to the equipment served.”; Add the following Sentences: “**(7)** Where a sump pump is installed to drain the elevator pit provided for firefighters, it shall operate using cables conforming to Clauses (6)(a) and (b). **(8)** The pictogram of a firefighter’s helmet required by Chapter IV “Elevators and Other Elevating Devices” of the Construction Code (chapter B-1.1, r. 2) shall be installed beside the elevator hoistway doorway of each elevator for firefighters.”.
3.2.6.6.	Insert “ou de monte-charge” after “gaines d’ascenseur” in Sentence (4) of the French text.
3.2.6.7.	Insert “passenger” before “elevator” in Clause (2)(c); Replace Clause (2)(j) by the following: “(j) means to communicate with telephones in passenger elevator cars, separate from connections to firefighters’ telephones, if passenger elevator cars are required by ASME AI7.I/CSA B44, “Safety Code for Elevators and Escalators,” to be equipped with a telephone,”.
3.2.7.1.	Insert “or residents’” after “patients’” in Sentence (1).
3.2.7.3.	Replace Clause (1)(e) by the following: “(e) corridors serving sleeping rooms in a *care occupancy*, except corridors located inside a *dwelling unit*,”;

<table>
<tr><td></td><td>Replace Clauses (1)(k) and (1)(l) by the following:
“(k) food preparation areas in commercial kitchens,
(l) public washrooms that are equipped to serve more than one person at a time, and
(m) means of egress in a single-family type care occupancy.”.</td></tr>
<tr><td>3.2.7.9.</td><td>Insert “passenger” before “elevator” wherever it appears in the Article;<hr>Add the following Sentence:
“(4) Where a sump pump is installed to drain the elevator pit provided for firefighters, an emergency power supply capable of providing not less than 1 h of power to the sump pump shall be installed and shall comply with the requirements in Clauses 3.2.6.5. (6)(a) and (b).”.</td></tr>
<tr><td>3.2.7.10.</td><td>Replace “Clauses (a) to (c)” in Sentence (1) by “Clauses (a) to (d)”;<hr>Replace Clauses (1)(b) and (1)(c) by the following:
“(b) emergency conductors serving fire pumps required to be installed under Article 3.2.5.18.,
(c) electrical conductors serving mechanical systems serving
(i) areas of refuge identified in Clause 3.3.3.6.(1)(b), or
(ii) contained use areas identified in Clauses 3.3.3.7.(4)(a) and (b), and
(d) electrical cables located in a building conform to Article 3.2.2.50. or 3.2.2.58. and serving
(i) fire alarm systems, or
(ii) emergency lighting systems.”.</td></tr>
<tr><td>3.2.8.1.</td><td>Insert “and 3” after “Division 2” in Sentence (3);<hr>Add the following Sentence:
“(4) In a building of Group C major occupancy, the public corridor shall not be in an interconnected floor space and shall not penetrate an interconnected floor space to reach an exit.”.</td></tr>
</table>

3.2.8.2.	Insert “stairways that do not serve as *exit*,” after “openings for” in Sentence (5); --- Replace Clause (5)(c) by the following: “(c) if the *major occupancy* of the *building* is a Group A, Division 1, 2 or 3, Group D or Group E (see Note A-3.2.8.2.(6)(c)). (See Note A-3.2.8.2.(5).)”; --- Insert “, where the *building area* is not more than one half of the area permitted by Subsection 3.2.2. (see Note A-3.2.8.2.(6)(b));” before “the openings through” in Clause (6)(b); --- Add “(See Note A-3.2.8.2.(5).)” at the end of Sentence (6).
3.2.8.3.	Add the following Sentence: “**(2)** *Buildings* constructed in accordance with Articles 3.2.8.4. to 3.2.8.9. shall be of *noncombustible construction*; a *heavy timber construction* shall be permitted if a *combustible construction* is by Subsection 3.2.2.”.
3.2.8.4.	Insert “ou monte-charges” after “des ascenseurs” at the beginning of Sentence (3) of the French text; --- Insert “ou monte-charges” after “les portes d’ascenseur” in Sentence (3) of the French text.
3.3.1.1.	Replace Sentence (1) by the following: “**(1)** Except as permitted by Sentences (2) to (4), (a) each *suite* in other than *business and personal services occupancies* shall be separated from adjoining *suites* by a *fire separation* having a *fire-resistance rating* not less than 1 h, and (b) a treatment area, which includes operating, treatment or recovery rooms, in an *ambulatory clinic occupancy* referred to in Article 3.1.2.7. shall be separated from the remainder of the *floor area* by a *fire separation* having a *fire-resistance rating* not less than 1 h.

	(See also Subsection 3.3.3. for *care* or *detention occupancies*, Article 3.3.4.2. for *residential occupancies* and Article 3.1.8.7. for *fire dampers*.)"; --- Add the following Sentence: "**(4)** Except as permitted by Division 3.9., in a *building* used as a self-service warehouse, classified as a *medium-hazard industrial occupancy* (Group F, Division 2) and entirely *sprinklered*, each storage room need not be separated from the remainder of the *building* by a *fire separation*.".
3.3.1.2.	Add the following Sentences: "**(4)** Cooking *appliances* shall not be installed in a corridor serving as an *access to exit*. **(5)** Ranges, *cooktops* and residential type ovens shall be (a) installed in accordance with Subsection 9.10.22., and (b) equipped with a hood in accordance with Sentence 6.3.1.7.(2).".
3.3.1.3.	Add the following Sentence: "**(10)** Just one end of a *public corridor* in a *care* or *residential occupancy* is permitted to lead through a lobby provided the lobby (a) conforms to Clauses 3.4.4.2.(2)(a) to (d) and 3.4.4.2.(2)(f) and Subclauses 3.4.4.2(2)(e)(i), (ii) and (iv), (b) is separated from the *public corridor* by a *fire separation* having the *fire-resistance rating* required for the most restrictive between the lobby, the *public corridor* and adjacent rooms. (See Notes A-3.3.1.3(10) and A-3.4.4.2.(2).)".
3.3.1.4.	Replace Sentence (1) by the following: "**(1)** Except as otherwise required by this Part or as permitted by Sentence (4), a *public corridor* shall (a) be separated from the remainder of the *storey* by a *fire separation*, and (b) not contain an *occupancy*."; --- Replace "No" in Sentence (4) by "Except for the purposes of Clause 3.4.2.3.(1)(a), no"; ---

	Add the following Sentences: “**(5)** Except as required in Sentence (6), residential type cooking equipment, such as ranges, *cooking tops* or ovens, is permitted to be installed in a room that opens on a *public corridor* if the *floor area* does not contain a Group C or Group B, Division 2 or 3, *occupancy*. **(6)** Where the *floor area* contains a Group C or Group B, Division 2 or 3, *occupancy*, the cooking equipment permitted in Sentence (5) shall be installed in a room separated from the remainder of the *floor area* by a *fire separation* having a *fire-resistance rating* not less than 45 min.”.
3.3.1.5.	Replace the term “*suites*” wherever it appears under Group B, Division 3, in the column “*Occupancy* of Room or *Suite*” in Table 3.3.1.5.B. by “*dwelling units*”.
3.3.1.7.	Replace “a *barrier-free* path of travel” in Sentence (1) by “a required *barrier-free* path of travel”; Replace “served by an elevator” in Clause (1)(a) by “served by a passenger elevator”.
3.3.1.9.	Replace Sentence (1) by the following: “**(1)** Subject to Sentence 3.3.3.3.(2), the minimum width of a *public corridor* shall be 1100 mm.”; Insert “or residents’” after “patients’” in Sentences (2) and (3); Replace Sentence (5) by the following: “**(5)** Where a corridor contains an *occupancy* authorized under the NBC, the *occupancy* is permitted to reduce the total width of the corridor, but not to less than the required minimum unobstructed width.”; Strike out “de passage” in Clause (6)(a) of the French text after “largeur libre”; Add the following Sentence: “**(8)** A dead-end corridor up to 9 m long is permitted provided (a) it serves an elevator hall or *service rooms*,

	(b) the *building* is of *noncombustible construction*, and (c) the *building* is *sprinklered*.”.
3.3.1.14.	Replace “Sentence (2)” at the beginning of Sentence (1) by “Sentences (2) and (3)”; --- Add the following Sentence: “**(3)** An interior stairway of less than 3 risers is permitted provided (a) the stair is not less than 900 mm wide, (b) the stair has a covering that contrasts with the landing covering or is permanently lit when the lighting is filtered and occupants are on the premises, and (c) a handrail is installed on each side.”.
3.3.1.20.	Replace “Except as provided in Sentence (2)” at the beginning of Sentence (1) by “Except as provided in Sentences (2), 3.1.8.8.(7) and 3.6.3.1.(6)”.
3.3.2.4.	Replace “Sentence (4)” in Sentence (3) by “Sentences (4) and (5)”; --- Add the following Sentence: “**(5)** The requirements of Sentence (3) for fixed seats with backs do not apply if (a) each row has an unobstructed passage with the minimum width of 400 mm required by Clause (1)(c) plus 6.1 mm for each additional seat above 16 seats in the row, and (b) 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.”.
3.3.2.5.	Replace “bleacher seats” in Sentence (3) by “bleachers”.

3.3.2.9.	Replace Sentence (1) by the following: “**(1)** Except as required by Sentences (2) to (4) for bleachers, *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 seating spaces extend to the edge, the height of *guards* is not less than (i) 760 mm in front of the spaces, 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 are not less than 600 mm above the floor of the aisle, and (c) where the seating spaces are 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 these spaces at the edge of the platform.”; Replace “bleacher seats” in Sentence (2) by “bleachers”; Replace “bleacher seats” in Sentence (3) by “bleachers”.
3.3.2.15.	Strike out the Article.
3.3.3.1.	Replace Sentence (1) by the following: “**(1)** This Subsection applies to *care*, *treatment*, *ambulatory clinic occupancies* referred to in Article 3.1.2.7. and *detention occupancies*. (See Note A-3.3.3.1.(1))”.
3.3.3.3.	Replace Sentences (2), (3) and (4) by the following: “**(2)** *Public corridors* are permitted to have dead-end portions where (a) the area served by the dead-end portion has a second and separate *means of egress*, (b) the dead-end portion of a *public corridor* serving *dwelling units* does not exceed 6 m, (c) the dead-end portion of a corridor used by the public or a corridor serving patients' or residents’ sleeping rooms does not exceed 1 m, or

	(d) the corridor meets the requirements in Sentence 3.3.1.9.(8). (See Note A-3.3.3.3.(2).) **(3)** *Public corridors* shall be not less than (a) 2400 mm wide in *buildings* of *care* or *treatment occupancy* where the corridors may be used to move patients or residents in beds, (b) 1650 mm wide in *buildings* of *care* or *treatment occupancy* where the corridors will not be used to move patients or residents in beds, or (c) 1100 mm wide in *buildings* of *care occupancy* constructed in accordance with Article 3.2.2.45. **(4)** Paired doors in a corridor referred to in Clauses (3)(a) and (3)(b) shall (a) swing in opposite directions, the right-hand door swinging in the direction of travel, and (b) be not less than 1100 mm wide where the required width of the corridor is 2400 mm.”.
3.3.3.4.	Strike out “and within individual *suites* of *care occupancy*” in Sentence (1).
3.3.3.5.	Replace Sentence (1) by the following: “**(1)** Except in the case of *care occupancies* constructed in accordance with Article 3.2.2.46., *floor areas* containing patients’ or residents’ sleeping rooms in a *care* or *treatment occupancy* shall conform to Sentences (2) to (13).”; Replace Sentence (10) by the following: “**(10)** Residential type electric cooking equipment is permitted to be installed in a *fire compartment* provided it is installed in a room separated from the remainder of the *floor area* by a *fire separation* having a *fire-resistance rating* of not less than 45 min.”; Replace “*suites*” in Sentences (14) and (15) by “*dwelling units*”; Replace “*suite*” in Sentence 17 by “*dwelling unit*”.

3.3.3.6.	Add “(See Note A-3.3.3.6.(1).)” at the end of Sentence (1).
	Add the following Articles: “**3.3.3.8. Means of egress from care occupancies** **(1)** Subject to Sentence (2), a *floor area* in a *single-family type care occupancy* referred to in Clause 3.2.2.46.(1)(c) shall (a) if it is located on the second *storey*, be served by an exterior exit door that is accessible to all the persons lodged and opens to an exterior stairway leading to ground level, the lower surface of the upper landing of which is protected by a *noncombustible* material, and (b) if it is located in a *basement*, be served by an exterior exit door accessible to all the persons lodged. **(2)** The requirements of Clause (1)(a) are permitted to be waived, for a *single-family type private seniors’ residence*, where the *building* is protected by a sprinkler system designed, constructed, installed and tested in accordance with NFPA 13D, “Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes”. **3.3.3.9. Dwelling Units** **(1)** A *dwelling unit* in a *care occupancy* (a) shall conform to Article 3.3.4.3, (b) if it contains more than one *storey* shall have an *exit* door or an egress door opening directly into a public *access to exit* from the uppermost *storey* and from the lowest *storey* of the *dwelling unit* so that each of these *storeys* is served by an *exit* or egress door located not more than 1.5 m above or below its floor level, and (c) shall conform to Articles 3.3.4.5. to 3.3.4.9.”.
3.3.4.2.	Replace “6 m” in Clause (3)(a) by “7 m”.
3.3.4.8.	Replace “1070 mm” in Sentence (2) by “900 mm”.
	Add the following Articles: “**3.3.4.9. Doorway Sizes** **(1)** Doorways in a *dwelling unit* shall conform to Article 9.5.5.1.

	3.3.4.10. Hallways **(1)** The unobstructed width of a hallway within a *dwelling unit* shall be conform to Article 9.5.4.1. **3.3.4.11. Entrance Doors** **(1)** The entrance door of a *dwelling unit* shall conform to Article 9.7.2.1. **3.3.4.12. Resistance to Forced Entry for Doors** **(1)** Entrance doors of a *dwelling unit* shall conform to Article 9.7.5.2. **3.3.4.13. Resistance to Forced Entry for Windows** **(1)** In *dwelling units*, windows shall conform to Article 9.7.5.3.”.
3.3.5.4.	Replace “ou à un ascenseur” in Sentence (1) of the French text by “, à un ascenseur ou à un monte-charge”.
3.3.5.6.	Add “(See Note A-3.3.5.6.(1).)” at the end of Sentence (1).
	Add the following Article: “**3.3.5.11. Flat Roofs for Heliports** **(1)** A flat roof used for landing a helicopter shall comply with the requirements in Articles 2.13.1.1. to 2.13.2.1. of the NFC”.
3.3.6.3.	Replace Clauses (2)(c) and (2)(d) by the following: “(c) that can be entered from the exterior, (d) whose *closures* leading to the interior of the *building* are (i) equipped with self-closing devices that keep the *closures* closed when not in use, (ii) constructed so as to prevent the migration of gases from the room into other parts of the *building*, and (e) vented to the outside.”.

	Add the following Subdivision: “**3.3.7. Business occupancies** **3.3.7.1.Application** **(1)** This Subsection applies to *buildings* constructed in accordance with Article 3.2.2.50. or 3.2.2.58. **3.3.7.2. Floor area with a Group D occupancy** **(1)** A *floor area* consisting of a sole *suite* that is over 2000 m² and serving a Group D *occupancy* shall be divided by a *fire separation* with no *fire-resistance rating* into two fire compartments served by a separate *exit* such that the travel distance from any point in one compartment to a door leading to the other compartment is not more than the travel distance permitted by Sentence 3.4.2.5.(1).”.
3.4.3.4.	Replace the title by “**Clear Height**”; Replace Sentences (1), (2) and (3) in the French text by the following: “**1)** Sous réserve des paragraphes 4) et 5), toutes les *issues* doivent avoir une hauteur libre, au-dessus de la largeur libre de l’*issue*, d’au moins 2050 mm. **2)** La hauteur libre d’un escalier doit être mesurée à la verticale, au-dessus de la largeur libre de l’escalier, à partir de la tangente au nez des marches et des paliers jusqu’à l’élément le plus bas situé au-dessus (voir la note A-9.8.7.4.). **3)** La hauteur libre des paliers doit être mesurée verticalement à l’intérieur de la largeur libre du palier jusqu’à l’élément le plus bas situé au-dessus.”; Replace “headroom clearance” in Sentences (4) and (5) by “clear height”.
3.4.4.2.	Add “(See Note A-3.4.4.2.(2).)” at the end of Sentence (2).
3.4.6.2.	Replace “3.3.2.15.(1)” in Sentence (1) by “3.3.1.14.(3)”.
3.4.6.11.	Replace Sentence (2) by the following: “**(2)** Except as provided in Sentence (3) and where doorways are used to confine the spillage of *flammable liquids* within a *service room* or within a room in an *industrial occupancy*, a threshold for a doorway in an *exit* shall be not more than 13 mm higher than the surrounding finished floor surface.”.

3.4.6.16.	Insert “and Sentence (6)” after “Clause (k)” in Clause (4)(e); Replace “avertisseur” in Subclause (4)(k)(i) of the French text by “déclencheur” “; Insert “located in the parts of the *floor area* arranged according to Sentences 3.3.3.5.(2) to (13)” after “similar devices to keep the door in the closed position” in Sentence (5); Replace “de l’avertisseur” in Subclause (5)(b)(iv) of the French text by “du déclencheur”; Replace “EMERGENCY EXIT UNLOCKED BY FIRE ALARM” in Clause (5)(d) by “IN CASE OF FIRE, THIS DOOR MAY BE OPENED BY ACTIVATING THE MANUAL PULL STATION LOCATED (on the left or the right depending on the location of the station)”; Replace Sentence (6) by the following: “**(6)** The actuation of the unlocking device provided for in Clause 3.4.6.16.(4)(e) may be delayed not more than 3 s, within the maximum time of 15 s to open only one door of a *means of egress*, provided a visual sign informs occupants that they must press on the opening hardware for at least 3 s. **(7)** The lock installed on the door of the main entry of a *residential building* with a number of *suites* shall be equipped with a mechanism (a) allowing its automatic unlocking at the actuation of the *alarm signal*, (b) designed such as the door remains unlocked throughout the time the *alarm signal* sounds in the *building*. **(8)** Locking devices permitted under Sentences (4) and (5) shall conform to the test requirements prescribed in CAN/ULC-S533, “Egress Door Securing and Releasing Devices”. **(9)** Door hardware for the operation of the doors referred to in this Section shall be installed at a height not more than 1200 mm above the finished floor.”.
3.4.6.18.	Strike out “de passage” in the title of the Article in the French text.

3.5.1.1.	Replace “and dumbwaiters” in Sentence (1) by “, dumbwaiters and window cleaning”.
	Add the following Articles: “**3.5.1.2. Storeys Served** **(1)** Where a *building* has an elevator, it shall serve all *storeys*, including the roof containing a common terrace. **3.5.1.3. Elevator** **(1)** *Buildings* having more than 4 *storeys in building height* shall be equipped with an elevator.”.
3.5.2.1.	Strike out Sentence (2); Add the following Sentence: “**(4)** Notwithstanding the provisions of Chapter IV, Elevators and other elevating devices, of the Construction Code (chapter B-1.1, r. 2), every passenger elevator shall (a) have a voice synthesizer announcing the *storeys* served and installed in conformance with Appendix E of ASME A17.1/CSA B44, “Safety Code for Elevators and Escalators”, (b) conform to Subsection 3.5.4, and (c) if it is a destination-oriented elevator system, be equipped with a keypad (i) to enter the information on the destination using a tactile writing system with raised characters (braille), and (ii) located near the elevators so that it is easy to see the signal and hear the audible signal of the elevators.”.
3.5.3.1.	Replace “Elevator Hoistways” in the title of the Article by “Hoistways of Elevators and Lift for Persons with Physical Disabilities”; Replace “an elevator hoistway” in Sentence (1) by “a hoistway of an elevator or a lift for persons with physical disabilities”;

	Replace “Elevator Hoistway” in the title of the second column of Table 3.5.3.1. by “Hoistway of Elevator and Lift for Persons with Physical Disabilities”; Strike out the third column of Table 3.5.3.1.; Replace Sentence (2) by the following: “**(2)** Passenger elevators, other than those provided for firefighters in accordance with Article 3.2.6.5., or lifts for persons with physical disabilities are permitted to be located within *interconnected floor space* without being enclosed in a hoistway separated from the remainder of the *building*, provided the elevator or device machinery is located in a room separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* not less than that required for hoistways by Sentence (1).”.
3.5.3.3.	Replace “Elevator Machine Rooms” in the title of the Article by “Machine Rooms of Elevators or Lifts for Persons with Physical Disabilities”; Replace “elevator machinery” in Sentences (1) and (2) by “machinery of an elevator or a lift for persons with physical disabilities”.
3.5.4.1.	Strike out “ou de monte-charge” in the French text of the title of the Article; Replace Sentence (1) by the following: “**(1)** Except as permitted in Sentence (3), if one or more elevators are provided in a *building*, all *storeys* shall be served by at least one elevator which has inside dimensions that will accommodate and provide adequate access for a patient stretcher 2010 mm long and 610 mm wide in the prone position (see note A-3.5.4.1.(1)).”; Add the following Sentence: “**(3)** An elevator serving a *building* not more than 3 *storeys* and not more than 600 m^2 is permitted to have dimensions that are less than the dimensions in Sentence (1) but not less than the dimensions required in Appendix E of ASME A17.1/CSA-B44, “Safety Code for Elevators and Escalators”, provided it (a) serves an *occupancy* other than a Group B, Division 2 *occupancy*, and (b) is not referred to in Article 3.3.1.7.”.

	Add the following Subsection: “**3.5.5. Window Cleaning Systems** **3.5.5.1. Referenced Standards** **(1)** Every window cleaning system shall conform to (a) CAN/CSA-Z91, “Health and Safety Code for Suspended Equipment Operations”, and (b) CAN/CSA-Z271, “Safety Code for Suspended Elevating Platforms”.”.
3.6.2.8.	Add the following Sentence: “**(2)** Outdoor installation of a generator is permitted provided (a) the installation conforms to Article 3.6.1.5., (b) the generator is protected from inclement weather and can operate during extreme temperature events, (c) a minimum clearance of not less than 1 m is provided to enable maintenance of the generator, and (d) where the generator is installed on the roof of a *building*, (i) the portion of the roof and its structural members supporting the installation have a *fire-resistance rating* not less than 1 h, and (ii) under the generator and the adjoining tank, the roof membrane is covered with a noncombustible material that extends 300 mm beyond the edges.”.
3.6.3.1.	Insert “Sentence (6),” after “Except as provided in” in Sentence (1); Replace “A” at the beginning of Sentences (2) and (3) by “Except as provided in Sentence (6), a”;

	Add the following Sentence: "**(6)** Only one *vertical service space* is permitted to open into a *service room* located at either the top or bottom of the *vertical service space* provided (a) the *vertical service space* is separated from *floor areas* by a *fire separation* having a *fire-resistance rating* not less than that required for the floor assembly it passes through, (b) the *service room* is separated from the remainder of the *building* by *fire separations* with a *fire-resistance rating* not less than that required for the *vertical service space* opening into the *service room*, (c) the *service room* houses only equipment whose pipes, tubes, ducts and cables pass through the *vertical service space* opening into the *service room*, and (d) the *service room* does not house combustion or refrigeration appliances for which a *fire separation* is required under CSA B52, "Mechanical Refrigeration Code".".
3.6.3.3.	Replace "Intake" at the beginning of Sentence (5) by "Except as provided in Sentence (6), intake"; --- Replace Sentences (6) to (11) by the following: "**(6)** In *care occupancies* and *treatment occupancies*, intake openings for a linen chute or a refuse chute are permitted to be located in rooms used exclusively to store materials used to collect refuse or laundry from the *floor area* provided the room (a) has a surface area not more than 35 m^2, (b) is separated from the remainder of the *building* by a *fire separation* with a *fire-resistance rating* not less than 1 h, (c) does not open into an *exit*, and (d) has a *smoke detector* connected to the *building*'s fire alarm system. **(7)** Sprinklers shall be installed at the top of each linen chute or refuse chute, at alternate floor levels and in the room or bin into which the chute discharges. **(8)** The room into which a linen chute discharges shall be separated from the remainder of the *building* by a *fire separation* with a *fire resistance rating* not less than 1 h. **(9)** A refuse chute shall be equipped, at the top, with spray equipment for washing-down purposes.

	(10) A refuse chute shall discharge only into a room or bin separated from the remainder of the *building* by a *fire separation* with a *fire-resistance rating* not less than 2 h. **(11)** The room or bin into which a refuse chute discharges shall be of sufficient size to contain the refuse between normal intervals of emptying, be impervious to moisture and be equipped with a water connection and floor drain for washing-down purposes. **(12)** A room into which a refuse chute discharges shall contain no service equipment that is not related to refuse handling and disposal.”.
3.6.3.4.	Replace Clause (1)(b) by the following: “(b) the *individual fire compartments* shall not have individual fans that exhaust directly into the *exhaust duct*, unless the fans have a connection that extends upward at least 500 mm into the *exhaust duct*.”.
3.6.3.5.	Strike out the Article.
3.6.4.3.	Replace “du système” in Clause (2)(d) of the French text by “dans le plénum de reprise d’air”.
3.6.5.4.	Insert “and Sentence 3.1.5.7.(4)” after “Sentence (6)” in Sentence (5); Add “or Sentence 3.1.5.7.(4)” after “Article 3.1.5.14.” in Sentence (6).
3.7.2.1.	Add the following Sentence: “**(3)** A compost toilet operating without water and effluent, drain, overflow or other types of discharge is permitted to be installed in an existing single-family home in accordance with Sentence 9.31.4.1.(2).”.
3.7.2.2.	Replace Sentences (3) and (4) by the following: “**(3)** If only one universal toilet room is provided in accordance with Section 3.8., the water closet in this room may be considered in determining the number of water closets required by this Article.

	(4) Both sexes may be served by a single water closet if (a) the *occupant load* determined for one of the *occupancies* referred to in Sentence (6), (10), (12), (13), (14) or (16) is not more than 10, (b) the total area used for an art gallery or a Group E *occupancy*, not including storage areas, is not more than 250 m^2, (c) the *occupant load* in a facility where courses are given or in a restaurant is not more than 25, or (d) the number of children in a daycare centre is not more than 15.”; --- Strike out Sentence (15); --- Replace “500” in Sentence (16) by “600”; --- Add the following Sentence: “**(17)** Except as permitted by Section 3.8. and Sentence (4), a water closet shall be installed (a) in each *suite*, or (b) elsewhere in the *building* if (i) the total number of water closets is determined in accordance with this Subsection and the water closets are located at not more than one *storey* above or below the *storey* containing the persons who require the fixtures, and (ii) the water closets are located at such a distance that no person is required to walk more than 90 m from the door of the *suite* in order to reach the facilities or room where the *floor area* does not contain a *suite*.”.
3.7.2.3.	Replace Sentence (2) by the following: “**(2)** Wash fountains in circular or linear form are permitted to be provided in lieu of lavatories required by Sentence (1) provided each 500 mm of circumference or each faucet is considered the equivalent of one lavatory.”; --- Replace Sentence (4) by the following: “**(4)** Lavatories required by Sentence (1) shall be equipped with faucets that (a) comply with Clause 3.8.3.8.(1)(b),

	(b) do not require the application of continuous force to maintain water flow, and (c) provide at least 10 s of continuous water flow.”.
3.7.2.7.	Replace Sentence (1) by the following: “**(1)** A floor drain shall be installed in (a) rooms with more than 2 water closets, more than 2 urinals, or a combination of over 2 of these fixtures, (b) refuse storage rooms, and (c) in a *service room* containing pumping, heating or air conditioning equipment or a compressor. **(2)** A cemented or paved floor or part of such floor that is below ground level shall have a floor drain in its lower part. **(3)** A paved garage attached or adjacent to a *building* shall be equipped with a sump or retention pit used as a floor drain. **(4)** A floor drain, a sump or a retention pit used as a floor drain shall be located in the room near a service water heater (see Note A-3.7.2.7.(4).”.
3.7.2.9.	Replace “faucets” in Clause (1)(b) by “a faucet”; Replace “be capable of being accessed” in Clause (1)(e) by “be clear”.
	Add the following Subsection: “**3.7.4. Windows** **3.7.4.1. Dwelling Units** **(1)** The area of glazing in a *dwelling unit* shall conform to Article 9.7.2.3.”.
3.8.1.1.	Replace “Subsection 3.8.3.” in Sentence (2) by “Subsections 3.8.3. and 3.8.6. and any of subsections 3.8.4. or 3.8.5.”.
3.8.2.1.	Replace “boarding houses” in Clause (1)(a) by “rooming houses having less than 10 rooms”.

3.8.2.2.	Insert “, including the main entrance, except service entrances,” after “pedestrian entrances” in Sentence (1).
3.8.2.3.	Insert “or common terraces” after “*floor areas*” in Sentence (1); Replace “platform-equipped passenger-elevating device” in Sentence (1) by “lift for persons with physical disabilities or a ramp that conforms to Clause 3.4.6.7.(1)a)”; Replace Sentence (2) by the following: “**(2)** A *barrier-free* path of travel for persons in wheelchairs is not required (a) to *service rooms*, (b) to elevator machine rooms, (c) to janitor’s rooms, (d) to *service spaces*, (e) to crawl spaces, (f) to *attic* or *roof spaces*, (g) to floor levels not served by a passenger elevator, a lift for persons with physical disabilities, an escalator, or an inclined moving walk, or a ramp that is required to conform to Clause 3.4.6.7.(1)a), (h) to *high-hazard industrial occupancies*, (i) within portions of a *floor area* with fixed seats in an *assembly occupancy* where those portions are not part of the *barrier-free* path of travel to spaces designated for wheelchair use, (j) within floor levels of a *suite* of *residential occupancy* that are not at the same level as the entry level to the *suite*, except in a *dwelling unit* of a *residential occupancy* referred to in Article 3.8.2.13., where spaces referred to in Subsection 3.8.4. or 3.8.5. of the *dwelling unit* are located at a level other than the entry level to the *dwelling unit* (see Note A-3.8.2.3.(2)(j)), (k) within a *dwelling unit* of a *care occupancy*, (l) within those parts 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,

	(m) within a hotel or motel *suite* of a *residential occupancy* not referred to in Article 3.8.2.12., and (n) for spaces not referred to in Subsection 3.8.4. or 3.8.5. of a *dwelling unit* of a *residential occupancy* referred to in Article 3.8.2.13.”.
3.8.2.4.	Insert “and be located not more than 45 m from the escalator or the inclined moving walk” after “be provided to that floor level” at the end of Sentence (1).
3.8.2.5.	Strike out “(See Note A-3.8.2.5.)” in the title; --- Replace Sentence (2) by the following: “**(2)** Where a passenger elevator serves a *building*, *barrier-free* path of travel shall be provided between at least one parking level and all other parts of the *building* required to be provided with *barrier-free* access in accordance with Subsection 3.8.3.”; --- Add the following Sentence: “**(4)** Where a *barrier-free* path of travel is required, at least 1% of the parking spaces and at least one space for a parking area of at least 25 places serving a *building* with a *barrier-free access* shall (a) conform to Subsection 3.8.3., (b) be located, in the parking area as close as possible to the nearest *barrier-free* entrance of the *building*.”.
3.8.2.6.	Replace Sentence (1) by the following: “**(1)** Except as provided in Sentence 3.5.2.1.(3), controls for the operation of *building* services or safety devices, including electrical switches, thermostats, faucets, door hardware and intercom switches, that are located adjacent to a *barrier-free* path of travel shall comply with Subsection 3.8.3.”.
3.8.2.7.	Replace Sentence (1) by the following: “**(1)** Except as provided in Sentences (2) and (3), every door that provides a *barrier-free* path of travel through an entrance referred to in Article 3.8.2.2., including the interior doors of a vestibule and a door leading from a *barrier-free* interior parking area to an elevator or a lift for

	persons with physical disabilities where provided, shall be equipped with a power door operator that complies with Subsection 3.8.3. and allows persons to activate the opening of the door from either side, where the entrance serves (a) a hotel, (b) a *building* of Group B, Division 2 or 3 *major occupancy*, or (c) *building* of Group A, D or E *major occupancy* more than 600 m^2 in *building area*.”.
3.8.2.8.	Replace Sentence (2) by the following: “**(2)** A washroom need not conform to Sentence (1) provided (a) it is located within a *suite* of *residential occupancy* or a *dwelling unit* of *care occupancy*, (b) it is located in a *suite* not more than 250 m^2 and other *barrier-free* washrooms are provided on the same *floor area* within 45 m, or (c) is 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 250 m^2 in area, and (iii) completely separated from, and without access to, the remainder of the *building*. (See Note A-3.8.2.8.(1) to (4).)”; --- Replace Sentence (4) by the following: “**(4)** A universal toilet room conforming to Subsection 3.8.3. is permitted to be provided in lieu of facilities for persons with physical disabilities in washrooms used by the general public conforming to Subsection 3.8.3.”; --- Replace Sentence (10) by the following: “**(10)** Except within a *dwelling unit* of *care occupancy* or a *suite* of *residential occupancy*, where showers are provided in a *building*, at least one shower stall in each group of showers shall comply with Subsection 3.8.3.”; --- Insert “required by Article 3.8.2.12.” after “ *barrier-free*” in Sentence (11).

3.8.2.10.	Replace Clause (1)(d) by the following: “(d) elevators or lifts for persons with disabilities,”.
	Add the following Articles: “**3.8.2.12. Hotels and Motels** **(1)** At least 10% of the *suites* of a hotel or motel shall have a *barrier-free* path of travel and be distributed evenly between the *storeys* containing a *barrier-free* path of travel. **(2)** *Barrier-free suites* of a hotel or motel required in Sentence (1) shall comply with Subsection 3.8.6. **3.8.2.13. Dwelling Unit of Residential Occupancy** **(1)** A *dwelling unit* of *residential occupancy* shall be minimally accessible or adaptable (see Note A-3.8.2.13. 1). **(2)** The minimally accessible *dwelling unit* shall conform to Subsection 3.8.4. **(3)** The adaptable *dwelling unit* shall conform to Subsection 3.8.5.”.
3.8.3.1.	Replace the line “Passenger pickup areas (3.8.3.4.)” in the left-hand column of Table 3.8.3.1. by the line “Parking areas and exterior passenger-loading zones(3.8.3.4.)”;
	Replace the line “Passenger-elevating devices (3.8.3.7.)” in the left-hand column of Table 3.8.3.1. by the line “Lifts for persons with physical disabilities (3.8.3.7.)”; Add “, 9.4 and 9.5 and 3.8.3.4.(2)(c) of the NBC” after “9.3” in line “Parking areas and exterior passenger-loading zones(3.8.3.4.)” in the right-hand column of Table 3.8.3.1.; Add “and 3.8.3.9.(2) of the NBC” after “4.5 and 9.4” in line “Signage” in the right-hand column of Table 3.8.3.1.

3.8.3.2.	Replace Sentence (1) by the following: “**(1)** Except as required elsewhere in this Part or as permitted in Subsection 3.8.4., 3.8.5. or 3.8.6. or Article 3.8.3.6. pertaining to doorways, a *barrier-free* path of travel shall (a) have an unobstructed width not less than 920 mm, and (b) have a manoeuvring area not less than 1500 mm in diameter on each side of any door opening onto a *suite* referred to in Article 3.8.2.12.”; --- Replace “passenger elevators or other platform-equipped passenger-elevating devices” in Sentence (3) by “elevators or lifts for persons with physical disabilities”.
3.8.3.3.	Add the following Sentence: “**(2)** The width of a *barrier-free* path of travel that is more than 30 m long shall be increased to not less than 1500 mm for a length of 2000 mm at intervals not exceeding 30 m.”.
3.8.3.4.	Replace the title of the Article by the following: “**Parking Areas and Exterior Passenger-Loading Zones**”; --- Add the following Sentence: “**(2)** Each *barrier-free* parking space shall (a) have a width not less than 2400 mm, (b) have a side aisle not less than 1500 mm, parallel to the entire length of the space, indicated by contrasting marking; the aisle is permitted to be shared by 2 parking spaces, and (c) have a clear height of not less than 2300 mm at the pull-up space and along the vehicle access and egress routes in the case of an indoor parking area.”.
3.8.3.5.	Replace “supérieure à” in Clause (4)(a) of the French text by “plus abrupte que”.

3.8.3.6.	Replace Sentence (5) by the following: “**(5)** A threshold for a doorway referred to in Sentences (2) and (3) shall (a) except as permitted by Clause (b), be not more than 13 mm higher than the finished flooring and be bevelled, (b) in the case of a threshold for a doorway giving access to a balcony, be not more than 75 mm higher than the finished flooring.”; --- Strike out “150 mm and 300 mm as well as between” in Subclause (6)(a)(v) --- Replace Sentence (7) by the following: “**(7)** A power-assisted door shall not swing open into the path of travel or a corridor, whatever its width (see Note A-3.8.3.6.(6) and (7)).”; --- Replace “Except as provided in Clause 3.8.3.5.(1)(c)” in Sentence (14) by “Except as provided in Clauses 3.8.3.2.(1)(b) and 3.8.3.5.(1)(c) and Subsections 3.8.4. and 3.8.5.”.
3.8.3.7.	Replace the Article by the following: “**3.8.3.7. Lifts for Persons with Physical Disabilities** **(1)** Except as provided in Sentence (3), lifts for persons with physical disabilities, referred to in Article 3.8.2.3., shall conform to CSA B355, “Lifts for Persons with Physical Disabilities”. (See Note A-3.8.3.7.(1).) **(2)** Every lift for persons with physical disabilities shall conform to the following requirements: (a) a staircase with protected sheath for wheelchairs is permitted to be installed in a staircase provided (i) the stairs are not used for *exit*, (ii) the stairs have a clear width conforming to Sections 3.3. and 3.4. in addition to the width required for the deployed device, (iii) no obstacle located less than 1980 mm from the floor encroaches on the clear width of the stairs, and

	(iv) the clear space of the stairs is separated from the space required for the device and conforms to Sections 3.3. and 3.4. with respect to required handrails, (b) a device with a vertical path shall have a platform not less than 800 mm by 1500 mm allowing the presence of an accompanying person; in the case of a right angle exit model, the dimension of the platform shall be sufficient for a wheelchair to turn; and (c) the landing door of a device with a vertical path with closed sheath shall be motorized and designed in accordance with CSA B355, “Lifts for Persons with Physical Disabilities”, when an entrance door to the *building* must be equipped with a power door operator that complies with Subsection 3.8.2. **(3)** A stair chair lift conforming to CSA B355, “Lifts for Persons with Physical Disabilities”, is permitted to be installed inside a *dwelling unit* when the stairway has a clear width not less than 860 mm in addition to the width required for the deployed device (see Note A-3.8.2.3.(2)(j)).”.
3.8.3.8.	Strike out “in or” in Clause (1)(a).
3.8.3.9.	Add the following Sentence: “**(2)** Parking designed to be *barrier-free* shall be designated by a P-150-5 conforming to the specifications prescribed by the Minister of Transport in accordance with section 308 of the Highway Safety Code (chapter C-24.2) (see Note A-3.8.3.9.(2)).”.
3.8.3.11.	Replace Subclause (1)(c)(v) by the following: “(v) swings outward, unless an unobstructed area not less than 1200 mm in diameter is provided within the stall (see Note A-3.8.3.11.(1)(c)(v));”.
3.8.3.15.	Replace “à au plus 500 mm en face du lavabo” in Subclause (1)(f)(ii) of the French text by “à moins de 500 mm de l’avant du lavabo”.
3.8.3.16.	Replace “au-dessus de l’espace dégagé adjacent” in Subclause (1)(f)(ii) of the French text by “à partir de l’espace dégagé adjacent”; Replace “have a pressure-equalizing or thermostatic-mixing valve” in Clause (1)(h) by “be equipped with faucets”.

3.8.3.17.	Replace Clause (1)(d) by the following: “(d) be capable of being accessed along its full length with no tracks or accessories mounted on its rim and have a rim located between 400 mm and 460 mm above the floor, except in the case of a walk-in bathtub equipped with a closing mechanism ensuring tightness;”; --- Replace Clauses (1)(g) and (1)(h) by the following: “(g) have a slip-resistant surface on the bottom, (h) be equipped with a hand-held shower head with (i) a diverter valve that can be operated with a closed fist by a seated person, (ii) a flexible hose not less than 1800 mm long, and (iii) a bracket enabling a seated person to use the hand-held shower head as a fixed shower head, and (i) have a soap holder easy to reach by a seated person.”.
3.8.3.19.	Strike out “and where the counter is intended to be used as a work surface” in Clause (1)(c); --- Replace “whereat movement takes place” in Sentence (2) by “where movement may take place”.
	Add the following Subsections: “**3.8.4. Minimally Accessible Dwelling Unit of Residential Occupancy** **3.8.4.1. Application** **(1)** This Subsection shall apply to minimally accessible *dwelling units* of *residential occupancy*. **(2)** In addition, in the minimally accessible *dwelling unit* of *residential occupancy*, the requirements in Articles 3.8.3.2., 3.8.3.5., 3.8.3.6. and 3.8.3.7. apply, except as provided for in this Subsection. **3.8.4.2. Barrier-free path of travel** **(1)** In the *dwelling unit*, the *barrier-free* path of travel shall extend from the door at the entrance to the *dwelling unit* to the inside of each of the following :

	(a) a washroom (see Note A-3.8.4.2.(1)(a)), (b) a living room, and (c) a dining room. **(2)** Where the *barrier-free* path of travel giving access to the spaces has a corridor, a level floor surface shall be provided for changes of direction in the corridor (a) not less than 1500 mm in diameter, or (b) not less than 1500 mm by 1050 mm. **3.8.4.3. Doors and Doorways** (See Note A-3.8.4.3.) **(1)** A sliding door shall have a clear space on the latch side extending the height of the doorway and not less than (a) 50 mm beyond the edge of the door opening if the approach is perpendicular, or (b) 540 mm beyond the edge of the door opening if the approach is lateral. **(2)** Except for the entrance door to a *dwelling unit*, notwithstanding the provisions of Sentence 3.8.3.6.(14), the floor surface on each side of a door shall be level within a rectangular area (a) as wide as the door plus the clearance required on the latch side by Sentence (1) or Sentence 3.8.3.6.(11), and (b) whose dimension perpendicular to the closed door is (i) not less than 1050 mm if the door swings away from the approach side, (ii) not less than 1050 mm for a sliding door if the approach is lateral, or (iii) not less than 1200 mm in other cases. **3.8.4.4. Controls** **(1)** Controls for the operation of *building* services or safety devices, including electrical switches, thermostats, door hardware, electrical outlets and intercom switches, that are intended to be operated by the occupant and are located in or adjacent to a *barrier-free* path of travel shall (a) be installed 400 to 1200 mm above the floor, and (b) be located at a distance not less than 300 mm from the inside corner of a wall.

	3.8.4.5 Washroom **(1)** The washroom shall be provided with a water closet (a) having a rear wall clearance over a length not less than 1000 mm, that is, 500 mm on each side of the centre of the water closet or the floor flange, or (b) having a rear wall clearance over a length not less than 850 mm, measured from the side wall if (i) the water closet is installed at a distance not less than 460 mm and not more than 480 mm from a side wall, measured from the centre of the device or the centre of the floor flange, and (ii) the side wall has a length not less than 1250 mm. **(2)** The washroom shall be provided with a lavatory (a) placed so that there is not less than 460 mm between its axis and a side wall, and (b) the edge of which is not more than 865 mm from the floor. **(3)** The washroom shall be provided with a clear space that is (a) round and 1500 mm in diameter to access the lavatory and the water closet, or (b) rectangular to access (i) the lavatory, 750 mm wide by 1200 mm long centered on the lavatory and located in front of the lavatory, and (ii) the water closet, 1400 mm long from the rear wall of the water closet by 1200 mm wide, regardless of the lavatory. **(4)** A continuous wood nailing element shall be installed for the water closet (a) where the water closet is installed in accordance with Clause (1)(a), in the wall behind the water closet, over a surface not less than 1000 mm wide centered in the centre of the water closet and over a height not less than 1100 mm, measured from the floor, or (b) where the water closet is installed in accordance with Clause (1)(b) (i) in the side wall, over a length not less than 1250 mm, measured from the rear wall of the water closet and over a height not less than 1500 mm, measured from the floor, and (ii) in the wall behind the water closet over a surface not less than 800 mm wide centered on the centre of the water closet and over a height not less than 900 mm. (See Note A-3.8.4.5.(4).)

	(5) A continuous wood nailing element shall be installed, if applicable, in the walls surrounding the bathtub and the shower, over a height not less than 1800 mm, measured from the floor. **3.8.5. Adaptable Dwelling Unit of Residential Occupancy** **3.8.5.1. Application** **(1)** This Subsection shall apply to adaptable *dwelling units* of *residential occupancy*. **(2)** In addition, in the adaptable *dwelling unit* of *residential occupancy*, the requirements in Articles 3.8.3.2., 3.8.3.5., 3.8.3.6. and 3.8.3.7. shall apply, subject to the requirements of this Subsection. **3.8.5.2. Barrier-Free Path of Travel** **(1)** In the *dwelling unit*, the *barrier-free* path of travel shall extend from the door at the entrance to the *dwelling unit* to the inside of each of the following spaces: (a) a bathroom (see Note A-3.8.5.2.(1)(a)), (b) a living room, (c) a dining room, (d) a kitchen, (e) at least one bedroom, and (f) a balcony, where provided. **(2)** Where the *barrier-free* path of travel giving access to the spaces has a corridor, a level floor surface shall be provided for changes of direction in the corridor of (a) not less than 1500 mm in diameter, or (b) not less than 1500 mm by 1050 mm. **3.8.5.3. Doorways and Doors** **(1)** A sliding door shall have a clear space on the latch side extending the height of the doorway and not less than (a) 50 mm beyond the edge of the door opening if the approach is perpendicular, or (b) 540 mm beyond the edge of the door opening if the approach is lateral. **(2)** Notwithstanding the provisions of Sentence 3.8.3.6.(14), the floor surface, on each side of a door, shall be level within (a) a round area and have a diameter not less than 1500 mm, or (b) a rectangular area

(i) as wide as the door plus the clearance required on the latch side by Sentence (1) or Sentence 3.8.3.6.(11), and

(ii) whose dimension perpendicular to the closed door is not less than 1050 mm where the door swings away from the approach side or for a sliding door where the approach is lateral, or is not less than 1200 mm in other cases.

3.8.5.4. Controls

(1) Controls of the operation of *building* services or safety devices, including electrical switches, thermostats, door hardware, electrical outlets and intercom switches, that are intended to be operated by the occupant and that are located in or adjacent to a *barrier-free* path of travel shall

(a) be installed 400 to 1200 mm above the floor, and

(b) be located at a distance not less than 300 mm from the inside corner of a wall.

3.8.5.5. Bathroom

(1) The bathroom shall be provided with a water closet

(a) whose centre of the floor flange is placed not less than 1400 mm from the centre of the lavatory trap, or

(b) that is located not less than 1100 mm from an adjacent wall or from equipment, measured from the centre of the floor flange.

(See Note A-3.8.5.5.(1).)

(2) The bathroom shall be provided with a lavatory

(a) whose trap is placed so that there is not less than 460 mm between its axis and a side wall,

(b) whose trap bottom is located not less than 230 mm and not more than 300 mm from the floor, and

(c) whose trap entrance is located not more than 330 mm from the wall behind the lavatory.

(See Note A-3.8.5.5.(2).)

(3) The bathroom shall have not less than one bathtub or one shower and, if the bathroom has only one shower, the shower shall have a floor surface of not less than 900 mm by 900 mm.

(4) The bathroom shall have a clear space to access

(a) the lavatory and the water closet, that is round and 1500 mm in diameter,

(b) the shower, where provided, that is rectangular, not less than 750 mm by 1200 mm in front of the shower, and

(c) the bathtub, where provided, that is rectangular, not less than 1200 mm measured from the faucets by 750 mm measured perpendicularly to the bathtub.

(5) A continuous wood nailing element shall be installed

(a) in the walls around the bathtub or the shower, over a height of not less than 1800 mm, measured from the floor, and

(b) in the wall behind the water closet, over an area not less than 1000 mm wide centred in the middle of the floor flange and over a height of not less than 1100 mm, measured from the floor.

3.8.5.6. Bedroom

(1) The adaptable bedroom shall have an area not less than 11 m^2 having a length and a width not less than 3 m.

(2) Except where the bedroom is located in the *basement*, the window sill, if applicable, shall be installed at a maximum height of 1000 mm from the floor.

3.8.5.7. Kitchen

(1) A round clear space not less than 1500 mm in diameter shall be provided in the kitchen for access to the sink and range, regardless of the counters (see Note A-3.8.5.7.(1)).

(2) The bottom of the sink trap shall be located 230 mm from the floor (see Note A-3.8.5.7.(2) and (3)).

(3) The entrance of the sink trap shall be located not more than 330 mm from the wall behind the sink or not less than 280 mm from the front of the sink (see Note A-3.8.5.7.(2) and (3)).

3.8.5.8. Living Room and Dining Room

(1) Except where the spaces are located in the *basement*, the window sill of the living room and the dining room, where provided, shall be installed at a maximum height of 1000 mm from the floor.

3.8.5.9. Balcony

(1) Notwithstanding the requirements of Sentence 3.8.3.6.(14), a balcony, where provided, shall have a round clear area not less than 1500 mm in diameter.

<table>
<tr><td></td><td>
3.8.6. Hotels and motels
3.8.6.1. Application
(1) This Subsection applies to the suites of a barrier-free hotel or motel referred to in Article 3.8.2.12.
3.8.6.2. Barrier-free path of travel
(1) Suites of a barrier-free hotel or motel shall have a barrier-free path of travel that conform to the requirements in Subsection 3.8.3. extending to the inside of each room and to the balcony, where applicable.
(2) A suite of a barrier-free hotel or motel shall have a bathroom that
(a) conforms to Article 3.8.3.12.,
(b) has a bathtub conforming to Article 3.8.3.17. or a shower conforming to Article 3.8.3.16., and
(c) has a towel rod located not higher than 1200 mm from the floor so as to be easily accessible by a person in a wheelchair.
(3) Every closet in such a suite shall
(a) have an open space not less than 1500 mm in diameter in front of the closet, and
(b) have a rod located not more than 1300 mm from the floor.”.
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<tr><td>3.10.1.1.</td><td>
Replace the relevant attributions in Table 3.10.1.1. by the following attributions:
“3.1.11.5. Fire Blocks in Horizontal Concealed Spaces
(1) [F03,F04-OS1.2]
[F03,F04-OP1.2]
(2) [F03,F04-OS1.2]
[F03,F04-OP1.2]
(3) [F03, F04-OS1.2]
[F03, F04-OP1.2]”;
“3.2.2.44. Group B, Division 3, up to 2 Storeys
(1) [F02, F04-OS1.2,OS1.3]
[F02, F04-OP1.2,OP1.3]
[F03-OS1.2] [F04-OS1.2,OS1.3]
[F03-OP1.2] [F04-OP1.2,OP1.3]
[F04-OS1.3]
</td></tr>
</table>

	(2) (b) [F04-OP1.3]"; "3.2.2.45. Group B, Division 3, 1 Storey (1) [F02, F04-OS1.2,OS1.3] [F02, F04-OP1.2,OP1.3] [F03-OS1.2] [F04-OS1.2,OS1.3] [F03-OP1.2] [F04-OP1.2,OP1.3] [F04-OS1.3] (2) (b),(c) [F04-OP1.3]"; "3.2.2.46. Group B, Division 3, up to 2 Storeys (1) [F02, F04-OS1.2,OS1.3] [F02, F04-OP1.2,OP1.3] [F03-OS1.2] [F04-OS1.2,OS1.3] [F03-OP1.2] [F04-OP1.2,OP1.3] [F04-OS1.3] (2) [F04-OP1.3]"; "3.2.2.50. Group C, up to 6 Storeys, Sprinklered (1) (a) [F02,F04-OS1.2,OS1.3] (a) [F02,F04-OP1.2,OP1.3] [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 (e). [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 (e). (b),(d),(e) [F04-OS1.3] (b),(d),(e) [F04-OP1.3] [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 (e). [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 (e). (b),(d),(e) [F04-OS1.3] (b),(d),(e) [F04-OP1.3]";

	“3.2.2.58. Group D, up to 6 Storeys, Sprinklered (1) (a) [F02,F04-OS1.2,OS1.3] (a) [F02,F04-OP1.2,OP1.3] (a),(e) [F03-OS1.2] [F04-OS1.3,OS1.2] (2) (a),(e) [F03-OP1.2] [F04-OP1.2,OP1.3] (b),(d),(e) [F04-OS1.3] (b),(d),(e) [F04-OP1.3]”; “3.6.3.3. Linen and Refuse Chutes (6)(a) [F81, F03-OS1.2] [F81, F41-OH2.4, OH2.5] [F81, F03-OP1.2] (b) [F03-OS1.2] [F03-OP1.2] (c) [F05-OS1.5] [F06-OS1.5, OS1.2] [F06-OP1.2] (d) [F11-OS1.5] (e) [F01-OS1.1] [F01-OP1.1] (7) [F02–OS1.2] [F02–OP1.2] (8) [F03–OS1.2] [F03–OP1.2] (9) [F02–OS1.2] [F41–OH2.4,OH2.5] (10) [F03–OS1.2] [F03–OP1.2] (11) [F81, F03–OS1.2] Applies to portion of Code text: “The room or bin into which a refuse chute discharges shall be of sufficient size to contain the refuse between normal intervals of emptying …” [F81, F41–OH2.4, OH2.5] Applies to portion of Code text: “The room or bin into which a refuse chute discharges shall be of sufficient size to contain the refuse between normal intervals of emptying …”

	[F41–OH2.4, OH2.5] Applies to portion of Code text: "The room or bin into which a refuse chute discharges shall be … impervious to moisture and be equipped with a water connection and floor drain for washing-down purposes.""; "3.8.2.5. Access to Parking Areas and Exterior Passenger-Loading Zones (4) (b) [F73-OA1]"; "3.8.3.5. Lifts for persons with physical disabilities (1) [F30-OS3.1] [F10-OS3.7] (2) [F74-OA2] [F73-OA1]";
	Add the following attributions in alphabetical order in Table 3.9.1.1.: "3.1.2.7. Ambulatory Clinic Occupancy (2) [F03-OS1.2] [F02-OS1.1] (3) [F03-OS1.2] [F02-OS1.1] (4) [F03-OS1.2] (5) [F10-OS1.5] (6) [F03-OS1.2] "; "3.1.4.1. Authorized Combustible Materials (3) [F02-OS1.2] [F02-OP1.2]"; "3.1.6.2. Restrictions (4) [F11-OS3.7]"; "3.1.6.8. Fire Alarm and Detection Systems (1) [F11-OS1.5]"; "3.1.6.11. Access for Firefighting (1) [F12-OS1.2] [F12-OP1.2]"; "3.1.6.12. Heat-Producing Equipment (1) [F31-OS3.2]

	(2) [F02-OS1.2]”; “3.1.6.13. Structural Soundness (1) [F20-OS2.1]”; “3.1.7.6. Sprinkler-Protected Fixed Glass Walls (2) (a)(b)(c)[F03-OS1.2] (d) [F05-OS1.5] (3) [F03-OS1.2]”; “3.2.3.6. Combustible Projections (7) [F02-OS1.2] [F02-OP1.2]”; “3.2.4.7. Signals to Fire Department (7) [F13-OS1.5, OS1.2] [F13-OP1.2] (8) [F13-OS1.5, OS1.2] [F13-OP1.2]”; “3.2.4.19. Visual Signals (3) [F11-OS1.5] (4) [F11-OS1.5]”; “3.2.5.3. Roof Access (2) [F12-OS1.2] [F12-OP1.2]”; “3.2.5.9. Standpipe System Design (7) [F46-OH2.2]”; “3.2.5.12. Automatic Sprinkler Systems (11) [F46-OH2.2]”; “3.2.6.5. Elevator for Use by Firefighters (7) [F06-OS1.2,OS1.5] [F06-OP1.2] (8) [F12-OS3.7]”; “3.2.7.9. Emergency Power for Building Services (4) [F81-OS2.3]”;

	“3.2.8.1. Application (4) [F10, F12-OS1.5]”; “3.3.1.1. Separation of Suites (4) [F03-OS1.2] [F03-OP1.2]”; “3.3.1.3. Means of Egress (10) [F10, F12-OS3.7]”; “3.3.1.14. Ramps and Stairs (3) [F30-OS3.1]”; “3.3.3.8. Care Occupancies (1) [F36-OS1.5]”; “3.4.6.16. Door Release Hardware (6) [F10-OS3.7) (7) [F10-OS3.7] (9) [F10-OS3.7] [F73-OA1]”; “3.5.2.1. Elevators, Escalators and Dumbwaiters (4) [F74-OA2]”; “3.5.5.1. Referenced Standards (1) [F30, F81-OS3.1] [F30-OS2.3]”; “3.6.3.1. Fire Separations for Vertical Service Spaces (6) [F03-OS1.2] [F03-OP1.2]”; “3.6.3.3. Linen and Refuse Chutes (12) [F01, F02-OS1.2]”; “3.7.2.2. W.-C. (17) [F72-OH2.1]”; “3.7.2.7. Avaloirs de sol (2) [F40-OH2.4] [F30-OS3.1]

	(3) [F40-OH2.4] [F30-OS3.1]”; “3.8.3.4.. Parking Areas (2) [F73-OA1]”; “3.8.2.12. Hotels and motels (1) [F73-OA1]”; “3.8.3.7. Passenger-Elevating Devices (2) [F73-OA1] [F74-OA2]”; Strike out the following attributions in Table 3.9.1.1.: “3.1.10.2.(4)”; “3.2.4.20.(5)”; “3.3.2.14.”; “3.3.3.5.(16)”; “3.5.2.1.(2)”; “3.7.2.2.(15)”.
Division B Notes in Part 3	
A-3.1.2.1.(1)	Insert “or radio” after “Television” in Group A, Division 1; Replace the examples of major occupancies in Group A, Division 2, by the following: “Art galleries Auditoria Bowling alleys Churches and similar places of worship Clubs Community halls Courtrooms

	Dance halls Day care centres Exhibition halls (other than classified in Group E) Gymnasia Lecture halls Libraries Licensed beverage establishments Museums Passenger stations and depots Restaurants Teaching establishments Undertaking premises”;
	Insert “in which a person is detained for more than 24 hours” after “Police stations with detention quarters” in Group B, Division 1;
	Replace the examples of major occupancies in Group B, Division 2, by the following: “Ambulatory clinic occupancies Convalescent /recovery/rehabilitation centres with treatment Hospitals Psychiatric hospitals without detention quarters Residential and long-term care centres (CHSLDs) Respite centres with treatment Seniors homes”;
	Replace the examples of major occupancies in Group B, Division 3, by the following: “Assisted/supportive living facilities Children’s custodial homes Convalescent/recovery/rehabilitation centres without treatment Group homes

	Private seniors' residences Reformatories without detention quarters Respite centres without treatment Single-family type care facilities Single-family type private seniors' residences"; Replace the examples of major occupancies in Group C by the following: "Apartments Boarding houses Convents Dormitories Hotels Houses Monasteries Motels Orphanages Outfitters Schools, residential Shelters Summer camps".
A-3.1.3.2.(3) to (5)	Strike out the Note.
A-3.1.4.2.(1)	Strike out the Note.
	Add the following Note: "**A-3.1.6.2.(4) Clearance.** A clear space of not less than 1 m is necessary above partitions to facilitate the detection of smoke inside tents and air-supported structures. Taking the roof slope into account, not more than 30% of the width of a partition may be less than 1 m from the ceiling.".

	Add the following Notes: “**A-3.1.6.12.(2) Deep fryer Basket.** The 2 baskets mentioned in the Article may be in two separated devices or in only one. The objective is to limit the quantity of frying oil present in a tent. **A-3.1.6.13.(1) Structure.** A tent or air-supported structure used only in summer is permitted to be designed without taking snow loads into account. A tent or air-supported structure used in winter must be designed taking snow, ice and freezing rain loads into account. Wind loads vary from one region to another. It is important that the structure be able to withstand local loads. The anchorage system must be adapted to each structure.”.
	Add the following Note: “**A-3.1.7.6. Sprinkler-Protected Fixed Glass Walls.** This protection method involves the coordination of several elements, including the location of sprinklers relative to fixed glass walls, number of sprinklers installed to protect the fixed glass wall system, sprinkler activation time, shape of the water spray, thickness and location of the mullions, dimensions of the fixed glass wall system and thickness of the glass.”.
A-3.1.8.18.(1)	Add “ou de monte-charge” after “les gaines d’ascenseur” in the Note in the French text.
A-3.1.10.2.(4)	Strike out the Note.
A-3.1.11.5.(1)	Strike out the last sentence of the Note.
A-3.1.11.5.(3)	Replace the Note by the following: “**A-3.1.11.5.(3) Fire Blocks in Horizontal Concealed Spaces.** A building conforming to Article 3.2.2.50. or 3.2.2.58 must be protected by sprinklers in accordance with NFPA 13, “Installation of Sprinkler Systems”, which requires that concealed spaces be sprinklered. However, pursuant to the standard, sprinklers need not be installed in certain enclosed combustible spaces, including those filled with noncombustible insulation. Due consideration must be given to attics in order to provide cross ventilation where required. According to NFPA 13, “Installation of Sprinkler Systems”, sprinklers need not be installed if there is a space of

	not more than 50 mm between the top of the noncombustible insulation and the bottom of the bridging. Such a space is not sufficient for adequate ventilation of the attic. If additional space is provided for ventilation purposes, the horizontal concealed space must be sprinklered.”.
	Add the following Note: “**A-3.2.1.2.(1) Storage Garage Considered as a Separate Building**. Where a storage garage is considered as a separate building for the purposes of Subsection 3.2.2., it is permitted to use the number of storeys, the building area and the occupancy of each construction located above the garage to determine if sprinklering is required, the type of construction, and the fire-resistance rating of the loadbearing floors, columns and arches. For all the other requirements in the NBC, all the constructions above the garage and the garage are only one building. The alarm and detection system must serve all parts of the building, including townhouses located above the storage garage. Where one of the constructions located above the garage is a high building, that construction, the storage garage and all accesses to the other parts of the building must conform to Subsection 3.2.6.”.
	Add the following Note: “**A-3.2.2.10.(3) Distance between the Building Perimeter and Street.** To be considered as facing a street, not less than 25% of the building perimeter must be within 15 m of the street. However, considering the available firefighting equipment, it is recommended to verify the municipality requirements regarding that distance since certain municipalities may require a shorter distance.”.
	Add the following Note: “**A-3.2.2.50.(1)(c)(ii) Height of the Roof of a Combustible Building with 6 Storeys.** All rooftop enclosures, including visual screens concealing mechanical equipment, parapet walls and terrace guards shall be taken into account in determining the highest point of the roof.”.
	Add the following Note: “**A-3.2.4.2.(1) Continuity of Fire Alarm System.** A building separated by a firewall to increase the building areas permitted in Subsection 3.2.2., but designed and operated as only one building, must have only one fire alarm system.”.

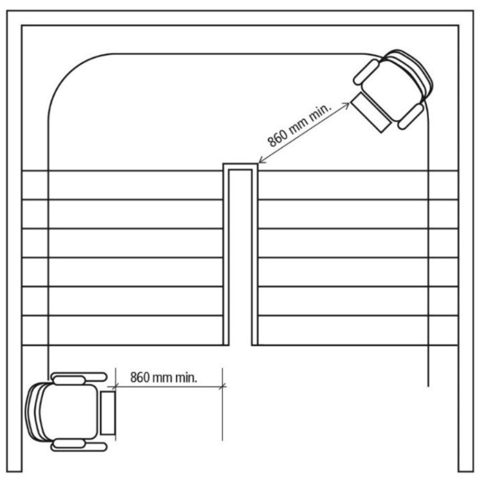
	Add the following Note: "**A-3.2.4.5.(1) Provision of CSA-C22.1 concerning Fire Alarm Systems.** That requirement is not new. It has been required under CAN/ULC-S524, "Installation of Fire Alarm Systems", in several editions of the NBC. Despite the fact that Chapter V, Electricity, of the Construction Code (chapter B-1.1, r. 2) adopts the Canadian Electrical Code excluding Articles 32-100 to 32-110 of that Code, the NBC requires compliance with those Articles covering fire alarm systems.".
A-3.2.4.8.(2)	Insert "passenger" after "used in the building" in the Note.
A-3.2.4.18.(1)	Add the following Sentence at the end of the Note: "The fire alarm signals must be clearly audible throughout the floor area. When designing and testing the system, all doors must be closed.".
A-3.2.4.18.(4)	Strike out the Note.
	Add the following Note: "**A-3.2.5.3.(2). Roof Access.** The stairway is permitted to provide access to the roof by a hatch of the size prescribed in Clause 3.2.5.3.(1)(b) or by a rooftop enclosure.".
A-3.2.5.12.(2)	Strike out the last sentence of the Note.
A-3.2.6.	Insert the words "ou de monte-charge" after the words "gaines d'ascenseur" wherever they appear in the Note in the French text.
A-3.2.6.2.(3)	Add the following Sentence at the end of the Note: "NFPA 92, "Standard for Smoke Control Systems", suggests mechanical smoke control methods. Those means may be used as alternatives to the venting proposed in this Article. Designers will, however, need to demonstrate that the method they propose under the standard complies with the objectives of the NBC.".

A-3.2.6.2.(4)	Insert the words “ou de monte-charge” after the words “gaines d’ascenseur” wherever they appear in the Note in the French text.
	Add the following Note: “**A-3.2.6.2.(6) Smoke Propagation and Smoke Control Measures Implemented in the Building.** The ventilation of corridors may be stopped if it interferes with the pressurizing of corridors, exits or central blocks to comply with part of the additional requirements for high buildings constructed before the coming into force of the NBC 1995 am. Québec.”.
A-3.2.6.5.(6)(b)	Strike out the Note.
A-3.2.6.9.(1)	Insert the words “ou de monte-charge” after the words “gaines d’ascenseur” wherever they appear in the Note in the French text.
	Add the following Note: “**A-3.2.8.2.(5) Opening in Floors.** An opening of 10 m^2 permitted for stairways, escalators or moving walks may not be located in the same volume as an opening permitted, in Sentence (6), between the first storey and the storey immediately above or below. If those 2 waivers are used for the same volume, the actual resulting opening will have to conform to Articles 3.2.8.3. to 3.2.8.8. To be able to provide an opening of 10 m^2 for a stairway on all the storeys of the building and another larger opening between the first and the second storeys, the openings must be separated from each other by a fire separation with the fire-resistance rating required for the floor or according to Article 3.1.3.1.”.
A-3.2.9.1.(1)	Insert “passenger” after “door hold-open devices,” in the Note; Strike out the last sentence of the Note.
	Add the following Note: “**A-3.3.1.3.(10) Public Corridor Leading Through a Lobby.** For one end of a public corridor to lead through a lobby notwithstanding Sentence 3.3.1.3.(9), it must be possible, from a door having direct access to a public corridor, to go to the 2 exits located in opposite directions. The

	corridor must be separated from the lobby in order to maintain the integrity and fire resistance required for the lobby, the corridor or the adjacent occupancies.”.
A-3.3.1.7.(1)	Insert “passenger” before “elevator” wherever it appears in the Note.
	Add the following Note: “**A-3.3.3.3.(2) Dead-End Corridors.** Corridors serving patients' or residents’ sleeping rooms are permitted to have a dead-end portion not exceeding 1 m so that the wall can be set back at the location of the door. The dimension of 1 m corresponds roughly to the swing area of a sleeping room door.”.
	Add the following Note: “**A-3.3.3.6.(1) Ventilation Systems for Areas of Refuge.** The ventilation systems supplying such areas must be able to withstand a fire for 2 h. The electrical supply for these systems must also be protected against fire for 2 h.”.
	Add the following Note: “**A-3.3.5.6.(1) Storage Garage Separated from Other Occupancies.** According to the definition of the NBC, a storage garage is a space intended for parking and storage of motor vehicles and containing no provision for the repair or servicing of such vehicles. A bicycle, even if it is not a motor vehicle, is a vehicle (device intended for the transportation of persons or goods). It may therefore be parked or stored in a storage garage, at the end of an individual parking space or using shared bicycle racks. It may also be separated from the remainder of the garage by a partition but only if the partition has a fire separation with the fire-resistance rating required between a storage garage and the other occupancies, that is, a fire-resistance rating not less than 90 minutes. Otherwise, bicycles must not be separated from the remainder of the garage by a wire mesh or any other construction, metal or wooden bars, openwork or not. Motorized mobility aids whose size is greater than that of an electric wheelchair, such as 3-wheel scooters, 4-wheel scooters or other similar vehicles, should be parked in the storage garage. The motorized mobility aids and the bicycles should not be included in the number of motor vehicles.”.

A-3.4.3.4.	Replace the title of the Note in the French text by “**Hauteur libre**”; Replace “la largeur de passage” in the first paragraph of the Note in the French text by “la largeur libre”; Insert “libre” after “la largeur” in the second paragraph of the Note in the French text; Replace the title of Figure A-3.4.3.4. of the French text by “**Mesure de la hauteur libre**”; Replace “échappée” by “hauteur libre” wherever it appears in Figure A-3.4.3.4. of the French text; Replace “largeur de passage” by “largeur libre” in Figure A-3.4.3.4. of the French text.
	Add the following Note: “**A-3.4.4.2.(2) Lobbies.** Since lobbies must conform to the requirements for exits, no occupancies are permitted in them, except those listed in Clause 3.4.4.2.(2)(e). Consequently, they are not permitted to be used as waiting or rest areas.”.
A-3.5.2.1.(1)	Add the following Sentence at the end of the Note: “It should be noted that limited use and limited application elevators must have a maximum elevation of 7.6 m (25 pi) according to the 2000 edition of ASME A17.1/CSA B44, “Safety Code for Elevators and Escalators”.”.
A-3.5.4.1.(1)	Strike out “ou de monte-charge” in the title of the Note in the French text; Replace the Note by the following: “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 mobile patient stretcher whose size is 2010 mm long and

	610 mm wide. 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.”.
A-3.6.3.5.	Strike out the Note.
	Add the following Note: “**A-3.7.2.7.(4) Floor Drain.** Where a water heater is installed in a ceiling space and is equipped with a drip tray indirectly linked to the sanitary system, the tray replaces the floor drain. ”.
A-3.8.2.2.	Add the following at the end of the Note: “Service entrances such as those for delivery and receipt of goods, and those for access to Group F service rooms and workshops need not be made accessible.”.
A-3.8.2.3.	Replace “passagers” in the seventh bullet of the Note in the French text by “personnes handicapées”; Replace “, elevating device” in the seventh bullet of the Note by “lift for persons with physical disabilities”; Replace “The concept of wheelchair accessibility does not extend” in the Note by “Accessibility for a person in a wheelchair does not extend”.
	Add the following Note: “**A-3.8.2.3.(2)(j) Barrier-free Path of Travel.** Where all the spaces referred to in Subsection 3.8.4. or 3.8.5. are located at the entry level of the dwelling unit, the barrier-free path of travel need not extend to the other levels of the dwelling unit. It is possible to provide the spaces referred to in Subsection 3.8.4. or 3.8.5. at a level other than the entry level of the dwelling unit. The barrier-free path of travel must then extend to that other level. The installation of a ramp or an elevator or a lift for persons with physical disabilities is then required. There are several types of lifts for persons with physical disabilities and the lifting device chosen must conform to all the requirements of the Code, including the requirements in CAN/CSA B355, “Lifts for Persons

	with Physical Disabilities". Even if the barrier-free path of travel requires a lift for persons with physical disabilities, the installation of a stair chair lift is permitted in a dwelling unit. Where the lifting device chosen is a stair chair lift or a stair platform lift, the lifting device shall be installed when the building is constructed. The stair must have a clear width of 860 mm in addition to the width required for the device deployed. The width necessary for the installation and use of the device varies on the basis of the device chosen: • for a stair chair lift, not less than 650 mm in addition to the 860 mm, that is, a stair width not less than 1510 mm, is to be provided; • for a stair platform lift, not less than 1000 mm in addition to the 860 mm, that is, a stair width not less than 1860 mm, is to be provided.  **Figure A-3.8.2.3.(2)(j)** **Stairway in a dwelling unit** **Clear width**".
A-3.8.2.4.(1)	Replace "passagers" at the end of the Note in the French text by "personnes handicapées";

	Replace “equipped passenger device” at the end of the Note by “lift for persons with physical disabilities”.
A-3.8.2.5.	Strike out the Note.
A-3.8.2.6.(1)	Strike out the Note.
A-3.8.2.8.(1) to (4)	Replace “500” in the third paragraph of the Note by “250”; Replace the fourth paragraph of the Note by the following: “Those washrooms are practical because they may be used by both men and women.”.
	Add the following Note: “**A-3.8.2.13.(1) Dwelling Unit of Residential Occupancy.** A minimally accessible dwelling unit is a dwelling unit whose design integrates amenities in certain parts of the dwelling unit that make it possible to meet the needs of a person with one or more disabilities (visitability). An adaptable dwelling unit is a dwelling unit whose design is such that it may be easily adapted to the specific needs of a person with one or more disabilities.”.
A-3.8.3.6.(6) and (7)	Replace the Note by the following: “**A-3.8.3.6.(6) and (7) Doors with Power Operators.** Doors equipped with a power operator actuated by a pressure plate identified with the international symbol for accessibility or, where security is required, by a key, card or radio transmitter, and that can otherwise be opened manually, meet the intent of the requirement. The location of these actuating devices should ensure that a wheelchair will not interfere with the operation of the door once it is actuated. Swinging doors equipped with power operators must not open into passing pedestrian traffic. The power door operator must prevent the door from closing when a person is in the swing area. Power operators conforming to ANSI/BHMA A156.10, “Power Operated Pedestrian Doors,” include a device for stopping the door from closing to ensure the safety of users and reduce the risk of injury.”.

Add the following Note:

“**A-3.8.3.7.(1) Design of Lifts for Persons with Physical Disabilities.** The reference to CSA B355, “Lifts for Persons with Physical Disabilities”, implies conformance with all requirements in that standard, including restrictions on other services in these areas and detailed design criteria.

It should be noted that that standard limits the travel of a vertical platform. The travel is smaller for a closed sheath platform. According to the 2009 edition of the standard, some devices have a maximum permitted travel not more than 2500 mm. ”.

Add the following Note:

“**A-3.8.3.9.(2) Sign for Barrier-Free Parking.** Sign P-150-5 is shown in section 29 of the Regulation respecting road signs (chapter C-24.2, r. 41).

Figure A-3.8.3.9.(2)

Sign for barrier-free parking”.

Add the following Notes:

“**A-3.8.4.2.(1)(a) Minimally Accessible Dwelling Unit.** In a minimally accessible dwelling unit, if the washroom is inside another space (washroom inside a bedroom) and no other washroom is accessible in the dwelling unit, the barrier-free path of travel required must extend inside the bedroom or another space to reach the washroom even if no accessibility requirement is applicable to that room.

A-3.8.4.3. Doorways and Doors. Clear floor surfaces on each side of the door are necessary to allow persons in wheelchairs to approach the door on the latch side, open the door and enter the room while minimizing the number of manoeuvres. The width of the clear floor surfaces on each side of the door is different depending on which side the door opens. Where the door swings toward the approach side, a dimension perpendicular to the closed door not less than 1200 mm is required. The requirements in Article 3.8.3.6. apply to the door at the entrance to the dwelling unit. However, the requirements in Sentence 3.8.4.3.(2) do not apply.

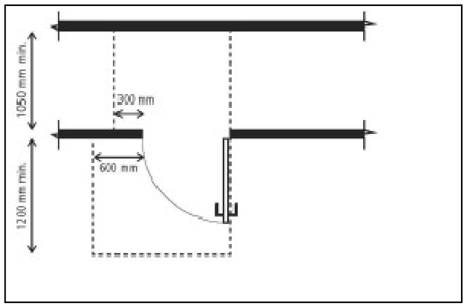


Figure A-3.8.4.3.-A

Clear floor surfaces

Door rotating on a vertical axis

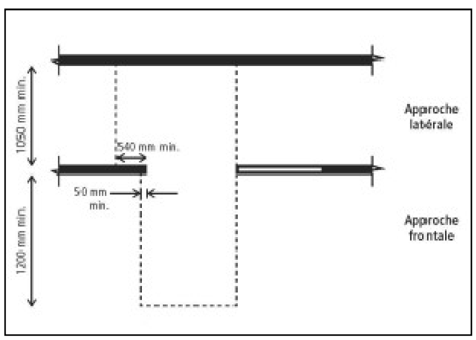


Figure A-3.8.4.3.-B

Clear floor surfaces

Sliding door

A-3.8.4.5.(4) Washroom. The installation of a wood nailing element of 1000 mm in width centred on the water closet is permitted where there is no wall adjacent to the water closet at a distance not more than 480 mm from the centre of the wall, allowing the installation of a lateral wood nailing element over a length not less than 1250 mm. A wood nailing element not less than 1000 mm wide allows the installation of retractable grab bars on both sides of the water closet.

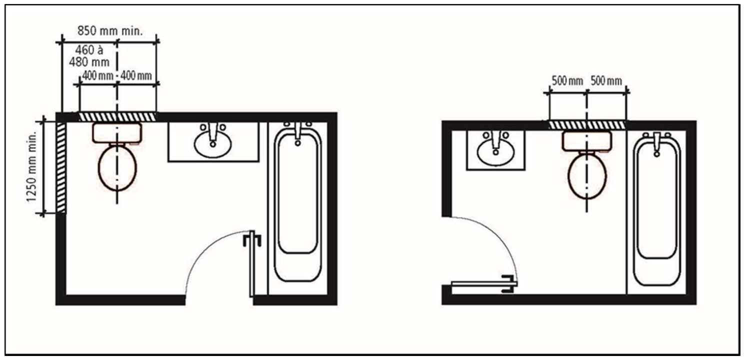


Figure A-3.8.4.5(4).

Wood nailing element for the installation of grab bars adjacent to the water closet

A-3.8.5.2.(1)(a) Adaptable Dwelling Unit. In an adaptable dwelling unit, the requirements concerning the extension of the barrier-free path of travel of the washroom as stated in Note A-3.8.4.2.(1)(a) apply to the bathroom.

A-3.8.5.5.(1) Bathroom. The lateral transfer of a person in a wheelchair to the seat of the water closet requires a clear width not less than 900 mm adjacent to the water closet and a length not less than 1500 mm from the rear wall of the water closet. The requirement related to that surface for an adaptable bathroom allows the encroachment of a vanity or furniture for dismantling work, to meet the potential need of a person with one or more disabilities occupying the dwelling unit. However, encroachment of that space by bathroom equipment such as the shower or the bathtub is not permissible

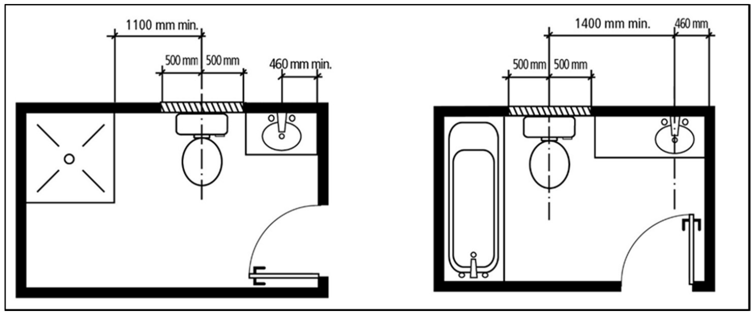


Figure A-3.8.5.5.(1)

Lateral transfer surface adjacent to the water closet

A-3.8.5.5.(2) Bathroom. To allow persons in wheelchairs front access to the lavatory, the clear height under the trap must be not less than 230 mm. In addition, to allow those persons to use the lavatory, the lavatory will have to be lowered to a height not more than 865 mm. For that purpose, the distance measured from the floor to the bottom of the trap must be not more than 300 mm

In an adaptable dwelling unit, the edge of the lavatory need not be installed at a height not more than 865 mm in relation to the floor or to allow front access to the lavatory of the bathroom. However, an appropriate installation of the plumbing is required to allow future adaptation.

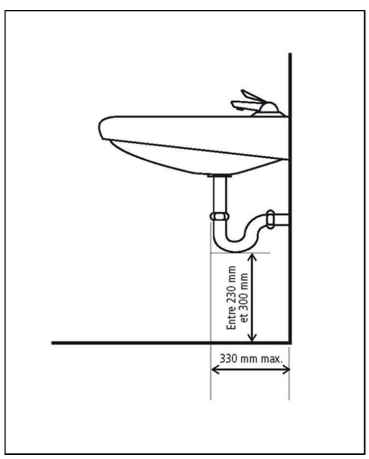


Figure A-3.8.5.5.(2)

Indications for the lavatory plumbing

A-3.8.5.7.(1) Manoeuvring Area in the Kitchen. A manoeuvring area not less than 1500 mm in diameter is required in the kitchen in front of the sink and the range, which does not require plumbing or electrical work for the purpose of moving the sink or the range to allow access to persons in wheelchairs. The travel of the appliance doors may encroach on the manoeuvring area.

A cooktop and a built-in oven may replace the range provided the 1500-mm manoeuvring area allows access to both.

A-3.8.5.7.(2) and (3) Kitchen Sink Plumbing. To allow front access to the sink by a person in a wheelchair and a sink height not more than 865 mm, the height measured from the floor to the bottom of the sink trap must be 230 mm.

In the case of a sink installed in a kitchen island, the longitudinal dimension to give persons in wheelchairs front access to the kitchen sink may be measured from the front edge of the counter of the island containing the sink and must be not less than 280 mm.

In an adaptable dwelling unit, counters need not be installed at not more than 865 mm and kitchen furniture is allowed under the sink. However, an appropriate installation of the plumbing is required to allow future adaptation.

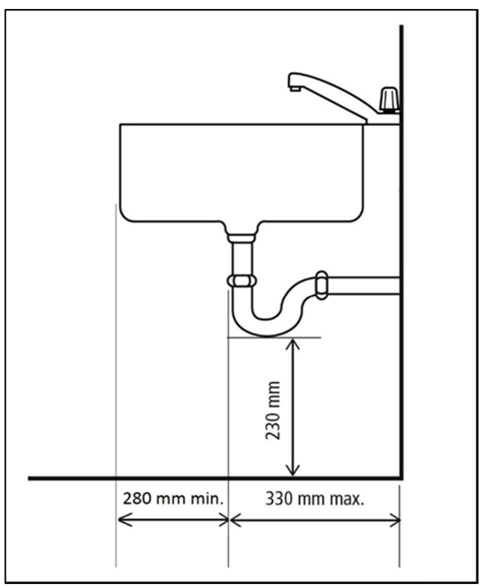


Figure A-3.8.5.7.(2) and (3)

Indications for kitchen sink plumbing”.

Part 4	
	Add the following Article: “**4.1.1.6. Certification** **(1)** All concrete shall be manufactured and delivered in accordance with the requirements in the NBC by a plant that holds a certificate of conformity issued by the BNQ in accordance with certification protocol NQ 2621-905, “Ready-Mix Concrete - Certification Program”.”.
4.1.5.12.	Replace the title by the following: “**Bleachers**”; Replace “bleacher seats” in Sentences (1), (2) and (3) by “bleachers”.
4.1.5.14.	Replace “bleacher seats” in Clause (1)(a) by “bleachers”.
4.1.7.1.	Insert “statique,” after “au moyen de la méthode” in Sentence (1) of the French text.
4.1.8.18.	Add “ou du monte-charge” after “Rails de l’ascenseur” in line 22 of Table 4.1.8.18. of the French text.
4.2.5.8.	Add “(see Note A-4.2.5.8.(2))” at the end of Sentence (2).
4.5.1.1.	Replace the title of attribution 4.1.5.12. “Bleacher seats” in Table 4.5.1.1. by “Bleachers”.
Division B Notes in Part 4	
A-4.1.6.7.(1)	Replace “les gaines d’ascenseurs” in the Note in the French text by “les gaines d’ascenseurs ou de monte-charges,”.

A-4.2.2.1.(1)	Replace the Note by the following: “**A-4.2.2.1.(1) Subsurface Investigation – Ochre Deposition**. Ochre deposition is a little known phenomenon that is becoming increasingly widespread. It is not specific to certain regions but is associated with soil characteristics and groundwater conditions. Microorganisms, which are generally found in water-saturated soil, extract oxygen from elements such as iron, reducing it to ferrous ions. Once the iron has been reduced and solubilized, it migrates through the soil to foundation drains and can block them. The following document describes the factors to be taken into account in assessing the risk of ochre deposition in the drainage systems of new buildings: BNQ-3661-500, “Dépôts d’ocre dans les systèmes de drainage des bâtiments – Partie I : Évaluation du risque pour la construction de nouveaux bâtiments et diagnostic pour des bâtiments existants et Partie II : Méthodes d’installation proposées pour nouveaux bâtiments et bâtiments existants”.”.
	Add the following Note: “**A-4.2.5.8.(2) Backfilling.** Certain granular material may swell under chemical reactions. A number of these reactions involve iron sulphide (pyrite, pyrrhotite, etc.) and carbonates present in the material and lead to the crystallization of sulfates and a subsequent increase in the volume of the granular backfill. The reactions are influenced by a number of factors, including the presence of clay minerals, which facilitate water absorption and the oxidation of iron sulphides, particle size distribution, water content of materials, the presence of bacteria and temperature. The most prevalent characterization method for granular materials, the petrographic index for potential swelling, may be accepted for the purposes of meeting the requirement. The method is described in detail in the following documents: • NQ 2560-500, “Granulats – Détermination de l’indice pétrographique du potentiel de gonflement sulfatique des matériaux granulaires – Méthode d’essai pour l’évaluation de l’IPPG”; • NQ 2560-510, “Granulats – Guide d’application de la méthode d’essai pour la caractérisation du potentiel de gonflement sulfatique des matériaux granulaires”. The non-swelling rock accepted under the two standards is commonly called “DB certified rock” (DB for “dalle de béton”.). Other methods, such as the chemically or biologically accelerated swelling test, may determine swelling but are less used because of the time required.

	Other granular materials from industrial processes, such as blast furnace slag, may also swell under certain conditions. Verifications are recommended before using granular materials in works sensitive to volumetric changes.”.
Part 5	
5.6.1.2.	Strike out Sentence (2).
5.8.1.1.	Insert “, d’un monte-charge” after “gaine d’ascenseur” in Sentence (2) of the French text.
Division B Notes de la partie 5	
A-5.6.1.2.(2)	Strike out the Note.
A-5.7.1.2.(2)	Add the following Sentence: “**Ochre Deposition**. Ochre deposition is associated with soil characteristics and groundwater conditions. Microorganisms, which are generally found in water saturated soil, extract oxygen from elements such as iron, reducing it to ferrous ions. Once the iron has been reduced and solubilized, it migrates through the soil to foundation drains and can block them. The following document describes drainage systems that reduce the risk of ochre deposition in the drainage systems of new buildings and how to install them: BNQ-3661-500, “Dépôts d’ocre dans les systèmes de drainage des bâtiments – Partie I : Évaluation du risque pour la construction de nouveaux bâtiments et diagnostic pour des bâtiments existants et Partie II : Méthodes d’installation proposées pour nouveaux bâtiments et bâtiments existants”.”.
Part 6	
6.2.1.1.	Replace Clause (1)(b) of the French text by the following: “b) le HRAI Digest”; --- Replace “equipment” in Sentence (1) by “system”.

6.2.1.2.	Strike out Sentence (3).
6.2.1.5.	Replace “les installations mécaniques” in Sentence (1) of the French text by “les équipements mécaniques”.
6.2.1.7.	Insert “et dans un équipement” after “installation” in Sentence (1) of the French text.
	Add the following Article: “**6.2.1.8. Comfort cooling or drinking water cooling systems** **(1)** It is not permitted to install comfort cooling or drinking water cooling systems without a recirculation loop.”.
6.3.1.1.	Replace “Except as provided in Sentence (3), all” in Sentence (1) by “All”; --- Replace Sentences (2) and (3) by the following: “**(2)** Except in *storage garages* covered by Article 6.3.1.4., *dwelling units*, corridors and stairwells covered by Article 6.3.1.8., the rates at which outdoor air is supplied to *buildings* by ventilation systems shall (a) be equal to or higher than the rates required by ANSI/ASHRAE 62.1, “Ventilation for Acceptable Indoor Air Quality”, or (b) conform to one of the methods in that Standard. **(3)** The ventilation system must be verified and tested to ensure that the difference between the airflow rate measured and the rate prescribed by the *designer* does not exceed 10% and a report must be drawn up to record the airflow rate measured and the corresponding airflow rate for each grille, diffuser, outdoor air intake, exhaust air outlet and ventilation system indicated on the plans given to the owner.”.
6.3.1.7.	Strike out “Commercial” in the title of the Article; --- Add the following Sentence: “**(2)** A range, a *cooktop* and a residential-type oven shall be equipped with a hood conforming to Sentence 6.3.1.8.(16).”.

	Add the following Article: "**6.3.1.8. Dwelling Units** **(1)** This Article applies to the ventilation of (a) *dwelling units*, (b) corridors serving *dwelling units*, and (c) a stairwell to which doors of *dwelling units* open directly. **(2)** Ventilation of all other *occupancies*, rooms and spaces of *residential occupancies* and *care occupancies* shall conform to Part 6. **(3)** Self-contained mechanical ventilation systems that serve only one *dwelling unit* and that conform to Subsection 9.32.3., except Clause 9.32.3.3.(2)(b) where the *building* is not covered by Part 11, are deemed to conform to this Article. **(4)** Except as permitted by Sentence (19), the *dwelling units*, corridors and stairwells covered by Sentence 3.3.4.4.(5) or clause 9.9.9.3.(1)(a) shall be mechanically ventilated. **(5)** Mechanical ventilation systems of *dwelling units* shall include (a) a principal ventilation system (see Note A-6.3.1.8.(5)(a)), and (b) at least one supplemental exhaust fan. **(6)** The principal ventilation system of *dwelling units* must ensure (a) the supply of makeup air for the main ventilation system and supplemental exhaust fans (see Note A-6.3.1.8.(6)(a)), (b) air circulation in all occupied rooms in the *dwelling unit* (see Note A-6.3.1.8.(6)(b)), and (c) for ventilation systems not used in conjunction with forced air heating systems, maintenance of a relative indoor humidity level of 25-50% corresponding to a temperature of 22 C in *dwelling units* during the heating season. **(7)** The principal ventilation system of *dwelling units* shall include (a) at least one exhaust air outlet located inside the *dwelling unit*, (b) air outlets that allow the introduction of outdoor air to the dwelling unit, and (c) elements or devices inside the *dwelling unit* to ensure conformity with this Article (see Note A-6.3.1.8.(7)(c)).

(8) The principal ventilation fan of *buildings* having a *building area* not more than 600 m^2, a *building height* not more than 3 *storeys*, and whose *major occupancy* is Group C housing *dwelling units* only, shall be a heat recovery ventilator (HRV)

(a) having sensible heat recovery efficiency certified by AHRI, Intertek Testing Services NA Ltd. or Element Materials Technology Canada Inc. according to ANSI/AHRI 1060 or ANSI/AHRI 1061 "Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment", or by HVI or another certification body accredited by the Standards Council of Canada according to CAN/CSA-C439, "Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators",

(b) having sensible heat recovery efficiency (SRE) of at least 54% for a *building* located in a municipality whose number of degree-days below 18°C is less than 6000 and of 60% for a *building* located in another municipality,

(c) having sensible heat recovery efficiency determined at a dry temperature of 1.7°C for *appliances* certified by the AHRI, Intertek Testing Services NA Ltd or Element Materials Technology Canada Inc., or -25°C for *appliances* certified by the HVI or another certification body accredited by the Standards Council of Canada (see Note A-6.3.1.8.(8)(c)), and

(d) whose operating and de-icing cycles do not generate air circulation between the *dwelling units*.

(9) Measures shall be taken to protect against depressurisation in *dwelling units* (see Note A-6.3.1.8.(9)).

(10) The principal ventilation system of the *dwelling unit* shall have the exhaust capacity indicated in Table 9.32.3.3.

(11) Fans installed in dwelling units shall conform to Article 9.32.3.10.

(12) The outdoor air supply system of the *dwelling unit* shall be capable of operating at plus or minus 10% of the exhaust capacity indicated in Table 9.32.3.3. for that *dwelling unit*.

(13) The exhaust air intakes and air supply outlets of the principal ventilation system of a *dwelling unit* not used in conjunction with forced air heating systems shall be designed and installed to promote air diffusion at the ceiling level.

(14) For ventilation systems not used in conjunction with forced air heating systems, air shall flow to air supply outlets at a temperature of 12°C during the heating season.

	(15) Air shall be supplied into *dwelling units* by a system of trunk and branch *supply ducts* that conform to the requirements of Sentences 9.32.3.5.(10) and (11). **(16)** A range hood with a rated capacity not less than 50 L/s shall be installed in the kitchen and be connected to an *exhaust duct* in conformance with Article 6.3.2.10. **(17)** Each bathroom and each washroom (a) shall be served by a manually controlled exhaust supplemental fan installed in the bathroom or washroom and having a rated capacity not less than 25 L/s, or (b) shall be equipped with an exhaust air intake of the principal ventilation system of the *dwelling unit* enabling an exhaust capacity not less than 25 L/s using a manual control located in the bathroom or washroom. (See Note A-6.3.1.8.(17).) **(18)** Except as permitted in Sentence (19), corridors and stairways covered by Sentence (4) shall (a) be ventilated mechanically with an outdoor air supply system at a minimal air exchange rate of 0.3 per hour so as to maintain pressure above that within *dwelling units*, and (b) not be used as an air supply *plenum* for *dwelling units*. (See Note A-6.3.1.8.(18).) **(19)** A stairwell may be ventilated naturally by not les than one window that is (a) accessible, (b) capable of being opened and whose clear space for ventilation is equal to not less than 5% of the area of the lowest floor of the stairwell multiplied by the number of storeys of the stairwell, and (c) located above the highest floor level.”.
6.3.2.9.	Replace “Sentences 6.2.1.2.(2) and (3)” in Clause (2)(a) by “Sentence 6.2.1.2.(2)”.
6.3.2.14.	Strike out Sentence (2).

6.3.2.15.	Strike out Sentence (3); ——— Replace Sentence (5) by the following: “**(5)** Drains, overflows and blow-downs shall be connected to the *building*’s drainage system in accordance with the requirements in the NPC.”.
6.3.2.17.	Replace Sentence (2) by the following: “**(2)** Fans and associated air-handling equipment such as air washers, filters and heating or cooling units shall be (a) of a type of designed for outdoor use, when installed on the roof or elsewhere outside the *building*, and (b) equipped with a nameplate of a contrasting colour that is easily accessible and that indicates the features of the equipment.”.
6.3.4.2.	Strike out Sentence (3).
6.3.4.3.	Replace “NFPA 91, “Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids” in Clause (1)(a) by “NFPA 45, “Fire Protection for Laboratories Using Chemicals””; ——— Add the following Sentence: “**(2)** Where an accumulation of *combustible* or reactive deposits in the power-ventilated enclosures and its *exhaust duct* systems creates a fire or explosion hazard, (a) measures shall be taken to remove the deposits, and (b) an automatic fire suppression system shall be installed.”.
6.3.4.4.	Strike out “and” at the end of Clause (1)(a); ——— Replace Clause (1)(b) by the following: “(b) be provided with access doors to permit inspection and maintenance of the fan assembly and *exhaust ducts*,

	(c) be delivered with the necessary directions for their use and operation of the ventilation system, and (d) include the means to neutralize accidental spills.”.
6.9.1.3.	Insert “6.3.1.7.” after “visé par le paragraphe” in Sentence (1) of the French text.
6.9.3.1.	Replace “individual *suites*” in Sentence (1) by “*dwelling units*” and “a *suite*” by “a *dwelling unit*”; --- Replace Clauses (2)(c) and (2)(d) by the following: “(c) have no disconnect switch between the overcurrent device and the CO alarm, where the CO alarm is powered by the electrical system serving the *suite* (see Note A-6.9.3.1.(2)(c)), (d) be mechanically fixed at a height above the floor as recommended by the manufacturer, and (e) in case the regular power supply is interrupted, be provided with a battery as an alternative power source.”; --- Replace “in a *suite* of *residential occupancy* or in a *suite* of *care occupancy*” in Sentences (3) and (4) by “in a *suite* of *residential occupancy* or in a *dwelling unit* of *care occupancy* ”; --- Replace “in every *suite* of *residential occupancy* or *suite* of *care occupancy*” in Clause (4)(a) by “in every *suite* of *residential occupancy* or *dwelling unit* of *care occupancy*”; --- Replace “For each *suite* of *residential occupancy* or *suite* of *care occupancy*” in Sentence (5) by “For each *suite* of *residential occupancy* or *dwelling unit* of *care occupancy*”.
6.9.4.2.	Add the following Sentence: “**(2)** The installation of open fireplaces in *care occupancies* is not permitted.”.

6.10.1.1.	Add the following attributions in numerical order in Table 6.10.1.1.: “6.3.2.1. Required Ventilation (3) [F82-OH1.1]”; “6.3.1.8. Dwelling Units (4) [F40, F50, F52-OH1.1] [F51, F52-OH1.2] [F40, F50, F53-OS3.4] (5) [F40, F50, F52-OH1.1] [F51, F52-OH1.2] (6) [F40, F50, F52-OH1.1] [F51, F52-OH1.2] (7) [F40, F50, F52-OH1.1] [F51, F52-OH1.2] (8) [F98-OE1.1] (9) [F81-OH1.1] (10) [F40, F50, F52, F53-OH1.1] [F51, F52-OH1.2] [F43,F50, F53-OS3.4] (11) [F40, F50, F52, F53, F81-OH1.1] [F51, F52, F53, F81-OH1.2] [F53,F63-OS2.3] [F53, F81-OS3.4] (12) [F53, F63-OS2.3] (13) [F40-OH1.1] [F51, F54-OH1.2] (14) [F51, F54-OH1.2] (15) [F40, F50, F52-OH1.1] (16) [F40, F52-OH1.1] (17) [F40, F52-OH1.1] (18) [F40, F50, F52-OH1.1] [F51, F52-OH1.2] [F40, F50, F53-OS3.4]”;
	Strike out the following attributions in Table 6.10.1.1.: “6.2.1.2.(3)”; “6.3.2.14.(2)”; “6.3.2.15.(3)”.

Division B Notes in Part 6	
A-6.2.1.2.(3)	Strike out the Note.
	Add the following Notes: “**A-6.3.1.8.(5)(a) Principal ventilation system.** A principal ventilation system may include one or more principal fans. **A-6.3.1.8.(6)(a) Supply of Make-up Air.** Refer to Sentences 9.32.3.8.(2) to (5). Make-up air to a dwelling unit must always be outdoor air. The calculation of the supply of make-up air of supplemental exhaust fans of a dwelling unit may take into account • a number of 2 supplemental exhaust fans of the dwelling unit, provided that their exhaust rate is the highest among the supplemental exhaust fans present in the dwelling unit (generally, the rate of the exhaust fan of the kitchen hood or the clothes dryer is higher than that of the exhaust fan in the bathroom or the washroom); • the low air infiltration rate from around a door installed in accordance with NFPA 80, “Fire Doors and Other Opening Protectives”, opening on a corridor where all the requirements applying to the fire separation are met. At the same time, the calculation of the total supply of make-up air for supplemental exhaust fans present in all the dwelling units served by the principal ventilation may take into account an operation diversity factor based on the total number of supplemental exhaust fans present in the dwelling units. The good engineering practice (see Article 6.2.1.1.) may provide indications on the subject. **A-6.3.1.8.(6)(b) Air Circulation.** Measures must be taken to ensure free circulation of air from one room to another, in particular by providing spaces under doors or using doors with tilted louvers or grilles. **A-6.3.1.8.(7)(c) Components of the principal ventilation system.** Without limitation, moisture, pressure and differential pressure sensors and primary automatic or manual controls are considered elements or devices referred to in this Article.

	A-6.3.1.8.(8)(c) Heat Recovery Ventilators. For the purposes of Part 11, sensible heat recovery efficiency from the heat recovery ventilators (HRVs) must be determined with a flow rate equal to or greater than the expected flow rate for the normal operation of the HRVs at low speed. **A-6.3.1.8.(9) Modulation.** It is permitted to modulate the air intake by using an individual mechanical pressure sensor in each dwelling unit or by offsetting the air intake in each dwelling unit with supplemental exhaust fans. **A-6.3.1.8.(17) Exhaust in each Bathroom and Washroom.** In Clause (a), the flow rate required by the exhaust fan in these rooms need not be taken into account in the exhaust flow rate calculation required by Sentence 6.3.1.8.(10). Clause (b) sets the conditions for a special design of the ventilation of the dwelling unit for drawing air from a bathroom or washroom by the principal ventilation system of the dwelling unit. Since it is the principal ventilation system of the dwelling unit, the exhaust rate must be taken into account in the exhaust calculation required in Sentence 6.3.1.8.(10). The design could omit the manual exhaust control of such a bathroom or washroom when the system complies with all the other requirements in the Article and the owner or operator of the building undertakes to authorize the operation of the system at a rate for maintaining the required minimum exhaust rate of 25 L/s in the bathroom or washroom. Maintaining that exhaust rate must not affect the air quality inside the dwelling unit, by drying the air for example, or increase the depressurization in the dwelling unit while limiting to a minimum an excessive use of energy. Considering the complexity, potential impact and undertakings required, an application for an alternative solution should be submitted to the Régie du bâtiment for the evaluation of such design (see Note A-1.2.1.1.(1)(b) of Division A). **A-6.3.1.8.(18) Mechanical Ventilation of Corridors and Stairwells.** The value of the air change rate per hour is not related to the requirement for higher pressure. To ensure the positive pressure, the air change rate per hour will often be higher than that provided for in Clause (a).”.
Part 8	Strike out the Part.
Part 9	
Table of Contents	Strike out Subsection 9.10.21;

	Strike out Section 9.36.
9.3.1.1.	Add the following Sentence: “**(5)** All concrete shall be manufactured and delivered in accordance with the requirements in the NBC by a plant that holds a certificate of conformity issued by the BNQ in accordance with certification protocol NQ 2621-905, “Ready-Mix Concrete - Certification Program”.”.
9.3.1.3.	Replace Sentence (1) by the following: “**(1)** Concrete in contact with *soil* or with an aggregate backfill likely to produce sulfates deleterious to normal cement shall conform to Clause 4.1.1.6 of CAN/CSA-A23.1, “Concrete Materials and Methods of Concrete Construction”, or be adequately protected against sulfatizing by another means of protection (see Note A-9.13.2.1.(2)).”.
9.5.2.3.	Insert “or lift for persons with physical disabilities” after “elevator” in Sentence (1).
9.5.3.1.	Replace the words “de passage” wherever they appear in the Article and in Table 9.5.3.1. of the French text by “libre”; Replace “hauteur sous passage, des portes coulissantes in Sentence (4) of the French text by “hauteur libre”.
9.5.5.1.	Insert “, sliding” after “swing-type” in Sentences (1) and (2).
9.7.2.2.	Strike out Sentence (10).
	Add the following Article: “**9.7.2.3. Minimum Aggregate Percentage of Glazing** **(1)** Except as permitted by Sentences (2) and (4), the minimum area of glazing in windows providing natural light in a *dwelling unit* shall, on each *storey*, (a) be equal to not less than 5% of the area of the *storey* in the *dwelling unit* (see Note A-9.7.2.3.(1)(a)), and

	(b) be distributed between all the sleeping rooms and living spaces. **(2)** Where a *dwelling unit* occupies the *first storey* and the *basement* of a *building*, the area of glazing providing natural light in the *basement* need not be equal to the values in Sentence (1) provided (a) not more than 50% of the *dwelling unit* is located in the *basement*, and (b) each sleeping room in the *basement* has an area of glazing providing natural light equal to not less than 5% of the area of the *sleeping room*. **(3)** Each *suite* in a rooming house must have an area of glazing providing natural light equal to not less than 5% of the area of the *suite*. **(4)** Borrowed natural lighting is permitted in a room of a *dwelling unit* provided (a) the area illuminated by the borrowed light and the area containing the glazing that provides the natural light are considered combination rooms under Article 9.5.1.2., (b) the opening between the two areas is parallel to the glazing that provides the natural light and is located not more than 6 m from the glazing, and (c) the area of the glazing that provides the natural light is not less than 5% of the total area of the combination rooms.”.
9.7.3.3.	Strike out Sentence (3) and Table 9.7.3.3.
9.8.1.2.	Replace “Where” in Sentence (1) by “Except as permitted by Sentence (2), where”; Add the following Sentence: “**(2)** Stairs installed in garages that serve a single *dwelling unit* need not conform to Sentence (1) where they serve platforms used solely for storage purposes (see Note A-9.8.1.2.(2)).”.
9.8.2.2.	Replace the title in the French text by “**Hauteur**”; Replace “L’échappée” in Sentences (1) and (4) of the French text by “La hauteur libre”;

	Replace “l’échappée” in Sentences (2) and (3) of the French text by “la hauteur libre”.
9.8.3.2.	Replace “Except for stairs” in Sentence (1) by “Except as provided in Sentence (2) and except for stairs”; --- Add the following Sentence: “**(2)** An interior stair may have less than 3 risers provided (a) the stair is not less than 900 mm wide, (b) the stair has a covering that contrasts with the landing’s covering or is illuminated at all times when the lighting is filtered and occupants are on the premises, and (c) a handrail is installed on each side.”.
9.8.4.7.	Replace “largeur de passage” in Clause (1)(b) of the French text by “largeur libre”; --- Replace “échappée” in Clause (1)(e) of the French text by “hauteur libre”; --- Replace “3 persons” in Sentence (2) by “6 persons”.
9.8.5.3.	Replace the title of the Article in the French text by “**Hauteur libre**”; --- Replace the title of the Article by “**Clear Height**”; --- Replace “l’échappée” in Sentence (1) of the French text by “la hauteur libre”; --- Replace “L’échappée” in Sentence (2) of the French text by “La hauteur libre”.
9.8.6.4.	Replace the title of the Article in the French text by “**Hauteur libre**”;

	Replace the title by “**Clear Height**”; --- Replace “l’échappée” in Sentence (1) of the French text by “la hauteur libre”; --- Replace “L’échappée” in Sentence (2) of the French text by “La hauteur libre”.
9.8.8.1.	Replace Sentence (2) by the following: “**(2)** *Guards* are not required (a) at loading docks, (b) at floor pits in *repair garages*, (c) where access is provided for maintenance purposes only, and (d) for the interior stairs of a *dwelling unit* serving a *basement* designed only for the installation of the mechanical or maintenance equipment for the *building*, if a handrail is installed on each open side of the stairs.”; --- Replace Sentences (4) and (5) by the following: “**(4)** Except as provided in Sentence (5), openable windows in *buildings* of *residential occupancy* shall be protected (a) where the window is not required as a *means of egress* in accordance with Sentence 9.9.10.1.(1), by (i) a *guard*, or (ii) 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 not more than 100 mm measured either vertically or horizontally where the other dimension is greater than 380 mm, (b) where the window is required as a *means of egress* in accordance with Sentence 9.9.10.1.(1), by a mechanism (i) capable of controlling the free swinging or sliding of the openable part of the window so as to limit any clear unobstructed opening to not more than 100 mm measured either vertically or horizontally where the other dimension is greater than 380 mm, (ii) openable from inside the room without requiring keys, special devices or specialized knowledge, and

	(iii) conforming to ASTM F2090, “Standard Specification for Window Fall Prevention Devices With Emergency Escape (Egress) Release Mechanisms”. (See Note A-9.8.8.1.(4) and (5).). **(5)** Windows need not be protected in accordance with Sentence (4), where (a) struck out, (b) struck out, (c) the only opening greater than 100 mm by 380 mm is located more than 900 mm above the finished floor, (d) the window sill is located more than 900 mm above the finished floor on one side of the window, or (e) the lower edge of the openable portion of the window is located less than 1800 mm above the floor or ground on the other side of the window. (See Note A-9.8.8.1.(4) and (5).)”.
9.9.2.3.	Insert “, monte-charges” after “Ascenseurs” in the title of the Article in the French text; Insert “, monte-charges” after “ascenseurs” in Sentence (1) of the French text.
9.9.2.4.	Replace “Except for doors” in Sentence (1) by “Except as provided for in Sentence (2) and except for doors”; Add the following Sentence: “**(2)** Doors serving a garage or accessory *building* of not more than one *storey* in *building height* need not conform to the requirements of Sentence (1) provided (a) the garage or accessory *building* serves only one *dwelling unit* and is located on the same property as that *dwelling unit*, and (b) the garage or accessory *building* has a second swinging door providing access to the garage, other than a garage door.”.

9.9.3.4.	Replace the title of the Article in the French text by "**Hauteur libre**"; Replace "de passage" in Sentences (1) and (2) of the French text by "libre".
9.9.4.4.	Replace Sentence (1) by the following: "**(1)** *Unprotected openings* in 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., where (a) an unenclosed exterior *exit* stair, ramp, balcony or exterior passageway leading to an *exit* provides the only *means of egress* from a *suite* and is exposed to fire from *unprotected openings* in the exterior walls of (i) another *fire compartment*, or (ii) another *dwelling unit*, ancillary space or common space in a house with a *secondary dwelling unit*, and (b) *unprotected openings* are within 3 m horizontally and less than 10 m below or less than 5 m above the ramp, *exit* stair, balcony or exterior passageway. (See Note A-9.9.9.3.(1).)".
9.9.5.2.	Replace "Where" in Sentence (1) by "Where an *occupancy* is authorized under the NBC in a corridor,".
9.9.6.1.	Replace "de passage" in Sentence (3) of the French text by "du moyen d'évacuation".
9.9.6.4.	Replace Clauses (5)(b) and (5)(c) by the following: "(b) the doors serve *storage garages* or other accessory *buildings* serving not more than one *dwelling unit*, (c) the doors (i) serve storage *suites* of not more than 20 m^2 in gross area that are in warehousing *buildings* of not more than one *storey*, and (ii) open directly to the exterior at ground level, or

	(d) the doors serve not more than one *dwelling unit* or a house with a *secondary suite* and lead directly outside.”.
9.9.7.2.	Add the following Sentence: “**(3)** Just one end of a *public corridor* referred to in Sentence (2) and serving a *dwelling* is permitted to lead through a lobby provided (a) the lobby conforms to Clauses 3.4.4.2.(2)(a) to (d) and 3.4.4.2.(2)(f) and Subclauses 3.4.4.2.(2)(e)(i), (e)(ii) and (e)(iv) (see Note A-3.4.4.2.(2)), and (b) the *public corridor* is separated from the lobby by a *fire separation* having a *fire-resistance rating* required by the most stringent of the *fire-resistance ratings* required for the lobby, the *public corridor* or the adjacent rooms. (See Notes A-3.3.1.3(10) and A-3.4.4.2.(2).)”.
9.9.7.4.	Insert “and storage areas in the attic of a garage attached to a *dwelling unit*” after “*dwelling units*” in Sentence (1).
9.9.8.5.	Add “(see Note A-3.4.4.2.(2))” after “lobby” at the end of Sentence (3); Add the following Sentence: “**(6)** If *exit* stairs open into a lobby, the stairs shall be isolated from the lobby by a *fire separation* that conforms to Sentence 9.9.4.2.(1).”.
9.9.9.3.	Add “(See Note A-9.9.9.3.(1).)” at the end of Sentence (1); Replace “Where” in Sentence (2) by “Except as required by Article 9.10.8.8., where”.
9.9.10.1.	Insert “or if the *floor area* is served by an *exit* or a *means of egress* that leads directly outside,” after “*sprinklered*,” in Sentence (1).
9.9.11.1.	Replace Sentence (1) by the following: “**(1)** This Subsection applies to all *exits*, except those serving (a) not more than one *dwelling unit* or a house with a *secondary suite*, or

	(b) a *building* not more than 2 *storeys* in *building height* containing only *dwelling units* not served by a *public corridor*.”.
9.10.1.3.	Add the following Sentence: “**(12)** Sprinkler systems for windows shall conform to Article 3.1.7.6.”.
9.10.2.2.	Strike out the Article.
9.10.4.1.	Replace “Platforms” in Sentence (5) by “ "Except as provided in Sentence (6), platforms ”; Add the following Sentence: “**(6)** A storage area in the attic of a garage need not be considered as a floor assembly or a *mezzanine* for the purpose of calculating *building height* provided (a) the storage area is used for storage purposes only, and (b) the garage serves not more than one *dwelling unit*.”.
9.10.4.4.	Insert “ou de monte-charge” after “d’ascenseur” in Sentence (1) of the French text.
9.10.8.1.	Strike out “and Subsection 9.10.21. for construction camps” in Sentence (1); Add the following Sentence: “**(2)** Except the floor over a crawl space, the structure of light-frame floors for which there is no requirements for the *fire-resistance rating* shall be covered with (a) a gypsum sheathing at least 12.7 mm thick; or (b) a finish material ensuring a *fire-resistance rating* of at least 20 min. (See Note A-9.10.8.1.(2).)”.
9.10.8.8.	Insert “or balcony” after “passageway” in Sentences (1) and (2);

	Replace Sentence (3) by the following: “**(3)** No *fire-resistance rating* is required for floors of exterior passageways or balconies serving (a) a house with a *secondary suite*, or (b) a single *dwelling unit* where no *suite* is located above or below the *dwelling unit* (see Sentence 9.9.9.3.(2)), or (c) a *building* with not more than 8 *dwelling units* provided (i) the *building* is not more than 2 *storeys* in *building height*, and (ii) the *dwelling units* are served by another *means of egress*.”.
9.10.9.3.	Insert “3.1.7.6.,” after “Articles” in Sentence (1).
9.10.9.7.	Replace Sentence (6) by the following: “**(6)** *Combustible* drain, waste and vent piping is permitted on one side of a horizontal *fire separation* in *buildings* containing (a) 2 *dwelling units* only, or (b) not more than 3 *dwelling units* and having a *building height* not more than 2 s*toreys*, where the drain, waste and vent piping serves one of the following: (i) a central vacuum system, or (ii) a mechanical ventilation system with a rigid duct.”; Add the following Sentence: “**(7)** Water distribution piping is permitted to be embedded in a concrete slab required to have a *fire-resistance rating* without being incorporated in the slab at the time of testing as required in Article 3.1.9.2., if the concrete thickness between the *combustible* piping and the bottom of the slab is not less than 50 mm.”.
9.10.9.14.	Strike out “ and Article 9.10.21.2.” in Sentence (1); Insert “in a *building* with not more than 3 *dwelling units* and a *building height* not more than 2 *storeys*” after “that separate *dwelling units*” in Sentence (4).

9.10.9.18.	Replace Sentence (2) by the following: “**(2)** Individual *fire compartments* referred to in Sentence (1) shall not have individual fans that exhaust directly into the *exhaust duct* in the *vertical service space*, except if the fans have connections that extend upward at least 500 mm into the *exhaust duct*.”.
9.10.10.3.	Replace “Sentence (2)” in Sentence (1) by “Sentences (2) and 3.6.3.1.(6)”; --- Add the following Sentence: “**(3)** It is permitted to have access through a *dwelling unit* to a *service room* into the interior of a *dwelling unit* without the wall that separates the *dwelling unit* from the *service room* being a *fire separation* with a *fire-resistance rating* provided (a) the wall that separates the *service room* from any other *suite* is a *fire separation* with a *fire-resistance rating*, (b) the *service room* serves not more than two *dwelling units*, and (c) the *service room* is freely accessible from the *dwelling unit*.”.
9.10.13.13.	Replace “Sentences (2) to (5)” in Sentence (1) by “Sentences (2) to (6)”; --- Add the following Sentence: “**(6)** A duct that pierces a *fire separation* between 2 *dwelling units* need not be equipped with a *fire damper* in a *building* with a *building height* not more than 2 *storeys* and with not more than 3 *dwelling units* provided (a) the duct pierces a vertical *fire separation*, or (b) the duct pierces a horizontal *fire separation* and not more than 2 *dwelling units* are above another dwelling unit.”.
9.10.14.4.	Add the following Sentence: “**(12)** There are no limits on the area of glazed openings for the *exposing building face* of a detached garage or accessory *building* facing a *dwelling unit*, where (a) the detached garage or accessory *building* serves a *building* having not more than 3 *dwelling units* and a *building height* not more than 2 *storeys*,

	(b) the detached garage or accessory *building* is located on the same property as those *dwelling units*, (c) the detached garage or accessory *building* is not more than 1 *storey* in *building height*, (d) the *exposing building face* of the detached garage or accessory *building* is not more than 30 m^2, (e) the *exposing building face* of the detached garage or accessory *building* faces the *building* served, and (f) the *dwelling units* served by the detached garage or accessory *building* are the only *major occupancy* on the property.”.
9.10.14.5.	Replace Sentence (6) by the following: “**(6)** Except as provided in Sentence (7), *combustible* projections on the exterior of a wall that are more than 1 m above ground level and that could expose an adjacent *building* to fire spread shall not be permitted within 1.2 m of (a) a property line, (b) the centreline of a *public way*, or (c) any imaginary line used to determine the *limiting distance* between 2 *buildings* located on the same property. (See Note A-9.14.5.6).)”; --- Add the following Sentences: “**(15)** The construction of *exposing building faces* and exterior walls located above an *exposing building face* that encloses an *attic* or *roof space* of a *building* with not more than 3 *dwelling units* and a *building height* not more than 2 *storeys* (a) need not conform to the requirements of Table 9.10.14.5.-A. where the *limiting distance* is 1.2 m or more, (b) need not conform to the type of construction required in Table 9.10.14.5.-A where the *limiting distance* is 0.6 m or more and the *exposing building face* has a *fire-resistance rating* not less than 45 min, (c) need not conform to the type of cladding required in Table 9.10.14.5.-A where the *limiting distance* is less than 1.2 m and the *exposing building face* has a *fire-resistance rating* of not less than 45 min, and (i) the cladding of the *exposing building face* is of *noncombustible* material, or

	(ii) the cladding of the *exposing building face* conforms to the requirements of Clause 9.10.15.5.(3)(c). **(16)** The *exposing building face* of a detached garage or accessory *building* that serves not more than 3 *dwelling units* and conforms to the conditions listed in Sentence 9.10.14.4.(12) need not conform to the minimum required *fire-resistance rating* in Table 9.10.14.5.-A; however, if the *limiting distance* is less than 0.6 m, the *fire-resistance rating* shall be not less than 45 min. **(17)** The *exposing building face* of a detached garage or accessory *building* that serves not more than 3 *dwelling units* need not conform to the type of cladding required by Table 9.10.14.5.-A, regardless of the *limiting distance*, if the conditions listed in Sentence 9.10.14.4.(12) are met.”.
9.10.15.5.	Replace Sentence (5) by the following: “**(5)** Except as provided in Sentence (6), *combustible* projections on the exterior of a wall that are more than 1 m above ground level and that could expose an adjacent *building* to fire spread shall not be within 1.2 m of (a) a property line, (b) the centreline of a *public way*, or (c) any imaginary line used to determine the *limiting distance* between 2 *buildings* located on the same property.”.
9.10.18.2.	Replace “10 (sleeping accommodation)” in Table 9.10.18.2. by “with sleeping accommodation for more than 10 persons”; --- Replace Sentence (5) by the following: “**(5)** A fire alarm system is not required in a *residential occupancy* where (a) an *exit* or *public corridor* serves not more than 4 *suites*, or (b) each *suite* is served by an exterior *exit* leading to ground level.”.
9.10.19.8.	Strike out “warning” in the title of the Article and in Sentence (1).
9.10.21.	Strike out the Subsection.

9.11.1.1.	Insert “, d’un monte-charge” after “d’ascenseur” in Sentence (3) of the French text.
9.12.2.2.	Strike out “(see Note A-9.12.2.2.(2))” in Sentence (2).
9.13.2.1.	Add “(see Note A-9.13.2.1.(2))” at the end of Sentence (2); Replace Sentence (3) by the following: “**(3)** Dampproofing required in Sentence (2) need not be provided for (a) floors in garages, or (b) floors in unenclosed portions of *buildings*.”.
9.13.2.6.	Insert “it shall control soil gas in accordance with Subsection 9.13.4. and” after “below the floor,” in Sentence (1).
9.14.2.1.	Add “(see Note A-9.14.2.1.(1)).” at the end of Sentence (1).
9.14.3.1.	Replace Clauses (1)(f) and (1)(g) by the following: “(f) CAN/CSA-B182.1, “Plastic Drain and Sewer Pipe and Pipe Fittings”, (g) CSA G401, “Corrugated Steel Pipe Products”, (h) BNQ 3624-120, “Polyethylene (PE) Pipe and Fittings - Smooth Inside Wall Open Profile Pipes for Storm Sewer and Soil Drainage - Characteristics and Test Methods”, (i) NQ 3624-130, “Unplasticized Poly(Vinyl Chloride) (PVC) Rigid Pipe and Fittings, 150 mm in Diameter or Smaller, for Underground Sewage Applications”, or (j) NQ 3624-135, “Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings - Pipes of 200 mm to 600 mm in Diameter for Underground Sewage and Soil Drainage - Characteristics and Test Methods”.”.

9.14.5.2.	Add “, except for retention pits used only as floor drains” after “9.25.3.3.(7)” in Clause (2)(b).
9.14.6.3.	Replace Sentence (1) by the following: “**(1)** If a window well is drained to the *foundation* footing of a *building*, the drain shall be oriented towards the *foundation* drainage system.”.
9.16.2.2.	Replace “the Note A-9.4.4.4.(1)” in Sentence (1) by “Notes A-4.2.5.8.(2) and A-9.4.4.4.(1)”.
9.19.2.1.	Strike out “(See Note A-9.19.2.1.(1).)” in Sentence (1).
9.20.11.4.	Replace “2,4 mm” in Clause (1)(a) of the French text by “2,4 m”.
9.25.1.1.	Strike out “and Section 9.36.” in Subclauses (2)(a)(i) and (2)(a)(ii); Replace “9.32., 9.33. and 9.36.” in Sentence (3) by “9.32. and 9.33.”.
9.25.5.1.	Strike out Sentence (4).
9.31.1.1.	Strike out Sentence 4).
9.31.4.1.	Replace “A” in Sentence (1) by “Except as permitted in Sentence (2), a”; Add the following Sentence: “**(2)** A compost toilet operating without water and effluent, drain, overflow or other types of discharge is permitted to be installed in a single-family home provided (a) the home is an existing home, (b) the home is covered in the Regulation respecting waste water disposal systems for isolated dwellings (chapter Q-2, r. 22),

	(c) the Regulation respecting waste water disposal systems for isolated dwellings (chapter Q-2, r. 22) requires or permits the installation of a compost toilet, (d) the toilet is mechanically ventilated and the ventilation duct is independent from any other ventilation duct and plumbing system, and (e) the toilet conforms to NSF/ANSI 41, "Non-Liquid Systems".".
9.31.4.3.	Replace Sentences (1) and (2) by the following: "**(1)** A floor drain shall be provided in accordance with the requirements described in Article 3.7.2.7.".
9.31.6.1.	Replace "with Part 7" in Clause (1)(b) by "the NPC".
9.31.6.2.	Insert "Combustion storage" before "*service water heaters*" in Sentence (3).
9.32.1.1.	Strike out Sentence (4).
9.32.1.2.	Add the following Sentence: "**(5)** *Public corridors* and *exit* stairways referred to in Clause 9.9.9.3.(1)(a) shall be ventilated in accordance with Article 6.3.1.8.".
9.32.2.3.	Replace ""HRAI Digest"" in Sentence (4) of the French text by "HRAI Digest".
9.32.3.1.	Insert "except as provided in Clause 9.32.3.3.(2)b)," at the beginning of Clause (1)(a).
9.32.3.2.	Replace ""HRAI Digest"" in Sentence (1) by "HRAI Digest".

9.32.3.3.	Replace Sentence (2) by the following: “**(2)** The principal ventilation fan shall (a) be capable of operating at an exhaust capacity complying with Table 9.32.3.3., referred to hereinafter as the “normal operating exhaust capacity” (see Note A-9.32.3.3.(2)), and (b) include, in *buildings* whose *major occupancy* is Group C and housing *dwelling units* only, a heat recovery ventilator (HRV) (i) having sensible heat recovery efficiency certified by the Home Ventilating Institute (HVI) or another certification body accredited by the Standards Council of Canada according to CSA Standard CAN/CSA-C439, “Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators” (see Note A-6.3.1.8.(8)(c)), and (ii) having sensible heat recovery efficiency (SRE) of at least 54% for a *building* located in a municipality whose number of degree-days below 18°C is less than 6000 and of at least 60% for a *building* located in another municipality and determined at a dry temperature of -25°C.”.
9.32.3.5.	Strike out “if there is no *storey* without a bedroom, to” in Clause (10)(c).
9.32.3.6.	Strike out the Article.
9.32.3.7.	Replace “Except as provided in Sentences (2) and (3), a” in Sentence (1) by “A”; --- Strike out Sentences (2), (3) and (7); --- Replace Sentence (4) by the following: “**4)** Each bathrooms and each washroom (a) shall be served by a manually controlled exhaust supplemental fan installed in the room and with a rated capacity not less than 25 L/s, or (b) be equipped with a manual switch allowing supplemental exhaust of not less than 25L/s through the exhaust air intake of the principal ventilation system of the *dwelling unit* provided the exhaust air intake is located in that room. (See Note A-6.3.1.8.(17).)”.

<table>
<tr>
<td>9.32.3.8.</td>
<td>
Replace Sentence (1) by the following:
“(1) This Article applies to
(a) dwelling units that contain a fuel-fired space-heating appliance or fuel-fired water-heating appliance of other than direct-vented or mechanically vented types,
(b) ancillary spaces that contain an exhaust device, where the space is not within a dwelling unit in a house with a secondary suite and where the house with a secondary suite contains a fuel-fired space-heating appliance or fuel-fired water-heating appliance of other than direct-vented or mechanically vented types, and
(c) dwelling units located in recognized regions where underground gas emissions create a problem and are not equipped with an active system for reducing gas emissions.”;
<hr>
Insert “extérieur” after “un débit d’air” in Sentence (2) of the French text.
</td>
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<tr>
<td>9.32.3.9.</td>
<td>
Replace Clauses (2)(c) and (2)(d) by the following:
“(c) have no disconnect switch between the overcurrent device and the CO alarm, where the CO alarm is powered by the dwelling unit's electrical system,
(d) be mechanically fixed at a height recommended by the manufacturer, and
(e) in case the regular power supply to the CO alarm is interrupted, be provided with a battery as an alternative power source.”.
</td>
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<tr>
<td>9.32.3.10.</td>
<td>
Replace Table 9.32.3.10.-A. by the following:
“
<table>
<tr><td>Fan Configuration or Application</td><td>Minimum External Static Pressure Differential to be Used in Determining Rated Capacity</td></tr>
<tr><td>Fans installed with ducts connected on both sides, any application</td><td>100 Pa (0.4 inch water column)</td></tr>
<tr><td>Other required fans</td><td>25 Pa (0.1 inch water column)</td></tr>
</table>
”.
</td>
</tr>
</table>

9.32.3.11.	Replace “0.5” in Sentences (3) and (4) by “0.74”.
9.33.1.1.	Strike out Sentence (4).
9.33.4.1.	Replace ““HRAI Digest”” in Sentence (1) of the French text by “HRAI Digest”.
9.33.5.2.	Replace “installations” in Sentence (1) of the French text by “équipements”.
9.33.6.2.	Replace “*Combustible*” in Sentence (5) by “Except for *exhaust ducts* connected to laundry drying equipment, *combustible*”.
9.35.2.2.	Replace Sentence (1) by the following: “**(1)** The floor of an attached or built-in garage shall conform to Article 3.7.2.7.”.
9.36.	Strike out the Section.
9.37.1.1.	Replace the title of attributions 9.8.2.2. and 9.8.5.3. in Table 9.37.1.1. by the following: “Height”; --- Replace the title of attributions 9.8.6.4. and 9.9.3.4. in Table 9.37.1.1. by the following: “Clear height”; --- Add the following attributions in numerical order in Table 9.37.1.1.: “9.9.7.2. Means of egress from Suites (3) [F10-OS1.5] [F10-OS3.7]”; “9.9.8.5. Exiting through a Lobby (6) [F05-OS1.5]”; “9.10.10.3. Separation of Service Rooms

	(3) [F03-OS1.2]”; “9.10.14.5. Construction of Exposing Building Face and Walls above Exposing Building Face (15) [F03-OP3.1] (16) [F03-OP3.1] (17) [F03-OP3.1]”; --- Strike out the following attributions in Table 9.37.1.1.: “9.10.21.2”; “9.10.21.3”; “9.10.21.4”; “9.10.21.5”; “9.10.21.6”; “9.10.21.7”; “9.10.21.8”; “9.10.21.9”; “9.31.4.3.(1)”; “9.31.4.3.(2)”; “9.32.3.6.(1)”; “9.32.3.6.(2)”; “9.32.3.6.(3)”; “9.32.3.7.(3)”; “9.32.3.7.(7)”; “9.35.2.2.(1)”.
Division B Notes in Part 9	
A-9.4.2.2.	Insert “ou de monte-charge” after “locaux d’ascenseur” in the third paragraph of the Note in the French text.

	Add the following Note: “**A-9.7.2.3.(1)(a) Glass Area.** The percentage of natural light may vary from one room to another, but the total area must comply with the percentage required for the area of the dwelling unit. For the purposes of this Article, the unobstructed glass area of a door or a skylight is considered equal to that of a window.”.
	Add the following Note: “**A-9.8.1.2.(2) Storage in Garages.** Attics in garages serving a single dwelling unit are sometimes used for storage purposes. Attics used for that purpose are not considered to be floor areas and need not conform to the requirements for floor areas, including the requirements for exits.”.
A-9.8.8.1.(4)	Replace the Note by the following: “**A-9.8.8.1.(4) and (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. 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. 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 can fall through. It is only invoked, however, where the other dimension of the opening is more than 380 mm. 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 380 mm and 100 mm. At another position, however, though the window is not open much more, the hardware may not adequately break up the opening. The 900 mm height off the floor recognizes that furniture is often placed under windows and small children are often good climbers.”.

	Add the following Note: “**A-9.9.9.3.(1) Projecting Constructions**. A projecting construction is considered to be a balcony when the occupant of a suite or a fire compartment is not required to pass in front of an opening of another suite or fire compartment in order to access an exit stair. For example, a projecting construction serving two dwelling units is considered to be a balcony if the exit stair is built between the two dwelling units and none of the openings of either dwelling unit opens directly onto the exit stair (a solid wall must face the exit stair). A projecting construction is considered to be an exterior passageway when the occupant of a suite or a fire compartment is required to pass in front of an opening of another suite or fire compartment in order to access an exit stair. In that case, the exterior passageway must conform to Articles 9.9.4.2., 9.9.4.4., 9.9.9.2., 9.9.9.3., 9.10.8.8. and 9.10.17.4.”.
	Add the following Note: “**A-9.10.8.1.(2) Light-frame Floor.** For the purposes of Sentence 9.10.8.1.(2), light-frame means a structure consisting of wood elements of a size less than 38 mm × 184 mm (2 in × 8 in).”
	Add the following Note: “**A-9.10.14.5.(6) Combustible Projections.** The requirements in this Sentence concern projections such as balconies, walkways, platforms, canopies, ornamentations, eave projections and stairs.”.
A-9.11.	Insert “, monte-charges” after “ascenseurs” in the last paragraph of the Note in the French text.
A-9.12.2.2.(2)	Strike out the Note.
	Add the following Note: “**A-9.13.2.1.(2) Required Dampproofing Protection.** The use of a dampproofing membrane under floors-on-ground protects against moisture, protects concrete against sulphate soil or underlying granular materials and protects the occupants against the effects of soil gas such as radon.

	Certain granular materials, including hornfels, may produce a significant quantity of sulphates likely to migrate by capillarity towards the underside of floors-on-ground and cause sulfatization of concrete. The following methods are recommended to protect concrete against sulphate-laden moisture: (a) the use of sulphate-resistant concrete (see Article 9.3.1.3.), (b) the use of a vapour barrier (see Sentence 9.25.3.2.(2)), (c) the use of clean coarse granular materials limiting capillarity effects and preventing migration of sulphates (see Article 9.16.2.1.).".
	Add the following Note: "**A-9.14.2.1.(1) Foundation Drainage – Ochre Deposition.** Ochre deposition is associated with soil characteristics and groundwater conditions. Microorganisms, which are generally found in water-saturated soil, extract oxygen from elements such as iron, reducing it to ferrous ions. Once the iron has been reduced and solubilized, it migrates through the soil to foundation drains and can block them. The following document describes drainage systems that reduce the risk of ochre deposition in the drainage systems of new buildings and how to install them: BNQ 3661-500, "Dépôts d'ocre dans les systèmes de drainage des bâtiments – Partie I : Évaluation du risque pour la construction de nouveaux bâtiments et diagnostic pour des bâtiments existants et Partie II : Méthodes d'installation proposées pour nouveaux bâtiments et bâtiments existants".".
A-9.19.2.1. 1)	Strike out the Note.
A-9.32.3.3.	Strike out the first paragraph in the Note "**Indoor Air Exhaust**"; Strike out "See also Note A-9.32.3.6." in the Note "**Outdoor Air Supply**"; Strike out "and A-9.32.3.6" in the last paragraph of the Note "**Distribution of Air**".
A-9.32.3.3.(3)	Strike out the last sentence in the last paragraph of the Note.
A-9.32.3.6.	Strike out the Note.

A-9.32.3.7.	Replace the first paragraph of the Note by the following: “CAN/CSA-F326-M, “Residential Mechanical Ventilation Systems”, requires a certain amount of exhaust from kitchens to capture pollutants at the source. When the principal ventilation fan air intake is located in the kitchen but is connected to multiple inlets, there will not be enough exhaust from the kitchen. Therefore, a separate kitchen exhaust fan is required in this circumstance as well.”.
A-9.35.2.2.(1)	Strike out the Note.
	Add the following Part: “**Part 10** **Existing Buildings under Alteration, Maintenance or Repair**
	10.1. General 10.1.1. Application **10.2. Application Conditions** 10.2.1. Calculation of Building Height 10.2.2. Provisions Applicable to Maintenance, Repair or Alteration Work **10.3. Fire Protection, Occupant Safety and Accessibility** 10.3.1. General 10.3.2. Fire Safety in Buildings 10.3.3. Safety within Floor Areas 10.3.4. Exit Requirements 10.3.5. Vertical Transportation 10.3.6. Service Facilities 10.3.7. Health Requirements 10.3.8. Barrier-Free Design

	10.4. Structural Design 10.4.1. Structural Loads and Procedures **10.5. Environmental Separation** 10.5.1. Exclusion **10.6. Heating, Ventilation and Air Conditioning** 10.6.1. General **10.7. Plumbing** 10.7.1. General **10.8. Reserved** **10.9. Housing and Small Buildings** 10.9.1. Structural Design Requirements and Barrier-Free Design 10.9.2. Means of Egress 10.9.3. Fire Protection **10.10. Objectives and Functional Statements** 10.10.1. Objectives and Functional Statements
	Part 10 **Existing Buildings under Alteration, Maintenance or Repair**
	Section 10.1. General
	10.1.1. Application
	10.1.1.1. Application of Part 10 **(1)** The scope of this Part shall be as described in Article 1.3.3.1. of Division A.

	10.1.1.2. Definitions **(1)** Words that appear in italics are defined in Section 1.4. of Division A.
	Section 10.2. Application Conditions
	10.2.1. Calculation of Building Height
	10.2.1.1. Determination of the First Storey **(1)** For the purposes of this Part, the reference level for determining the *first storey* used to establish the *building height* or to determine if a *building* is a high *building*, shall be (a) for any *building* built before 1 December 1976, the level of the ground adjacent to the existing principal entrance, unless an *alteration* modifies more than 50% of the *floor areas* of the *building* and the *alteration* involves the change of its structural elements when rebuilding, (b) for any *building* built from 1 December 1976, the *grade* as defined by the standard applicable during the construction of the *building* (see Note A-10.2.1.1.(1)(b)), or (c) for any *building*, regardless of the year of construction, the average finished ground levels around the *building*, excluding entrances.
	10.2.2. Provisions Applicable to Maintenance, Repair or Alteration Work
	10.2.2.1. Maintenance or Repair Work **(1)** Maintenance or repair work performed on a *building*, part of a *building*, or an element thereof, and on an appliance, equipment, system or facility covered by the NBC shall be performed so as to maintain or restore it in good condition without altering its characteristics or functions (see Note A-10.2.2.1.(1)).
	10.2.2.2. Alterations **(1)** The NBC applies (a) except as provided in Sentences (2) and (3) and the provisions of this Part, to every *alteration* of a *building* or part of a *building*, including the design and construction work (foundation, erection, renovation, modification or demolition work) performed for that purpose, and

	(b) with respect to the provisions of this Part, to every element, appliance, system, facility, equipment or unaltered portion of a *building* or part of a *building*. **(2)** The NBC applies, except as provided in this Part, to a change in *occupancy* for which there is no alteration work. (See Note A-10.2.2.2.(2).) **(3)** The NBC applies, excluding the relaxations of this Part, to any *alteration* in a *building* designed according to Article 3.2.2.50. or 3.2.2.58., or according to Sentence 3.2.2.50.(3) or 3.2.2.57.(3) of the NBC 2010 am. Québec, or according to "Construction d'Habitation en Bois de 5 ou 6 étages, Directives et guide explicatif - Gouvernement du Québec 2013" or "Mass timber buildings of up to 12 storeys - Directives and Explanatory Guide - Gouvernement du Québec 2015", (a) for a change of *occupancy* to an *occupancy* prohibited in the *building,* (b) for a change of *occupancy* to an *occupancy* not permitted on the *storey* on which the *alteration* is carried out, (c) for the increase of the *building* height, and (d) for an addition to the *building area* or *floor area*. (See Note A-10.2.2.2.(3).) **(4)** For the purposes of this Part, (a) the retrofitting of a *floor area* or part of a *floor area* is considered a major *alteration* if it involves altering the majority of the elements and components of the walls, ceilings and floors, and (b) any other retrofitting of a *floor area* or part of a *floor area* is considered a minor *alteration*. (See Note A-10.2.2.2.(4).)
	Section 10.3. Fire Protection, Occupant Safety and Accessibility
	10.3.1. General
	10.3.1.1. Separation of Major Occupancies **(1)** Except as provided in Sentence (2), a *fire separation* that separates the altered part from another *occupancy* shall have a *fire-resistance rating* determined according to Subsection 3.1.7. and conform to Article 3.1.3.1. **(2)** Except for *combustible buildings* designed according to Article 3.2.2.50. or 3.2.2.58., or according to Sentence 3.2.2.50.(3) or 3.2.2.57.(3) of NBC 2010 am. Québec, or according to "Construction

	d'Habitation en Bois de 5 ou 6 étages, Directives et guide explicatif - Gouvernement du Québec 2013" or "Mass timber buildings of up to 12 storeys - Directives and Explanatory Guide - Gouvernement du Québec 2015", the *fire-resistance rating*, measured on the unaltered side, is permitted to be (a) less than the required *fire-resistance rating*, without being less than 45 min, if the *fire separation* between the two *occupancies* must have a *fire-resistance rating* more than 1 h, or (b) less than the required *fire-resistance rating*, without being less than the more stringent provisions of the Safety Code (chapter B-1.1, r. 3), Chapter VIII, Buildings, if the *fire separation* must have a *fire-resistance rating* not more than 1 h or in the case of a minor *alteration*.
	10.3.1.2. Combustible and Noncombustible Construction **(1)** The provisions of Subsections 3.1.4. and 3.1.5. for the protection of foamed plastic insulation apply to the unaltered elements of a *building* or part of a *building* under *alteration* and to the unaltered elements of any *means of egress* of the *building*.
	10.3.1.3. Interior Finish **(1)** Except in the case of a minor *alteration*, the provisions of Subsection 3.1.13. for the *flame-spread rating* apply to the unaltered interior finish of ceilings and the upper half of the walls of every *access to exit* corridor from the *access to exit* door serving a part of the *building* under *alteration* to the nearest *exit* provided (a) the *flame-spread rating* of interior finishes exceeds 75, and (b) the *alteration* involves an increase in the *occupant load*, as determined in conformance with Subsection 3.1.17.
	10.3.2. Fire Safety in Buildings
	10.3.2.1. Noncombustibility of Buildings **(1)** Except as provided in Sentence (2), the provisions of the NBC requiring a *noncombustible construction* for a *building* having a *building height* equal to that of the uppermost *storey* where the *alteration* is being carried out, apply, in the altered part, to the unaltered *combustible* elements of a *building* required to be of *noncombustible construction*, except in the case of a minor *alteration* or provided

	(a) the *floor area* where the altered part is located and the *storeys* located below it are equipped with a sprinkler system conforming to Articles 3.2.5.12. to 3.2.5.14., and (b) the *building* is equipped with a fire alarm and detection system conforming to Subsection 3.2.4. **(2)** The provisions of the NBC requiring a *noncombustible construction* also apply to the unaltered *combustible* elements of a *building* required to be of *noncombustible construction* provided (a) the *floor area* is increased during an *alteration* by more than 10% of the *floor area* or 150 m^2, except if (i) the altered *floor area* and the *storeys* located below are equipped with a sprinkler system conforming to Articles 3.2.5.12. to 3.2.5.14., (ii) the *building* is equipped with a fire alarm and detection system conforming to Subsection 3.2.4, (b) the *building* height is increased, except if the *building* is equipped with (i) a sprinkler system conforming to Articles 3.2.5.12. to 3.2.5.14., and (ii) a fire alarm and detection system conforming to Subsection 3.2.4. **(3)** If the NBC requires both *noncombustible construction* and a sprinkler system, the design and installation of the sprinkler system shall conform to NFPA 13, "Installation of Sprinkler Systems", for a level of risk higher than the level established in that standard for the intended *occupancy*.
	10.3.2.2. Construction and Protection of Buildings **(1)** Except as provided in Sentences (2) and (3), where an *alteration* increases the level of the requirements in Subsection 3.2.2. following a change of *occupancy* or an increase in the *building height* or *floor area*, the requirements in Subsection 3.2.2. concerning the construction and protection of *buildings* in relation to their *occupancies* and dimensions that apply to the part under *alteration* also apply to (a) any other adjacent part that is not separated from the altered part by a *fire separation* having a *fire-resistance rating* at least equal to the *fire-resistance rating* required for the floors under Subsection 3.2.2., and (b) the *storey* below the altered part when (i) the altered part must be *sprinklered*, and (ii) the *fire-resistance rating* of the *fire separation* between the altered part and the *floor area* below is less than the *fire-resistance rating* required in conformance with Articles 3.1.3.1. and 3.2.2.20. to 3.2.2.90., if the *building* need not be *sprinklered*; the *fire-resistance rating* is permitted to

	be limited to the part of the floor and to the structural elements supporting the altered part, if the latter is separated from the remainder of the *floor area* in accordance with Clause (a). **(2)** During a major *alteration*, if the provisions concerning the installation of a sprinkler system in Subsection 3.2.2. apply to the *alteration*, the provisions also apply to any adjacent part of a *building* that is not separated from the altered part by a *fire separation* having a *fire-resistance rating* at least equal to the *fire-resistance rating* required for the floor assemblies under Subsection 3.2.2. **(3)** The provisions concerning the installation of a sprinkler system under Subsection 3.2.2. do not apply to the *alteration* of a *building* or part of a *building* not equipped with such a system, in the following cases: (a) the increase in *floor area* during an *alteration* is not more than 10% of the *building area* or 150 m^2, (b) the work carried out is a minor *alteration* within the meaning of Sentence 10.2.2.2.(3), (c) for a *noncombustible building*, except a *building* containing a Group B, Division 2 or Division 3, Group C or Group F, Division 1 *occupancy*, or an *ambulatory clinic occupancy* when the work carried out does not require the noncombustibility of the *building* or *floor area* under *alteration*, (d) for the *alteration* of a *noncombustible building* containing an *occupancy* other than a Group B, Division 2 or 3, Group C or Group F, Division 1 *occupancy*, by limiting the *building height* to that of the uppermost *storey* where the *alteration* is being carried out and for which a sprinkler system would not be required, (e) for the *alteration* of a *combustible building* containing an *occupancy* other than a Group B, Division 2 or 3, Group C or Group F, Division 1 *occupancy*, the *building height* is limited to that of the uppermost storey where the *alteration* is being carried out and for which a sprinkler system is not required if the *occupant load*, as determined in accordance with Subsection 3.1.17. for the intended *occupancy*, is not more than 60, or (f) for a major *alteration*, if the *fire-resistance rating* of the floors, walls, columns and support arches of the altered *floor area* conforms to the *fire-resistance rating* required under Articles 3.1.3.1 and 3.2.2.20. to 3.2.2.90, except in the case of a high *building* or a Group B, Division 2 or 3, Group C or a Group F, Division 1 *occupancy*. **(4)** During the installation of a partial sprinkler system in a *building*, a standpipe must be sized to serve all the *building*, even if the system currently installed serves only part of the *building*.

	10.3.2.3. Spatial Separation and Exposure Protection **(1)** In the case of an *alteration*, the provisions of Subsection 3.2.3. for spatial separation and exposure protection apply to the modification of any existing part of an *exposing building face* if the modification results in (a) an increase in the surface of the openings beyond the limit referred to in Sentence 3.2.3.1.(1) for *unprotected openings*, (b) a reduction in the *limiting distance*, or (c) a reduction in the resistance to fire. **(2)** When a *building* or part of a *building* is under *alteration*, a *party wall* that is not built as a *firewall* shall (a) conform to the provisions of Subsection 3.1.10. for the construction of a *firewall* from the ground up, if the height of the *party wall* has been increased, and (b) have a *fire-resistance rating* not less than 2 h on the altered side and ensure smoke-tightness from the floor of the altered part to the underface of the floor or roof located above the *alteration*.
	10.3.2.4. Fire Alarm and Detection Systems **(1)** Except as required by Sentence (2), for an *alteration*, Subsection 3.2.4. covering fire alarm and detection systems applies to a *building* that is not equipped with such a system and any part of a system that is not electrically supervised and equipped with separate zone indicators if the *alteration* results in (a) an increase in the *occupant load*, in the altered part, that exceeds the *occupant load* stated in Sentence 3.2.4.1.(4), (b) a new Group A, B, C, E, or F, Division 1 or 2 *occupancy*, (c) an increase in the *building area* by more than 10% or 150 m^2, (d) an increase in the number of *storeys*, or (e) a modification that constitutes a major *alteration* within the meaning of Sentence 10.2.2.2.(4). **(2)** Except as required by Sentence (3), for an *alteration*, Subsection 3.2.4. applies to the altered part and the requirements of Subsection 3.2.4. covering fire alarm and detection systems apply to the unaltered part of the system to the extent that those requirements are necessary to ensure system operation in the altered part.

	(3) However, in the parts of the *building* not subject to a major *alteration* or enlargement, the fire detection and alarm system need not comply with the requirements of Sentence 3.2.4.19.(5) provided (a) in a *dwelling unit* and in a multi-room hotel or motel *suite*, except when the *suite* or *dwelling unit* is completely retrofitted, the fire *alarm signal* sound pressure level shall be not less than 85 dBA near the entrance door, in a closed position, and (b) in a bedroom in a *residential occupancy*, other than a bedroom located in a *dwelling unit*, the standard is 75 dBA.
	10.3.2.5. Provisions for Firefighting **(1)** The provisions of Articles 3.2.5.7. to 3.2.5.18. apply to the unaltered part of a sprinkler system or standpipe system, where the *alteration* of a *building* or part of a *building* increases the *building height* or the *floor area* by more than 10% of the *building area* or more than 150 m^2, except if the system (a) has a fire department connection, (b) is of the wet pipe type in the heated parts of the *building*, and (c) has an approved booster pump capable of providing the pressure required by NFPA 13, “Installation of Sprinkler Systems”, or NFPA 14, “Installation of Standpipe and Hose Systems”, where the water pressure in the system is lower than that pressure, except as provided in Sentence (2). **(2)** The residual water pressure at the topmost hose connection of a standpipe system of a *building* referred to in Clause (1)(c) is permitted to be less than the pressure required by NFPA 14, “Installation of Standpipe and Hose Systems”, but not lower than 207 kPa if the requirement in Clause 3.2.5.9.(5)(c) is met.
	10.3.2.6. Additional Requirements for High Buildings **(1)** Except as provided in Sentence (2), Subsection 3.2.6. covering additional requirements for high *buildings* applies to a high *building* in accordance with Part 3 that is under an *alteration* that results in (a) a change of *occupancy* so that it becomes a Group B or C *building*, (b) an increase in *building height*, or (c) a modification of more than 50% of the *floor areas* for a reconstruction.

	(2) This Subsection also applies to the entire *building* that becomes a high *building* following an *alteration* resulting in (a) a change of *occupancy* of the *building*, or (b) an increase in *building height*, except if the increase is not more than 4 m and its *floor area* is not more than 10% of the area of the *storey* located immediately below, without exceeding 150 m^2. **(3)** The size of the usable platform referred to in Sentence 3.2.6.5.(2) does not apply to an elevator modified to become an elevator for use by firefighters.
	10.3.2.7. Emergency Power for Firefighting **(1)** The provisions of Clause 3.2.7.9.(1)(b) for emergency power for water supply apply to an existing fire pump if an *alteration* results in an increase in *building height* or a change of *occupancy* of the *building* to a Group B, Division 2 or Division 3 or Group F, Division 1 *occupancy* or an *ambulatory clinic occupancy*.
	10.3.3. Safety within Floor Areas
	10.3.3.1. Access to Exit **(1)** Except in the case of a minor *alteration*, the provisions of Section 3.3. covering *access to exit* apply to every unaltered *access to exit* serving part of a *floor area* under *alteration* provided (a) the unobstructed height is not more than 1900 mm, (b) the unobstructed width is not more than (i) 1100 mm in the case of a corridor referred to in Sentence 3.3.1.9.(2) or serving *dwelling units* of a *care occupancy*, (ii) 900 mm in the case of a corridor serving *dwelling units* of a *residential occupancy*, (c) notwithstanding Clause (b), the *access to exit* serving the altered part shall comply with the minimum width provided for in Article 3.4.3.2., which is calculated according to the *occupant load* under Subsection 3.1.17., (d) the length of dead-end corridors exceeds (i) 6 m for any *building* of *residential occupancy*, except as provided in Sentences (2) and (3), or (ii) 12 m for Groups A, D, E and F, Divisions 2 and 3 *occupancies*, and

	(e) the separation of the corridors from the remainder of the *building* is not smoke-tight. **(2)** A *public corridor* referred to in Subclause (1)(c)(i) that is located in a *building* of *residential occupancy* built before 1 December 1976 other than a hotel or motel is permitted, when the *fire separation* of the corridor has a *fire-resistance rating* not less than 45 min, to have a dead-end part not exceeding 12 m provided (a) the doors of the *dwelling units* (i) have a self-closing mechanism and they do not lock automatically, and (ii) are weatherstripped to prevent the passage of smoke, (b) the corridor has *smoke detectors* connected to a fire alarm system installed as required by Subsection 3.2.4., (c) the *floor area* is *sprinklered* throughout as required by Articles 3.2.5.12. to 3.2.5.14., except if the *building* has a *building height* not more than 4 *storeys* and each *dwelling unit* has a balcony accessible to the fire department, and (d) the *floor area* has not changed *occupancy*. **(3)** A *public corridor* referred to in Subclause (1)(c)(i) that is located in a *building* of *residential occupancy* built before 1 December 1976 other than a hotel or motel is permitted, when the *fire separation* of the corridor has a *fire-resistance rating* not less than 1 h, to have a dead-end part not exceeding 15 m provided (a) the doors of the *dwelling units* (i) have a self-closing mechanism and they do not lock automatically, and (ii) are weatherstripped to prevent the passage of smoke, (b) the corridor has *smoke detectors* connected to a fire alarm system installed as required by Subsection 3.2.4., and (c) the *floor area* is *sprinklered* throughout as required by Articles 3.2.5.12. to 3.2.5.14., except if the *building* has a *building height* not more than 6 *storeys* and each *dwelling unit* has a balcony accessible to the fire department. **(4)** When change of *occupancy* occurs, the width of an unaltered corridor serving *dwelling units* in a *care occupancy* is permitted to be limited to 1100 mm. **(5)** An unaltered door to *access to exit*, *exit* door or washroom door serving part of the *building* under *alteration* shall be equipped with release hardware conforming to Sentence 3.3.1.13.(3).

	10.3.3.2. Separation of suites **(1)** In the case of the *alteration* of a *suite*, the *fire separation* separating the *suite* from any other unaltered *suite* or room shall have a *fire-resistance rating* determined according to Subsection 3.1.7. and comply with Article 3.3.1.1.; the *fire-resistance rating* on the unaltered side is permitted to be less than the required *fire-resistance rating* without, however, being less than the more restrictive provisions of Chapter VIII, Buildings, of the Safety Code (chapter B-1.1, r. 3).
	10.3.3.3. Barrier-Free Floor Areas **(1)** Except in the case of a minor *alteration*, any part of an unaltered *floor area* on a *storey* under *alteration* shall comply with Article 3.3.1.7. if the room or part of the *floor area* accessible by elevator is required to be *barrier-free* under Article 10.3.8.1.
	10.3.4. Exit Requirements
	10.3.4.1. Dimensions and Protection of Exits and Exit Stairs **(1)** Except in the case of a minor *alteration*, any unaltered *exit* required to serve a *floor area* or part of a *floor area* under *alteration* shall (a) have a minimum unobstructed width not less than (i) 760 mm for a *building* built before 1 December 1976, (ii) 900 mm for a *building* built as of 1 December 1976, (iii) 1100 mm for changes of *occupancy*, an increase of the *load occupancy* or an addition, when it serves a Group A, Group B, Division 2 or 3, or Group E *occupancy* or storage garages serving more than 150 persons, (b) notwithstanding Clause (a), an *exit* serving the altered part shall comply with the minimum width provided for in Article 3.4.3.2., which is calculated according to the *load occupancy* under Subsection 3.1.17. (see Note A-10.3.4.1.(1)(b), (c) except as permitted by Sentences (2) and (3), be separated from the remainder of the *building* by a *fire separation* with a *fire-resistance rating* (i) not less than 45 min for a *building* not more than 3 *storeys* in *building height* not containing a Group B, Division 2 or 3 *occupancy*,

	(ii) not less than 2 h for changes of *occupancy*, an increase of the *load occupancy* or an addition, for *buildings* more than 3 *storeys* containing a Group B, Division 2 or 3 *occupancy*, (iii) not less than 1 h for other *buildings*. **(2)** In a school built before 1 December 1976, an unaltered stairway required as an *exit* to serve a *floor area* or part of a *floor area* under *alteration* need not have the *fire separation* required in Clause (1)(c) provided (a) the *alteration* work will not increase the requirements for the *means of egress*, (b) the *building* is not more than 3 *storeys* in *building height*, (c) half of the required *exits* are separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* required by the NBC, (d) it is not necessary to pass through it to reach another *exit* required when the *occupant load* is more than 60, (e) any corridor or room opening onto it is separated from it by a *fire separation* having a *fire-resistance rating* not less than 45 min and any door opening onto it has a self-closing device, a latching mechanism and, if it is kept opened, an electromagnetic device connected to the alarm system, (f) any corridor or room opening onto it has *smoke detectors* that must be placed near the openings on the stairway, and (g) the *building* has not undergone a change of *occupancy*. **(3)** An unaltered stairway of a *building* built before 1 December 1976 and required as an *exit* to serve a *floor area* or a part of a *floor area* under *alteration* need not have the *fire separation* required in Clause (1)(c) provided (a) the *alteration* work will not increase the requirements for the *means of egress*, (b) it is used to connect the *first storey* with the *storey* above or below but not both, (c) the *floor areas* it connects serve any *occupancy* other than a Group A, B or C *occupancy*, (d) half of the *exits* required are separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* required by the NBC and they lead directly to the exterior,

	(e) the travel distance to the exterior *exit* door on the *first storey* is not more than 15 m, (f) the *building* has an alarm system that conforms to Subsection 3.2.4., and (g) a *smoke detector* is located above the uppermost flight of stairs.
	10.3.4.2. Door Swing **(1)** The provisions of Article 3.4.6.12. covering the direction of an *exit* door swing apply to every unaltered exterior *exit* door serving a *floor area* or part of a *floor area* of an *occupancy* other than a Group F, Division 1 *occupancy* that is under *alteration*, except if (a) the *exit* door opens directly onto a *public way*, independently from any other *exit*, when it serves only one *floor area* or part of a *floor area* whose *occupant load* determined according to Subsection 3.1.17. is not more than (i) 40 persons when there is only one *exit* door, or (ii) 60 persons when there is one *exit* door and a second *means of egress*, or (b) the *exit* door serves not more than 30 persons in a *building* not more than 18 m in *building height*, and (i) it opens directly onto a step, a *public way* or an obstacle that reduces its required minimum width and it is located not more than 1.5 m above the *public way*, and (ii) the occupants have access to a second *means of egress*.
	10.3.4.3. Curved Exit Stairs **(1)** A curved or spiral *exit* stair that is not under *alteration* but that is used to serve a *floor area* or part of a *floor area* under *alteration* shall (a) comply with Article 10.3.4.1., and (b) not serve a day care centre or a Group B, Division 3 *occupancy*.
	10.3.4.4. Exit Signs **(1)** During an *alteration*, the requirements in Sentence 3.4.5.1.(2) do not apply to the unaltered signs of *exits* in a *floor area*. (See Note A- 10.3.4.4.(1).)

	(2) Except as provided in Sentence (3), when the *alteration* involves the relocation, replacement or addition of an *exit* sign of a *floor area*, all the *exit* signs of the same *floor areas* shall conform to Sentence 3.4.5.1.(2). **(3)** *Exit* signs are permitted to conform to Article 3.4.5.1. of the NBC 2005 am. Québec (a) when only one sign must be relocated, added or replaced on the *floor area*, or (b) when no more than 5% of the signs must be relocated, added or replaced on the *floor area*.
	10.3.5. Vertical Transportation
	10.3.5.1. Exclusion **(1)** Article 3.5.4.1. covering the inside dimensions of elevator cars does not apply to a facility under alteration.
	10.3.6. Service Facilities
	10.3.6.1. Service Rooms and Vertical Service Spaces **(1)** The provisions of Subsections 3.6.2. and 3.6.3. apply during an *alteration*, other than a minor *alteration*, to an unaltered *service room* located in a *floor area* or part of a *floor area* and to an unaltered *vertical service space* passing through it, except if the room or space is separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* not less than (a) 2 h for any room containing fuel-fired *appliances* located in a Group B or F, Division 1 *occupancy building* that is more than 2 *storeys* in *building height* or that has a *building area* more than 400 m^2, (b) 1 h for any other *service room* or a linen chute or refuse chute, or (c) 45 min for any other *vertical service space*.

	10.3.7. Health Requirements
	10.3.7.1. Plumbing Facilities **(1)** An unaltered plumbing facility serving part of a *building* under *alteration* shall meet the requirements in Subsection 3.7.2. where the *alteration* involves an increase in *occupant load* by more than 25.
	10.3.8. Barrier-Free Design
	10.3.8.1. General **(1)** When a *building* does not have *barrier-free* access, Section 3.8. covering *barrier-free design* does not apply to the *building* or part of the *building* under *alteration* provided (a) the work involves (i) a service facility other than a vertical transportation facility for which a *barrier-free* path of travel is required by Article 10.3.8.2., or (ii) a *floor area* or *suite* occupied by not more than 60 persons or whose area does not exceed 250 m^2; (b) the *floor area* served by a pedestrian entrance (i) cannot be accessed from the *public way* by an external ramp built in conformance with Article 10.3.8.4., without encroaching on that way, (ii) is located more than 900 mm from the *public way* level, or (iii) is located more than 600 mm from the entrance level, and (c) the difference in levels between the floor of the pedestrian entrance and the floor of the elevator is more than 600 mm, where the part of the *floor area* under *alteration* can be accessed by an elevator.
	10.3.8.2. Areas Requiring a Barrier-Free Path of Travel **(1)** When the application of Section 3.8. is not excluded by Sentence 10.3.8.1.(1), Sentence 3.8.2.3.(1) applies, in the part of the *building* not under *alteration*, only to the path of travel required to connect (a) at least one pedestrian entrance to (i) the *floor area* or part of a *floor area* under *alteration* and to at least one existing elevator serving it where applicable, or (ii) an existing outdoor parking area serving the *building*, and

	(b) the *floor area* or part of a *floor area* under *alteration* to at least one accessible washroom, when there is no other accessible washroom in the altered part.
	10.3.8.3. Washroom **(1)** In the case referred to in Clause 10.3.8.2.(1)(b), where a washroom located in the unaltered part of a *floor area* must be made accessible, it must conform to Article 3.8.2.8.
	10.3.8.4. Ramps **(1)** Any ramp in a *barrier-free* path of travel required by Article 10.3.8.2. is permitted, notwithstanding the requirement of Article 3.8.3.5., to have a slope that does not exceed (a) 1:8 if the length of the ramp is not more than 3 m, or (b) 1:10 in all other cases.
	10.3.8.5. Dwelling Unit of Residential Occupancy **(1)** Article 3.8.2.13. and Subsections 3.8.4. and 3.8.5. concerning *dwelling units* of *residential occupancy* shall not apply to a minor or major *alteration* or to a change of *occupancy*.
	Section 10.4. Structural Design
	10.4.1. Structural Loads and Procedures
	10.4.1.1. General **(1)** Except as provided in Article 10.4.1.2., the provisions of Part 4 covering structural design apply to any *floor area* or part of a *floor area*, structural element, roof and *foundation* of a *building* not undergoing modification when an *alteration* requires modification to maintain stability, resistance or structural integrity.

	10.4.1.2. Live Loads **(1)** The *live load* required by Article 4.1.5.3. does not apply to an *alteration* to a *floor area* used as an office and located on the *first storey* of a *building*, or to such a *floor area* used for a wholesale and retail business provided (a) the *live loads* applied to the existing areas have a value of not less than 2.4 kPa, and (b) the *alteration* of the existing areas does not result in an increase in their *live load* or *dead load*.
	10.4.1.3. Live Loads Due to Earthquakes **(1)** Where a *building* is under *alteration*, its capacity to resist seismic loads shall comply with the following conditions: (a) it must not be reduced by the *alteration*, (b) except for *buildings* having a structure designed in conformance with the seismic design requirements in the NBC 2005 am. Québec or the NBC 2010 am. Québec, it must be increased to not less than 60% of the seismic protection level that would be prescribed according to Part 4 if the *alteration* results in (i) more than 25% of all the *floor areas* undergoing gutting, in the case of a *post-disaster building*, (ii) the resistance system of lateral loads being modified by the *alteration*, (iii) an enlargement of the *building area* by more than 10% or more than 150 m^2, except if the structure of the addition is separate from that of the existing part and the movement of each structure in the event of an earthquake does not affect the adjacent structure, or (iv) the *alteration* increases the permanent load by more than 5% of the *building* or increases the total of the live loads included in “W”, as defined in Sentence 4.1.8.2.(1), by more than 5%. **(2)** In the case of *post-disaster buildings*, where Clause (1)(b) applies to *alteration* work, the anchorage of non-structural elements and components listed in Table 4.1.8.18. shall be verified and brought into conformance with the requirements of Article 4.1.8.18. in the case of elements and components that would likely interfere with the post-disaster function of the *building* in case of failure.

	Section 10.5. Environmental Separation
	10.5.1. Exclusion
	10.5.1.1. Change of Occupancy **(1)** Notwithstanding Sentence 10.2.2.2.(2), Part 5, which covers environmental separation, does not apply to materials, components, assemblies and *air barrier systems* for any change in *occupancy* that does not involve modification work affecting the separation between the two different environments, except if the *alteration* includes the installation of equipment that creates different indoor environments inside the *building*. (See Note A-10.5.1.1.(1).)
	Section 10.6. Heating, Ventilation and Air Conditioning
	10.6.1. General
	10.6.1.1. Natural Ventilation **(1)** Except in the case of a *storage garage*, rooms and spaces under *alteration* need not conform with the ventilation requirements in Articles 6.2.2.1. and 6.2.2.2. if they have openable windows with an unobstructed surface for ventilation equal to not less than 5% of the floor area of the rooms or spaces.
	Section 10.7. Plumbing Services
	10.7.1. General
	10.7.1.1. Plumbing Systems **(1)** Part 7, which covers plumbing services, applies to an unaltered *plumbing system* if an *alteration* requires modification to the system to ensure its conformance with health requirements or its operation.

	Section 10.8. Reserved
	Section 10.9. Housing and Small Buildings
	10.9.1. Structural Requirements and Barrier-Free Design
	10.9.1.1. Application **(1)** Subsection 9.4.1., which covers the design of structural elements and their connections, applies only in the cases and to the extent referred to in Subsection 10.4.1. **(2)** Subsection 9.5.2., which covers *barrier-free* design, applies only in the cases and to the extent referred to in Subsection 10.3.8.
	10.9.2. Means of Egress
	10.9.2.1. Dimensions of Means of Egress and Direction of Door Swing **(1)** The provisions of Article 9.9.1.1. covering the dimensions of stairs that are part of a *means of egress* and of Subsection 9.9.3. covering the dimensions of a *means of egress* apply to every unaltered *means of egress* that serves a part of a *building* under *alteration*, if the *exit* or *access to exit* has a minimal unobstructed width not less than 760 mm. **(2)** Sentence 9.9.6.5.(1) covering the direction of door swing of an *exit* applies to every unaltered exterior *exit* door that serves a *floor area* or part of a *floor area* under *alteration*, unless the door opens directly onto a *public way*, independently of any other *exit*, and serves only one *floor area* or part of a *floor area* that has an *occupant load*, as determined in conformance with Subsection 3.1.17., that is not more than (a) 40, when there is only one *exit* door, or (b) 60, when there is one *exit* door and a second *means of egress*.
	10.9.2.2. Fire Protection of Exits and Separation of Public Corridors **(1)** The provisions of Subsection 9.9.4. covering the fire protection of *exits* apply to every unaltered *exit* serving a *floor area* or part of a *floor area* under *alteration* that is not separated from the remainder of the *building* by a *fire separation* having a *fire-resistance rating* not less than 45 min.

	(2) Except as provided in Articles 10.9.2.3. and 10.9.3.2., the provisions of Sections 9.9. and 9.10. covering *public corridors* apply to every unaltered *public corridor* serving a *floor area* or part of a *floor area* under *alteration* if (a) its unobstructed height is not more than 1900 mm, (b) its unobstructed width is not more than 760 mm, (c) its dead-end length exceeds (i) 6 m in the case of a *building* of *residential occupancy*, except as provided in Sentence (3), or (ii) 12 m for Groups D, E and F, Division 2 and 3 *occupancies*, and (d) the separation of the corridor from the remainder of the *building* is not smoke-tight. **(3)** A *public corridor* referred to in Subclause (2)(c)(i) located in a *building* of *residential occupancy* built before 1 December 1976 other than a hotel or motel is permitted when the *fire separation* of the corridor has a *fire-resistance rating* not less than 45 min, to have a dead-end part not exceeding 12 m provided (a) the door of each *dwelling unit* has a self-closing device and does not lock automatically, (b) the corridor has *smoke detectors* connected to the fire alarm system, installed as required by Subsection 3.2.4., (c) the *floor area* is *sprinklered* throughout, as required by Articles 3.2.5.12. to 3.2.5.14., except if each *dwelling unit* has a balcony accessible to the fire department, and (d) the *floor area* has not undergone a change of *occupancy*.
	10.9.2.3. Flame-Spread Limits in Means of Egress **(1)** The provisions of Subsection 9.10.17. covering flame-spread limits apply to the unaltered interior finish of ceilings and the upper half of the walls of every *public corridor*, from the *access to exit* door of the part under *alteration* to the nearest *exit*, provided (a) the *flame-spread rating* exceeds 75, and (b) the *alteration* involves an increase in *occupant load*, as determined in Subsection 3.1.17.

	10.9.2.4. Exit Signs **(1)** During an *alteration*, the requirements in Sentence 9.9.11.3.(2) do not apply to the unaltered signs of *exits* in a *floor area*. **(2)** Except as permitted in Sentence (3), when the *alteration* involves the relocation, replacement or addition of an *exit* sign of a *floor area*, all the *exit* signs of the same *floor area* shall conform to Sentence 9.9.11.3.(2). **(3)** *Exit* signs are permitted to conform to Article 3.4.5.1. of the NBC 2005 am. Québec (a) when only one sign must be relocated, added or replaced on the *floor area*, or (b) when no more than 5% of the signs must be relocated, added or replaced on the *floor area* (see Note A-10.3.4.4.(1)).
	10.9.3. Fire Protection
	10.9.3.1. Spatial Separation and Exposure Protection **(1)** Except as provided in Sentence (2), the provisions of Subsections 9.10.14. and 9.10.15. covering spatial separation do not apply to an *alteration* to any existing part of an *exposing building* face, unless the alteration results in (a) an increase of the opening surfaces beyond the limit referred to in Sentences 9.10.14.4.(1) and 9.10.15.4.(1), for *unprotected openings*, (b) a reduction of the *limiting distance*, or (c) a reduction of resistance to fire. **(2)** When a *building* or part of a *building* is under *alteration* to increase the *building height* or *floor area*, the requirements in Table 9.10.14.5.-A do not apply to the *building* or the *alteration* if (a) the *building* is not more than 3 *storeys* in *building height*, (b) the *building* houses *dwelling units* only, (c) the *fire-resistance rating* of the *exposing building* face is not less than 1 h, and (d) the cladding is *noncombustible*. **(3)** When a *building* or part of a *building* is under *alteration*, any *party wall* that is not built as a *firewall* shall,

	(a) except as provided in Clause (b), have a *fire-resistance rating* not less than 2 h on the altered side and ensure smoke-tightness from the floor of the altered part to the underface of the floor or roof located above the *alteration*, and (b) for an increase in height, conform to Subsection 9.10.11. for the construction of a *firewall* from the ground up.
	10.9.3.2. Fire Alarm and Detection Systems **(1)** Subsection 9.10.18. covering fire alarm and detection systems under *alteration* does not apply to a *building* not equipped with such a system, unless the *alteration* results in (a) an increase in the *occupant load* in the altered part, (b) a new Group C, E or F, Division 2 *occupancy*, (c) an increase in the *building area* by more than 10%, or (d) an increase in the number of *storeys*. **(2)** This Subsection applies to any unaltered part of a fire alarm and detection system if the system is not electrically supervised and equipped with separate zone indicators.
	Section 10.10. Objectives and Functional Statements
	10.10.1. Objectives and Functional Statements
	10.10.1.1. Attribution to Acceptable Solutions **(1)** For the purposes of compliance with the NBC as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part must be the objectives and functional statements in Table 10.10.1.1 (see Note A-1.1.2.1.(1)).
	Table 10.10.1.1. Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 10 Forming part of Sentence 10.10.1.1.(1) of Division B
	Objectives and Functional Statements (1) 10.3.1.1. Separation of Major Occupancies

	(1) See Sentences 3.1.7.1.(1) to 3.1.7.5.(3) in Table 3.9.1.1. See Article 3.1.3.1. of Table 3.9.9.1. 10.3.1.2. Combustible and Noncombustible Construction (1) See Sentence 3.1.4.2.(1) in Table 3.9.1.1. 10.3.1.3. Interior Finish (1) See Sentences 3.1.13.2.(1), 3.1.13.7.(1), 3.1.13.10.(1) and 3.1.13.11.(1) and Article 3.1.13.6. in Table 3.9.1.1. 10.3.2.1. Noncombustibility of Buildings [F02-OS1.2] [F02-OP1.2] 10.3.2.2. Construction and Protection of Buildings [F02-OS1.2] [F02, F04-OS1.2-OS1.3] [F02-OP1.2] [F02, F04-OP1.2-OP1.3] 10.3.2.3. Spatial Separation and Exposure Protection (1) [F03, F02-OP3.1] [F02, F04, F03-OS1.2] [F04-OS1.3] [F05-OS1.5] [F03-OP1.2] [F04-OP1.3] (2) [F03-OP3.1] 10.3.2.4. Fire Alarm and Detection Systems (1) [F11, F13, F12, F81, F82-OS1.5] [F13, F81, F82, F12-OS1.2] [F11-OS1.4] [F13, F81, F82- OP1.2.] [F12, F11-OS3.7]

	10.3.2.5. Provisions for Firefighting (1) [F12, F05, F06, F11-OS1.5] [F12, F02, F03, F05, F06, F81, F82-OS1.2] [F12, F02, F03, F06, F81, F82-OP1.2] [F02-OP3.1] (2) [F02-OP1.2] [F02-OS1.2] 10.3.2.6. Additional Requirements for High Buildings (1) [F02, F06, F03, F12-OS1.2] [F02, F06, F03, F12, F05-OS1.5] [F02, F06, F03, F12-OP1.2] (2) [F02, F06, F03, F12-OS1.2] [F02, F06, F03, F12, F05-OS1.5] [F02, F06, F03, F12-OP1.2] (3) [F12-OS1.2, OS1.5] [F12-OP1.2] 10.3.2.7. Emergency Power for Firefighting (1) [F02-OP3.1] 10.3.3.1. Access to Exit (1) [F10, F12, F05, F06-OS3.7] [F30-OS3.1] [F05, F03, F06-OS1.5] [F03, F06-OS1.2] [F30-OS1.3] [F03, F06-OP1.2] 10.3.3.2. Separation of Suites (1) [F03, F02-OS1.2] [F04-OS1.3] [F03, F02-OP1.2] [F04-OP1.3] 10.3.3.3. Barrier-Free Floor Areas (1) [F10, F05, F06, F73-OS1.5] [F03-OS1.2]

	10.3.4.1. Dimensions and Protection of Exits and Exit Stairs (1)(a) [F10, F12-OS3.7] [F30, F73-OS3.1] [F05, F06-OS1.5] [F06-OS1.2] (b) [F03-OS1.2] 10.3.4.2. Door Swing (1) [F10-OS3.7] 10.3.4.3. Curved Exit Stairs (1) [F10, F12-OS3.7] [F30, F73-OS3.1] [F05, F06-OS1.5] [F06, F03-OS1.2] 10.3.4.4. Exit Signs (1) [F10-OS3.7] 10.3.6.1. Service Rooms and Vertical Service Spaces (1) [F03, F02, F06-OS1.2] [F03-OS1.4] [F01, F81, F44, F34-OS1.1] [F10, F06-OS1.5] [F01, F34-OP1.1] [F04, F06-OP1.2] [F03-OP1.4] [F06, F05-OS3.7] [F30-OS3.1] [F34-OS3.3] 10.3.7.1. Plumbing Facilities (1) [F72-OH2.1] [F71-OH2.3] [F40-OH2.4] [F30, F20-OS3.1] [F31-OS3.2] [F43-OS3.4] [F74-OA2] 10.3.8.2. Areas Requiring a Barrier-Free Path of Travel (1) [F73-OA1] 10.3.8.3. Washrooms (1) [F74-OA2] [F72-OH2.1] [F71-OH2.3] [F73-OA1]

	10.3.8.4. Ramps (1) [F73-OA1] 10.4.1.3. Live Loads Due to Earthquakes (1) [F20-OP2.1] [F20, F22-OP2,4] [F20-OP2.3] [F20-OS2.1] [F22-OS2.3, OS2.4] 10.7.1.1. Plumbing Systems (1) [F30-OS3.1] [F31-OS3.2] [F43-OS3.4] [F70-OH2.2] [F72-OH2.1] 10.9.2.1. Dimensions of Means of Egress and Direction of Door Swing (1) [F10-OS3.7] [F30-OS3.1] (2) [F10-OS3.7] 10.9.2.2. Fire Protection of Exits and Separation of Public Corridors (1) [F05-OS1.5] [F03-OS1.2] [F03-OP1.2] (2) See Sentences 9.9.1.3.(1) to 9.10.22.3.(3) in Table 9.36.1.1. 10.9.2.3. Flame-Spread Limits in Means of Egress (1) [F01, F02, F05-OS1.5] [F01, F02-OS1.2] 10.9.2.4. Exit Signs (1) [F10-OS3.7] 10.9.3.1. Spatial Separation and Exposure Protection (1) [F02, F03-OP3.1] (2) [F02, F03-OP1.2] [F02, F03-OP3.1]

	(3) [F03, F04-OP1.2] [F03, F04-OS1.2] [F03, F04-OP3.1] 10.9.3.2. Fire Alarm and Detection Systems (1) (2) [F11, F13-OS1.5] [F13, F03, F11-OS1.2] [F11-OP1.2]. (1) See Parts 2 and 3 of Division A.”.
	Add the following Notes: “**A-10.2.1.1.(1)(b) Standard Applicable during the Construction or Alteration of the Building.** Section 344 of Division III, General, of Chapter VIII, Buildings, of the Safety Code (chapter B-1.1, r. 3) determines, for every building, the standard applicable during its construction. **A-10.2.2.1.(1) Maintenance or Repair Work.** The restoration or repair of projections and stairs is considered maintenance work for the purposes of Part 10 where such work is performed to maintain or restore the projections and stairs in good condition without altering their characteristics or functions. However, the projections and stairs must conform to the regulations in force at the time of their original construction. **A-10.2.2.2.(2) Change of Occupancy.** Change of occupancy also applies to a change of occupancy within a group of occupancy. For example, if a school is converted into a licensed beverage establishment, even though both occupancies are in the same group, the NBC applies to the building or part of the building in which the occupancy is changed, even if the change does not involve alteration work. This is because Part 10 includes provisions that could cover certain elements, such as fire separations and their fire-resistance rating, of the adjacent parts located around, under or above the part in which the occupancy is changed. **A-10.2.2.2.(3) Combustible Building.** Buildings designed according to Article 3.2.2.50. or 3.2.2.58., or according to Sentence 3.2.2.50.(3) or 3.2.2.57.(3) of the NBC 2010 am. Québec, or according to one of the guides referred to in the Article, are essentially combustible buildings, Group C or D, in which several occupancies are not permitted because of the risks they represent.

	During the alteration of such a building or one of its parts, the installation of a risky occupancy not permitted in the original design of the building results in a reduction of the level of safety of the occupants. This is contrary to the NBC, which aims to increase the level of safety. Consequently, the provisions of Part 10 do not apply during the alteration of such a combustible building, Group C or D or one of its parts. In addition, the difference between a combustible building and a non-combustible building does not change only with a sprinkler system, even if the system is designed for a risk level higher than that required by the NBC for the occupancy covered. The design criteria of a combustible building are not limited to the performance level of the sprinkler system, and even more if the alteration of such a combustible building or one of its parts covers the increase of the building height or an addition to the building area or floor area. **A-10.2.2.2.(4) Major or Minor Alteration.** The concepts of major or minor alteration are used for retrofitting. The term “retrofitting” means all the alteration work carried out in view of a different use of the altered part. Alteration types, such as addition, change of major occupancy, alteration of the envelope or exterior elements, increase in occupant load, construction of or modification to a mezzanine or interconnected floor space, or addition or modification of a vertical transportation facility are not governed by this type of alteration since they are already governed by other requirements in Part 10. The modification of most of the elements and components of walls, ceilings and floors of a dwelling unit not affecting an adjacent dwelling unit or adjacent corridor such as a minor alteration, so all the altered elements in the dwelling unit must conform to the NBC. **A-10.3.4.1.(1)(b) Capacity of Exits Serving an Altered Part.** If the calculation of the capacity requires the exits to have a width larger than 900 or 1100 mm, they should be modified or another exit conform to Section 3.4. should be added. **A-10.3.4.4.(1) Exit Sign.** The purpose of this Sentence is to permit the use of exit signs consisting of the letters "SORTIE" or "EXIT" in red or white on a contrasting red or white background in existing buildings even during alteration work. However, if during the course of the alteration work, the owner or his or her representative decides to use the green pictogram to identify an exit in a floor area, all of the exits signs in that floor area must be of the same type. Exit signs located inside individual suites in the floor area must also be replaced, along with those located in an interconnected floor space or a mezzanine leading to that floor area. It is thus permitted to have two different types of exit signs in the same building but not in the same floor area.

	Where the alteration work includes adding an exit in the building, all of the exit signs in the floor area(s) under alteration must conform to the requirements of Sentence 3.4.5.1.(2) for a building designed according to Part 3 of the NBC or conform to Sentence 9.9.11.3.(2) for a building designed according to Part 9 of the NBC because the alteration work involves the addition of an exit and not its replacement. **A-10.5.1.1.(1) Change of Occupancy without Work.** The installation of equipment producing a lot of water steam inside a building, such as a lap pool, a spa or a steam sauna, may create different environments inside the building.”.
	Add the following Part: “**Part 11** **Energy Efficiency**
	11.1. General 11.1.1. Scope and Definitions **11.2. Thermal Insulation** 11.2.1. General 11.2.2. Thermal Resistance 11.2.3. Thermal Bridges **11.3. Objectives and Functional Statements** 11.3.1. Objectives and Functional Statements

	Part 11 Energy Efficiency
	Section 11.1. General
	11.1.1. Scope and Definitions
	11.1.1.1. Scope **(1)** The scope of this Part shall be as described in Subsection 1.3.3. of Division A.
	11.1.1.2. Defined Words **(1)** Words that appear in italics are defined in Article 1.4.1.2. of Division A.
	Section 11.2. Thermal Insulation
	11.2.1. General
	11.2.1.1. Application **(1)** This Section applies to all walls, floors, ceilings, windows, doors and skylights separating heated space from unheated space, exterior air or the ground of a *building* that is to be heated during winter (see Note A-11.2.1.1.(1)).
	11.2.1.2. General Requirements **(1)** Windows, doors and skylights shall conform to Section 9.7. **(2)** Foamed plastic shall be protected in accordance with Article 9.10.17.10. **(3)** Walls, floors and roofs in contact with the ground shall conform to Subsections 9.13.2. and 9.13.3. **(4)** Crawl spaces shall be ventilated in conformance with Subsection 9.18.3. **(5)** Roof spaces shall be ventilated in conformance with Subsection 9.19.1.

	(6) Thermal insulation and measures to control heat transfer, air leakage and condensation shall conform to Section 9.25. (see Note A-11.2.1.2.(6)). **(7)** Cladding shall conform to Section 9.27. **(8)** Ventilation shall conform to Section 9.32.
	11.2.2. Thermal Resistance
	11.2.2.1. Thermal Resistance of Building Components **(1)** Except as permitted by Sentences (2) to (4), Articles 11.2.2.2. to 11.2.2.4. and Subsection 11.2.3., the *total thermal resistance* of a *building* component shall have a value (a) at least equal to those in Table 11.2.2.1.-A. for a *building* located in a municipality whose number of degree-days below 18ºC is less than 6000, or (b) at least equal to those indicated in Table 11.2.2.1.-B. for a *building* located in a municipality whose number of degree-days below 18ºC is at least 6000. (See Note A-11.2.2.1.(1).) **(2)** The *total thermal resistance* required by Sentence (1) for flat roofs may be reduced by not more than 20% at its lowest point if the drainage slopes are created by insulating materials, provided that the *total thermal resistance* of the roof is increased so that the heat loss calculated through the roof is not greater than the heat loss that would result if the *total thermal resistance* of the roof complied with Sentence (1). **(3)** The *total thermal resistance* required for roofs, ceilings and walls above ground level indicated in Tables 11.2.2.1.-A and 11.2.2.1.-B may be reduced if (a) the annual energy consumption of the proposed construction does not exceed that of the reference construction that complies with the requirements of Part 11, and (b) the only components whose *total thermal resistance* may be upgraded are roofs, ceilings, walls above ground level, doors, windows and skylights. (See Note A-11.2.2.1.(3).)

(4) The *total thermal resistance* of heated garages shall have a value of not less than

(a) 5.2 for the ceilings and floors adjacent to the *dwelling unit*,

(b) 3.5 for the walls adjacent to the *dwelling unit*, or

(c) the foundation wall

(i) 2.99 between the garage and the *dwelling unit* over the entire vertical surface of the wall, or

(ii) 1.76 for the other walls to a depth of 600 mm below ground level.

(See Note A-11.2.2.1.(4).)

Table 11.2.2.1.-A.

Total Thermal Resistance of Buildings Located in a Municipality Whose Number of Degree-days Below 18°C Is Less Than 6000

Forming part of Sentence 11.2.2.1.(1)

Building Component	*Total Thermal Resistance* (*RSIT*)
Roof or ceiling separating heated space from unheated space or exterior air	7.22
Wall above ground level, other than a *foundation* wall, separating heated space from unheated space or exterior air	4.31
Foundation wall(1) separating heated space from unheated space, exterior air or adjacent ground	2.99
Floor separating heated space from unheated space or exterior air	5.20

(1) A *foundation* wall having more than 50% of its surface exposed to exterior air, and the portion of a *foundation* wall that incorporates wood stud framing elements must have a *total thermal resistance* equal to that required for a wall above ground level.

Table 11.2.2.1.-B.

Total Thermal Resistance of Buildings Located in a Municipality Whose Number of Degree-days Below 18°C Is At Least 6000

Forming part of Sentence 11.2.2.1.(1)

Building Component	*Total Thermal Resistance* (*RSIT*)
Roof or ceiling separating heated space from unheated space or exterior air	9.00
Wall above ground level, other than a *foundation* wall, separating heated space from unheated space or exterior air	5.11
Foundation wall(1) separating heated space from unheated space, exterior air or adjacent ground	2.99
Floor separating heated space from unheated space or exterior air	5.20

(1) A *foundation* wall having more than 50% of its surface exposed to exterior air, and the portion of a *foundation* wall that incorporates wood stud framing elements must have a *total thermal resistance* equal to that required for a wall above ground level.

11.2.2.2. Thermal Resistance of Floors-on-Ground other than a Garage Floor

(1) The thermal resistance of material insulating a floor-on-ground shall have a value of not less than

(a) 1.32 for a floor-on-ground located above the ground or not more than 600 mm below the adjacent ground level,

(b) for a floor-on-ground located more than 600 mm below the adjacent ground level,

(i) 0.88, or

(ii) 1.32 and installed around the floor-on-ground over a width of at least 1.2 m,

	(c) 1.76 in the following situations: (i) heating pipes, tubes, ducts or cables are buried under the floor-on-ground and the insulating material is installed under the heating pipes, tubes, ducts or cables, or (ii) heating pipes, tubes, ducts or cables are embedded in the floor-on-ground and the insulating material is installed under the floor-on-ground.
	11.2.2.3. Thermal Resistance near Eaves **(1)** The *total thermal resistance* indicated in Table 11.2.2.1.-A. or 11.2.2.1.-B. for a roof or ceiling may be reduced near eaves if the roof slope and necessary ventilation clearances so require, provided that the value is not less than the value required by Table 11.2.2.1.-A. or 11.2.2.1.-B. for a wall above ground level other than a *foundation* wall.
	11.2.2.4. Thermal Performance of Windows, Doors and Skylights **(1)** The thermal characteristics of windows, doors and skylights shall (a) be determined in accordance with CAN/CSA-A440.2/A440.3, "Fenestration energy performance/User guide to CSA A440.2-19, Fenestration energy performance", and (b) conform to the values in 11.2.2.4. (See Note A-11.2.2.4.(1).) **(2)** Windows and skylights including glazed doors shall have a minimum airtightness rating of A2 in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights". **(3)** Except in the case of the enlargement of a *building* not more than 10 m², the total area of the rough openings in the *building* components that are to receive windows, doors, skylights and other similar components shall not be greater than 30% of the area of walls above ground level, including above-ground foundation walls (see Note A-11.2.2.4.(3)). **(4)** The thermal performance required in Sentence (1) and the maximum area described in Sentence (3) may be different provided (a) the annual energy consumption of the proposed construction does not exceed that of the reference construction conforming to the requirements of Part 11, and

	(b) the only components that may be altered with regard to *total thermal resistance* are roofs, ceilings, walls above ground level, doors, windows and skylights. (See Note A-11.2.2.1.(3).)

Table 11.2.2.4.
Maximum Overall Thermal Transmittance (U) and Minimum Energy Rating (ER) of Windows, Doors and Skylights
Forming part of Sentence 11.2.2.4.(1)

Building Component	*Building* Located in a Municipality Whose Number of Degree-days Below 18°C Is Less Than 6000	*Building* Located in a Municipality Whose Number of Degree-days Below 18°C Is Of At Least 6000
Maximum *overall thermal transmittance* (U-value) of doors without glazing	0.9	0.8
Maximum *overall thermal transmittance* (U-value) / Minimum energy rating (ER) or maximum *overall thermal transmittance* (U-value) of glazed doors	2.0 / 21 or 1.8	2.0 / 25 or 1.6
Maximum *overall thermal transmittance* (U-value) / Minimum energy rating (ER) of windows	2.0 / 21 or 1.8 / 13	2.0 / 25 or 1.6 / 17
Maximum *overall thermal transmittance* (U-value) of skylights	2.85	2.7

	11.2.3. Thermal Bridges
	11.2.3.1. Thermal Bridges in Walls (See Note A-11.2.3.(1).) **(1)** *Building* components constituting a *thermal bridge* shall be covered with insulating material having a thermal resistance of (a) for a wood frame, of (i) at least 0.7 if the frame members are spaced less than 600 mm o.c., or (ii) at least 0.53 in all other cases, (b) for a metal frame, of (i) at least 1.76 if the frame members are spaced less than 600 mm o.c., or (ii) at least 1.32 in all other cases, (c) at least 0.88 for a concrete construction. **(2)** The insulating material shall cover the *building* components constituting the *thermal bridge*, on the outside, on the inside or a combination of both. **(3)** A wall between two heated spaces that incorporates a *thermal bridge* shall be covered with insulating material to obtain a thermal resistance of not less than 2.20 on each side of the wall over a minimum distance of 1.2 m from the exterior side of the exterior wall. **(4)** Except as permitted by Sentence (5), the header shall be insulated so as to have a *total thermal resistance* value equivalent to that required for a wall above ground level other than a *foundation* wall. **(5)** In the case of a concrete construction where the header may only be insulated on the outside, the *total thermal resistance* value is permitted to be lower than that required in Sentence (4) provided the insulating material covering that component has a thermal resistance of at least 1.76.
	11.2.3.2. Thermal Bridges in Floors **(1)** The thermal resistance of insulating material covering *thermal bridges* in floors shall have a minimum value of 1.32 in in the following areas: (a) cantilevered above-ground floors, and (b) floors above unheated spaces.

	11.2.3.3. Thermal Breaks in a Foundation Wall in Contact with a Floor-on-Ground other than a Garage Floor **(1)** The insulating material between the *foundation* wall and the floor-on-ground shall have a thermal resistance of (a) not less than 1.32 for a floor-on-ground located above ground level or not more than 600 mm below ground level to a depth of 600 mm below ground level, (b) for a floor-on-ground located more than 600 mm below ground level, not less than (i) 1.32 if heating pipes, tubes, ducts or cables are buried under or are embedded in the floor-on-ground, or (ii) 0.7 for other floors-on-ground.
	11.3. Objectives and Functional Statements
	11.3.1. Objectives and Functional Statements
	11.3.1.1. Attribution to Acceptable Solutions **(1)** For the purposes of compliance with the NBC as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part must be the objectives and functional statements identified in Table 11.3.1.1. (See Note A-1.1.2.1.(1).)
	Table 11.3.1.1. Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 11 Forming part of Sentence 11.3.1.1.(1) 11.2.2.1. Thermal Resistance of Building Components (1) [F92-OE1.1.] (2) [F92-OE1.1.] (4) [F92-OE1.1.] 11.2.2.2. Thermal Resistance of Floors-on-Ground other than a Garage Floor (1) [F92-OE1.1.] 11.2.2.3. Thermal Resistance near Eaves (1) [F92-OE1.1.]

	11.2.2.4. Thermal Performance of Windows, Doors and Skylights (1) [F92-OE1.1.] (2) [F92-OE1.1.] (3) [F92-OE1.1.] 11.2.3.1. Thermal Bridges in Walls (1) [F92-OE1.1.] (3) [F92-OE1.1.] (5) [F92-OE1.1.] 11.2.3.2. Thermal Bridges in Floors (1) [F92-OE1.1.] 11.2.3.3. Thermal Breaks in a Foundation Wall in Contact with a Floor-on-Ground other than a Garage Floor (1) [F92-OE1.1.]”.
	Add the following Notes: “**A-11.2.1.1.(1) Exemptions.** Buildings that are not intended to be heated are exempt from the energy efficiency requirements. This could apply to storage and parking garages as well as small service buildings or service rooms and areas in larger buildings, where those buildings, rooms or areas are not heated. **A-11.2.1.2.(6) Air Barrier Systems.** To measure the air infiltration rate of a construction, it is recommended that it be determined in accordance with CAN/CGSB-149.10-M, “Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method”. **A-11.2.2.1.(1) Thermal Resistance of Building Components.** For the purposes of Part 11, wall assemblies inclined less than 60° from horizontal are considered to be roof assemblies, and roof assemblies inclined 60° or more from the horizontal are considered to be wall assemblies. Except for tubular daylighting devices, the total thermal resistance for walls required in Table 11.2.2.1.A. or 11.2.2.1.B. also applies to shafts for skylights. The thermal resistance of a building component can be calculated by conducting tests at temperature conditions specific to the construction site using ASTM C 1363, “Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus”.

	A-11.2.2.1.(3) Conformity Assessment by Comparison of Annual Energy Consumption. The concept of measuring conformity by comparing the annual energy consumption of a reference construction to that of a proposed construction is one way to benchmark the conformity of a proposed construction to Part 11 requirements. The compliance requirements of this Code are consistent with an objective-based code of demonstrating for the proposed construction a level of performance similar to that of the reference construction. “Reference construction” means a hypothetical replica of the proposed construction design using the same energy sources for the same functions and having the same environmental requirements, occupancy and climate data, but made to comply with all applicable prescriptive requirements of Part 11. “Construction energy target” means the annual energy consumption of the reference construction. “Annual energy consumption” means the annual sum of heating and space-conditioning energy consumption of the proposed construction design. It must be noted that the annual energy consumption is not the real consumption but rather that provided by energy simulation. The calculation procedure must determine the annual energy consumption of the proposed construction and the construction energy target of a reference construction. The annual energy consumption of the proposed construction must not exceed the construction energy target of the reference construction. Proof of those results must be available on request. If a computer program is used to carry out the calculations, it shall be used for both the reference and proposed constructions, and may be tested according to AINSI/ASHRAE 140, “Test for the Evaluation of Building Energy Analysis Computer Programs”, and variations in the computer program results from the different recommended values must be calculated. Where the construction techniques or components used for the construction are more energy-efficient than those prescribed by the prescriptive requirements, performance compliance calculations are permitted to take this increased performance level into account in the determination of the annual energy consumption, provided it can be quantified and is not dependent on occupant interaction. The calculation procedure must account for the annual energy consumption of systems and equipment required for space heating and conditioning and for ventilation. The calculation procedure must account for heat transfer through wall assemblies, roof-ceiling assemblies and exposed floor assemblies due to the thermal characteristics of the

	particular assembly and thermal bridging. The roof-ceiling assembly includes the attic. The building envelope assemblies and components required to be addressed in the calculations are above-ground assemblies (walls and roof-ceiling assemblies), assemblies in contact with the ground (floors and walls), and doors, windows and skylights. Where the calculation procedure accounts for the effect of thermal mass, the contents of the construction shall be excluded. Where skylights are installed in the roof, the gross roof area does not exclude the gross roof area of skylights. The calculation procedure for the reference construction must include the same values as those used for the proposed construction with regards to the floor area, the heated volume, and the number and type of rooms. The calculation procedure for the proposed construction must be consistent with the proposed construction specifications with regards to openings and the opaque envelope assembly type, their thermal resistance and areas, and more specifically to (a) the area of the above-ground portion of basement walls, (b) the thermal resistance of walls, below-ground walls, ceilings below attics, roof assemblies and header joists, (c) the maximum overall thermal transmittance of openings, (d) the total thermal resistance of below-ground walls and floors-on ground, (e) exterior walls, roof-ceiling assemblies, exposed floors, doors, walls and floors in contact with the ground, (f) the configuration of insulation in assemblies in contact with the ground, and (g) the thermal resistance of foundation walls. The drawings and specifications for the proposed construction must include information to analyze construction compliance with regulations. It is suggested to include the following information: (a) the thermal resistance values and respective areas of all opaque building envelope assemblies, including all above-ground and below-ground roof-ceiling, wall, and floor assemblies, (b) the overall thermal transmittance of all windows, doors and skylights and their respective areas, (c) the ratio of total opening area to exterior wall area, (d) the design basis for the ventilation rates, and

	(e) any additional features used in the compliance calculation that account for a significant difference in the proposed construction energy performance. A proposed construction energy performance compliance calculation report must be provided for each proposed construction design that does not comply with the requirements of Part 11. In addition to the information of the drawings and specifications, the inclusion of which is suggested, the proposed construction energy performance compliance calculation report must include (a) a project information section containing ▪ a project description, ▪ the project address, ▪ the name and version of the calculation tool, and ▪ the geographic region in which the proposed construction is to be built, (b) a summary of the characteristics of the proposed construction envelope, HVAC system, (c) an energy performance data summary containing ▪ the annual energy consumption of all energy sources calculated for the proposed construction, ▪ the energy target of all energy sources calculated for the reference construction, and (d) where a software program is used for compliance calculations, ▪ the simulation report for the proposed construction and for the reference construction, and ▪ the name of the software program used. **A-11.2.2.1.(4) Thermal Resistance of Garages.** This Sentence aims to alleviate discomfort in rooms adjacent to a garage. Even when a heating system is installed in the garage, the temperature in the garage may be kept low to save on heating costs in that space. This causes discomfort in the rooms above, below or adjacent to the garage. **A-11.2.2.4.(1) Windows.** For the purposes of Part 11, sliding doors must comply with the requirements for windows. Not more than 1.85 m^2 of glass block may be installed in the same construction where the glass block has a maximum overall thermal transmittance equivalent to that of skylights as indicated in Table 11.2.2.4. The overall thermal transmittance of doors may be obtained using the door or door/storm door assembly.

	A garage door giving access to vehicles must comply with the values in Table 11.2.2.4. To minimize surface condensation on the warm side of windows, doors or skylights, it is recommended that install those components inside the insulation or near the vertical axis of the centre of the RSI value of the insulating material. This recommendation does not apply to openings in foundation walls. **A-11.2.2.4.(3) Rough Openings.** The area of rough openings includes the area occupied by frame openings. “Opening” means windows, doors and other similar components such as glass blocks, clerestories, skylights, translucent wall panels, transoms or sidelights. Despite the foregoing, openings occupied by garage doors giving access to vehicles are permitted to be excluded in calculating the total area of openings, even if those doors have windows. Despite the fact that Part 11 does not contain requirements to minimize overheating that may be caused by translucent openings according to their size and orientation, it is recommended to take into consideration in order to minimize the energy load that would be needed to condition certain spaces. **A-11.2.3.1. Thermal Bridges.** Minor penetrations such as ties, shims or any similar fastener need not be taken into account as members that may constitute a thermal bridge. Insulation of thermal bridges excludes the interior and exterior finishes of the building assembly and surface air films behind those finishes.”.
Division C Part 1	
1.2.1.1.	Replace “9” in Sentence (3) by “11”.
Part 2	
Table of contents	Replace the title of Subsection 2.2.7. by the following: “**2.2.7. Declaration of Construction Work**”; Replace the titles of Section 2.3. and Subsection 2.3.1. by the following: “**2.3. Approval of Alternative Solutions**”; “**2.3.1. Approval of Alternative Solutions**”.

2.2.4.2.	Strike out “submitted with the application to build” in Sentence (1).
2.2.4.3.	Strike out “submitted with the application to build” in Sentence (1).
2.2.4.6.	Strike out “submitted with the application to build or excavate” in Sentence (1); Replace Sentence (2) by the following: “Evidence that justifies the information on the drawings shall be included in the documents accompanying them.”.
2.2.7.	Replace the title by the following: “**Declaration of Construction Work**”.
2.2.7.1.	Replace Sentence (1) by the following: “**(1)** The general contractor or, in the general contractor's absence, the specialized contractor or the owner-builder shall declare to the Régie du bâtiment du Québec all construction work performed on a *building* or facility intended for use by the public and to which Chapter I of the Construction Code (chapter B-1.1, r. 2) applies.”; Add the following Sentence: “**(2)** Sentence (1) does not apply to construction work declared under subparagraph 1.1 of the first paragraph of section 120 of the Act respecting land use planning and development (chapter A-19.1) or under another chapter of the Construction Code (chapter B-1.1, r. 2) or to maintenance or repair work to which Chapter I of the Construction Code applies.”.
2.2.7.2.	Replace the title by the following: “**Submission of the Declaration**”;

<table>
<tr><td></td><td>Replace Sentence (1) by the following:
“(1) The declaration required under Article 2.2.7.1. shall be submitted to the Régie du bâtiment du Québec not later than the twentieth day of the month following the date on which work starts.”.</td></tr>
<tr><td>2.2.7.3.</td><td>Replace the title by the following:
“Form”;<hr>Replace Sentence (1) by the following:
“(1) The declaration of work is permitted to be made on the form provided by the Régie or on any other document clearly and legibly completed for that purpose.”.</td></tr>
<tr><td>2.2.7.4.</td><td>Replace the title by the following:
“Content”;<hr>Replace Sentence (1) by the following:
“(1) The declaration shall contain
(a) the address of the building or facility intended for use by the public, if applicable, and the lot number of the site where the work is performed,
(b) the name, address and telephone number of the person for whom the work is performed,
(c) the name, address, telephone number and licence number of the contractor or owner-builder,
(d) the estimated start and end dates of the construction work,
(e) the nature and type of the work,
(f) the occupancy of the building or facility intended for use by the public, its classification under the NBC, the existing and planned number of storeys and building area, and
(g) the name, address and telephone number of the person who prepared the plans and specifications relating to the construction work.”.</td></tr>
<tr><td>2.2.7.5.</td><td>Strike out the Article.</td></tr>
<tr><td>2.2.8.</td><td>Strike out the Subsection.</td></tr>
</table>

2.3.	Replace the title by the following: “**Approval of Alternative Solutions**”.
2.3.1.	Replace the title by the following: “**Approval of Alternative Solutions**”.
2.3.1.1.	Replace the title by the following: “**Conditions of Approval**”; --- Replace Sentences (1) to (6) by the following: “**(1)** The proposed alternative solutions shall be approved by the Régie on the conditions it sets pursuant to section 127 of the Building Act (chapter B-1.1).”.
Division C Appendix A	
A-2.2.8.1.(1)	Strike out the Note.
A-2.2.8.3.(2)(c)(i)	Strike out the Note.
A-2.3.1.	Strike out the Note.

O.C. 293-2008, s. 1; O.C. 939-2009, s. 3; O.C. 858-2012, s. 7; O.C. 347-2015, s. 1; I.N. 2015-07-01; O.C. 990-2018, s. 1; O.C. 1419-2021, s. 1; O.C. 737-2022, s. 1.

DIVISION V

OFFENCE

O.C. 293-2008, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.10. A contravention to any of the provisions of this Chapter constitutes an offence.

O.C. 293-2008, s. 1; O.C. 347-2015, s. 1; O.C. 1419-2021, s. 1.

1.11. *(Replaced).*

O.C. 293-2008, s. 1; O.C. 347-2015, s. 1.

CHAPTER I.1

ENERGY EFFICIENCY OF BUILDINGS

O.C. 486-2020, s. 1.

DIVISION I

INTERPRETATION

O.C. 486-2020, s. 1.

1.1.1. In this Chapter, unless the context indicates otherwise, "Code" means the "National Energy Code of Canada for Buildings 2020" (NRCC-CONST-56438E), first printing, published by the Canadian Commission on Building and Fire Codes, National Research Council of Canada, excluding any later amendments, including errata, that may be published by that organization.

The Code is incorporated into this Chapter by reference, subject to the amendments specified in section 1.1.6.

For the purposes of this Division, the definitions set out in the Code apply, unless otherwise provided.

O.C. 486-2020, s. 1; O.C. 850-2024, s. 1.

1.1.2. Subject to section 1.1.4, this Chapter applies to all construction work that is performed on a new building to which the Building Act (chapter B-1.1) applies and to the vicinity of that building.

It also applies to all construction work for new swimming pools designated as facilities intended for use by the public under section 10.03.

O.C. 486-2020, s. 1.

1.1.3. Subject to section 1.1.4, this Chapter applies to the addition work of existing buildings where, after that work, the building including its addition

(1) has a building area of more than 600 m^2 within the meaning of the National Building Code as adopted by Chapter I of the Construction Code;

(2) has a building height of more than 3 storeys within the meaning of the National Building Code as adopted by Chapter I of the Construction Code; or

(3) does not house only dwelling units.

O.C. 486-2020, s. 1.

1.1.4. This Chapter does not apply to the construction of

(1) a building referred to in the second paragraph of section 1.04;

(2) a greenhouse;

(3) a building with a building area under 10 m^2 within the meaning of the National Building Code as adopted by Chapter I of the Construction Code.

O.C. 486-2020, s. 1.

DIVISION II

AMENDMENTS TO THE CODE

O.C. 486-2020, s. 1.

1.1.5. A reference in this Chapter to a standard, including a code, is, as the case may be, a reference to that standard as adopted by a Chapter of the Construction Code (chapter B-1.1, r. 2), the Safety Code (chapter B-1.1, r. 3) or other regulation adopted under the Building Act (chapter B-1.1) referring to it.

O.C. 486-2020, s. 1.

1.1.6. The amendments to the Code are the following:

<table>
<tr><th>Provision</th><th>Amendments</th></tr>
<tr><td>Division A
Part 1</td><td></td></tr>
<tr><td rowspan="2">1.1.1.1.</td><td>Replace Sentence (1) by the following:

“1) Except as provided in Sentence (3) and as provided in sections 1.1.2 and 1.1.3 of the Construction Code (chapter B-1.1, r. 2) made under the Building Act (chapter B-1.1), this Code applies:

a) to the design and construction of

i) all new buildings, and

ii) all new swimming pools designated as facilities intended for use by the public under section 10.03 of the Construction Code, and

b) to additions.

(See Note A-1.1.1.1.(1).)”.</td></tr>
<tr><td>Strike out Sentence (2).</td></tr>
</table>

1.1.1.2.	Add the following line after "**1.1.1.2. Building Parameters Covered by this Code**": "(See Note A-1.1.1.2.)".
1.2.1.1.	Insert the following in Clause (1)(b) after "applicable acceptable solutions": "and approved by the Régie du bâtiment du Québec or, in the case of *buildings* or equipment on which the Board has no jurisdiction, by the *authority having jurisdiction*".
1.3.3.1.	Replace the heading of the Article by the following: "**1.3.3.1. Application of Parts 1 to 8**"; --- Replace "Parts 1, 3 to 8 and 10" in Sentence (1) by "Parts 1 to 8".
1.4.1.2.	Replace respectively in Sentence (1) the following terms defined below: "*Authority having jurisdiction** means the Régie du bâtiment du Québec, a regional county municipality or a local municipality."; "*Boiler** means pressure equipment, other than a *service water heater*†, equipped with a direct energy source, used to heat a heat-carrying liquid or transform it into steam."; "*Grade** means the lowest of the average levels of finished ground, measured along each exterior wall of a *building* required to face a street by Subsection 3.2.2. or 9.10.20. of Division B."; "*Floor surface area* means the area of a space or group of spaces, measured from the exterior surface of the perimeter walls, by the axis of party walls and interior walls and the virtual separation between interconnected spaces, at or near floor level, including the area occupied by columns, interior walls and openings in the floor."; "*Interior lighting power allowance* means lighting power allocated to illuminate the interior of a space or group of spaces."; "*Service water* means the drinking water for plumbing systems."; "*Thermal block* means a space or group of spaces that is considered as one homogeneous space for modeling purposes. A *thermal block* shall be: (a) one *temperature-control zone,* (b) a group of *temperature-control zones* (i) that are served by the same HVAC system or by HVAC systems that may be considered to be identical,

	(ii) that are operated and controlled in the same way, (iii) whose function and envelope characteristics are sufficiently similar that the heating and cooling energy consumption obtained by modeling the group of zones as a *thermal block* is not significantly different from what would be obtained by summing the results for the individual zones modeled separately, and (iv) whose azimuth of the glazed exterior facades of the group of *temperature-control zones* varies by no more than 45°, or (c) a zone consisting entirely of *conditioned spaces* that are indirectly heated, cooled or ventilated. (See Note A-1.4.1.2.(1).)”.
	Insert “(See Note A-1.4.1.2.(1).)” at the end of the defined term “*Exterior lighting*” in Sentence (1);
	Insert “(See Note A-1.4.1.2.(1).)” at the end of the defined term “*Conditioned space*” in Sentence (1);
	Insert “glazed sections of curtain walls,” after “*skylights*,” in the defined term “*Fenestration*” in Sentence (1);
	Insert the following defined terms in alphabetical order: “*Effective thermal resistance* (RSI_E value) means the inverse of the *overall thermal transmittance*. The RSI_E value shall be calculated, (a) for *opaque building assemblies*, according to Sentence 3.1.1.5.(5) and Article 3.1.1.7., and (b) for opaque sections of curtain walls, according to Sentence 3.1.1.5.(6).”; “*Linear thermal transmittance* (Ψ) means the rate, in W/(m×K), at which heat is transferred per unit of length through a *building* assembly resulting from a steady-state temperature difference. (See Note A-1.4.1.2.(1).)”; “*Point thermal transmittance* (χ) means the rate, in W/K, of heat transfer by point penetration through a *building* assembly that is subject to a steady-state temperature difference. (See Note A-1.4.1.2.(1).)”.
	Strike out the following defined terms in Sentence (1): “*Gross lighted area*”; “*Partition*”.

1.4.2.1.	Insert the following symbols and other abbreviations in alphabetical order in Sentence (1): “HDD.................... heating degree-days under 18°C”; “IILE .... installed *interior lighting* energy”; “ILEA.................... *interior lighting* energy allowance”; “kWh………………kilowatt-hour”; “LPD……………… lighting power density”.
Division A Notes to Part 1	
A-1.1.1.1.(2)	Strike out the Note.
	Add the following Note: “**A-1.1.1.2. Building Parameters.** The construction and design parameters used to establish compliance with this Code must represent the anticipated operating conditions of the building. The rentable areas that were not defined when preparing the plans and specifications and constructing the building are not exempted from the requirements of this Code.”.
A-1.2.1.1.(1)(b)	Replace ““alternative solution.”” in the Note concerning “**Code Compliance via Alternative Solutions**” by the following: ““alternative solution” and be approved by the Régie du bâtiment du Québec according to the conditions it determines in accordance with section 127 of the Building Act (chapter B-1.1) or, in the case of buildings or equipment on which the Board has no jurisdiction, by the authority having jurisdiction.”; Strike out the following at the end of the Note concerning “**Code Compliance via Alternative Solutions**”: “, i.e. the consequence remaining once the applicable acceptable solutions in Division B have been implemented represents the residual consequence deemed to be acceptable by the broad base of Canadians who have taken part in the consensus process used to develop the Code”.
A-1.4.1.2.(1)	Insert the following Notes in alphabetical order: “**Annual Energy Consumption** Fuel consumption is generally calculated by the programs in terms of volume. In such a case, the consumption must be converted in terms of energy.”; “**Conditioned space** The term “unconditioned space” is sometimes used in the NECB. Although that term is not defined in the NECB, where it is used in the NECB and its

	appended notes, its meaning is the opposite of the defined term “conditioned space”, namely: any space inside a building that is neither heated nor cooled. The same applies to the term “space-conditioning system”, which is not defined in the NECB. Where that term is used in the NECB and its appended notes, it refers to any heating or cooling system.”; “**Exterior Lighting** Exterior lighting includes in particular lighting of exterior advertising signage and exterior parking areas.”; “**Linear Thermal Transmittance** The coefficient makes it possible to express the influence of linear thermal bridging over the total heat losses of part of the envelope of a building.”; “**Point Thermal Transmittance** The coefficient makes it possible to express the influence of a point thermal bridging over the total heat losses of part of the envelope of a building.”; “**Thermal Block** Where multiple control zones have windows on more than one facade of the building, they may be considered a thermal block only under certain conditions. Grouping zones that have fenestration in a single thermal block is permitted only where the fenestration has a similar azimuth, that is, where the elements of fenestration have an azimuth that differs less than 45°. It is also possible that multiple azimuths of a same zone have an exterior fenestration, such as an office in the northeastern corner of an office tower. In that case, only one thermal block could be formed with all the offices of the intermediate storeys of the northeastern corner.”; Strike out the Notes concerning the defined terms “**Gross Lighted Area**” and “**Interior Lighting**”; Add the following at the end of the Note concerning the defined term “**Overall Thermal Transmittance (U-value)**”: “The unit of the Celsius temperature scale is the degree Celsius (symbol °C), which has the same magnitude as the kelvin (symbol K). Kelvin units and Celsius degrees are equivalent and a temperature interval in Celsius degrees has the same numerical value as a temperature interval in kelvin units.”.
Division B Part 1	
1.1.2.1.	Replace Clauses (1)(a) to (1)(c) by the following: “a) the prescriptive or trade-off requirements stated in Parts 3 to 7, or b) the performance requirements stated in Part 8.”.

1.1.4.2.	Replace Clauses (1)(b) to (1)(d) by the following: “b) “HRAI Digest”, and c) Hydronics Institute Manuals.”.
1.2.1.2.	Strike out Sentence (2).
1.3.1.2.	Replace the documents concerned by the following in Table 1.3.1.2.: “AAMA 501.5-07 Test Method for Thermal Cycling of Exterior Walls 3.1.1.8.(3)”; “AHRI 1061 (SI/2013) Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment 5.2.10.1.(5) 5.2.10.4.(2)(b)”; “ASHRAE 2013 ASHRAE Handbook – Fundamentals 3.1.1.5.(4) A-3.1.1.5.(5)(a) A-3.1.1.5.(5)(b), (6)(c) and (7)(a) A-3.3.1.3.(2) A-8.4.3.3.(7)”; “ASHRAE/IES 90.1-2013 User’s Manual 8.4.4.6.(4) A-6.2.3.1.(1) A-8.4.4.6.(4)”; “ASHRAE ANSI/ASHRAE 140-2011

	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs 8.4.2.2.(1) A-8.4.2.2.(1)”; “ASHRAE RP-1365-2011 Thermal Performance of Building Envelope Details for Mid- and High-Rise Buildings A-3.1.1.5.(5)(b), (6)(c) and (7)(a) A-3.3.1.3.(2)”; “ASTM C1363-11 Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus 3.1.1.5.(4) 3.1.1.5.(5) 3.1.1.5.(7)”; “ASTM E283-04 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen 3.1.1.8.(3) 3.1.1.8.(4)”; “CCBFC NRCC-CONST-56435E National Building Code of Canada 2020 1.1.1.3.(1)[(3)] 1.1.1.3.(2)[(3)] 1.4.1.2.(1)[(3)] A-3.2.1.1.(1)[(3)] 3.1.1.5.(1) A-3.2.3.1.(3) 5.2.1.1.(1) 5.2.2.1.(1) 5.2.2.8.(2)

	5.2.5.1.(1) 5.2.8.9.(4) 5.2.8.9.(5) 5.2.10.2.(2) A-5.2.2.8.(2) A-5.2.8.4.(1) A-5.2.10.4.(1) 8.4.3.6.(1) 8.4.4.17.(4) 8.4.4.17.(5)”; “CCBFC NRCC-CONST-56436E National Plumbing Code of Canada 2020 A-3.2.1.1.(1)[3] A-5.2.10.4.(1) 6.2.1.1.(1)”; “CSA AAMA/WDMA/CSA 101/I.S.2/A440-17 North American Fenestration Standard/Specification for windows, doors, and skylights 3.1.1.8.(2) 3.1.1.8.(4)”; “CSA A440.2:19/A440.3:19 Fenestration energy performance/User guide to CSA A440.2:19, Fenestration energy performance 3.1.1.5.(3) 3.1.1.5.(6) A-3.1.1.6.(1)”; “CSA CAN/CSA-C439-09 Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators 5.2.10.1.(5)(b) 5.2.10.4.(2)(a) A-5.2.10.4.(2)(a)”;

	"HVI HVI Publication 911 Certified Home Ventilating Products Directory 5.2.10.4.(2)(a); "IES ANSI/IES RP-28-07 Lighting and the Visual Environment for Senior Living Table 4.2.1.6. Table 8.4.3.4.-A Table A-8.4.3.8.(1)-B"; "ISO 14683:2007 Thermal bridges in building construction – Linear thermal transmittance – Simplified methods and default values A-3.1.1.5.(5)(b), (6)(c) and (7)(a)"; "NFRC 100-2017 Procedure for Determining Fenestration Product U-factors 3.1.1.5.(3) 3.1.1.5.(6)"; "NRCan Energy Efficiency Act A-5.2.12.1.(1) and 6.2.2.1.(1)"; "NRCan SOR/2016-311 Energy Efficiency Regulations, 2016 Table 5.2.12.1.-A Table 5.2.12.1.-B Table 5.2.12.1.-C Table 5.2.12.1.-D Table 5.2.12.1.-E Table 5.2.12.1.-G

	Table 5.2.12.1.-I Table 5.2.12.1.-K Table 5.2.12.1.-N Table 5.2.12.1.-O A-5.2.12.1.(1) and 6.2.2.1.(1) Table 6.2.2.1.”; “SMACNA ANSI/SMACNA 006-2006 HVAC Duct Construction Standards – Metal and Flexible 5.2.2.3.(1) A-5.2.2.1.(1) A-5.2.2.3.(1)”; “ULC CAN/ULC-S742-11 Standard for Air Barrier Assemblies – Specification 3.1.1.8.(1) A-3.1.1.8.(1) A-3.2.4.3.(1) and (2)”;
	Insert the following documents in Table 1.3.1.2., in order of the organizations: “ASTM E2357-18 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies 3.1.1.8.(1) A-3.1.1.8.(1)”; “CSA A440S1:19 Canadian supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17, North American Fenestration Standard/Specification for windows, doors, and skylights 3.1.1.8.(2) 3.1.1.8.(4)”;

	“ISO 6946:2007 Building components and building elements – Thermal resistance and thermal transmittance – Calculation method A-3.1.1.5.(5)(a)”; “ISO 10211:2017 Thermal bridges in building construction – Heat flows and surface temperatures – Detailed calculations A-3.1.1.5.(5)(b), (6)(c) and (7)(a)”; “UL UL 181A-2013 Closure Systems for Use with Rigid Air Ducts 5.2.2.3.(5)”; “UL UL 181B-2013 Closure Systems for Use with Flexible Air Ducts and Air Connectors 5.2.2.3.(5)”;
	Strike out the following documents in Table 1.3.1.2.: “ASHRAE 2011 ASHRAE Handbook – HVAC Applications A-6.2.4.1.(1)”; “ASHRAE ANSI/ASHRAE 62.1-2016 Ventilation for Acceptable Indoor Air Quality A-5.2.3.4.(1)”; “ASHRAE ANSI/ASHRAE 84-2013 Method of Testing Air-to-Air Heat/Energy Exchangers 5.2.10.1.(5)”;

	"ASHRAE/IES ANSI/ASHRAE/IES 90.1-2013 Energy Standard for Buildings Except Low-Rise Residential Buildings A-Table 3.2.2.2. A-5.2.3.4.(2)"; "ASME/CSA ASME A112.18.1-2018/CSA B125.1-18 Plumbing Supply Fittings 6.2.6.1.(1) 6.2.6.2.(1)"; "ASTM E779-10 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization 8.4.2.9.(2)"; "ASTM E3158-18 Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building A-3.2.4.2.(1)"; "BC Hydro 2014 Building Envelope Thermal Bridging Guide A-3.1.1.5.(5)(a)"; "CSA C22.1-18 Canadian Electrical Code, Part I (24th edition), Safety Standard for Electrical Installations A-7.2.1.1."; "CSA C390:10 Test methods, marking requirements, and energy efficiency levels for three-phase induction motors 7.2.4.1.(1)";

	“CSA CAN/CSA-C802.1-13 Minimum efficiency values for liquid-filled distribution transformers 7.2.3.1.(1)”; “CSA CAN/CSA-C802.2-18 Test method and minimum efficiency values for dry-type transformers 7.2.3.1.(1)”; “CSA C802.3-15 Minimum efficiency values for power transformers 7.2.3.1.(1)”; “CSA CAN/CSA-C828-13 Performance requirements for thermostats sed with individual room electric space heating devices 5.2.8.6.(4)”; “CSA C873.4-14 Building energy estimation methodology – Part 4 – Energy consumption for lighting 4.3.1.3.(1) 4.3.1.3.(2) 4.3.1.3.(3) 4.3.1.3.(4) 4.3.1.3.(5)”; “DASMA ANSI/DASMA 105-2017 Test Method for Thermal Transmittance and Air Infiltration of Garage Doors 3.2.4.3.(8)”;

	"IES HB-10-11 The Lighting Handbook, 10th Edition A-Table 4.3.2.8."; "ISO 13790:2008 Energy performance of buildings - Calculation of energy use for space heating and cooling 1.1.4.2.(1)"; "TIAC 2013 Mechanical Insulation Best Practices Guide A-5.2.2.5.(8) and 5.2.5.3.(7)"; "ULC CAN/ULC-S741-08 Standard for Air Barrier Materials – Specification 3.2.4.3.(2)".
1.3.2.1.	Insert the following abbreviations, in alphabetical order, in Sentence (1): "BRE Building Research Establishment (www.bregroup.com)"; "UL Underwriters Laboratory (www.ul.com)".

Division B Notes to Part 1

A-1.1.2.1.

Replace Figure A-1.1.2.1. by the following:

“

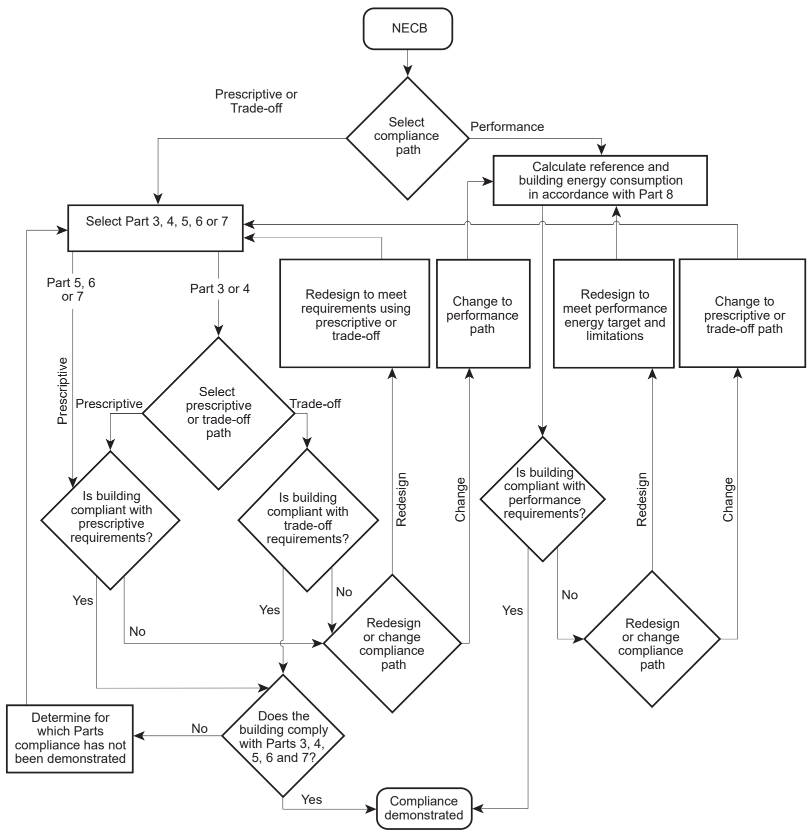


Figure A-1.1.2.1.

Decision flow chart for Code compliance”;

Strike out “and/or vary the fenestration and door area” after “more components of the building envelope” in the Note concerning “**Trade-off Path**”.

<table>
<tr><td>Division B
Part 3</td><td></td></tr>
<tr><td>3.1.1.2.</td><td>Insert “(See Note A-3.1.1.2.(1)(b).)” at the end of Sentence (1)(b).</td></tr>
<tr><td>3.1.1.5.</td><td>Replace Sentence (5) by the following:
“5) The effective thermal resistance of building assemblies other than fenestration, doors and opaque sections of curtain walls shall be determined in accordance with
a) a simplified calculation method that takes into account the specific parameters of building assemblies, including
i) a discontinuity at the expanses of insulation, and
ii) the thermal conductivity difference between the materials contributing to the discontinuity
(see Note A-3.1.1.5.(5)(a)),
b) the heat transfer digital simulations (see Note A-3.1.1.5.(5)(b), (6)(c) and (7)(a)), or
c) laboratory tests performed in accordance with ASTM C 1363, “Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus,” using an indoor air temperature of 21±1°C and an outdoor air temperature of -18±1°C.”.
6) The effective thermal resistance of the opaque sections of curtain walls shall be determined in accordance with
a) CSA A440.2/A440.3, “Fenestration energy performance/User guide to CSA A440.2:19, Fenestration energy performance,”
b) NFRC 100, “Procedure for Determining Fenestration Product U-factors,” or
c) the heat transfer digital simulations (see Note A-3.1.1.5.(5)(b), (6)(c) and (7)(a)).
7) The linear thermal transmittance and the point thermal transmittance shall be determined from
a) the heat transfer digital simulations (see Note A-3.1.1.5.(5)(b), (6)(c) and (7)(a)), or
b) laboratory tests performed in accordance with ASTM C 1363, “Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus,” using an indoor air temperature of 21±1°C and an outdoor air temperature of -18±1°C.”.</td></tr>
</table>

3.1.1.6.	Replace the heading of the Article by the following: "**3.1.1.6. Characteristics and Calculation of Surface Areas**"; Replace Sentences (3) and (4) by the following: **3)** In the calculation of allowable door and *fenestration* area, excluding *skylight* areas, the gross wall area shall be calculated as the sum of the areas of all above-ground wall assemblies including *fenestration* and doors, but not including parapets, projected fins, ornamentation and appendages. **4)** In the calculation of allowable door and *fenestration* area in *additions*, compliance shall be based on the *addition* considered by itself."; Add the following Sentences: **6)** *Opaque building assemblies* areas shall be calculated along the plane of the insulation using dimensions measured to the exterior walls of adjacent *building* assemblies, and include the area of the intersection surfaces of the interior *building* assemblies. (See Note A-3.1.1.6.(1).) **7)** Wall assemblies inclined less than 60° from the horizontal shall be considered as roof assemblies, and roof assemblies inclined 60° or more from the horizontal shall be considered as wall assemblies. **8)** *Fenestration* and door areas integrated to curtain walls shall be calculated from the axis of any mullion separating the *fenestration* or doors from the opaque sections of curtain walls.".
3.1.1.7.	Replace the Article by the following: "**3.1.1.7. Calculation of Effective Thermal Resistance** **1)** The calculation of the *effective thermal resistance* of *opaque building assemblies* shall account for the specific thermal resistance of a) continuous members, such as a concrete slab, b) repetitive structural members, such as studs and joists, jambs and resilient bars, and c) ancillary structural members, such as lintels, sills and plates. (See Note A-3.1.1.7.(1).) **2)** In calculating the *effective thermal resistance* of *opaque building assemblies*, the thermal bridging effect of major structural members, such as columns and spandrel beams, that are parallel to the plane of the *building envelope* and partly penetrate that *building envelope* assembly need not be taken into account, provided they do not reduce the *effective thermal resistance* at the projected area at less than half the value required by Section 3.2. (See Note A-3.1.1.7.(2).) **3)** In calculating the *effective thermal resistance* of *opaque building assemblies*, the following elements need not be taken into account when they must partially or completely penetrate the *building envelope* to perform their intended function and when they comply with the requirements of Article 3.2.1.2.: a) pipes, b) ducts,

	c) equipment with through-the-wall venting, d) equipment of an HVAC system, e) minor ties and anchors, and any other similar member, necessary to the structure of the envelope, f) linear anchoring devices, such as shelf angles for masonry, and g) major structural penetrations, such as balcony slabs, beams, girders, columns, ornamentation and appendages. (See Note A-3.1.1.7.(3).) **4)** Where a component of the *building envelope* is protected by an unconditioned enclosed space, such as a sun porch, enclosed veranda or vestibule, the enclosure may be considered to have an *effective thermal resistance* of 0.16 $m^2 \times K/W$. (See Note A-3.1.1.7.(4).) **5)** In calculating the *effective thermal resistance* of an *opaque building assembly*, the effect of overlapping expanses of insulation, on either side of a *building* assembly, does not have to be taken into account where they comply with the requirements of Article 3.2.1.2. **6)** In calculating the *effective thermal resistance* of an *opaque building assembly*, the effect of the transitions between the constructive systems of the *building envelope*, such as joints between walls and *fenestration*, does not have to be taken into account where they comply with the requirements of Article 3.2.1.2. **7)** For the purposes of this Article, wall assemblies shall be considered to include all related structural framing and perimeter areas of intersecting interior walls. **8)** For the purposes of this Article, floor assemblies shall be considered to include all related structural framing. **9)** For the purposes of this Article, roof assemblies shall be considered to include all related structural framing.”.
	Add the following Article: “**3.1.1.8. Air Leakage in Building Assemblies** **1)** *Air barrier assemblies* in *opaque building assemblies* excluding the opaque sections of curtain walls shall be assessed in accordance with a) CAN/ULC-S742, “Standard for Air Barrier Assemblies – Specification,” or b) ASTM E 2357, “Standard Test Method for Determining Air Leakage of Air Barrier Assemblies,” provided that i) the *building* is erected in an area where it will not be submitted to extended wind pressures having a probability of 1 out of 50 to be exceeded during one year by more than 0.65 kPa, and ii) the *air barrier assembly* is installed on the warm side of the thermal insulation of the *opaque building assembly*. (See Note A-3.1.1.8.(1).) **2)** The air leakage rates of the *fenestration* excluding the glazed sections of curtain walls shall be assessed in accordance with a) AAMA/WDMA/CSA 101/I.S.2/A440-11, “NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights,” and

	b) CSA A440S1, “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17, NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights.” **3)** Air leakage rates of curtain walls forming part of the *building envelope* shall be assessed in accordance with ASTM E 283, “Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen,” when the specimen is prepared in accordance with Clause 6 of AAMA 501.5, “Test Method for Thermal Cycling of Exterior Walls.” **4)** Air leakage rates of doors forming part of the *building envelope* shall be assessed in accordance with a) ASTM E 283, “Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen,” or b) the following standards: i) AAMA/WDMA/CSA 101/I.S.2/A440, “NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights,” and ii) CSA A440S1, “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17, NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights.””.
3.2.1.1.	Replace “increasing the *overall thermal transmittance*” in Sentence (1) by “reducing the thermal resistance”. Replace “the *overall thermal transmittance*” in Sentence (2) by “the thermal resistance”.
3.2.1.2.	Replace the Article by the following: “**3.2.1.2. Continuity of Insulation** **1)** Except as provided in Sentences (2) to (7) and (9), interior *building* assemblies, including wall assemblies and major structural members that are embedded along exterior walls that partly penetrate the *building envelope* a) shall not break the continuity of the insulation, and b) shall have an *effective thermal resistance* at their projected area equal to at least the resistance required for the *building envelope*. (See Note A-3.2.1.2.(1).) **2)** The following members need not be taken into account to comply with Sentence (1): a) repetitive structural members, such as studs and joists, jambs and resilient bars, b) ancillary structural members, such as lintels, sills and plates, and c) minor penetrations of the envelope, such as ties. (See Note A-3.2.1.2.(2).)

3) Except as provided in Sentences (4), (9) and (10), where an interior wall, *foundation* wall, *firewall*, party wall, structural member, ornementation or appendage penetrates the *building envelope* and breaks the continuity of its insulation, it shall

a) be insulated

i) on its faces exposed to air inward or outward from the *building envelope* for a distance equal to 4 times its uninsulated thickness, and

ii) so that the *effective thermal resistance* of the penetrating member is not, for the distance prescribed by Subclause (i), less than that required for the penetrated component, or

b) be insulated in continuity with the insulation of the penetrated component so that the *effective thermal resistance* at that location is equal to at least half the resistance required for the penetrated component.

(See Note A-3.2.1.2.(3).)

4) Where a structural slab penetrates the *building envelope* and breaks the continuity of the insulation, the slab shall be insulated

a) in accordance with the requirements of Sentence (3), or

b) with materials having a thermal resistance of at least

i) 1.76 $m^2 \times K/W$ installed on the axis of the expanse of insulation of the penetrated wall for a distance of at least 2/3 of the penetration area, and

ii) 0.09 $m^2 \times K/W$ installed above and under the slab inward for a distance equal to at least 4 times the thickness of the slab.

(See Note A-3.2.1.2.(4).)

5) Linear anchoring devices, shelf angles for masonry and other similar devices that penetrate the insulation of a component of the *building envelope* shall include intermittent transverse supports so that only the latter penetrate the insulation. (See Note A-3.2.1.2.(5).)

6) Joints between *building* assemblies of the *building envelope*, such as expansion or construction joints and joints between walls and doors or *fenestration,* shall be insulated

a) in a manner that provides continuity of insulation across such joints, and

b) in a manner that the *effective thermal resistance* at the location of those joints is equal to at least half of the lowest of the values required for the contiguous *building* assemblies.

(See Note A-3.2.1.2.(6).)

7) Except as provided in Clause (9)(e), where 2 expanses of insulation are separated by a member of the *building envelope* and do not intersect, those expanses of insulation shall overlap for a distance equal to at least 4 times the thickness of the assembly separating them. (See Note A-3.2.1.2.(7).)

8) To comply with Sentence (7), hollow-core masonry walls shall be filled with grout, mortar or insulation at the location coinciding with the limits of the overlapped expanses of insulation. (See Note A-3.2.1.2.(8).)

9) The continuity of the insulation may be broken

a) between a *foundation* wall and a floor slab in contact with the ground where the *foundation* wall is insulated from the exterior,

	b) the horizontal part of a *foundation* wall supporting an exterior screen-wall where it is insulated from the exterior, c) at minor transitions between the constructive systems of the *building envelope* that must break the continuity of the insulation to perform their intended function, such as backing necessary for fastening flashing at the intersection of parapets and roofs (see Note A-3.2.1.2.(9)(c)), d) where ducts or devices penetrate expanses of insulation of the *building envelope*, provided that the insulation is installed to follow closely the perimeter of those elements, or e) where the 2 expanses of insulation may not be extended for the distance required by Sentence (7), provided that the *effective thermal resistance* of the member of the *building envelope* that makes contact between the two insulation layers is equal to at least half the minimum value required. **10)** A thermal bridging breaker part of a point penetration of the *building envelope* need not be insulated in accordance with the requirements of Sentence (3) where all the components of the point penetration have a *point thermal transmittance* of not more than 0.5 W/K.”.
3.2.1.3.	Replace the Article by the following: “**3.2.1.3. Spaces Conditioned to Different Temperatures** **1)** The *effective thermal resistance,* RSI_{E1}, in m²×K/W, of *building* assemblies separating *conditioned spaces* that are intended to be heated or cooled to temperatures that differ by more than 10°C shall be equal to at least the value obtained with the following equation: $$\mathrm{RSI_{E1}} = [(t_2 - t_1) \cdot \mathrm{RSI_E}]/43$$ where t_2 = indoor design temperature of the warmer *conditioned space,* in °C, t_1 = indoor design temperature of the colder *conditioned space,* in °C, and RSI_E = *effective thermal resistance* of 3.60 m²×K/W for a wall and 5.46 m²×K/W for a floor. (See Note A-3.2.1.3.(1).) **2)** The *building* assemblies covered in Articles 3.2.2.2., 3.2.2.3., 3.2.2.4. and 3.2.3.1. insulating a heated but not cooled space whose heating setpoint is less than 18°C, shall have an *effective thermal resistance*, RSI_{E1}, in m²×K/W, equal to at least the value obtained with the following equation: $$\mathrm{RSI_{E1}} = [(t_1 - t_0) \cdot \mathrm{RSI_E}]/(18 - t_0)$$ where t_1 = heating setpoint in winter months, in °C, t_0 = outdoor 2.5% January heating design temperature according to the location of the *building* determined in accordance with Sentence 1.1.4.1.(1), in °C, and RSI_E = *effective thermal resistance* required in Tables 3.2.2.2., 3.2.2.3., 3.2.2.4. and 3.2.3.1., in m²×K/W. (See Note A-3.2.1.3.(2).)”.

<table>
<tr><td>3.2.1.4.</td><td>
Replace the Article by the following:
“3.2.1.4. Allowable Fenestration and Door Area
1) The total area of doors and fenestration, excluding the skylight area, shall correspond to not more than 40% of the gross wall area determined in accordance with Article 3.1.1.6.
2) The total skylight area shall correspond to not more than 3% of the gross roof area as determined in Article 3.1.1.6.”.
</td></tr>
<tr><td>3.2.2.1.</td><td>
Replace Clauses (3)(e) to (3)(g) by the following:
“e) opens directly from a dwelling unit, or
f) opens directly from a retail space less than 200 m² in floor surface area or from a space less than 150 m² in floor surface area for other uses.”.
</td></tr>
<tr><td>3.2.2.2.</td><td>
Replace the Article by the following:
“3.2.2.2. Thermal Characteristics of Above-ground Opaque Building Assemblies
1) Except as provided in Sentences (2), (4), (5) and (6) and Article 3.2.1.3., the effective thermal resistance of above-ground opaque building assemblies shall be equal to at least that shown in Table 3.2.2.2. for the building or part thereof enclosed by the opaque building assembly, for the applicable heating-degree-day category taken at 18°C. (See Note A-3.2.2.2.(1).)
Table 3.2.2.2.
Effective Thermal Resistance of Above-ground Opaque Building Assemblies
Forming Part of Sentences 3.2.2.2.(1), (5) and (6)
<table>
<tr><td rowspan="3">Above-ground Opaque Building Assembly</td><td colspan="6">Heating Degree-Days under 18°C of Building Location,(1) in Celsius Degree-Days</td></tr>
<tr><td>Zone 4:
< 3000</td><td>Zone 5:
3000 to 3999</td><td>Zone 6:
4000 to 4999</td><td>Zone 7A:
5000 to 5999</td><td>Zone 7B:
6000 to 6999</td><td>Zone 8:
≥ 7000</td></tr>
<tr><td colspan="6">Minimum Effective Thermal Resistance, RSI_E, in m²×K/W</td></tr>
<tr><td>Walls</td><td>3.60</td><td>3.60</td><td>3.60</td><td>3.60</td><td>4.05</td><td>4.05</td></tr>
<tr><td>Roofs</td><td>5.46</td><td>5.46</td><td>5.46</td><td>5.46</td><td>6.17</td><td>6.17</td></tr>
<tr><td>Floors</td><td>5.46</td><td>5.46</td><td>5.46</td><td>5.46</td><td>6.17</td><td>6.17</td></tr>
</table>
Notes to Table 3.2.2.2.:
(1) See Sentence 1.1.4.1.(1).
2) The effective thermal resistance of portions of a foundation wall that are above ground of which less than 50% of the area is exposed to exterior air shall be equal to at least that shown in Table 3.2.3.1., for the applicable heating-degree-day category taken at 18°C, for walls in contact with the ground. (See Note A-3.2.2.2.(2) and (3).)
3) The percentage of foundation walls that are above ground described in Sentence (2) shall be assessed independently for
a) each of the walls,
b) each of the storeys, and
</td></tr>
</table>

	c) each constructive system. (See Note A-3.2.2.2.(2) and (3).) **4)** Where radiant heating cables or heating or cooling pipes or membranes are integrated to above-ground *opaque building assemblies*, the minimum *effective thermal resistance* provided for in Sentence (1) for the *opaque building assemblies* shall be increased by 25%. (See Note A-3.2.2.2.(4).) **5)** The *effective thermal resistance* required for a flat roof may be reduced by not more than 20% at its lowest point when drainage slopes are created by the insulation materials, provided that the value of the average *effective thermal resistance* for the roof is at least equal to the value shown in Table 3.2.2.2, for the applicable heating-degree-day category taken at 18°C, for a roof. (See Note A-3.2.2.2.(5).) **6)** The *effective thermal resistance* required for a roof with an attic space may be reduced for a distance of not more than 1200 mm measured from the outside face of the wall when the slope of the roof with an attic space and the necessary clearance for the ventilation so require, provided that it is equal to at least the value shown in Table 3.2.2.2., for the applicable heating-degree-day category taken at 18°C, for an above-ground wall. (See Note A-3.2.2.2.(6).)”.
3.2.2.3.	Replace “Sentences (3) and 3.2.1.3.(1)” in Sentence (2) by “Article 3.2.1.3.”; Replace Sentence (3) by the following: “**3)** The *overall thermal transmittance* of *fenestration* shown in Table 3.2.2.3. shall be reduced by at least 10% in the case of an *addition* a) whose *floor surface area* is not more than 200 m², and b) whose opening percentage exceeds the values prescribed in Sentence 3.2.1.4.(1).”; Replace Table 3.2.2.3. by the following:

“**Table 3.2.2.3.**
Overall Thermal Transmittance of Fenestration
Forming Part of Sentences 3.2.2.3.(2) and (3)

Component	Heating Degree-Days under 18°C of *Building* Location,(1) in Celsius Degree-Days					
	Zone 4: < 3000	Zone 5: 3000 to 3999	Zone 6: 4000 to 4999	Zone 7A: 5000 to 5999	Zone 7B: 6000 to 6999	Zone 8: ≥ 7000
	Maximum *Overall Thermal Transmittance*, in W/(m²×K)					
Fenestration except *skylights*	2.00	2.00	2.00	2.00	1.60	1.60
Skylights	2.85	2.85	2.85	2.85	2.70	2.70

Notes to Table 3.2.2.3.:

(1) See Sentence 1.1.4.1.(1).”.

3.2.2.4.

Replace "Except as provided in Sentences (2), (3), (5) and 3.2.1.3.(1)" in Sentence (1) by "Except as provided in Sentences (2) to (5) and Article 3.2.1.3.";

Replace Sentences (2) and (3) by the following:

"**2)** Except as provided in Sentences (3) and (5), the *overall thermal transmittance* of doors shown in Table 3.2.2.4. shall be reduced by at least 10% in the case of an *addition*

a) whose *floor surface area* is not more than 200 m², and

b) whose opening percentage exceeds the values prescribed in Sentence 3.2.1.4.(1).

3) The following doors need not comply with Sentence (1) or (2) where their total area is not more than 2% of the gross wall area calculated in accordance with Article 3.1.1.6.:

a) automatic sliding glass doors,

b) revolving doors,

c) fire shutters, and

d) other types of doors having an *overall thermal transmittance* of not more than 4.4 W/(m²×K).";

Replace Table 3.2.2.4. by the following:

"**Table 3.2.2.4.**
Overall Thermal Transmittance of Doors
Forming Part of Sentences 3.2.2.4.(1) and (2)

Component	Heating Degree-Days under 18°C of *Building* Location,(1) in Celsius Degree-Days					
	Zone 4: < 3000	Zone 5: 3000 to 3999	Zone 6: 4000 to 4999	Zone 7A: 5000 to 5999	Zone 7B: 6000 to 6999	Zone 8: ≥ 7000
	Maximum *Overall Thermal Transmittance*, in W/(m²×K)					
Glazed doors	2.00	2.00	2.00	2.00	1.60	1.60
Doors without glazing	0.90	0.90	0.90	0.90	0.80	0.80

Notes to Table 3.2.2.4.:

(1) See Sentence 1.1.4.1.(1).";

Replace Sentence (5) by the following:

"**5)** Storm doors need not comply with Sentence (1) or (2).".

<table>
<tr>
<td>3.2.3.1.</td>
<td>
Replace Sentence (1) by the following:
“1) Except as provided in Sentence (2) and Article 3.2.1.3., the effective thermal resistance of walls or portions thereof that are below the exterior ground level and are part of the building envelope shall not be less than that shown in Table 3.2.3.1. for the applicable heating-degree-day category taken at 18°C.”;
<hr>
Strike out Sentence (2);
<hr>
Replace Table 3.2.3.1. by the following:
Table 3.2.3.1.
Effective Thermal Resistance of Building Assemblies in Contact with the Ground
Forming Part of Sentences 3.2.2.2.(2), 3.2.3.1.(1) and 3.2.3.2.(1)
<table>
<tr><th rowspan="3">Assembly in Contact with the Ground</th><th colspan="6">Heating Degree-Days under 18°C of Building Location,(1) in Celsius Degree-Days</th></tr>
<tr><th>Zone 4:
< 3000</th><th>Zone 5:
3000 to 3999</th><th>Zone 6:
4000 to 4999</th><th>Zone 7A:
5000 to 5999</th><th>Zone 7B:
6000 to 6999</th><th>Zone 8:
≥ 7000</th></tr>
<tr><th colspan="6">Minimum Effective Thermal Resistance, RSI_E, in m^2×K/W</th></tr>
<tr><td>Walls</td><td>2.64</td><td>2.64</td><td>2.64</td><td>2.64</td><td>2.64</td><td>2.64</td></tr>
<tr><td>Roofs</td><td>2.64</td><td>2.64</td><td>2.64</td><td>2.64</td><td>2.64</td><td>2.64</td></tr>
</table>
Notes to Table 3.2.3.1.:
(1) See Sentence 1.1.4.1.(1).
<hr>
Replace “the wall shall have an overall thermal transmittance no greater than 80% of that required by Sentence (1)” in Sentence (4) by “the minimum effective thermal resistance provided for in Sentence (1) shall be increased by at least 25%”;
<hr>
Replace Sentence (5) by the following:
“5) The effective thermal resistance of the vertical portion of a slab-on-ground shall be the same as that required for walls in contact with the ground over the full height of the slab. (See Note A-3.2.3.1.(5)).”.
</td>
</tr>
<tr>
<td>3.2.3.2.</td>
<td>
Replace Sentence (1) by the following:
“1) The effective thermal resistance of roofs in contact with the ground that are part of the building envelope and are less than 2.4 m below the exterior ground level shall be equal to at least the values shown in Table 3.2.3.1. for the applicable heating-degree-day category taken at 18°C. (See Note A-3.2.3.2.(1).)”;
<hr>
Strike out Sentence (2).
</td>
</tr>
</table>

3.2.3.3.

Replace the Article by the following:

“**3.2.3.3. Thermal Characteristics of Floors in Contact with the Ground**

(See Note A-3.2.3.3.)

1) For the purposes of this Article, “floor” also means the unfinished surface of a crawl space, where it is *conditioned space*.

2) Floors separating *conditioned space* from the ground shall be insulated with material having a thermal resistance equal to at least the values shown in in Table 3.2.3.3.-A or 3.2.3.3.-B, as the case may be.

Table 3.2.3.3.-A
Insulation of Floors in Contact with the Ground for any Occupancy except Dwelling Units
Forming Part of Sentences 3.2.3.3.(2) and (3)

Floors	Insulation Material	Intersection of the *Foundation* Wall with the Floor-on-ground
	Minimum Thermal Resistance, RSI, in m²×K/W	
Floors of a slab-on-ground that does not have integrated heating ducts or cables or heating or cooling pipes	1.76 installed at the perimeter of the floor over a width of 1.2 m	n/a
Floors less than 0.6 m under contiguous ground level that does not have integrated heating ducts or cables or heating or cooling pipes	0.88 installed over the full area or 1.32 installed at the perimeter of the floor-on-ground over a width of at least 1.2 m	0.88
Floors-on-ground that have integrated heating ducts or cables or heating or cooling pipes	1.76 installed over the full area	1.32
Floors of a slab-on-ground that have integrated heating ducts or cables or heating or cooling pipes		n/a

Table 3.2.3.3.-B
Insulation of Floors in Contact with the Ground for Dwelling Units
Forming Part of Sentences 3.2.3.3.(2) and (3)

Floors	Insulation Material	Intersection of the *Foundation* Wall with the Floor-on-ground
	Minimum Thermal Resistance, RSI, in m²×K/W	
Floors of a slab-on-ground that does not have integrated heating ducts or cables or heating or cooling pipes	1.32 installed over the full area	n/a
Floors at not more than 0.6 m under contiguous ground level that do not have integrated heating ducts or cables or heating or cooling pipes		1.32
Floors at least 0.6 m under contiguous ground level that do not have integrated heating ducts or cables or heating or cooling pipes	0.88 installed over the full area, or 1.32 installed at the perimeter of the floor-on-ground over a width of at least 1.2 m	0.7

<table>
<tr>
<td></td>
<td>
<table>
<tr><td>Floors of a slab-on-ground that have integrated heating ducts or cables or heating or cooling pipes</td><td rowspan="2">1.76 installed over the full area</td><td>n/a</td></tr>
<tr><td>Floors-on-ground that have integrated heating ducts or cables or heating or cooling pipes</td><td>1.32</td></tr>
</table>
3) The thermal resistance of the insulation material between the foundation wall and the floor-on-ground shall be equal to at least the values shown in Table 3.2.3.3.-A or 3.2.3.3.-B, except
a) where the insulation is installed on the exterior of the foundation wall and extends at least 2.4 m down from ground level or to the lower portion of the wall, or
b) where the foundation wall and the floor slab are insulated from the inside and the insulation between the wall and the slab is continuous.”.
</td>
</tr>
<tr>
<td>3.2.4.1.</td>
<td>Replace the portion after “by complying with” in Sentence (1) by “Article 3.2.4.3.”.</td>
</tr>
<tr>
<td>3.2.4.2.</td>
<td>Strike out the Article.</td>
</tr>
<tr>
<td>3.2.4.3.</td>
<td>
Replace Sentences (1) to (9) by the following:
“1) Air barrier assemblies shall have an air leakage rate not greater than 0.2 L/(s×m²) at a pressure differential of 75 Pa and determined in accordance with Article 3.1.1.8.
2) Air barrier assemblies shall conform to Sentence 3.1.1.8.(1).
3) Metal and glass curtain walls that act as environmental separators shall have an air leakage rate not greater than 0.2 L/(s×m²) when tested in accordance with Article 3.1.1.8.(3), at a pressure differential of 75 Pa.
4) Fixed windows and skylights that act as environmental separators shall have an air leakage rate not greater than 0.2 L/(s×m²) when tested in accordance with Sentence 3.1.1.8.(2), at a pressure differential of 75 Pa.
5) Operable windows and skylights that act as environmental separators shall have an air leakage rate not greater than 0.5 L/(s×m²) when tested in accordance with Sentence 3.1.1.8.(2), at a pressure differential of 75 Pa.
6) Except as provided in Sentences (7) to (9), doors that act as environmental separators shall have an air leakage rate not greater than 0.5 L/(s×m²) when tested in accordance with Sentence 3.1.1.8.(4), at a pressure differential of 75 Pa.
7) Revolving doors and automatic commercial sliding doors, including their respective fixed sections, that act as environmental separators are permitted to have an air leakage rate not greater than 5.0 L/(s×m²) when tested as a complete assembly in accordance with Sentence 3.1.1.8.(4), at a pressure differential of 75 Pa.
8) Overhead doors that act as environmental separators are permitted to have an air leakage rate not greater than 5.0 L/(s×m²) when tested as a complete
</td>
</tr>
</table>

	assembly at a pressure differential of 75 Pa in accordance with Sentence 3.1.1.8.(4). **9)** Main entry exterior doors that act as environmental separators are permitted to have an air leakage rate not greater than 5.0 L/(s×m²) when tested as a complete assembly in accordance with Sentence 3.1.1.8.(4), at a pressure differential of 75 Pa, provided that the total area of such doors does not exceed 2% of the gross wall area calculated in accordance with Article 3.1.1.6. (See Note A-3.2.4.3.(9)).”.
3.3.1.	Replace the heading of the Subsection by the following: “**3.3.1. General**”.
3.3.1.1.	Replace the Article by the following: “**3.3.1.1. Application** **1)** Subject to the limitations stated in Article 3.3.1.2., where the *building envelope* does not comply with the requirements of Section 3.2. or 3.4., it shall comply with this Section. **2)** This Section does not apply to *building* assemblies of the *building envelope* separating *conditioned spaces* intended to be conditioned to temperatures differing by more than 10°C at design conditions. **3)** For the purposes of this Section, “reference *building*” refers to a *building* whose envelope complies with the requirements of Section 3.2.”.
3.3.1.2.	Replace the Article by the following: “**3.3.1.2. Limitations** (See Note A-3.3.1.2.) **1)** The method of trade-off paths described in this Section may only take into consideration the energy performance of above-ground *building* assemblies of the *building envelope* covered in Sentences 3.2.1.2.(3), (4), (6), (7) and (10), 3.2.2.2.(1), 3.2.2.3.(2) and 3.2.2.4.(1). **2)** The *building envelope* shall comply with the requirements of Section 3.2, except the provisions listed in Sentence (1). **3)** Except as provided in Sentence 3.3.1.3.(2), performances that can be characterized in accordance with Articles 3.1.1.5. and 3.1.1.6. shall be taken into consideration in the trade-off path for a) the minimum energy performance of above-ground *building* assembly of the reference *building envelope* covered in Sentence (1), and b) the lower or higher performance of *building* assemblies of the proposed *building* covered in Sentence (1). **4)** The trade-off path shall apply individually to *building* assemblies of spaces whose heating setpoint is less than 18°C and to those whose heating setpoint is 18°C or more.”.

	Add the following Article: “**3.3.1.3. Compliance** **1)** Except as provided in Sentence (2), compliance with this Section shall be determined using the equation that follows to demonstrate that the sum of the areas of all above-ground *building* assemblies of the proposed *building* divided by their *effective thermal resistance* is not more than it would be if all above-ground assemblies complied with Section 3.2.: $$\sum_{i=1}^{n}\frac{A_i}{RSI_{Eip}} \leq \sum_{i=1}^{n}\frac{A_i}{RSI_{Eir}}$$ where n = total number of above-ground assemblies, A_i = area of above-ground assembly i of the *building* calculated in accordance with the requirements of Article 3.1.1.6., in m², RSI_{Eip} = *effective thermal resistance* of above-ground assembly i of the proposed *building*, in (m²×K)/W, and RSI_{Eir} = *effective thermal resistance* of above-ground assembly i of the reference *building*, in (m²×K)/W. (See Note A-3.3.1.3.(1).) **2)** Except as provided in Sentence (3), where a requirement in Sentences 3.2.1.2.(1) to (7) and (10) is not complied with, the *effective thermal resistance* of above-ground *opaque building assemblies* of the *building envelope* shall be derated using the equation that follows to take into account thermal bridging: $$RSI_{EDi} = \frac{1}{\frac{\sum_{j=1}^{m}(\Psi_j \times L_j) + \sum_{k=1}^{n}(\chi_k \times N_k)}{A_i} + \frac{1}{RSI_{Ei}}}$$ where RSI_{EDi} = derated *effective thermal resistance* of *opaque building assembly* i of the proposed or reference *building*, in (m²×K)/W, Ψ_j = *linear thermal transmittance* of the type j intersection calculated in accordance with Sentence 3.1.1.5.(7), in W/(m×K), L_j = length of the type j intersection, in m, m = total number of types of intersections, χ_k = *point thermal transmittance* of the type k penetration calculated in accordance with Sentence 3.1.1.5.(7), in W/K, N_k = number of type k point penetrations, n = total number of types of penetrations, A_i = area of *opaque building assembly* i, calculated in accordance with Article 3.1.1.6., in m², and RSI_{Ei} = *effective thermal resistance* of the non-derated *opaque building assembly*, calculated in accordance with any of Sentences 3.1.1.5.(5) and (6), in (m²×K)/W. (See Note A-3.3.1.3.(2).)

3) The values in Tables 3.3.1.3.-A and 3.3.1.3.-B

a) may be used for the applicable penetrations or intersections of the proposed *building* that do not comply with Sentences 3.2.1.2.(1) to (7) and (10), and

b) shall be used for the penetrations and intersections of the reference *building* that are referred to in Clause (a).

(See Note A-3.3.1.3.(3).)

Table 3.3.1.3.-A
Default Linear Thermal Transmittance of Certain Intersections
Forming Part of Sentence 3.3.1.3.(3)

Intersection	Maximum *Linear Thermal Transmittance*, Ψ, in W/(m×K) Intersection of the reference *building*	Maximum *Linear Thermal Transmittance*, Ψ, in W/(m×K) Intersection of the proposed *building* that does not comply with the prescriptive requirements
Wall/roof	0.325	0.800
Wall/intermediate floor	0.300	0.850
Wall/projection(1)	0.500	1.000
Wall/*foundation*	0.450	0.850
Wall/opening or wall/wall, minor(2)	0.200	0.500
Wall/wall, major(3)	0.450	0.850

Notes to Table 3.3.1.3.-A:

(1) Projections include linear penetrations that fully go through or partially penetrate the building assembly, extending on the exterior side of the building assembly (e.g. a balcony).

(2) Minor intersections are intersections that generally result in moderate thermal loss.

(3) Major intersections are intersections that may result in more significant thermal loss.

Table 3.3.1.3.-B
Point Thermal Transmittance of Penetrations
Forming Part of Sentence 3.3.1.3.(3)

	Point Thermal Transmittance, X, in W/K Penetration of the reference *building*	*Point Thermal Transmittance*, X, in W/K Penetration of the proposed *building* that does not comply with the prescriptive requirements
Any penetration	0.5	1.0

4) Where the *effective thermal resistance* of the opaque section of curtain walls has not been determined in accordance with Sentence 3.1.1.5.(6), the values that follow shall be used in the proposed *building*:

a) 0.35 (m²×K)/W, where the opaque section of curtain walls does not have an insulation material, or

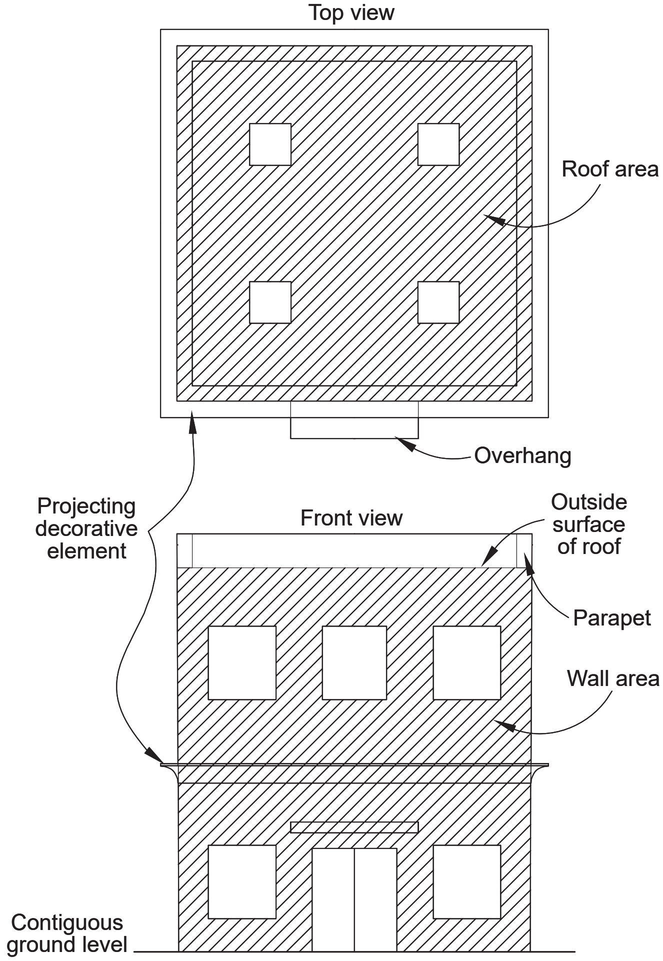
b) 0.88 (m²×K)/W, where the opaque section of curtain walls has an insulation material.”.

<table>
<tr><td>3.4.1.2.</td><td>Replace the Article by the following:
“3.4.1.2. Limitations
(See Note A-3.4.1.2.)
1) The performance path described in this Section may only take into consideration the energy performance of the building assemblies of the building envelope covered
a) in Articles 3.2.1.2. to 3.2.1.4. and 3.2.2.2. to 3.2.2.4., and
b) except as provided in Sentence 8.4.3.3.(7), in Subsection 3.2.3.
2) The building assemblies of the building envelope that are not covered in Sentence (1) shall comply with the requirements of Section 3.2.”.</td></tr>
<tr><td>3.5.1.1.</td><td>Replace the heading of the appropriate Article in Table 3.5.1.1. by the following:
“3.3.1.2. Limitations”;<hr>Replace respectively, in numerical order, the headings, objectives and functional statements in Table 3.5.1.1. by the following:
“3.1.1.7. Calculation of Effective Thermal Resistance
(1) [F92-OE1.1]
(7) [F92-OE1.1]
(8) [F92-OE1.1]
(9) [F92-OE1.1]”;
“3.2.1.2. Continuity of Insulation
(1) [F92-OE1.1]
(3) [F92-OE1.1]
(4) [F92-OE1.1]
(5) [F92-OE1.1]
(6) [F92-OE1.1]
(7) [F92-OE1.1]
(8) [F92-OE1.1]
(10) [F92-OE1.1]”;
“3.2.1.3. Spaces Conditioned to Different Temperatures
(1) [F92-OE1.1]
(2) [F92-OE1.1]”;
“3.2.2.2. Thermal Characteristics of Above-ground Opaque Building Assemblies
(1) [F92-OE1.1]
(2) [F92-OE1.1]
(4) [F92,F95-OE1.1]”;
“3.2.3.1. Thermal Characteristics of Walls in Contact with the Ground</td></tr>
</table>

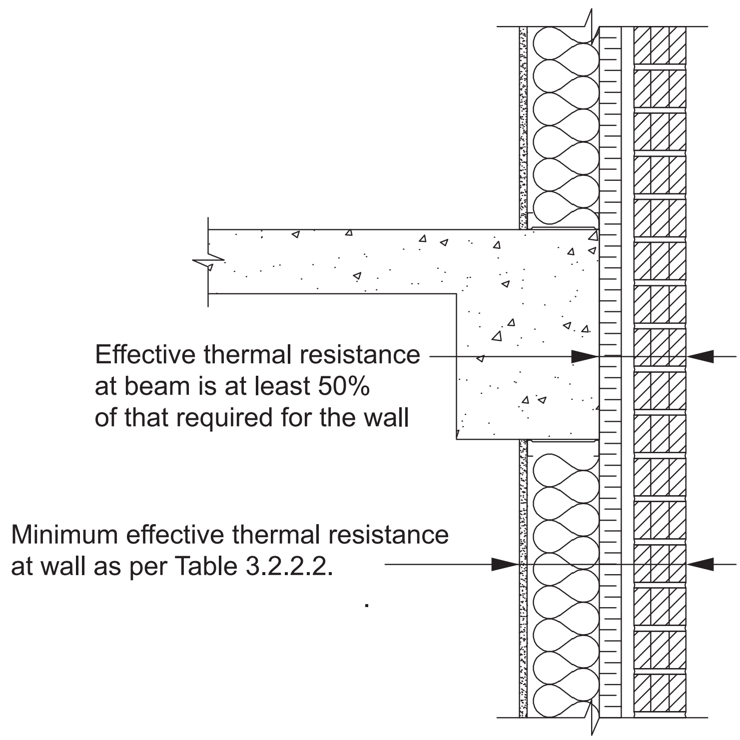
	(1) [F92-OE1.1] (3) [F92-OE1.1] (4) [F92,F95-OE1.1] (5) [F92-OE1.1]"; "**3.2.3.2. Thermal Characteristics of Roofs in Contact with the Ground** (1) [F92-OE1.1]"; "**3.2.3.3. Thermal Characteristics of Floors in Contact with the Ground** (2) [F92-OE1.1] (3) [F92-OE1.1]"; "**3.3.1.1. Application** (2) [F92-OE1.1]"; "**3.4.1.2. Limitations** (1) [F90,F92-OE1.1] (2) [F92-OE1.1]";
	Insert respectively in Table 3.5.1.1, in numerical order, the following objectives and functional statements: "**3.1.1.5. Thermal Characteristics of Building Assemblies** (6) [F92-OE1.1] (7) [F92-OE1.1]";
	Insert in Table 3.5.1.1., in numerical order, the following Articles, objectives and functional statements: "**3.1.1.8. Air Leakage in Building Assemblies** (1) [F90-OE1.1] (2) [F90-OE1.1] (3) [F90-OE1.1] (4) [F90-OE1.1]"; "**3.3.1.3. Compliance** (1) [F92-OE1.1] (2) [F92-OE1.1] (4) [F92-OE1.1]";
	Strike out the following objectives and functional statements in Table 3.5.1.1.: "**3.2.4.2. Air Barrier System** (1) [F90-OE1.1] (2) [F90-OE1.1]".

Division B Notes to Part 3	
	Add the following Note: "**A-3.1.1.2.(1)(b) Building with Low Heat Requirement.** The exemption provided for in Clause 3.1.1.2.(1)(b) could apply, for example, to buildings in which permanent processes produce at all times sufficient heat so that no other heating source of a capacity of more than 10 W/m² is necessary to ensure comfort for the occupants during the whole year.".
A-3.1.1.5.(5)(a)	Replace the Note by the following: "**A-3.1.1.5.(5)(a) Calculation of the Effective Thermal Resistance of Opaque Building Assemblies using Simplified Calculation Methods.** The recognized simplified calculation methods are those from standard organizations such as ASHRAE, ISO et Codes Canada. The method for calculating isothermal planes described in the "ASHRAE Handbook – Fundamentals" may in particular be used for calculating the effective thermal resistance of assemblies that have a discontinuity in insulation layers. To implement that simplified calculation method, the material creating the discontinuity in the insulating layer must have a thermal conductivity slightly different from that of the insulating layer, as is the case for assemblies with wood frames. That method could not apply to a metal frame assembly because the difference in thermal conductivity between the frame and the insulation is too high. The simplified calculation method described in ISO 6946, "Building components and building elements -- Thermal resistance and thermal transmittance -- Calculation methods," for an assembly composed of homogeneous and heterogeneous layers may also be used for calculating the effective thermal resistance of assemblies that have a discontinuity in insulation layers. To implement that simplified calculation method, the material creating the discontinuity in the insulating layer must have a thermal conductivity slightly different from that of the insulating layer. Where the main frame of the assembly is composed of metal posts, the calculation method must be adapted. Weighing coefficients must be applied based on the configuration of the main frame. The adapted methods described in Note A-9.36.2.4.(1) of the NBC or in "BRE Digest 465" are examples of calculation rules using weighing coefficients that may be applied to that type of assembly. That adapted solution for calculating the effective thermal resistance applies only for simple metal frames, that is, where there is absence of double frame and horizontal, vertical or point resilient bars, or where there is absence of any other complex assembly of a similar nature that may affect heat flow, in which case the digital simulation of the heat transfer or a laboratory test is used to determine the effective thermal resistance of those assemblies.".
	Add the following Note: "**A-3.1.1.5.(5)(b), (6)(c) and (7)(a) Digital Simulation of Heat Transfer.** The "ASHRAE Handbook – Fundamentals" refers to the approach developed as part of research project ASHRAE RP-1365, "Thermal Performance of Building Envelope Details for Mid- and High-Rise Buildings" (Morrison Hershfield), for calculating thermal characteristics of building assemblies.

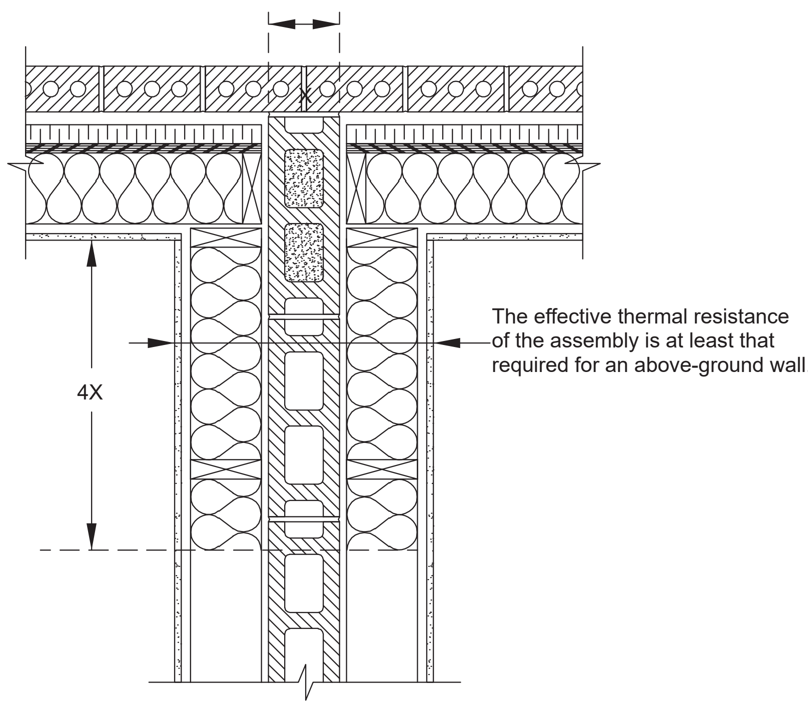
	The thermal characteristics of building assemblies determined according to such an approach involve the implementation of digital simulation tools that allow to obtain, using a finite element analysis, the distribution of heat under steady state in a building assembly. The thermal characteristics such as linear and point thermal transmittance or the effective thermal resistance of a building assembly may be determined with that type of simulation.”. ISO 14683, “Thermal bridges in building construction – Linear thermal transmittance – Simplified methods and default values,” ISO 10211, “Thermal bridges in building construction – Heat flows and surface temperatures – Detailed calculations,” the “Building Envelope Thermal Bridging Guide” by Morrison Hershfield, and research project report ASHRAE RP-1365, “Thermal Performance of Building Envelope Details for Mid- and High-Rise Buildings,” are also acceptable sources of information for calculating the effective thermal resistance of certain specific building assemblies and the incidence of thermal bridges.”.
A-3.1.1.6.(1)	Insert the following Sentences after the first Sentence of the Note: “Garage doors are included in the calculation of the door and fenestration area of a building. The opaque sections (spandrel panels) of curtain walls are part of the opaque building assembly. That component of curtain walls shall be taken into account in the calculation of the area of opaque building assemblies and not in the calculation of the fenestration and door area.”.
	Add the following Note: “**A-3.1.1.6.(6) Calculation of the Area of Opaque Building Assemblies**. Parapets, projected fins, ornamentation, appendages, and fenestration and doors are excluded from the area of opaque building assemblies. The area of an opaque building assembly in contact with the ground shall be calculated from the exterior ground level to the bottom surface of the slab-on-ground.

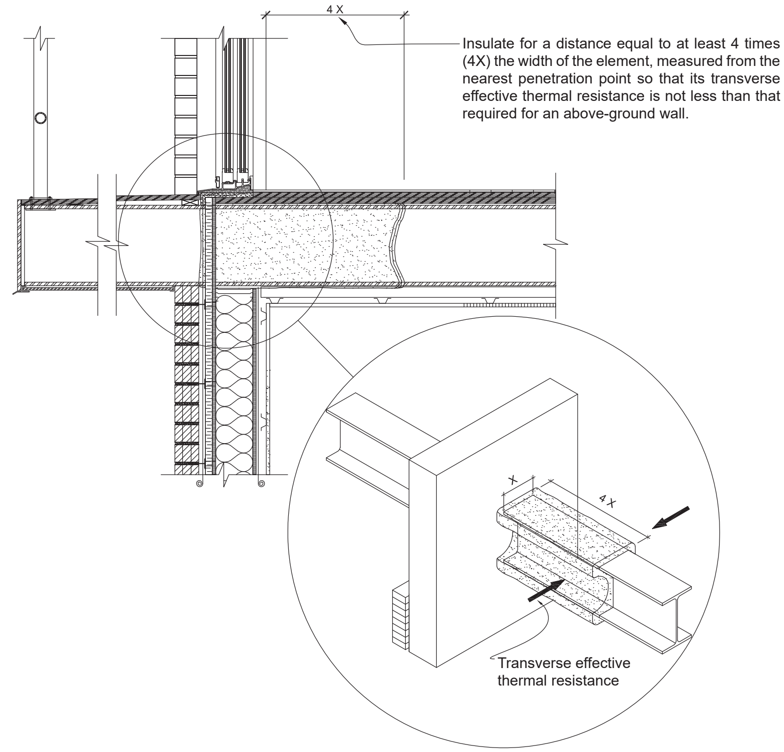
	Figure A-3.1.1.6.(6) illustrates the calculation of the area of opaque building assemblies according to the requirements of Sentence 3.1.1.6.(6).  **Figure A-3.1.1.6.(6)** **Calculation of the Area of Opaque Building Assemblies**”.
A-3.1.1.7.(1)(b)	Strike out the Note.
A-3.1.1.7.(1)(d)	Strike out the Note.

	Add the following Note: "**A-3.1.1.7.(1) Calculation of the Effective Thermal Resistance of Opaque Building Assemblies of the Building Envelope.** For calculating the effective thermal resistance, Part 3 requires that the contribution of all continuous components of the envelope such as the insulation, siding and sheathing, of all repetitive structural members, such as columns, studs and resilient bars, and all secondary structural members such as lintels, sills and plates, be taken into account. Members that break the building envelope, such as beams, studs, joists and balconies, also have an effect on overall effective thermal resistance, but are excluded from the calculations of the effective thermal resistance, except as provided in Article 3.1.1.7. and Section 3.3. Those elements are the subject of prescriptive requirements detailed in Article 3.2.1.2.".

A-3.1.1.7.(2)	Replace the Note by the following: “**A-3.1.1.7.(2) Continuity of Insulation at Beams and Columns.** The effective thermal resistance at spandrel beams may be reduced compared to what is required for walls penetrated by beams without any penalty, provided that the resulting effective thermal resistance across the building envelope at the spandrel beam is not less than half the required effective thermal resistance for the wall (see Figure A-3.1.1.7.(2)). A similar approach may be used for columns in exterior walls.  **Figure A-3.1.1.7.(2)** **Continuity of insulation at beams**.”
	Add the following Note: “**A-3.1.1.7.(3) Penetrations of the Building Envelope.** The minor ties and anchors necessary for the assembly of the envelope, such as screws, bolts and masonry anchors, may be excluded from the calculation of the effective thermal resistance for demonstrating compliance. Other partial or complete discontinuities of insulation listed in Sentence 3.1.1.7.(3) need not be part of the calculation of the effective thermal resistance of the opaque building assembly affected where the penetrations comply with the requirements of Article 3.2.1.2.

	Permafrost Penetrations caused by metal pilings supporting the buildings constructed in permafrost regions need not be part of the calculation of the effective thermal resistance of the opaque building assembly where the penetrations comply with the requirements of Article 3.2.1.2.”.
A-3.1.1.7.(4)	Replace the Note by the following: “**A-3.1.1.7.(4) Effect of an Unconditioned Space.** The effective thermal resistance in Sentence 3.1.1.7.(4), which is equivalent to that of a layer of glass, is intended to provide an easy credit under the prescriptive path for any unconditioned space that may be protecting a component of the building envelope. The conservative value given does not take into account the construction of the enclosure surrounding the unconditioned space; the construction of this enclosure being uncontrolled by this Code, too many variables, such as its size or airtightness, may negate any higher credit that could be allowed. There may be simulation tools under the performance path that can provide a better assessment of the effect of an unheated space, which may be used to advantage when an unheated space is designed to provide significantly better protection than the assumed worst-case scenario. Vented spaces, such as attic and roof spaces or crawl spaces, are considered to be part of the exterior space; therefore, Sentence 3.1.1.7.(4) does not apply when calculating the effective thermal resistance of building envelope components.”.
	Add the following Note: “**A-3.1.1.8.(1) Air Barrier Assembly Testing.** Air barrier assemblies of the envelope of a building are subject to structural loading induced by mechanical systems, wind pressure and stack effect. Those assemblies may also be affected by physical degradation resulting from thermal or structural movement throughout time. The limits of the tests to be conducted in accordance with CAN/ULC-S742, “Air Barrier Assemblies – Specification,” and ASTM E 2357, “Standard Test Method for Determining Air Leakage of Air Barrier Assemblies,” are indicated in the test procedures to which they refer.”.
A-3.2.1.1.(1)	Strike out “vegetative roofing systems,” in the Note.
	Add the following Note: “**A-3.2.1.2.(1) Continuity of Insulation.** Sentence 3.2.1.2.(1) applies to building components such as wall assemblies, chimneys, fireplaces, and columns and beams that are embedded along exterior walls, but not to stud framing and ends of joists. Studs and joists in frame construction are not considered to break the continuity of the insulation. The Sentence also applies to components of mechanical and electrical systems in walls, roofs or floors.”.

A-3.2.1.2.(2)	Replace the Note by the following: "**A-3.2.1.2.(2) Structural Members and Minor Penetrations.** Sentence 3.2.1.2.(2) takes into account the fact that repetitive structural members are already included in the method for calculating effective thermal resistance of building assemblies as described in Article 3.1.1.7.
	Add the following Notes: "**A-3.2.1.2.(3) Break in the Continuity of Insulation.** Where they penetrate the envelope, interior walls, foundation walls, firewalls, party walls, structural members such as slabs, ornementations and other appendages are an important source of heat losses and have a significant impact on the overall thermal performance of the building envelope. Figures A-3.2.1.2.(3)-A, A-3.2.1.2.(3)-B, A-3.2.1.2.(3)-C and A-3.2.1.2.(3)-D illustrate ways to comply with the requirements of Sentence 3.2.1.2.(3).  **Figure A-3.2.1.2.(3)-A** **Example of a firewall part of a penetration insulated on both of its sides in accordance with Clause 3.2.1.2.(3)(a)**

	 **Figure A-3.2.1.2.(3)-B** **Example of a structural beam part of a penetration insulated on all its surfaces in accordance with Clause 3.2.1.2.(3)(a)**

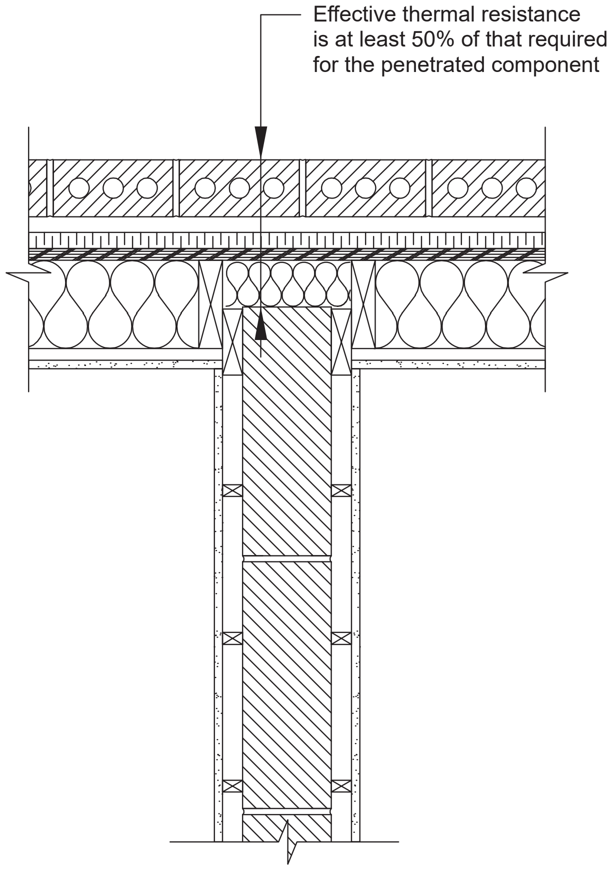


Figure A-3.2.1.2.(3)-C

Example of a party wall part of a penetration insulated along the plane of the insulation of the exterior wall in accordance with Clause 3.2.1.2.(3)(b)

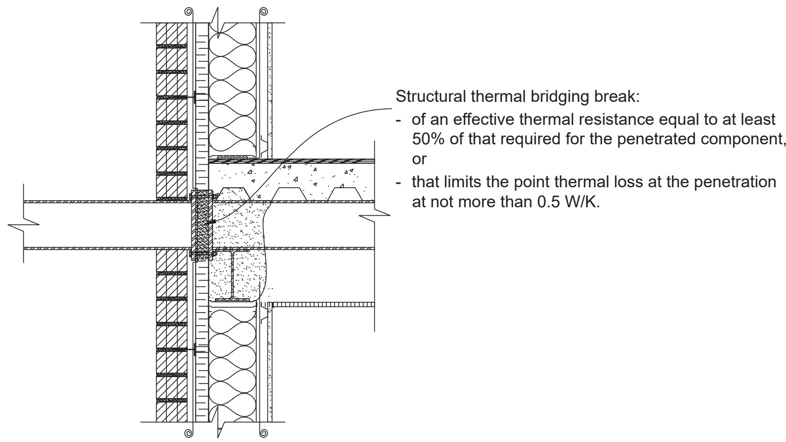


Figure A-3.2.1.2.(3)-D

Example of a structural beam part of a penetration insulated along the plane of the insulation of the exterior wall in accordance with Clause 3.2.1.2.(3)(b) and Sentence 3.2.1.2.(10)

A-3.2.1.2.(4) Insulation of a Concrete Slab. Sentence 3.2.1.2.(4) is intended to limit heat loss at the level of concrete structural slabs that are often extended outward to become balconies. That heat loss results in an excessive energy consumption and may also be the source of discomfort for occupants. Figures A-3.2.1.2.(4)-A, A-3.2.1.2.(4)-B and A-3.2.1.2.(4)-C show ways to comply with the requirements of Sentence 3.2.1.2.(4).

The effective thermal resistance of the structural thermal bridging breaker excludes metal reinforcing members.

Where the assembly complies with the requirements of Clause 3.2.1.2.(4)(b), the insulation material under and above the slab should be mould resistant.

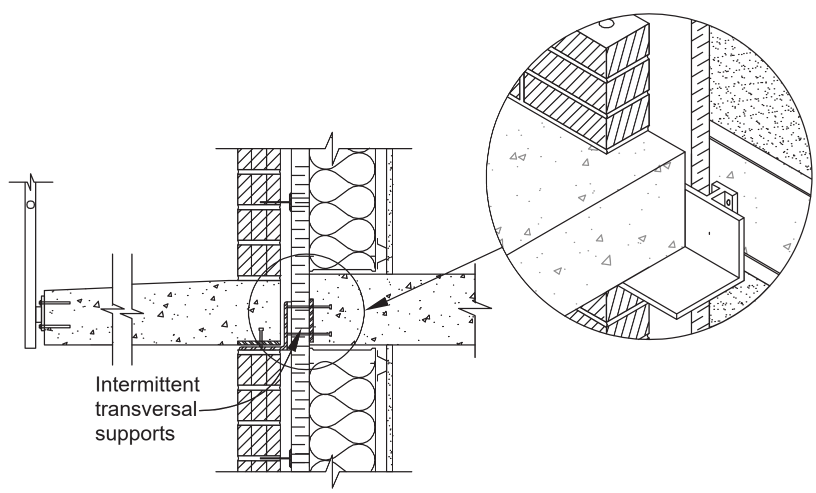


Figure A-3.2.1.2.(4)-A

	Insulation in continuity with the insulation of the component penetrated by the use of angles for intermittent transversal supports, in accordance with Clause 3.2.1.2.(4)(a)

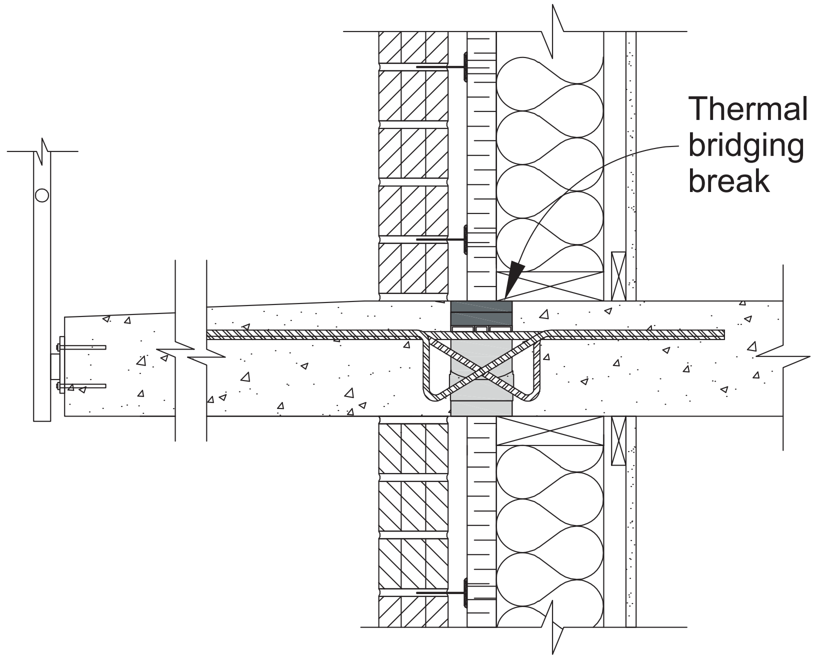
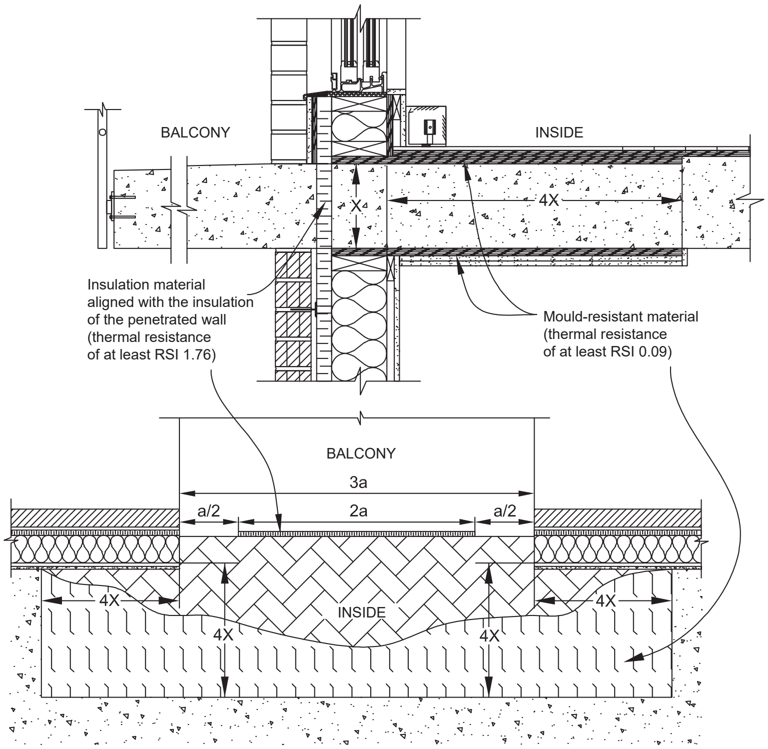


Figure A-3.2.1.2.(4)-B

Insulation in continuity with the insulation of the component penetrated by the use of thermal bridging breaks, in accordance with Clause 3.2.1.2.(4)(a)

	 **Figure A-3.2.1.2.(4)-C** **Insulation of a balcony slab over two thirds of its surface, in accordance with Clause 3.2.1.2.(4)(b)**
	A-3.2.1.2.(5) Intermittent Transversal Supports. Sentence 3.2.1.2.(5) is intended to reduce the contact surface between anchoring devices and structural members to limit heat loss at the level of those elements. Figure A-3.2.1.2.(5) shows how to comply with the requirements of Sentence 3.2.1.2.(5). It should be noted that Sentence 3.2.1.2.(3) provides for requirements concerning the insulation of the slab.

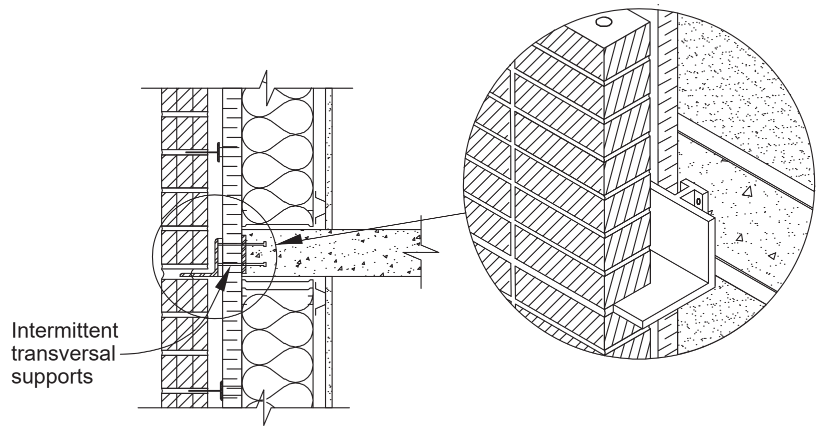


Figure A-3.2.1.2.(5)

Shelf angle attached to intermittent transversal supports

A-3.2.1.2.(6) Continuity of Insulation Where Components Meet. Sentence 3.2.1.2.(6) calls for continuity of the insulation at the intersection of two components of the building envelope, such as a wall with another wall or a roof, or a wall with a window. This means that there should be no gap in the insulation between the two components. An obvious application is insulating the space between a window or door frame and the rough framing members. However, structural members, such as studs and top plates, do not have to be taken into account, as provided in Sentences 3.1.1.7.(1) and 3.2.1.2.(2).

A-3.2.1.2.(7) Insulation Overlap. Where the break in insulation is due to the perpendicular interposition of a member of the envelope relative to another, Sentence 3.2.1.2.(7) requires that the overlap be carried out to extend the path of least thermal resistance from the inside out or toward an unconditioned adjacent space, as illustrated in Figure A-3.2.1.2.(7).”.

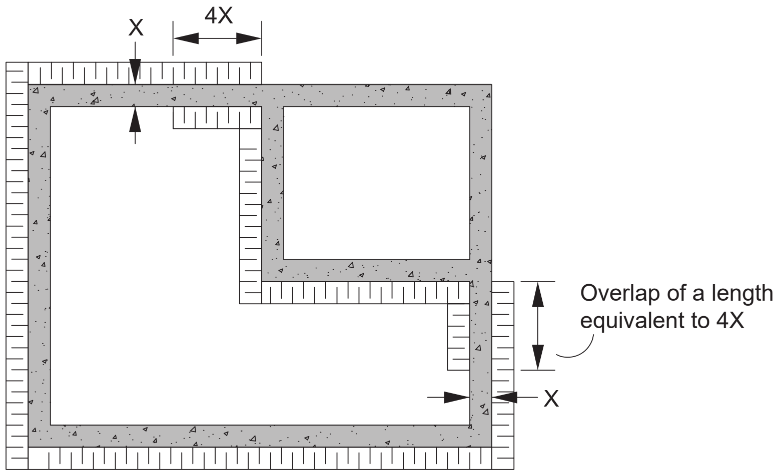


Figure A-3.2.1.2.(7)

Overlap of insulation planes in accordance with Sentence 3.2.1.2.(7)

A-3.2.1.2.(8) Overlap of Insulation for Hollow-core Masonry Walls. Where 2 insulation planes are separated by a hollow-core masonry wall and they cannot physically join, Sentence 3.2.1.2.(8) provides that they must overlap and the cores of the masonry wall coinciding with the upper and lower edges of each respective insulation plane must be filled with grout, mortar or insulation to carry the air barrier across the wall and limit the effect of convection in the cores, as shown in Figure A-3.2.1.2.(8).

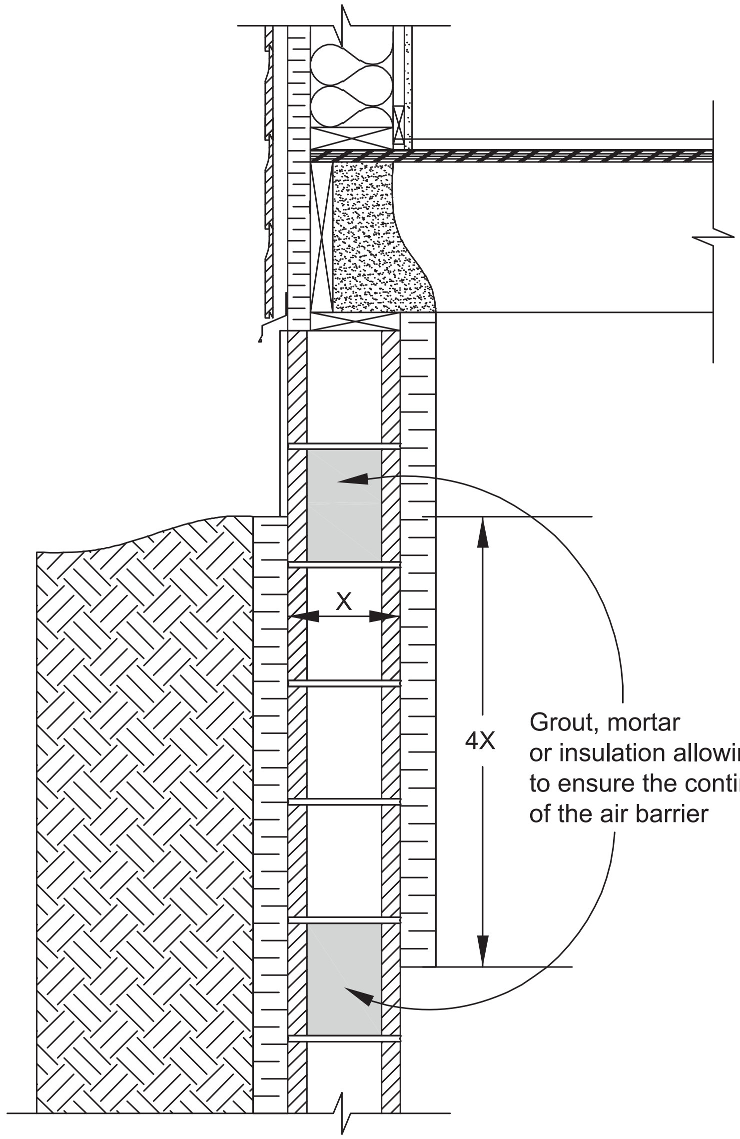
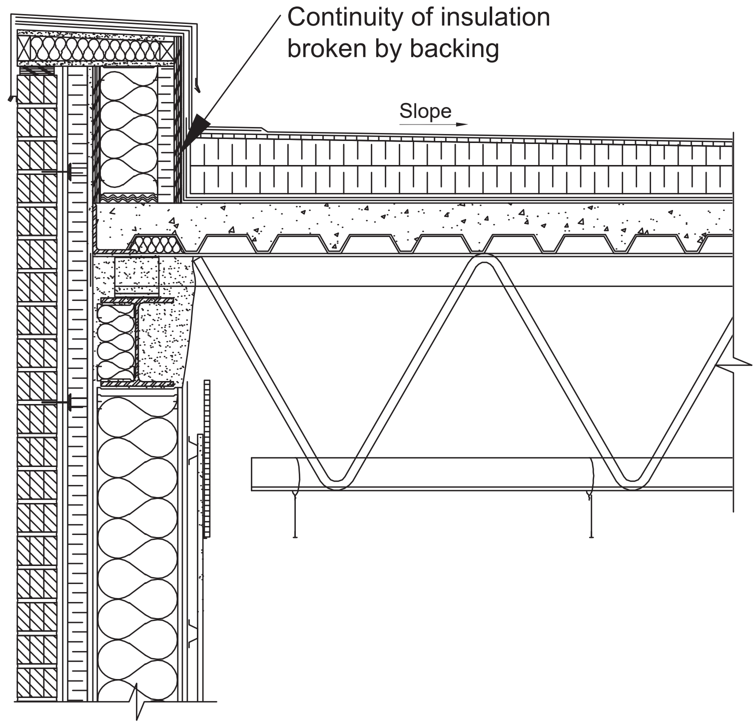


Figure A-3.2.1.2.(8)

Overlap of insulation planes for hollow-core masonry walls

A-3.2.1.2.(9)(c) Continuity of Insulation at the Level of Parapets. The continuity of insulation may be broken at minor transitions between constructive systems, such as backing necessary to attach the membrane, tie rods and flashings. Figure A-3.2.1.2.(9)(c) shows an example where insulation is broken by backing.

	 **Figure A-3.2.1.2.(9)(c)** **Example of continuity of insulation at the level of the parapet broken by backing**".
A-3.2.1.3.(1)	Replace the Note by the following: "**A-3.2.1.3.(1) Spaces Heated or Cooled to Different Temperatures.** This requirement applies, for example, to walls or floors that separate a space heated to a normal comfort temperature from another space maintained at a significantly lower temperature. This would be the case, for example, of a wall between an office block and an attached warehouse that is heated just to keep it above freezing. The value of the effective thermal resistance of building assemblies separating 2 spaces at different temperatures varies on the basis of the temperature difference between the spaces and does not depend on the location of the building. That effective thermal resistance is calculated from a reference value corresponding to the effective thermal resistance of building assemblies for less than 6000 degree-days of heating at 18°C. This requirement also applies to doors, windows and *skylights*.".

	Add the following Note: “**A-3.2.1.3.(2) Semi-Heated Spaces.** The Sentence applies to building assemblies of the envelope separating spaces heated to keep them above freezing. Given that setpoint, heat losses are reduced in winter. The heating setpoint is the temperature determined for the design of the heating system, and the outdoor heating design temperature is the 2.5% January design temperature according to the location of the building. The Sentence does not apply to spaces that must be conditioned to an indoor temperature of less than 18°C, such as a refrigerated warehouse. This requirement also applies to doors, windows and *skylights*.”.
A-3.2.1.4.(1)	Strike out the Note.
A-3.2.2.2.(1)	Replace the Note by the following: “**A-3.2.2.2.(1) Thermal Characteristics of Opaque Above-ground Building Assemblies.** The effective thermal resistance required for above-ground walls also applies to opaque sections of curtain walls and to the above-ground portion of foundation walls, except as provided in Sentence 3.2.2.2.(2). If no RSI value may be obtained for a material or assembly according to the requirements of Article 3.1.1.5., then no RSI value may be allocated to the material or assembly concerned. A high sun reflectance index of a roof covering does not allow the reduction of the effective thermal resistance required for the roof.”.
A-Table 3.2.2.2.	Strike out the Note.
	Add the following Note: “**A-3.2.2.2.(2) and (3) Insulation of an Exterior Wall.** The percentage of the exposed surface of the foundation walls must be established by considering each wall located in a same plane and for each storey. Where the foundation walls comprise various constructive systems, the percentage of the exposed surface is considered separately for each system. The entire above-ground surface of a foundation wall exposed to air over more than 50% of its surface will be insulated as an above-ground wall and the portion below ground level will be insulated as a wall in contact with the ground. Figure A-3.2.2.2.(2) and (3) shows an example of the application of Sentence (2).

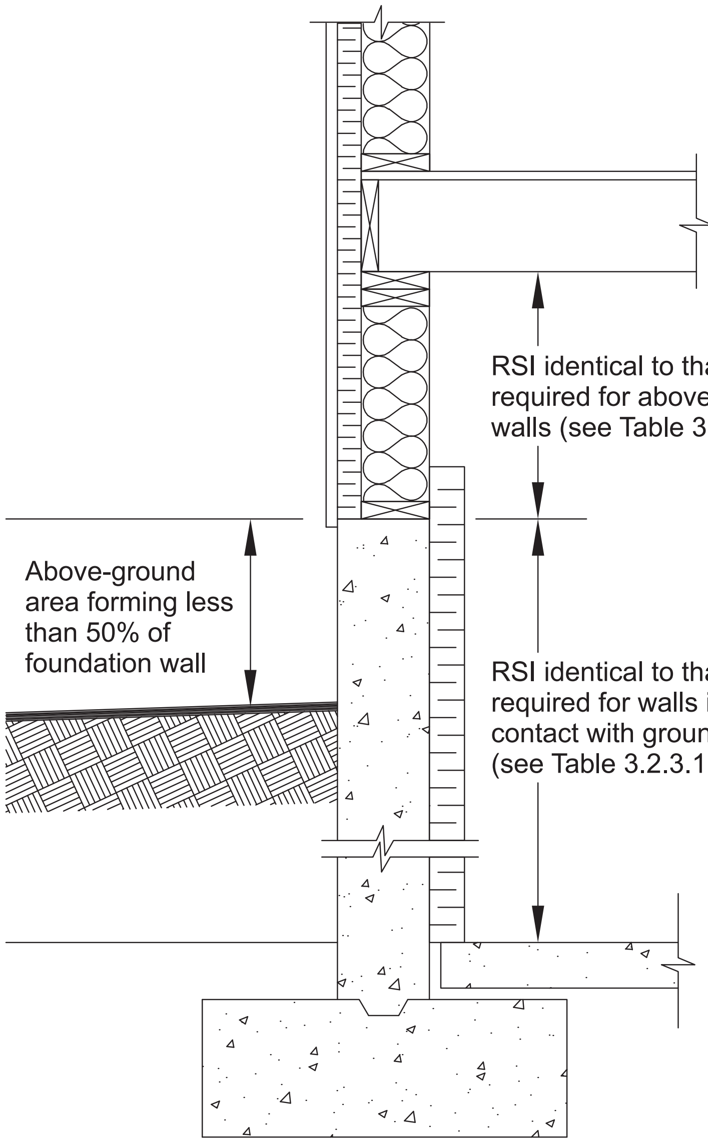
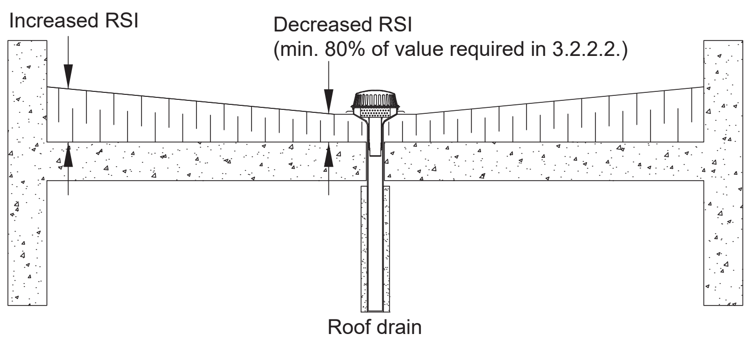
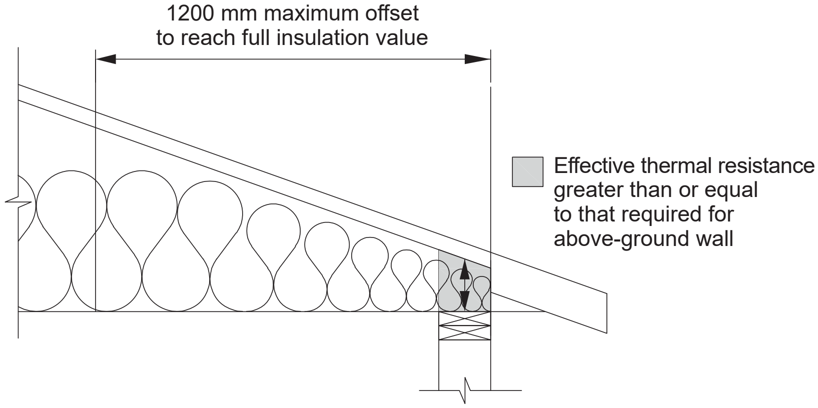
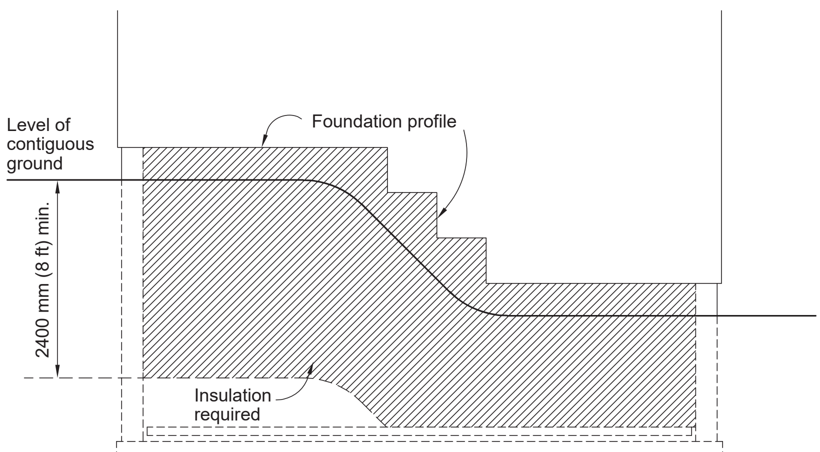


Figure A-3.2.2.2.(2) and (3)

Insulation of a foundation wall having less than 50% of the surface exposed to outdoor air".

A-3.2.2.2.(4)	Replace the Note by the following: “**A-3.2.2.2.(4) Thermal Characteristics of Above-ground Opaque Building Assemblies with Embedded Radiant Heating or Cooling.** Sentence 3.2.2.2.(4) applies in particular to overhanging floors and to insulated walls and top-storey ceilings under a roof or unheated attic space. The requirement also applies to floors above a crawl space, where it is kept at a temperature that differs by more than 10°C. The minimum thermal resistance of a floor, wall or ceiling containing radiant heating cables or heating or cooling pipes or membranes is increased to minimize heat losses due to the increased temperature difference between the interior and exterior surfaces.”.
	Add the following Notes: “**A-3.2.2.2.(5) Effective Thermal Resistance of a Flat Roof.** Sentence 3.2.2.2.(5) allows the reduction of the effective thermal resistance around the drain of a roof provided that the dimension of the roof and the slope are sufficient to offset heat losses incurred in the portion that does not comply with the requirements of Article 3.2.2.2. Figure A-3.2.2.2.(5) illustrates the application.  **Figure A-3.2.2.2.(5)** **Reduction of the sloped insulation on a flat roof in accordance with Sentence 3.2.2.2.(5)** **A-3.2.2.2.(6) Effective Thermal Resistance Near the Eaves.** The values of the effective thermal resistance required for roofs with attic spaces are greater than those required for walls. The reduction allowed in Sentence 3.2.2.2.(6) assumes that the thickness of the insulation will be increased on the basis of the increase of the slope of the roof with an attic space until the space is sufficient to contain the full thickness of the insulation. Figure A-3.2.2.2.(6) illustrates the reduction allowed in that Article.

	 **Figure A-3.2.2.2.(6)** **Insulation reduction allowed for sloped roofs in accordance with Sentence 3.2.2.2.(6)**".
A-3.2.2.4.(5)	Strike out the Note.
A-3.2.3.1.(3)	Replace the Note by the following: **A-3.2.3.1.(3) Wall in Contact with the Ground.** The term "ground level" as used in Sentence 3.2.3.1.(3) has a different meaning than "grade", which is defined in the NBC. The wording in Sentence 3.2.3.1.(3) requires that the bottom of the insulation follow the contours of the exterior ground level at the required depth, as shown in Figure A-3.2.3.1.(3).  **Figure A-3.2.3.1.(3)** **Insulation of walls in contact with the ground**".

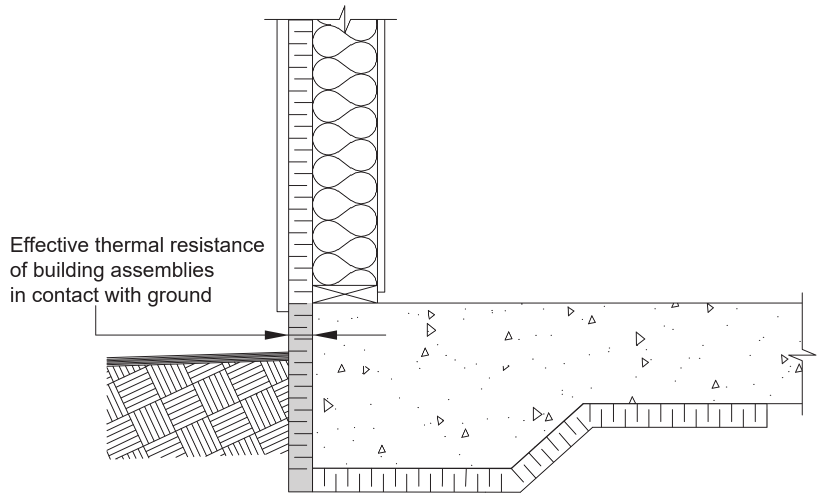
<table>
<tr><td></td><td>Add the following Note:
“A-3.2.3.1.(5) Slab-on-Ground. Sentence 3.2.3.1.(5) requires that the vertical section of a slab-on-ground be insulated over its entire height just like a wall in contact with the ground in accordance with the requirements of Sentence 3.2.3.1.(1), as shown in Figure A-3.2.3.1.(5).


Figure A-3.2.3.1.(5)
Vertical insulation of a slab-on-ground according to Sentence 3.2.3.1.(5)”.</td></tr>
<tr><td>A-3.2.3.2.(1)</td><td>Replace the word “grade” by “ground level”;

Strike out the last sentence of the Note.</td></tr>
<tr><td>A-3.2.3.3.</td><td>Replace the Note by the following:
“A-3.2.3.3. Floors in Contact with the Ground. Article 3.2.3.3. is also intended to include “floors” of heated or cooled crawl spaces even when there is no actual constructed “floor”.
The value of the most astringent thermal resistance determines that of the insulation material to be installed over the entire floor surface where the ground level adjacent to a floor-on-ground is variable according to the faces of an immovable. In the case of a building whose floor-on-ground is constructed in tiers, it is possible to apply the requirements of Article 3.2.3.3. to each tier. Consideration should be given to insulating the entire floor at sites where the soil is highly conductive or where there is a permanently high water table. Figures A-3.2.3.3.-A, A-3.2.3.3.-B, A-3.2.3.3.-C and A-3.2.3.3.-D illustrate the requirements in insulation for various types of floors-on-ground where these are less than 0.6 m below grade.</td></tr>
</table>

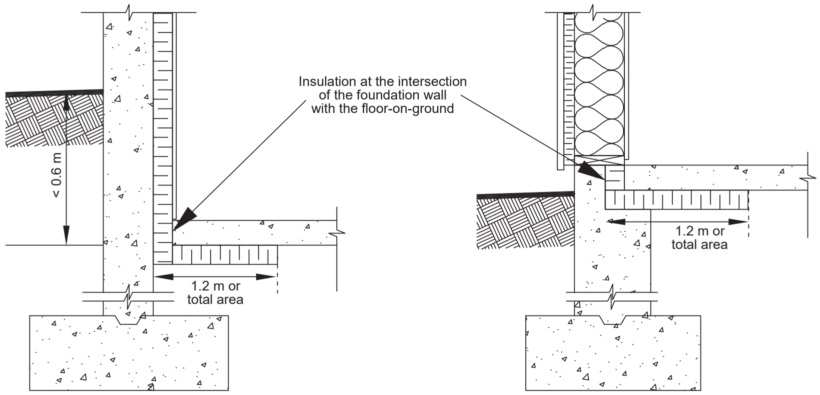


Figure A-3.2.3.3.-A

Insulation of floors in contact with the ground – example of insulation under the slab and at the intersection of the foundation wall with the floor-on-ground according to Sentence 3.2.3.3.(1)

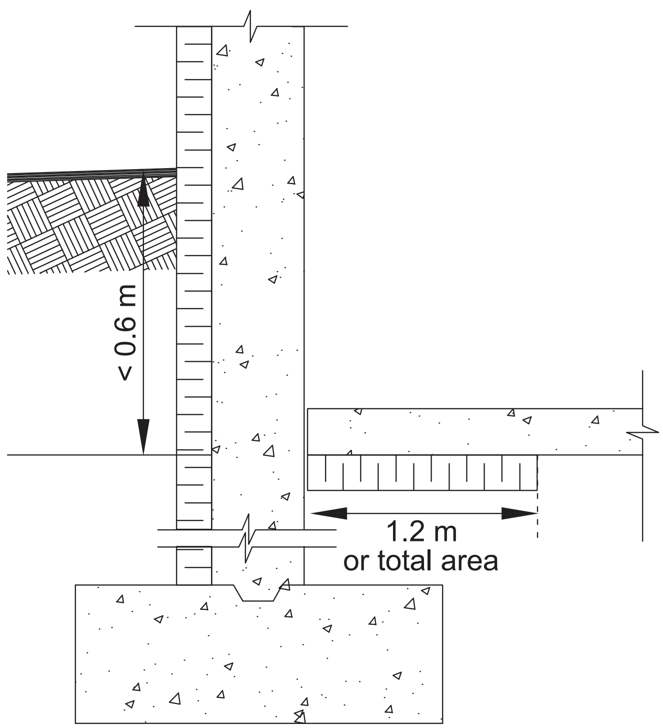


Figure A-3.2.3.3.-B

Insulation of floors in contact with the ground where the foundations are insulated from the exterior in accordance with Clause 3.2.3.3.(2)(a)

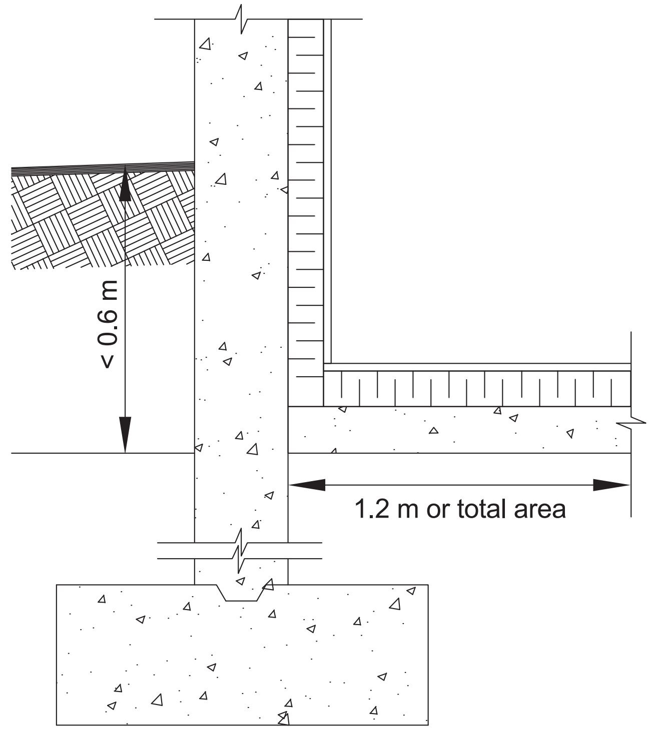
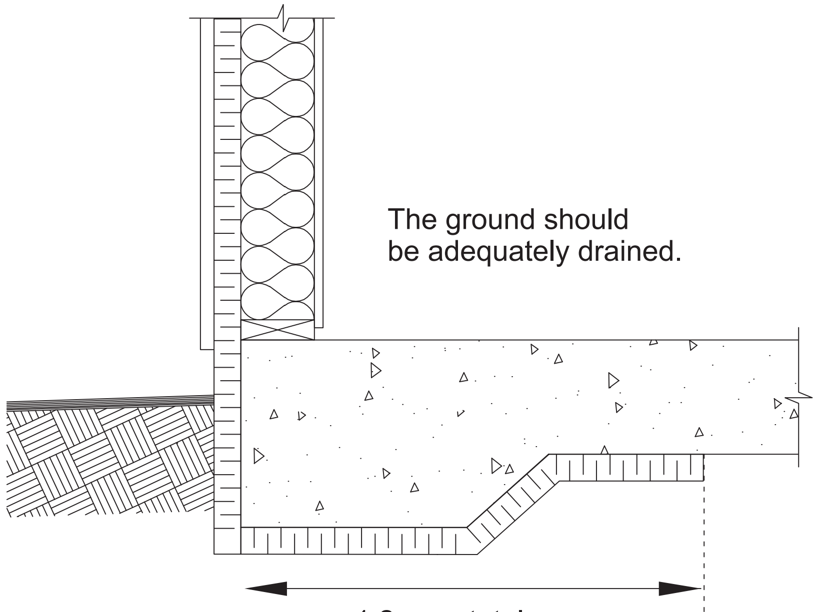


Figure A-3.2.3.3.-C

Insulation of floors in contact with the ground where the slab and the foundation wall are insulated from the interior in accordance with Clause 3.2.3.3.(2)(b)

	 **Figure A-3.2.3.3.-D** **Insulation of floors in contact with the ground for a slab-on-ground with integrated footings in accordance with Sentence 3.2.3.3.(3)**".
A-3.2.4.2.(1)	Strike out the Note.
A-3.2.4.3.(1) and (2)	Strike out the Note.
	Add the following Note: "**A-3.2.4.3.(9) Vestibule doors.** Main entry doors that are part of a complete air barrier system, such as interior and exterior doors of a vestibule, may be tested as an entire assembly.".
A-3.3.1.1.(6)	Strike out the Note.

	Add the following Notes: "**A-3.3.1.2. Limitations.** The trade-off path described in Section 3.3. allows the designer to offset the non-compliance with the prescriptive requirements of certain above-ground building assemblies of the building envelope by considering the enhanced performance, i.e. higher than the prescriptive requirements, of other above-ground building assemblies of the envelope. For example, on the basis of the demonstration required in Section 3.3., it would be possible for a designer to offset the lower energy performance of a structural glazing by enhancing the energy performance of other windows of the building above the prescriptive requirements of Section 3.2. Simpler than the building energy performance compliance path detailed in Part 8, the trade-off path is limited to certain components of the building envelope. **A-3.3.1.3.(1) Trade-off.** The trade-off path is based on the comparison of the steady-state energy performance of above-ground building assemblies of the proposed building envelope, i.e. the building as in the plans and specifications, with that of a reference building: an identical building except its envelope, completely in conformity with the prescriptive requirements of Section 3.2. The area of each above-ground building assembly (A_i), including doors and fenestration, must be identical for the reference building and the proposed building. For opaque building assemblies of buildings that do not comply with the prescriptive requirements respecting the continuity of the insulation specified in Sentences 3.2.1.2.(1) to (7) and (10), the effective thermal resistance must be derated in accordance with Sentence (2). **A-3.3.1.3.(2) Derating of the Effective Thermal Resistance.** The "derated" effective thermal resistance of opaque building assemblies of the envelope is generated from their effective thermal resistance calculated in accordance with Article 3.1.1.5. It must be derated to account for additional energy losses at the site of intersections and point penetrations of the envelope that do not comply with the continuity of insulation requirements in Sentences 3.2.1.2.(3) to (7) and (10). The intersections most often encountered in buildings are those of opaque building assemblies with parapets, foundations, intermediate floors and projections (such as cantilevered balconies). Whereas the prescriptive requirements of those intersections or penetrations are descriptive in nature (see Sentences 3.2.1.2.(3) to (7) and (10)), the trade-off requires to quantify heat losses in relation to those intersections and penetrations where the prescriptive requirements are not complied with. The derating of the effective thermal resistance of opaque building assemblies may be considered only if it is possible to characterize the parameters of the equation in Sentence 3.3.1.3.(2), whose values may be lower or higher than the prescriptive requirements, from recognized paths, in particular those in Articles 3.1.1.5. and 3.1.1.6. The linear thermal transmittance of an intersection and the point thermal transmittance of a penetration may be obtained, for example, from laboratory tests or generated using digital heat transfer simulations (see the digital simulations in the research project of ASHRAE RP-1365, "Thermal Performance of Building Envelope Details for Mid- and High-Rise Buildings," provided as a reference in the "ASHRAE Handbook – Fundamentals," or the "Building Envelope Thermal Bridging Guide" by Morrison Hershfield). Point penetrations of the envelope and the wall/roof, wall/foundation, wall/projection and wall/intermediate floor

	intersections of the reference building must be characterized by the default values in Tables 3.3.1.3.(3)-A and 3.3.1.3.-B. **A-3.3.1.3.(3) Linear Thermal Transmittance and Point Thermal Transmittance by Default of Certain Intersections and Penetrations of the Reference Building.** Where the derating of the effective thermal resistance of opaque building assemblies is required, in accordance with the requirement in Sentence 3.3.1.3.(2), the trade-off path allows the application of the coefficients provided for in Tables 3.3.1.3-A and 3.3.1.3.-B. **A-3.4.1.2. Limitations.** The performance path allows to offset the non-compliance with the prescriptive requirements of the building assemblies of the envelope considered in Sentence 3.4.1.2.(1) by improving the performance of the lighting systems, the HVAC systems, the service water heating systems and the building assemblies of the envelope considered in Sentence 3.4.1.2.(1). As with the trade-off path, the performance exchanges with the building assemblies of the envelope may only be considered if it is possible to characterize the thermal performance of those assemblies in accordance with Articles 3.1.1.5. and 3.1.1.6. The performance path offers the designer more flexibility than the trade-off path since it allows performance exchanges between the various systems of the building. Quantification of exchanges, to be carried out to demonstrate compliance of the building by the performance path, is performed using a building energy model that is described and standardized in Part 8. Contrary to the trade-off path, the performance path allows consideration of a fenestration area greater than 40%, and heat exchanges of building assemblies in contact with the ground, except as provided in Sentence 8.4.3.3.(7) (See Note A-8.4.3.3.(7)).”.
Division B Part 4	
4.1.1.2.	Replace Sentence (2) by the following: “**2)** This Part does not apply to the following lighting systems: a) emergency lighting that is automatically off during normal hours of *building* operation, and b) lighting within *dwelling units* (see Note A-4.1.1.2.(2)(b)).”.
4.2.1.3.	Replace the Article by the following: “**4.2.1.3. Limits to Installed Interior Lighting Power** (See Note A-4.2.1.3.) **1)** Each space of the *building* shall appear in a space assembly considered in Sentence (3), except where the *building* has only one space, in which case the space is deemed to comply with Clauses (2)(a) and (2)(b). **2)** The space assembly considered in Sentence (3) shall a) be composed of more than one space,

<table>
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b) be composed of adjacent or superposed spaces, and
c) except as provided in Sentence (4), correspond to a function in Table 4.2.1.5.
3) Except as provided in Sentence (6), the installed interior lighting power calculated in Article 4.2.1.4. for a space assembly shall not exceed the interior lighting power allowance for that assembly, calculated in accordance with one of the following methods:
a) the building area method described in Article 4.2.1.5., or
b) the space-by-space method described in Article 4.2.1.6.
4) The interior lighting power allowance of the building shall be calculated using the space-by-space method described in Article 4.2.1.6. in the following cases:
a) where the space assembly considered in Sentence (1) corresponds to a function different than those in Table 4.2.1.5., or
b) where a space cannot be included in a space assembly in conformity with Sentence (2).
5) The installed interior lighting power of a space may exceed the interior lighting power allowance of that space, the transfer of power between spaces of the same assembly being permitted. (See Note A-4.2.1.3.(5).)
6) Where a building has several space assemblies, the installed interior lighting power of a space assembly may exceed the interior lighting power allowance of that space assembly, the transfer of power between space assemblies being permitted on the following conditions:
a) only one of the methods described in Sentence (3) is used for all the spaces considered,
b) one of the following conditions is met:
i) electrical inputs for all the spaces considered are connected to the same electric meter, or
ii) all the spaces considered are intended to be occupied by the same occupant, and
c) except as provided in Sentence 4.2.1.6.(8), the interior lighting power allowance for all the spaces considered is not exceeded.
(See Note A-4.2.1.3.(6).)”.
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<tr><td>4.2.1.4.</td><td>
Add “(See Note A-4.2.1.4.)” after “4.2.1.4. Determination of the Installed Interior Lighting Power”;
<hr>
Replace “Except as provided in Sentences (4) and (5)” in Sentence (1) by “Except as provided in Sentence (4)”;
<hr>
Strike out “by ceiling-height partitions” in Clause (4)(g);
<hr>
Replace Clause (4)(k) by the following:
“k) lighting of devices that are for sale or for educational demonstration systems (see Note A-4.2.1.4.(4)(k)),”;
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Replace Clauses (4)(o) and (4)(p) by the following:

“o) mirror lighting in dressing rooms,

p) accent lighting in religious pulpit and choir areas,

q) lighting for covered vehicle entrances and *exits* from *storage garages*, and

r) lighting of work areas integrated to the furniture.”;

Strike out Sentence (5).

4.2.1.5.

Replace the Article by the following:

“**4.2.1.5. Calculation of Interior Lighting Power Allowance Using the Building Area Method**

(See Note A-4.2.1.5.)

1) Calculation of the *interior lighting power allowance* for the space assembly described in Sentence 4.2.1.3.(2) using the *building* area method shall be carried out as follows:

a) the *floor surface area* shall be determined for that space assembly,

b) the lighting power density (LPD) allowed for the *floor surface area* determined in accordance with Clause (a) shall be determined from Table 4.2.1.5. for the specific function, and

c) the *interior lighting power allowance* of the space assembly shall be calculated by multiplying the *floor surface area* determined in Clause (a) by the allowed LPD determined in Clause (b).

Table 4.2.1.5.
Lighting Power Density (LPD) Allowed According to the Function for Use with the Building Area Method
Forming Part of Sentences 4.2.1.3.(2) to (4) and 4.2.1.5.(1)

Function	Lighting Power Density, W/m²
Automobile facility	8.6
Convention centre	10.9
Courthouse	10.9
Dining:	
bar lounge/leisure	10.9
cafeteria/fast food	9.7
family	10.2
Dormitory	6.1
Exercise centre	9.0
Fire station	7.2
Gymnasium	10.1
Health care clinic	9.7
Hospital	11.3

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<tr><td>Hotel/motel</td><td>9.4</td></tr>
<tr><td>Library</td><td>12.8</td></tr>
<tr><td>Manufacturing facility</td><td>12.6</td></tr>
<tr><td>Motion picture theatre</td><td>8.2</td></tr>
<tr><td>Multi-unit residential building</td><td>5.5</td></tr>
<tr><td>Museum</td><td>11.0</td></tr>
<tr><td>Office</td><td>8.8</td></tr>
<tr><td>Penitentiary</td><td>8.7</td></tr>
<tr><td>Performing arts theatre</td><td>14.9</td></tr>
<tr><td>Police station</td><td>9.4</td></tr>
<tr><td>Post office</td><td>9.4</td></tr>
<tr><td>Religious building</td><td>10.8</td></tr>
<tr><td>Retail area</td><td>13.5</td></tr>
<tr><td>School/university</td><td>9.4</td></tr>
<tr><td>Sports arena</td><td>9.8</td></tr>
<tr><td>Storage garage</td><td>2.3</td></tr>
<tr><td>Town hall</td><td>9.6</td></tr>
<tr><td>Transportation facility</td><td>7.5</td></tr>
<tr><td>Warehouse</td><td>7.1</td></tr>
<tr><td>Workshop</td><td>12.8</td></tr>
</table>
”.
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<tr>
<td>4.2.1.6.</td>
<td>
Replace Sentence (1) by the following:
“1) The interior lighting power allowance using the space-by-space method shall be determined as follows:
a) the floor surface area of each space of the assembly shall be determined,
b) the allowed lighting power density (LPD) for each space shall be determined using Table 4.2.1.6. for the exact space type or a space type that most closely represents the proposed use of each space,
c) the interior lighting power allowance for each space shall be calculated by multiplying the floor surface area determined in Clause (a) by the allowed LPD determined in Clause (b), and
d) the interior lighting power allowance of the building shall be calculated by summing the interior lighting power allowance for each space determined in Clause (c).
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2) Where the use of a space corresponds to more than one type provided for in Table 4.2.1.6., not dividing the space is permitted provided that the type described in Table 4.2.1.6. represents a *floor surface area* of

a) less than 20% of the space, for a space having a *floor surface area* of not more than 1500 m², or

b) less than 300 m², for a space having a *floor surface area* of more than 1500 m².

3) Increasing by 20% the *interior lighting power allowance* of a space other than an atrium, calculated in accordance with Clause (1)(c), is permitted where the space adjustment factor, AF, calculated using the following equation, is greater than the value referred to in Table 4.2.1.6.:

$$\mathrm{AF} = 2.5 \times (\mathrm{H}_1 - \mathrm{H}_2) \times \mathrm{L} / \mathrm{S}$$

where

H_1 = height of luminaires in relation to the floor, in m,

H_2 = height of work surface in relation to the floor, in m,

L = perimeter of the *floor surface area* of the space, in m, and

S = *floor surface area* of the space, in m².

(See Note A-4.2.1.6.(3).)

4) Increasing by 20% the *interior lighting power allowance* of a corridor or transition area is permitted where the width of the space is less than 2.4 m. (See Note A-4.2.1.6.(4).)

5) Where lighting of a portion of a space is controlled by the type of control listed in Table 4.2.1.6. separately from the *general lighting* of the space, increasing the *interior lighting power allowance* of that portion of space by additional power, $P_{additional}$, in W, calculated using the following equation, is permitted:

$$\mathrm{P}_{\mathrm{additional}} = \mathrm{IILP}_{\mathrm{portion}} \times \mathrm{PI}_{\mathrm{LPD}}$$

where

$IILP_{portion}$ = *installed interior lighting power* of the portion of the space concerned, in W, and

PI_{LPD} = percentage of increase of allowed LPD indicated in Table 4.2.1.6.

(See Note A-4.2.1.6.(5).)

6) Where decorative lighting or lighting for displaying works of art or artefacts is controlled separately from the *general lighting* of the space, increasing the *interior lighting power allowance* of that portion of space by 10.8 W/m² is permitted. (See Note A-4.2.1.6.(6).)

7) Where lighting for displaying items for sale is controlled separately from the *general lighting* of the space, increasing the *interior lighting power allowance* of that portion of space by additional power $P_{additional}$, in W, calculated using the following equation, is permitted:

$$\mathrm{P}_{\mathrm{additional}} = 1000\ \mathrm{W} + (\mathrm{A}_1 \times 27\ \mathrm{W/m^2}) + (\mathrm{A}_2 \times 15\ \mathrm{W/m^2}) + (\mathrm{A}_3 \times 6.5\ \mathrm{W/m^2})$$

where

A_1 = areas reserved for displaying jewelry or crockery, including a traffic area having a width of not more than 900 mm, in m²,

	A_2 = areas reserved for displaying furniture, clothing, cosmetics or works of art for sale, including a traffic area having a width of not more than 900 mm, in m², and A_3 = areas reserved for displaying any other item for sale, including a traffic area having a width of not more than 900 mm, in m². (See Note A-4.2.1.6.(7).) **8)** Except for the additional power listed in Sentences (6) and (7), the transfer of unused additional power listed in this Article to increase the *interior lighting power allowance* of another space in accordance with Sentence 4.2.1.3.(6) is permitted.”;
	Replace Table 4.2.1.6. by the following:

"**Table 4.2.1.6.**
Allowed Lighting Power Density (LPD) for Use with the Space-by-Space Method, Adjustment Factor (AF) and Allowed Additional Lighting Power Density
Forming Part of Sentences 4.2.1.6.(1), (2), (3) and (5), and 4.2.2.1.(2), (10), (12) and (14)

Space Type	Lighting Power Density (LPD), W/m²	Adjustment Factor (AF)	Percentage of Increase of Allowed LPD (PI_{LPD})(1)	Type of Lighting Control(2)						
				Manual (see 4.2.2.1.(3))	Restricted to Manual ON (see 4.2.2.1.(6))	Restricted to Partial Automatic ON(3) (see 4.2.2.1.(8))	Bi-Level (see 4.2.2.1.(9))	Automatic Partial OFF (see 4.2.2.1.(10))	Automatic Full OFF(4) (see 4.2.2.1.(12))	Scheduled Shut-off (see 4.2.2.1.(14))
Common Space Types (5)										
Atrium										
< 6 m in height	1.06 per m (height)	n/a	10% where C2	X	A	A	–	–	B	B
≥ 6 m and ≤ 12 m in height	1.06 per m (height)	n/a	10% where C2	X	A	A	X	–	B	B
> 12 m in height	4.3 + 0.71 per m (height)	n/a	10% where C2	X	A	A	X	–	B	B
Audience seating area–permanent										
for auditorium	6.8	6	n/a	X	A	A	X	–	B	B
for convention centre	8.9	4	n/a	X	A	A	X	–	B	B
for gymnasium	7.0	6	n/a	X	A	A	X	–	B	B
for motion picture *theatre*	12.3	4	n/a	X	A	A	X	–	B	B
for penitentiary	3.0	4	n/a	X	A	A	–	–	B	B
for performing arts *theatre*	26.2	8	n/a	X	A	A	X	–	B	B
for religious *building*	16.5	4	n/a	X	A	A	X	–	B	B
for sports arena	4.6	4	n/a	X	A	A	–	–	B	B
other	4.6	4	n/a	X	A	A	–	–	B	B

Space Type	Lighting Power Density (LPD), W/m²	Adjustment Factor (AF)	Percentage of Increase of Allowed LPD (PI_{LPD})[1]	Type of Lighting Control[2]						
				Manual (see 4.2.2.1.(3))	Restricted to Manual ON (see 4.2.2.1.(6))	Restricted to Partial Automatic ON[3] (see 4.2.2.1.(8))	Bi-Level (see 4.2.2.1.(9))	Automatic Partial OFF (see 4.2.2.1.(10))	Automatic Full OFF[4] (see 4.2.2.1.(12))	Scheduled Shut-off (see 4.2.2.1.(14))
Banking activity area and offices	10.9	6	n/a	X	A	A	X	–	B	B
Classroom/Lecture hall/Training room										
for penitentiary	14.5	4	10% where C1 or C2	X	A	A	X	–	X	–
other	13.4	4	10% where C1 or C2	X	A	A	X	–	X	–
Conference/Meeting/Multi-purpose room	13.3	6	10% where C1 or C2	X	A	A	X	–	X	–
Confinement cell	8.8	6	n/a	X	A	A	X	–	B	B
Copy/Print room	7.8	6	n/a	X	A	A	X	–	X	–
Corridor and transition area										
for hospital	10.7	Width < 2.4 m (see 4.2.1.6.(4))	10% where C2	X	–	–	–	B	B	B
for manufacturing facility	4.4	Width < 2.4 m (see 4.2.1.6.(4))	10% where C2	X	–	–	–	–	B	B
for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	9.9	Width < 2.4 m (see 4.2.1.6.(4))	10% where C2	X	–	–	–	X	B	B
other	7.1	Width < 2.4 m (see 4.2.1.6.(4))	10% where C2	X	–	–	–	X	B	B
Courtroom	18.6	6	10% where C1 or C2	X	A	A	X	–	B	B

Space Type	Lighting Power Density (LPD), W/m²	Adjustment Factor (AF)	Percentage of Increase of Allowed LPD (PI_{LPD})[1]	Type of Lighting Control[2]						
				Manual (see 4.2.2.1.(3))	Restricted to Manual ON (see 4.2.2.1.(6))	Restricted to Partial Automatic ON[3] (see 4.2.2.1.(8))	Bi-Level (see 4.2.2.1.(9))	Automatic Partial OFF (see 4.2.2.1.(10))	Automatic Full OFF[4] (see 4.2.2.1.(12))	Scheduled Shut-off (see 4.2.2.1.(14))
Dining area										
for bar lounge/leisure dining	11.6	4	10% where C2	X	A	A	X	–	B	B
for cafeteria/fast food dining	7.0	4	10% where C2	X	A	A	X	–	B	B
for family dining	9.6	4	10% where C2	X	A	A	X	–	B	B
for penitentiary	10.3	6	10% where C2	X	A	A	X	–	B	B
for space designed to ANSI/IES RP-28, "Lighting and the Visual Environment for Senior Living" (and used primarily by residents)	28.5	4	10% where C2	X	A	A	X	–	B	B
other	7.0	4	10% where C2	X	A	A	X	–	B	B
Dressing/Fitting room for performing arts – *theatre*	6.6	6	n/a	X	A	A	X	–	X	–
Electrical or mechanical room	4.6	6	124%[6]	X	–	–	–	–	–	–
Emergency vehicle garage	6.1	4	10% where C2	X	A	A	–	–	B	B
Food preparation area	13.1	6	n/a	X	A	A	X	–	B	B
Guest room	5.1	6	n/a	See Sentence 4.2.2.6.(2)						
Laboratory										
for classroom	15.5	6	n/a	X	A	A	X	X	B	B
other	19.5	6	n/a	X	A	A	X	–	B	B

Space Type	Lighting Power Density (LPD), W/m²	Adjustment Factor (AF)	Percentage of Increase of Allowed LPD (PI_{LPD})[1]	Type of Lighting Control[2]						
				Manual (see 4.2.2.1.(3))	Restricted to Manual ON (see 4.2.2.1.(6))	Restricted to Partial Automatic ON[3] (see 4.2.2.1.(8))	Bi-Level (see 4.2.2.1.(9))	Automatic Partial OFF (see 4.2.2.1.(10))	Automatic Full OFF[4] (see 4.2.2.1.(12))	Scheduled Shut-off (see 4.2.2.1.(14))
Laundry/washing area	6.5	4	n/a	X	A	A	X	–	B	B
Loading dock — interior	5.1	6	n/a	X	A	A	–	–	B	B
Lobby										
for elevator	7.0	6	10% where C2	X	–	–	–	–	B	B
for hotel	11.5	4	10% where C2	X	–	–	–	–	B	B
for motion picture *theatre*	6.4	4	10% where C2	X	–	–	–	–	B	B
for performing arts *theatre*	21.6	6	10% where C2	X	–	–	–	X	B	B
for space designed to ANSI/IES RP-28, "Lighting and the Visual Environment for Senior Living" (and used primarily by residents)	19.4	4	10% where C2	X	–	–	–	X	B	B
other	9.7	4	10% where C2	X	–	–	–	X	B	B
Locker room	8.1	6	n/a	X	A	A	X	–	X	–
Lounge or break room										
for health care facility	10.0	6	n/a	X	A	A	X	–	X	–
other	7.9	4	n/a	X	A	A	X	–	X	–

Space Type	Lighting Power Density (LPD), W/m²	Adjustment Factor (AF)	Percentage of Increase of Allowed LPD (PI_{LPD})[1]	Type of Lighting Control[2]						
				Manual (see 4.2.2.1.(3))	Restricted to Manual ON (see 4.2.2.1.(6))	Restricted to Partial Automatic ON[3] (see 4.2.2.1.(8))	Bi-Level (see 4.2.2.1.(9))	Automatic Partial OFF (see 4.2.2.1.(10))	Automatic Full OFF[4] (see 4.2.2.1.(12))	Scheduled Shut-off (see 4.2.2.1.(14))
Office										
open plan	10.6	4	5% where C1 or C2 25% where C3 30% where C4	X	A	A	X	–	B	B
enclosed, ≤ 25 m²	12.0	8	5% where C1 or C2	X	A	A	X	–	X	–
enclosed, > 25 m²	12.0	8	5% where C1 or C2	X	A	A	X	–	B	B
Pharmacy area	18.1	6	n/a	X	A	A	X	–	B	B
Sales area	15.5	6	n/a	X	A	A	X	–	B	B
Seating area	5.9	4	n/a	X	A	A	–	–	B	B
Computer/Server room	18.4	4	n/a	X	A	A	X	–	B	B
Stairway, except stairwell	The control and lighting power density requirements shall be the same as those for the space containing the stairway.									
Stairwell	7.4	10	10% where C2	X	–	–	X	X	B	B
Storage garage – interior	2.1	4	10% where C2	See Article 4.2.2.2.						

Storage room										
< 5 m²	13.3	6	n/a	X	–	–	–	–	B	B
≥ 5 m² and ≤ 100 m²	6.8	6	n/a	X	A	A	–	–	X	–
> 100 m²	6.8	6	n/a	X	A	A	–	X	B	B
Vehicle maintenance area	7.3	4	n/a	X	A	A	X	–	B	B
Washroom										
for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	13.1	8	n/a	X	–	–	–	–	X	–
other	10.5	8	n/a	X	–	–	–	–	X	–
Workshop	17.2	6	n/a	X	A	A	X	–	B	B
***Building*-Specific Space Types[5]**										
Convention centre – exhibit space	15.7	4	n/a	X	A	A	X	–	B	B
Dormitory – living quarters	4.2	8	n/a	X	–	–	–	–	–	–
Fire station – sleeping quarters	2.4	6	n/a	X	–	–	–	–	–	–
Gymnasium/Fitness centre										
exercise area	7.8	4	10% where C2	X	A	A	X	–	B	B
playing area	13.0	4	10% where C2	X	A	A	X	–	B	B
Health care facility										
exam/treatment room	18.0	8	n/a	X	–	–	X	–	B	B
imaging room	16.3	6	n/a	X	–	–	X	–	B	B

medical supply room	8.0	6	n/a	See “Storage Room” under **Common Space Types** for applicable control requirements.						
nursery	9.5	6	n/a	X	–	–	X	–	B	B
nurses’ station	7.6	6	n/a	X	–	–	X	–	B	B
operating room	26.8	6	n/a	X	–	–	X	–	B	B
patient room	6.7	6	n/a	X	–	–	X	–	B	B
physical therapy room	9.9	6	n/a	X	–	–	X	–	B	B
recovery room	12.4	6	n/a	X	–	–	X	–	B	B
Library										
reading area	11.5	4	n/a	X	A	A	X	–	B	B
stacks	18.4	4	n/a	X	A	A	X	X	B	B
Manufacturing facility										
detailed manufacturing area	13.9	4	n/a	X	A	A	X	–	B	B
equipment room	8.0	6	n/a	X	A	A	X	–	B	B
extra high bay area (> 15 m floor-to-ceiling)	11.3	4	n/a	X	A	A	X	–	B	B
high bay area (7.5 m to 15 m floor-to-ceiling height)	13.3	4	n/a	X	A	A	X	–	B	B
low bay area (< 7.5 m floor-to-ceiling height)	12.9	4	n/a	X	A	A	X	–	B	B
Museum										
general exhibition area	11.4	6	n/a	X	A	A	X	–	B	B
restoration room	11.0	6	n/a	X	A	A	X	–	B	B

Post office – sorting area	10.2	4	n/a	X	A	A	X	X	B	B
Religious building										
fellowship hall	6.9	4	n/a	X	A	A	X	–	B	B
worship/pulpit/choir area	16.5	4	n/a	X	A	A	X	–	B	B
Retail facility										
dressing/fitting room	7.7	8	n/a	X	A	A	X	–	X	–
mall concourse	11.9	4	10% where C2	X	A	A	X	–	B	B
Space designed to ANSI/IES RP-28, "Lighting and the Visual Environment for Senior Living"										
chapel (used primarily by residents)	23.8	4	n/a	X	A	A	X	–	B	B
recreation room (used primarily by residents)	25.9	6	n/a	X	A	A	X	–	B	B
Sports arena – playing area										
playing area with facilities for more than 5000 spectators	39.7	4	n/a	X	A	A	X	–	B	B
playing area with facilities for more than 2000 spectators and not more than 5000 spectators	25.9	4	n/a	X	A	A	X	–	B	B
playing area with facilities for more than 200 spectators and not more than 2000 spectators	19.4	4	n/a	X	A	A	X	–	B	B

playing area with facilities for less than 200 spectators or without a facility for spectators	13.0	4	n/a	X	A	A	X	–	B	B
Transportation facility										
airport concourse	3.9	4	n/a	X	A	A	–	–	B	B
baggage/carousel area	5.7	4	n/a	X	A	A	–	–	B	B
terminal ticket counter	8.7	4	n/a	X	A	A	X	–	B	B
Warehouse – storage area										
medium to bulky palletized items	6.2	4	n/a	X	A	A	X	X	B	B
small hand-carried items	10.2	6	n/a	X	A	A	X	X	B	B

Notes to Table 4.2.1.6.:

(1) Controls C1 to C4 designate the following controls:
C1: controls lighting using a manual dimmer;
C2: controls lighting using an hourly program for multiple lighting levels;
C3: controls lighting using occupant sensors, where the lighting meets the following criteria:
a) the lighting is dedicated exclusively to work stations,
b) the lighting of each work station is independently controlled,
c) the portion of the lighting directed towards the work surface is controlled independently from the portion directed toward the ceiling,
d) the portion of the lighting directed towards the work surface is turned off automatically by continuous dimming devices in the first 30 min of vacancy; dimming for turning off lighting shall last a minimum of 2 min,
e) at the arrival of the occupant, the portion of lighting directed towards the work surface turns on automatically to a first minimum lighting level, then by continuous dimming for at least 30 sec before reaching a preset higher level, and
f) the portion of lighting directed towards the ceiling meets the requirements of Sentence 4.2.2.1.(12);
C4: controls lighting using a C3 control, while permitting manual adjustment of the lighting level by continuous dimming of the lighting directed towards the work station.

(2) n/a: not applicable;
A: at least one of the lighting controls marked with an “A” must be implemented in this space type;
B: at least one of the lighting controls marked with a “B” must be implemented in this space type;
X: all lighting controls marked with an “X” must be implemented in this space type; and
– (dash): this lighting control is not required to be implemented in this space type.

(3) Controls meeting the requirements for “Partial Automatic ON” in Sentence 4.2.2.1.(8) also comply with the requirements for “Bi-Level” lighting control in Sentence 4.2.2.1.(9).

(4) Controls meeting the requirements for “Automatic Full OFF” in Sentence 4.2.2.1.(12) also comply with the requirements for “Automatic Partial OFF” lighting control in Sentence 4.2.2.1.(10).

(5) In cases where a space type is listed both as a common space type and a *building*-specific space type, the requirements for the *building*-specific space type apply. See Note A-Table 4.2.1.6.

(6) An additional LPD of 5.7 W/m² is permitted, provided that the additional lighting is separately controlled from the lighting whose allowed LPD is 4.6 W/m².”.

<table>
<tr><td>4.2.2.1.</td><td>
Replace Sentence (1) by the following:
“1) Except as provided in Sentence (2), interior lighting control devices shall be installed in accordance with this Article for each space type in the building.”;
<hr>
Replace “LPD” in the French text of Sentence (2) by “DPE”;
<hr>
Replace Sentences (10) to (23) by the following:
“10) Except as provided in Sentence (11), power for general lighting in spaces requiring controls that are “Automatic Partial OFF” in accordance with Table 4.2.1.6. shall automatically reduce by 50% or more within 20 min of the space being unoccupied.
11) General lighting need not be controlled in accordance with Sentence (10) where
a) the lighting power density for the space is not greater than 8.6 W/m²,
b) the space is lit by high-intensity discharge (HID) lamps, and
c) the power for the general lighting in the space reduces automatically by 30% or more within 20 min of the space being unoccupied.
12) Except as provided in Sentence (13), the lighting in spaces requiring controls that are "Automatic Full OFF" in accordance with Table 4.2.1.6. shall be controlled by automatic control devices that shut off the lighting within 20 min of the space being unoccupied, where each automatic control device controls an area not greater than 500 m².
13) The following lighting applications need not comply with Sentence (12):
a) general lighting and task lighting in shop and laboratory classrooms,
b) general lighting and task lighting in spaces where automatic shut-off would endanger the safety or security of the building occupants, and
c) lighting required to operate continuously due to operational requirements.
14) Except as provided in Sentence (17), the lighting in spaces requiring controls that are "Scheduled Shut-off" in accordance with Table 4.2.1.6. shall shut off automatically during periods when the spaces are scheduled to be unoccupied by means of control devices complying with Sentence (15) that are
a) time-of-day operated to automatically turn the lighting off at programmed times, or
b) signals from other automatic control devices or alarm/security systems.
15) A control device installed to meet the requirements of Sentence (14) shall
a) control the lighting for an area of not more than 2500 m² on not more than one storey, and
b) consider independently the operation during weekdays, weekends and holidays.
16) Any manual control device installed to override the “Scheduled Shut-off” control device required in Sentence (14) shall
a) turn the lighting on for 2 h or less per activation during scheduled “off” periods, and
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</table>

	b) control an area of 500 m² or less. **17)** The control in Sentence (14) is not required where it is a) required to operate continuously due to operational requirements, b) located in spaces where patient care is rendered, or c) located in spaces where automatic shut-off would endanger the safety or security of the *building* occupants.”.
4.2.2.2.	Replace Sentence (2) by the following: “**2)** Except as provided in Sentence (4), the lighting power in a zone referred to in Sentence (1) shall be controlled by a device that automatically reduces the power of each lighting device of the zone by at least 30% when no activity is detected for 20 min. (See Note A-4.2.2.2.(2).)”; ——— Replace Sentence (4) by the following: “**4)** Daylight transition zones and ramps without parking need not comply with the provisions of Sentences (1) and (2).”; ——— Strike out Sentence (5).
4.2.2.3.	Strike out the Article.
4.2.2.4.	Strike out the Article.
4.2.2.5.	Strike out the Article.
4.2.2.6.	Replace “2 W” in Sentence (2) by “5 W”.
4.2.3.1.	Strike out Sentence (2); ——— Replace Sentences (3) and (4) by the following: “**3)** Except as provided in Sentence (6), the installed *exterior lighting* power for each specific *building* exterior application listed in Table 4.2.3.1.-C that is to be illuminated shall not be greater than the allowance for the application concerned according to the applicable lighting zone plus any unused power from the basic site allowance listed in Table 4.2.3.1.-B. (See Note A-4.2.3.1.(3).)

4) Except as provided in Sentence (6), the installed *exterior lighting* power for all general *building* exterior applications that are to be illuminated shall not be greater than the sum of the allowances for the applications provided in Table 4.2.3.1.-D according to the applicable lighting zone plus any unused power from the basic site allowance listed in Table 4.2.3.1.-B, the transfer of power between the applications being permitted.”;

Replace Table 4.2.3.1.-B by the following:

“**Table 4.2.3.1.-B**
Basic Site Allowances for Exterior Lighting
Forming Part of Sentences 4.2.3.1.(3) and (4)

<table>
<tr><th colspan="5">Basic Site Allowances According to Lighting Zone</th></tr>
<tr><th>Zone 0</th><th>Zone 1</th><th>Zone 2</th><th>Zone 3</th><th>Zone 4</th></tr>
<tr><td>No allowance</td><td>500 W</td><td>600 W</td><td>750 W</td><td>1300 W</td></tr>
</table>

”;

Replace Table 4.2.3.1.-C by the following:

“**Table 4.2.3.1.-C**
Lighting Power Allowances for Specific Building Exterior Applications
Forming Part of Sentence 4.2.3.1.(3)

<table>
<tr><th rowspan="2">Exterior Application</th><th colspan="5">Lighting Power Allowances According to Lighting Zone</th></tr>
<tr><th>Zone 0</th><th>Zone 1</th><th>Zone 2</th><th>Zone 3</th><th>Zone 4</th></tr>
<tr><td>Building facades (façade lighting)</td><td rowspan="4">A single luminaire of 60 W or less may be installed for each roadway or parking entry, trail head, and toilet facility, or other locations approved by the authority having jurisdiction</td><td>No allowance</td><td>1.1 W/m² for each illuminated wall or surface, or 8.2 W/m for each illuminated wall or surface length</td><td>1.6 W/m² for each illuminated wall or surface, or 12.3 W/m for each illuminated wall or surface length</td><td>2.2 W/m² for each illuminated wall or surface, or 16.4 W/m for each illuminated wall or surface length</td></tr>
<tr><td>Automated teller machines (ATM) and night depositories</td><td colspan="4">270 W per location plus 90 W per additional ATM per location</td></tr>
<tr><td>Entrances and gatehouse inspection stations at guarded facilities</td><td colspan="4">8.1 W/m² of covered and uncovered area</td></tr>
<tr><td>Loading areas for law enforcement, fire, ambulance and other emergency</td><td colspan="4">5.4 W/m² of covered and uncovered area</td></tr>
</table>

service vehicles		
Drive-up windows and doors		400 W per drive-through
Parking near 24-hour retail establishment entrances		800 W per main entry

";

Replace Table 4.2.3.1.-D by the following:

"**Table 4.2.3.1.-D**
Lighting Power Allowances for General Building Exterior Applications
Forming Part of Sentence 4.2.3.1.(4)

Exterior Application	Lighting Power Allowances According to Lighting Zone				
	Zone 0	Zone 1	Zone 2	Zone 3	Zone 4
Uncovered Parking Areas					
Parking areas and drives	No allowance	0.4 W/m²	0.7 W/m²	1.1 W/m²	1.4 W/m²
Building Grounds	No allowance				
Walkways less than 3 m wide		2.3 W/m	2.3 W/m	2.6 W/m	3.3 W/m
Walkways 3 m wide or greater, plaza areas, special feature areas		1.5 W/m²	1.5 W/m²	1.7 W/m²	2.2 W/m²
Stairways		8.1 W/m²	11.0 W/m²	11.0 W/m²	11.0 W/m²
Pedestrian tunnels		1.6 W/m²	1.6 W/m²	2.2 W/m²	3.2 W/m²
Landscape lighting		0.4 W/m²	0.5 W/m²	0.5 W/m²	0.5 W/m²
Exterior Entrances and Exterior Exits	No allowance				
Main entries		66 W/m of width	66 W/m of width	98 W/m of width	98 W/m of width
Other doors		66 W/m of width	66 W/m of width	66 W/m of width	66 W/m of width
Canopies		2.7 W/m²	2.7 W/m²	4.3 W/m²	4.3 W/m²

Sales Canopies Free-standing and attached	No allowance	6.5 W/m^2	6.5 W/m^2	8.6 W/m^2	11.0 W/m^2
Outdoor Sales Open areas (including vehicle sales lots)	No allowance	2.7 W/m^2	2.7 W/m^2	5.4 W/m^2	7.5 W/m^2
Street frontage for vehicle sales lots in addition to “open area” allowance		No allowance	33 W/m	33 W/m	98 W/m

”;

Replace Sentence (5) by the following:

“**5)** Except as provided in Sentence (6), the installed *exterior lighting* power shall be determined in the same manner as the *installed interior lighting power* in accordance with Sentences 4.2.1.4.(1) to (3).”;

Replace “independent control device that complies with the requirements of Subsection 4.2.4.” in the portion before Clause(6)(a) by “autonomous control device”;

Replace Clause (6)(a) by the following:

“a) lighting of water fountains or lighting integral to swimming pools;”;

Strike out “or instrumentation” in Clause (6)(c);

Replace Clauses (6)(h) and (6)(i) by the following:

“h) lighting for theme elements in theme/amusement parks,

i) lighting used to highlight features of art objects, public monuments and designated national or provincial historic sites,

k) temporary lighting, and

l) lighting for searchlight.”.

4.2.4.1.	Replace the Article by the following: “**4.2.4.1. Exterior Lighting Controls** **1)** *Exterior lighting* shall be equipped with automatic shut-off controls based on daylight. (See Note A-4.2.4.1.(1).) **2)** *Facade lighting* and *landscape lighting* shall be equipped with shut-off controls that shut it off automatically for the period a) beginning not later than midnight or when the *building* closes, and b) ending no sooner than 6 a.m. or when the *building opens*. **3)** *Exterior lighting*, excluding *facade lighting* and *landscape lighting*, shall be controlled by a device that automatically reduces the installed lighting power by at least 30% according to one of the following conditions: a) for the period i) beginning not later than midnight or 60 min after the *building* closes, and ii) ending no sooner than 6 a.m. or when the *building* opens, or b) during a 15-min period of inactivity. **4)** All lighting schedule controllers shall be equipped with backup provisions to retain programming and the time setting for at least 10 h during a power outage. **5)** The following *exterior lighting* applications need not comply with the requirements of Sentences (1) to (4): a) *exterior lighting* for covered vehicle entrances and *exits* from *storage garages*, and b) *exterior lighting* provided for in Clauses 4.2.3.1.(6)(b) to 6(d) and 4.2.3.1.(6)(j) and (6)(k).”.
4.3.1.1.	Replace “lighting controls” in Sentence (1) by “photocontrols”.
4.3.1.2.	Replace Sentence (1) by the following: “**1)** *Exterior lighting* and *exterior lighting* controls shall comply with Subsections 4.2.3. and 4.2.4. **2)** *Interior lighting* controls shall comply with Subsection 4.2.2.”.
4.3.1.3.	Replace the Article by the following: “**4.3.1.3. Compliance** **1)** *Interior lighting* shall be deemed to comply with this Section where the installed *interior lighting* energy, IILE, in kW×h/a, of the proposed *building*, calculated in accordance with Subsection 4.3.2., does not exceed the *interior lighting* energy allowance, ILEA, in kW×h/a, calculated in accordance with Subsection 4.3.3.”.

4.3.2.1.	Replace the Article by the following: "**4.3.2.1. Determination of Installed Interior Lighting Energy** **1)** The installed *interior lighting* energy, IILE, in kW×h/a, which is the total *annual energy consumption* of *interior lighting* in all spaces of the proposed *building,* shall be calculated using the following equation: $$\mathrm{IILE} = \sum_{i=1}^{N} \mathrm{E}_{i,\mathrm{proposed}}$$ where N = total number of spaces in the proposed *building,* and $E_{i,proposed}$ = *annual energy consumption* of *interior lighting* in space i, in kW×h/a, calculated in accordance with Sentence (2). **2)** The *annual energy consumption* of *interior lighting* in a space, $E_{i,proposed}$, in kW×h/a, shall be calculated using the following equation: $$\mathrm{E}_{i,\mathrm{proposed}} = \mathrm{LPD}_{i,\mathrm{proposed}} \times \mathrm{S}_i \times \mathrm{t}_i / 1000$$ where $LPD_{i,proposed}$ = proposed LPD of the lighting in space i, in W/m², determined in accordance with Article 4.3.2.2., S_i = *floor surface area* of space i, in m², and t_i = annual operational time of space i, in h/a, determined in accordance with Article 4.3.2.3.".
4.3.2.2.	Replace Sentence (1) by the following: "**1)** The lighting power density for a space, $LPD_{i,proposed}$, in W/m², shall be calculated using the following equation: $$\mathrm{LPD}_{i,\mathrm{proposed}} = \frac{\mathrm{P}_i}{\mathrm{S}_i}$$ where P_i = lighting power in space i, in W, and S_i = *floor surface area* of that space, in m².".
4.3.2.3.	Replace the Article by the following: "**4.3.2.3. Determination of Operational Times** **1)** The annual operational time of each space, t_i, in h/a, shall be determined from the anticipated operating schedules, by taking into consideration holidays and scheduled shut-off or shut-off attributable to *occupant sensors*. **2)** Where part of a daylighted space is equipped with at least one photocontrol, the reduction of the annual operational time provided for in Sentence (1) is permitted in that part of the space

	a) from the detailed hourly calculations of daylight and the dynamic response of photocontrols resulting from a digital simulation conducted using specialized tools, or b) by applying the following reduction factors: i) 10% for photocontrols with two control levels, ii) 20% for multi-level photocontrols, or iii) 30% for continuous dimming photocontrols. (See Note A-4.3.2.3.(2).)”.
4.3.2.4.	Strike out the Article.
4.3.2.5.	Strike out the Article.
4.3.2.6.	Strike out the Article.
4.3.2.7.	Strike out the Article.
4.3.2.8.	Strike out the Article.
4.3.2.9.	Strike out the Article.
4.3.2.10.	Strike out the Article.
4.3.3.1.	Replace Sentences (1) and (2) by the following: “**1)** The *interior lighting* energy allowance, ILEA, in kW·h/a, which is the maximum allowed *annual energy consumption* of all *interior lighting* complying with the prescriptive lighting power density determined using the space-by-space method in

	Article 4.2.1.6. and with the prescriptive lighting controls in Subsection 4.2.2., shall be calculated using the following equation: $$\mathrm{ILEA} = \sum_{i=1}^{N} \mathrm{E}_{\mathrm{i,reference}}$$ where N = total number of spaces in the proposed *building*, and $E_{i,reference}$ = *annual energy consumption* for lighting in space i, in kW×h/a, calculated in accordance with Sentence (2). **2)** The *annual energy consumption* for lighting in a space, $E_{i,reference}$, in kW×h/a, shall be calculated using the following equation: $$\mathrm{E}_{\mathrm{i,reference}} = \mathrm{LPD}_{\mathrm{i,reference}} \times \mathrm{S}_{\mathrm{i}} \times \mathrm{t}_{\mathrm{i}}/1000$$ where $LPD_{i,reference}$ = reference LPD of space i, in W/m², determined in accordance with Article 4.2.1.6., S_i = *floor surface area* of space i, in m², and t_i = annual operational time in space i, in h/a, determined in accordance with Article 4.3.2.3.”.
4.3.3.2.	Strike out the Article.
4.3.3.3.	Strike out the Article.
4.3.3.4.	Strike out the Article.
4.3.3.5.	Strike out the Article.
4.3.3.6.	Strike out the Article.
4.3.3.7.	Strike out the Article.
4.3.3.10.	Strike out the Article.

	Add the following Article: “**4.4.1.2. Limitations** **1)** The *exterior lighting* and the *exterior lighting* controls shall comply with Subsections 4.2.3. and 4.2.4. **2)** The *interior lighting* controls shall comply with Subsection 4.2.2.”. --- Replace the heading of the appropriate Article in Table 4.5.1.1. by the following: “**4.3.2.3. Determination of Operational Times**”;
4.5.1.1.	Replace respectively, in Table 4.5.1.1, in numerical order, the functional statements and objectives of the following Articles by the following: “**4.2.2.1. Interior Lighting Controls** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1] (4) [F94-OE1.1] (6) [F94-OE1.1] (8) [F94-OE1.1] (9) [F94-OE1.1] (10) [F94-OE1.1] (12) [F94-OE1.1] (14) [F94-OE1.1] (15) [F94-OE1.1] (16) [F94-OE1.1]”; “**4.2.4.1. Exterior Lighting Controls** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1] (4) [F94-OE1.1]”; “**4.3.1.3. Compliance** (1) [F94-OE1.1]”; --- Strike out the following objectives and functional statements in Table 4.5.1.1.: “**4.2.1.3. Limits to Installed Interior Lighting Power** (1) [F94-OE1.1]”; “**4.2.1.5. Calculation of Interior Lighting Power Allowance Using the Building Area Method**

	(2) [F94-OE1.1] (3) [F94-OE1.1] (4) [F94-OE1.1] (5) [F94-OE1.1]"; "**4.2.2.2. Lighting Controls in Storage Garages** (4) [F94-OE1.1]"; "**4.2.3.1. Exterior Lighting** (2) [F94-OE1.1]"; --- Strike out the following Articles, functional statements and objectives in Table 4.5.1.1.: "**4.2.2.3. Determination of Primary and Secondary Sidelighted Areas** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1] (4) [F94-OE1.1] (5) [F94-OE1.1] (6) [F94-OE1.1] (7) [F94-OE1.1] (8) [F94-OE1.1]"; "**4.2.2.4. Determination of Daylighted Area Under Roof Monitors** (1) [F94-OE1.1] (2) [F94-OE1.1]"; "**4.2.2.5. Determination of Daylighted Area Under Skylights** (1) [F94-OE1.1] (2) [F94-OE1.1]"; "**4.3.2.4. Determination of Non-Daylighted Area** (1) [F94-OE1.1]"; "**4.3.2.5. Determination of Effective Annual Operational Times** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1]"; "**4.3.2.6. Determination of Operational Times** (1) [F94-OE1.1] (2) [F94-OE1.1]"; "**4.3.2.7. Determination of Factor for Daylight Harvesting**

	(1) [F94-OE1.1] (4) [F94-OE1.1] (5) [F94-OE1.1]"; "**4.3.2.8. Determination of the Daylight Supply Factor for Sidelighting** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1] (4) [F94-OE1.1]"; "**4.3.2.9. Determination of the Daylight Supply Factor for Toplighting** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1]"; "**4.3.2.10. Determination of Factors for Occupancy Control and Personal Control** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1]"; "**4.3.3.2. Determination of Lighting Power Density** (1) [F94-OE1.1]"; "**4.3.3.3. Determination of Daylighted Area** (1) [F94-OE1.1]"; "**4.3.3.4. Determination of Non-Daylighted Area** (1) [F94-OE1.1]"; "**4.3.3.5. Determination of Effective Annual Operational Times** (1) [F94-OE1.1] (2) [F94-OE1.1] (3) [F94-OE1.1]"; "**4.3.3.7. Determination of Factor for Daylight Harvesting** (1) [F94-OE1.1] (4) [F94-OE1.1] (5) [F94-OE1.1]"; "**4.3.3.10. Determination of Factors for Occupancy Control and Personal Control** (1) [F94-OE1.1] (2) [F94-OE1.1]".

Division B Notes to Part 4	
	Add the following Note: “**A-4.1.1.2.(2)(b) Application to Dwelling Units.** The interior lighting of dwelling units need not comply with the requirement of Part 4. The interior lighting of common parts of a building with dwelling units is not covered by the exclusion of that Clause and shall comply with the requirements of Part 4.”.
A-4.1.1.2.(2)(c)	Strike out the Note.
A-4.1.1.3.(1)	Replace the Note by the following: “**A-4.1.1.3.(1) Compliance.** The flow chart in Figure A-4.1.1.3.(1) illustrates the process for all three paths of compliance applicable to Part 4.

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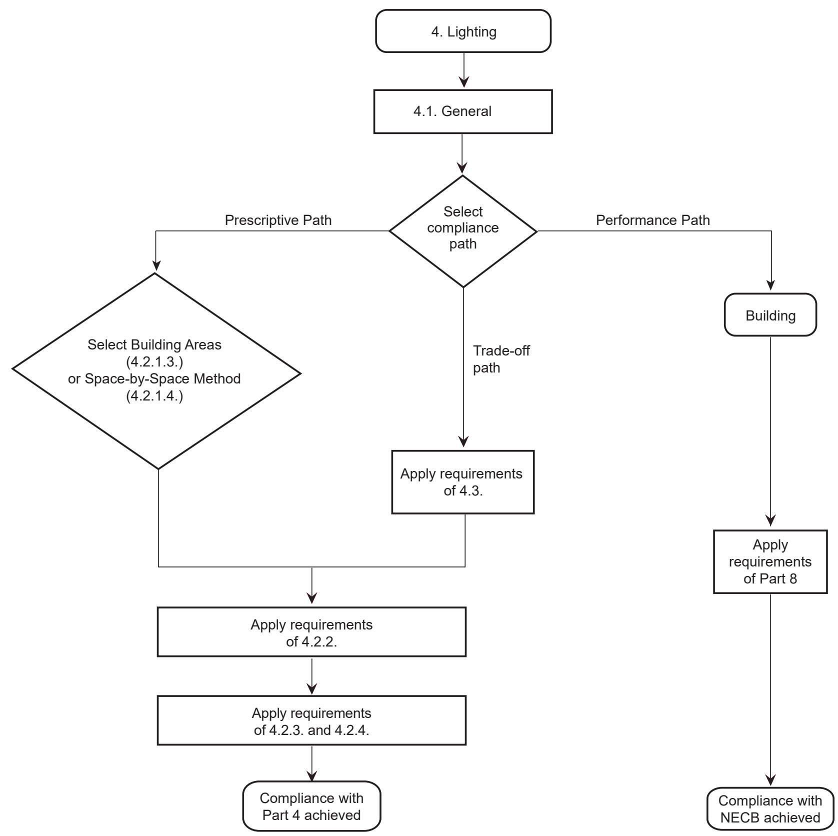

Figure A-4.1.1.3.(1)

Code compliance paths for lighting”.
</td>
</tr>
<tr>
<td>A-4.2.1.3.</td>
<td>
Replace the second Sentence of the Note by the following:

“Mixing the two methods described in Sentence 4.2.1.3.(1) within a building is permitted under certain conditions.”.
</td>
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Add the following Notes:

“**A-4.2.1.3.(5) Power Transfer of Interior Lighting Allowance not Used Between Several Spaces in the Same Space Assemblies.** For a building with a single function, such as a library, the interior lighting power allowance is determined using the building area method from an LPD of 12.8 W/m² as provided in Table 4.2.1.5. In that case, the washrooms could have an installed LPD greater than 12.8 W/m², provided that the installed interior lighting power of the library is less than 12.8 W/m².

Similarly, if the interior lighting power allowance of the library were determined using the space-by-space method described in Article 4.2.1.6., the washrooms could have
</td>
</tr>
</table>

	an LPD greater than the 10.5 W/m² provided in Table 4.2.1.6., provided that the interior lighting power allowance of the library is not exceeded. **A-4.2.1.3.(6) Power Transfer of Interior Lighting Allowance not Used Between Several Space Assemblies.** In a building with several space assemblies, the unused portion of the interior lighting power allowance may be transferred from one assembly to the other. For example, in a commercial building with several suites having different functions, transfer of the unused portion of the interior lighting power allowance is permitted. The transfer may only take place in the conditions described in Sentence 4.2.1.3.(6). **A-4.2.1.4. Spaces to Consider to Determine Installed Interior Lighting Power.** The spaces to be considered to determine the installed interior lighting power are defined in the definition for interior lighting. (See Article 1.4.1.2. and Note A-1.4.1.2. of Division A.)”.
A-4.2.1.4.(2)	Replace the last paragraph of the Note by the following: “Where several lighting systems are controlled to ensure independently several levels of lighting, the system with the highest lighting power must be included in the calculation of the installed interior lighting power. For example, in a meeting room with a first system for subdued lighting for the use of a projector and a second lighting system for tables, where the controls of the two lighting systems do not allow their simultaneous illumination, Clause 4.2.1.4.(2)(b) allows to consider only the highest power between the two systems to calculate the installed lighting power.”.
	Add the following Note: “**A-4.2.1.4.(4)(k) Commercial Demonstration Lighting.** That lighting designates the lighting devices and accessories that are intended to be sold to the public (e.g. in a luminaire store) and does not include accent lighting for a commercial shop window, which is covered in Clause 4.2.1.4.(4)(g).”.
A-4.2.1.5.	Replace “by multiplying the gross lighted area of the building” in the Note by “by multiplying the floor surface area of the space assembly”; Replace “selected based on the project's building type” in the Note by “selected based on the function of the space assembly”; Strike out the last Sentence of the Note.

	Add the following Notes: “**A-4.2.1.6.(3) Adjustment Factor of Luminaires Positioned High.** The height of the luminaires, H_1, used in calculating the adjustment factor, AF, must correspond to the height of the light source. Where luminaires are not built in the ceiling, the designer must assess their heights in relation with the floor. The exchange of the unused portion of the increased interior lighting power allowance for those of the other spaces in accordance with Sentence 4.2.1.6.(8) is permitted. **A-4.2.1.6.(4) Additional Power of Luminaires Positioned in Corridors or Transition Areas.** The LPD in Table 4.2.1.6. concerning corridors are determined for corridors 2.4 m wide or more. For widths less than 2.4 m, the reflectance of the light on the walls increases and requires that the designer increase the lighting power to maintain a sufficient lighting level. The exchange of the unused portion of the increased power allowances for those of the other spaces in accordance with Sentence 4.2.1.6.(8) is permitted. **A-4.2.1.6.(5) Additional Power Due to Controls.** In certain conditions, increasing the interior lighting power allowance based on the addition of the controls referred to in Table 4.2.1.6 is permitted. Those controls are in addition to those required in Subsection 4.2.2. The exchange of the unused portion of the increased power allowances for those of the other spaces in accordance with Sentence 4.2.1.6.(8) is permitted. **A-4.2.1.6.(6) Additional Power Due to Decorative Lighting or Display Lighting for Art Work.** Although under Clause 4.2.1.4.(4)(a), lighting in museums or art galleries for the display of art work or artefacts is excluded from the calculation of installed power, the additional power due to display lighting applies to all functions that are not museums or art galleries. For example, lighting of a floor surface area occupied by the statue of an athlete at the entrance of an arena will not be excluded from the calculation of the power by Clause 4.2.1.4.(4)(a) and could be increased by 10.8 W for each m² of floor surface area occupied by the statue. The additional power due to decorative lighting or display lighting for art work is not permitted where the lighting concerned only contributes to the general lighting of the space. For example, where the only source of lighting in a 100 m² corridor are wall luminaires, the luminaires are not eligible for additional lighting due to decorative lighting because the wall luminaires do not have a decorative function but are only intended for the general lighting of the corridor. According to Table 4.2.1.6., the LPD allowance for that 100 m² corridor must not exceed 7.1 W/m² and the interior lighting power allowance for wall luminaires of the corridor will therefore be 710 W. As provided in Sentence 4.2.1.6.(8), the exchange of the unused portion of those powers against those of other spaces is not permitted. **A-4.2.1.6.(7) Additional Power Due to Display Lighting of Items for Sale.** Areas due to display lighting of items for sale only rarely correspond to the full floor surface area of the space considered; they are only constituted of areas occupied by the display cases concerned and an immediate traffic area around the cases.

	Where the lighting only contributes to the general lighting of the space, Sentence 4.2.1.6.(7) does not allow the increase of the interior lighting power allowance. As provided in Sentence 4.2.1.6.(8), the exchange of the unused portion of those powers for those of the other spaces is not permitted.”.
A-Table 4.2.1.6.	Replace the Note by the following: “**A-Table 4.2.1.6. Building Space Types.** **Common and Building-Specific** In some cases, a space can be described as both a common space type and a building-specific space type. For example, the medical supply room in a health care facility could also be a storage room. In such case, the building-specific space type “medical supply room” must be used. **Warehouse** In a warehouse storage area, the space used to store small hand-carried items is sometimes referred to as a “picking area.””.
A-4.2.2.1.(11) and (14)	Strike out the Note.
	Add the following Note: “**A-4.2.2.2.(2) Reduction of the Power During Unoccupied Periods in a Storage Garage.** To ensure user safety, uniform lighting is necessary in the garage. For that reason, the power must be reduced on each lighting unit rather than by turning off one unit out of three, for example.”.
A-4.2.2.3.	Strike out the Note.
A-4.2.2.3.(1) and (5)	Strike out the Note.
A-4.2.2.4.	Strike out the Note.
A-4.2.2.4.(1) and 4.2.2.5.(1)	Strike out the Note.

A-4.2.2.4.(2)	Strike out the Note.
A-4.2.2.5.(2)	Strike out the note.
A-4.2.3.1.(4)	Replace “Lighting” in the heading of the Note by “Transferable”; Replace “puissance admissible de base” in the French text of the Note by “puissance d’allocation de base”.
A-4.2.3.1.(5)	Strike out the Note.
	Add the following Note: “**A-4.2.4.1.(1) Shut-off Controls of Exterior Lighting During the Day.** It is possible to comply with the requirement, for example, by using photocontrolled breakers or an annual detailed program ensuring the automatic turning off of exterior lighting in the presence of daylight.”.
A-4.3.2.3.(2)	Replace the Note by the following: “**A-4.3.2.3.(2) Specialized Daylight Simulation Tools.** A specialized daylight simulation tool allows the modeling of • radiosity, • ray tracing, • hourly distribution of diffused light sources, such as the sky, • direct light sources, such as the sun, and • photocontrol operation parameters. Where applicable, the specialized daylight simulation tool must also model the operation of concealment devices, such as sun breakers, designed to prevent glare for occupants. The reduction of the operational time provided in Sentence 4.3.2.3.(2) applies to lighting controlled by photocontrols and not to all the lighting of a space.”.
A-4.3.2.7.(4)	Strike out the Note.
A-Table 4.3.2.7.-B	Strike out the Note.

A-Table 4.3.2.8.	Strike out the Note.
A-4.3.3.7.(4)	Strike out the Note.
Division B Part 5	
5.1.1.2.	Replace Sentence (2) by the following: “**2)** Unless otherwise provided in this Part and subject to Sentence (4), this Part does not apply to HVAC systems a) serving rooms in which the processes or activities call for temperatures, airflow rates or humidity levels outside the normal range required for comfort, or b) dedicated entirely to a process or activity calling for temperatures, airflow rates or humidity levels outside the normal range required for comfort. (See Note A-5.1.1.2.(2) and (4).)”; Add the following Sentence: “**4)** An HVAC system serving both rooms referred to in Sentence (2) and rooms calling for conditions within the normal range required for comfort must comply with this Part. (See Note A-5.1.1.2.(2) and (4).)”.
5.2.2.3.	Replace the Article by the following: “**5.2.2.3. Duct Sealing** **1)** Except as provided in Sentences (2) to (5), air-handling ducts and *plenums* forming part of a heating, ventilating or and air-conditioning system shall be sealed like a Class A duct as described in ANSI/SMACNA 006, “HVAC Duct Construction Standards – Metal and Flexible.” (See Note A-5.2.2.3.(1).) **2)** *Return ducts* located within *conditioned space* or in spaces used as return air *plenums* need not comply with Sentence (1). **3)** Sealing tape shall not be used as the primary sealant for sections of air-handling ducts and *plenums* with a static pressure of at least 250 Pa. **4)** The joints of air-handling ducts and *plenums* shall have mechanical fasteners and be assembled so that no mechanical effort is transmitted to the sealant. **5)** Sealing tape used to seal air-handling ducts and *plenums* shall comply with UL 181A, “Closure Systems for Use with Rigid Air Ducts,” or UL 181B, “Closure Systems for Use with Flexible Air Ducts and Air Connectors.” **6)** A suspended ceiling void used as return air *plenum* need not be sealed in accordance with this Article.”.

<table>
<tr>
<td>5.2.2.4.</td>
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Replace the Article by the following:
“5.2.2.4. Leakage Testing of Ducts
1) The following air-handling ducts and plenums shall be tested for leakage in conformance with ANSI/SMACNA 016, “HVAC Air Duct Leakage Test Manual,” and comply with the maximum permitted leakage calculated in accordance with Sentence (2):
a) air-handling ducts and plenums designed to operate at a static pressure of more than 750 Pa, and
b) air-handling ducts and plenums located outside of the building envelope.
2) The maximum permitted leakage of air-handling ducts and plenums tested as described in Sentence (1) shall be calculated as follows:
$$L_{max} = C_L \times \left(\frac{P}{249}\right)^{0.65}$$
where
L_{max} = maximum permitted leakage, in L/s per m² of duct surface area or plenum,
C_L = leakage class taken from Table 5.2.2.4., in L/s per m², and
P = maximum operating static pressure, in Pa.
Table 5.2.2.4.
Leakage Classes (C_L)
Forming Part of Sentence 5.2.2.4.(2)
<table>
<tr><td rowspan="3">Shape of Air-handling Ducts and Plenums</td><td colspan="2">Maximum Operating Static Pressure, Pa</td></tr>
<tr><td>750 to 1000</td><td>> 1000</td></tr>
<tr><td colspan="2">C_L, in L/s per m²</td></tr>
<tr><td>Rectangular</td><td>0.41</td><td>0.20</td></tr>
<tr><td>Round</td><td>0.20</td><td>0.10</td></tr>
</table>
3) The tests described in Sentence (1) shall
a) include the sections where leakage is predominant, such as sections with elbows, and
b) be performed over a minimum of 25% of the total surface area of the ducts and plenums referred to in Sentence (1).”.
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<tr>
<td>5.2.2.5.</td>
<td>
Replace Sentence (1) by the following:
“1) Except as provided in Sentence (3), all air-handling ducts and plenums forming part of an HVAC system shall be thermally insulated in accordance with Table 5.2.2.5.”;
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</table>

Replace Table 5.2.2.5. by the following:

"**Table 5.2.2.5.**
Insulation of Ducts and Plenums
Forming Part of Sentences 5.2.2.5. (1) and (2) and 5.2.4.2. (3)

Temperature Difference,(1) °C	Minimum Thermal Resistance of Insulation of Ducts not Exceeding 3 m in Length that Connect to Terminal Grilles or Diffusers, m²×°C/W	Minimum Thermal Resistance of Insulation of *Plenums* and Other Ducts, m²×°C/W
< 5	0	0
5 to < 22	0.74	0.74
22 to < 29	0.74	1.06
29 to < 43	0.74	1.41
≥ 43	1.41	2.11

Notes to Table 5.2.2.5.:

(1) Refers to the temperature difference at design conditions between the space within which the duct or *plenum* is located and the design temperature of the air carried by the same duct or *plenum*. Where the duct or *plenum* is located outside the *building envelope,*

- if used for heating purposes, the temperature difference shall be calculated using the 2.5% January design temperature of Table C-1, or
- if used for cooling purposes, the temperature difference shall be calculated using the 2.5% July design dry-bulb temperature of Table C-1.

Where a duct or *plenum* is used for both heating and cooling purposes, the larger temperature difference shall be used.";

Replace Sentences (3) to (9) by the following:

"**3)** The following air-handling ducts and *plenums* need not comply with the requirements of Sentence (1):

a) *exhaust ducts, return ducts* and air *supply ducts* located within *conditioned space*, except as provided in Sentence 5.2.4.2.(3),

b) ducts and *plenums* located within *conditioned space* in a *dwelling unit* and serving only that *dwelling unit*,

c) air *supply ducts* located within return *plenums*, and

d) provided they are insulated with a material having thermal resistance of at least 0.74 m²×°C/W:

i) *exhaust ducts* crossing an unconditioned space,

ii) *exhaust ducts* separated from *conditioned space* by an insulated *building* assembly in accordance with Section 3.2., and

iii) ducts in which outdoor air not heated and not mixed to indoor air circulates, where they cross *conditioned space*.".

5.2.2.7.	Replace the Article by the following: “**5.2.2.7. Cooling with Outdoor Air** **1)** Except as provided in Sentence (2), HVAC systems that incorporate mechanical cooling shall be designed with at least one economizer system to use outdoor air to reduce mechanical cooling energy by one of the means covered in Articles 5.2.2.8. and 5.2.2.9. **2)** An HVAC system need not comply with the requirements of Sentence (1) where a) it has a total cooling capacity less than 16 kW, b) it serves only server rooms and has a total cooling capacity less than 40 kW, c) it serves only a *dwelling unit* or a hotel or motel *suite*, d) it has a non-particle filtration system (see Note A-5.2.2.7.(2)(d)), e) it serves a hospital, provided that more than 75% of the distributed air is humidified at a wet-bulb temperature greater than 2°C, f) it recovers heat on the mechanical cooling equipment (see Note A-5.2.2.7.(2)(f)), g) it serves spaces maintained at a temperature of at least 26°C during operating hours (see Note A-5.2.2.7.(2)(g)), h) it is intended to operate or work according to operating hours of less than 20 h per week, or i) it distributes air using at least 80% of outdoor air. **3)** The economizer system shall be integrated to a mechanical cooling system so that a) the mechanical cooling be inactive when the economizer system can ensure alone all the cooling charge, and b) the mechanical cooling is partially activated when the economizer system cannot ensure alone all the cooling charge. (See Note A-5.2.2.7.(3).) **4)** An HVAC system must at least use a water economizer system in accordance with Article 5.2.2.9 when the HVAC system includes a) a water loop mechanical cooling, and b) a humidification system that maintains indoor humidity at a wet-bulb temperature greater than 2°C. (See Note A-5.2.2.7.(4).)”.
5.2.2.8.	Replace Sentences (2) to (6) by the following: “**2)** The systems described in Sentence (1) shall a) be designed to automatically revert to the minimum outdoor airflow required for acceptable indoor air quality as prescribed by the NBC when the use of outdoor air no longer allows the reduction of the cooling energy according to the conditions described in Table 5.2.2.8.-A,

b) be controlled by only one of the types of controls provided for in Table 5.2.2.8.-A, and

c) stop the direct use of outdoor air for cooling when any of the conditions resulting in the shut-off provided for in Table 5.2.2.8.-A is met.

(See Note A-5.2.2.8.(2).)

Table 5.2.2.8.-A
Type of Control and High-Limit Shut-off Control of Direct Use of Outdoor Air
Forming Part of Sentence 5.2.2.8.(2)

Type of Setting	Conditions Resulting in Shut-off	
	Parameters[1]	Description
Fixed dry bulb	$T_{OA} > 21°C$ when HDD under 18°C < 6000	Outdoor air temperature exceeds 21°C in a locality where the number of degree-days under 18°C is under 6000
	$T_{OA} > 24°C$ when HDD under 18°C ≥ 6000	Outdoor air temperature exceeds 24°C in a locality where the number of degree-days under 18°C is at least 6000
Differential dry bulb	$T_{OA} > T_{RA}$	Outdoor air temperature exceeds return air temperature
Fixed enthalpy with fixed dry bulb	$H_{OA} > 47$ kJ/kg or $T_{OA} > 24°C$	Outdoor air enthalpy exceeds 47 kJ/kg or outdoor air temperature exceeds 24°C
Differential enthalpy with fixed dry bulb	$H_{OA} > h_{RA}$ or $T_{OA} > 24°C$	Outdoor air enthalpy exceeds return air enthalpy or outdoor air temperature exceeds 24°C

Notes to Table 5.2.2.8.-A:

(1) T_{OA} = temperature outdoor air,
T_{RA} = temperature return air,
H_{OA} = enthalpy outdoor air,
H_{RA} = enthalpy return air.

3) Except as provided in Sentence (4), an HVAC system including a *supply air handler* whose mechanical cooling is direct expansion shall have at least 2 cooling stages when the mechanical cooling

a) is integrated to cooling by direct use of outdoor air as described in Sentence (1),

b) has a total cooling capacity of more than 18 kW, and

c) is directly controlled from the space temperature.

(See Note A-5.2.2.8.(3).)

4) When an HVAC system including a *supply air handler* has direct expansion mechanical cooling in compliance with Table 5.2.2.8.-B, that system need not comply with Sentence (3). (See Note A-5.2.2.8.(4).)

	Table 5.2.2.8.-B **Minimum Number of Direct Expansion Mechanical Cooling Stage** Forming Part of Sentence 5.2.2.8.(4) <table><tr><th>Cooling Capacity (1)</th><th>Minimum Number of Mechanical Cooling Stages</th><th>Minimum Displacement of the First Cooling Stage (1)</th></tr><tr><td>≥ 18 kW and < 70 kW</td><td>3</td><td>≤ 33% of the total cooling capacity</td></tr><tr><td>≥ 70 kW</td><td>4</td><td>≤ 25% of the total cooling capacity</td></tr></table> **Notes to Table 5.2.2.8.-B:** (1) The values of the cooling capacity and minimum displacement of the first cooling stage apply to a variable-speed compressor.”.
5.2.2.9.	Add the following line after “**5.2.2.9. Cooling by Indirect Use of Outdoor Air (Water Economizer System)**”: “(See Note A-5.2.2.9.)”;
5.2.3.1.	Replace the Article by the following: “**5.2.3.1. Application** (See Note A-5.2.3.1. and 5.2.6.) **1)** This Subsection applies to all fans of HVAC systems used alone or in a combination where the total rated capacities described in Sentence (4) are at least 4 kW. (See Note A-5.2.3.1.(1) to (3).) **2)** Except as provided in Sentence (3), the total of the rated capacities and the total of the brake horsepower of the fans of HVAC systems shall only include the fans that operate at design conditions requiring the highest capacity to supply air to the *conditioned space*. (See Note A-5.2.3.1.(1) to (3).) **3)** The following fans may not be included in the total rated capacities provided for in Sentence (4) and in the total brake horsepower provided for in Sentence (5): a) an independent exhaust fan whose motor rated capacity is not more than 750 W, b) an exhaust or transfer fan that serves unconditioned spaces, and c) a fan that dissipates the heat of an HVAC system located outside the *building envelope*, such as a condenser or a cooling tower fan. (See Note A-5.2.3.1.(1) to (3).) **4)** For the purposes of this Subsection, the total of the rated capacities of the fans of HVAC systems, TRC, in W, shall be the sum of the nameplate ratings of each motor. **5)** For the purposes of this Subsection, the total brake horsepower of the fans of HVAC systems, TBHP, in W, is the sum of the brake horsepower of each fan established a) according to the curves or tables provided by the fan manufacturers, or

b) using the following equation:

$$\mathrm{TBHP} = 0.001 \times \sum_{i=1}^{n} (D_i \times PS_i / \eta_i)$$

where

n = number of fans,

D_i = design flow rate of the i[th] fan, in L/s,

PS_i = design static pressure difference between both sides of the i[th] fan, in Pa, and

η_i = efficiency of the i[th] fan, expressed as a decimal fraction.

6) For the purposes of Clauses 5.2.3.2.(1)(b) and 5.2.3.3.(1)(b), the values of the static pressure adjustment, SPA_i, in Pa, are those stated in Table 5.2.3.1.

Table 5.2.3.1.
Fan Design – Static Pressure Adjustment, SPA_i, in Pa
Forming Part of Sentence 5.2.3.1.(6)

Description	**Positive Adjustment**(1)
All completely channelled *return ducts* and *exhaust ducts* of the HVAC system(2)	For a laboratory and vivarium HVAC system: + 535 Pa For other HVAC system: + 125 Pa
Pressure control damper installed in a *return duct* and/or *exhaust duct*(2)	For each damper: + 125 Pa
Filter on the *exhaust duct*, scrubber or other air treatment device on the *exhaust duct*	For each filter or device: + pressure loss value provided by the manufacturer at design conditions
Particle filter with a MERV(3) efficiency included between 9 and 15	For each filter: + (28.5×MERV) − 174 Pa
Particle filter with a MERV ≥ 16 efficiency or electrostatic filter	For each filter: + double the pressure loss value provided by the manufacturer at design conditions
Carbon air purifier or using another gas phase	For each purifier: + pressure loss value provided by the manufacturer at design conditions
Biological safety cabinet	For each cabinet: + pressure loss value provided by the manufacturer at design conditions
Heat- or energy-recovery unit, except coil heat-recovery systems	For each airflow rate of the recovery unit: + (550×recovery efficiency(4)) − 125 Pa
Coil heat-recovery system	For each airflow rate of the recovery system: + 150 Pa
Humidifier or evaporative cooler in series with another cooling coil	For each humidifier or cooler: + pressure loss value provided by the manufacturer at design conditions
Sound absorbing section	For each section: + 38 Pa
Exhaust equipment for hoods	For each equipment: + 85 Pa
Exhaust ducts installed in high *buildings* for laboratory and vivarium hoods	For each 30 m section of vertical duct, except the first 25 vertical metres: + 60 Pa
Natural gas or propane heat pump or *supply air handler*	For HVAC system: + 50 Pa

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Description	Negative Adjustment[1]
HVAC system without cooling equipment in the *supply air handler*	For the HVAC system: − 150 Pa
HVAC system without heating equipment in the *supply air handler*	For the HVAC system: − 75 Pa

Notes to Table 5.2.3.1.:

(1) See Note A-Table 5.2.3.1.
(2) Static pressure adjustments in the air distribution system are included in the equations provided for in Clauses 5.2.3.2.(1)(b) and 5.2.3.3.(1)(b).
(3) MERV means “minimum efficiency reporting value;” it is a measurement scale to rate the effectiveness of air filters.
(4) Recovery unit efficiency established according to Sentence 5.2.10.1.(5).”.
</td></tr>
<tr><td>**5.2.3.2.**</td><td>

Replace Sentence (1) by the following:

“**1)** Except as provided in Sentence (2), where fans produce a constant airflow rate,

a) the total of the rated capacities provided for in Sentence 5.2.3.1.(4), TRC, in W, shall not exceed the total allowable rated capacities, TARC, in W, established using the following equation:

$$\mathrm{TARC} = \mathrm{D_a} \times 1.61$$

where

D_a = air supply design flow rate, in L/s, or

b) the total of the brake horsepower provided for in Sentence 5.2.3.1.(5), TBHP, in W, shall not exceed the total allowable brake horsepower, TABHP, in W, established using the following equation:

$$\mathrm{TABHP} = \mathrm{D_a} \times 1.42 + \sum_{i=1}^{n} (\mathrm{D_i} \cdot \mathrm{SPA_i}/650)$$

where

D_a = air supply design flow rate, in L/s,

n = number of equipments requiring a static pressure adjustment,

D_i = flow from i^{th} equipment requiring a static pressure adjustment, in L/s (see Sentence 5.2.3.1.(5)), and

SPA_i = static pressure adjustment of i^{th} equipment, in Pa (see Sentence 5.2.3.1.(6)).

(See Note A-5.2.3.2.(1).)

2) Constant-flow fan systems used for hospitals, vivariums or laboratories and whose exhaust or return flow is controlled to maintain a specific pressure for health or safety reasons may use the limits of a variable volume fan. (See Note A-5.2.3.2.(2).)”.
</td></tr>
</table>

5.2.3.3.	Replace the Article by the following: “**5.2.3.3. Variable-Air-Volume Fan Systems** (See Note A-5.2.3.3.) **1)** In the case of fans automatically varying the airflow rate based on static pressure, a) the total of the rated capacities provided for in Sentence 5.2.3.1.(4), TRC, in W, shall not exceed the total allowable rated capacities, TARC, in W, established using the following equation: $$\mathrm{TARC} = \mathrm{D_a} \times 2.31$$ where D_a = air supply design flow rate, in L/s, or b) the total of the brake horsepower provided for in Sentence 5.2.3.1.(5), TBHP, in W, shall not exceed the total allowable brake horsepower, TABHP, in W, established using the following equation: $$\mathrm{TABHP} = \mathrm{D_a} \times 2.02 + \sum_{i=1}^{n} (\mathrm{D_i} \times \mathrm{SPA_i}/650)$$ where D_a = air supply design flow rate, in L/s, n = number of equipments requiring a static pressure adjustment, D_i = flow from i^{th} equipment requiring a static pressure adjustment, in L/s (see Sentence 5.2.3.1.(5)), and SPA_i = static pressure adjustment of i^{th} equipment, in Pa (see Sentence 5.2.3.1.(6)). **2)** In variable-air-volume HVAC systems, every supply, discharge or return fan whose rated capacity is at least 7.4 kW shall operate at not more than 30% of its power demand at design conditions where the fan provides 50% of the air design flow rate. (See Note A-5.2.3.3.(2).) **3)** Except as provided in Sentence (4), static pressure sensors used to control a variable-air-volume supply fan shall be a) located so that the static pressure setpoint is not more than 300 Pa, and b) installed downstream from the fan, i) in the main supply duct before any intersection, or ii) in each intersection of a main supply duct. (See Note A-5.2.3.3.(3).) **4)** The static pressure setpoint of an HVAC system supply fan shall be adjusted to the value of the *conditioned space* requiring the highest static pressure when the following conditions are met: a) all the *conditioned spaces* of the HVAC system are individually served by terminal zone boxes, b) a direct digital control system is installed on the terminal zone box of each *conditioned space*, and

<table>
<tr><td></td><td>c) each direct digital control system is centralized on the supply fan main control panel.

(See Note A-5.2.3.3.(4).)

5) The main control panel referred to in Clause (4)(c) shall
a) measure the opening degree of each terminal zone box,
b) signal terminal zone boxes that remain open the longest, and
c) permit the manual removal of the control logic of the terminal zone boxes referred to in Clause (b) to maximize the setpoint readjustment potential.”.</td></tr>
<tr><td>5.2.3.4.</td><td>Strike out the Article.</td></tr>
<tr><td>5.2.4.1.</td><td>Replace Sentence (4) by the following:

“4) Where the duct or opening does not exceed 0.08 m², air intake and air exhaust dampers required by Sentence (1) are permitted to be gravity or spring-operated backflow dampers.”.</td></tr>
<tr><td>5.2.4.2.</td><td>Replace Sentence (3) by the following:

“3) Dampers required in Article 5.2.4.1. are permitted to be located inboard of the building envelope, provided the thermal resistance of the duct insulation between the damper and the building envelope is that provided in Table 5.2.2.5. according to the applicable temperature difference, without being less than 0.74 m²×K/W.”.</td></tr>
<tr><td>5.2.5.3.</td><td>Replace Sentence (1) by the following:

“1) Except as provided in Sentences (2) to (6), piping and accessories forming part of an HVAC system shall be thermally insulated in accordance with Table 5.2.5.3. (See Notes A-5.2.5.3.(1), and A-5.2.2.5.(2), 5.2.5.3.(8) and 6.2.3.1.(6).)”;
<hr>Replace Table 5.2.5.3. by the following:

“Table 5.2.5.3.
Minimum Thickness of Piping Insulation, in mm
Forming Part of Sentences 5.2.5.3.(1), (3) to (5), and (8)
<table>
<tr><th rowspan="3">Type of System</th><th rowspan="3">Design Operating Temperature Range, °C</th><th colspan="2">Thermal Conductivity of Insulation</th><th colspan="3">Nominal Pipe Diameter, mm (inches)</th></tr>
<tr><th rowspan="2">Conductivity Range, W/(m×K)</th><th rowspan="2">Mean Rating Temperature, °C</th><th>≤ 25.4 (≤ 1)</th><th>> 25.4 and ≤ 51 (> 1 and ≤ 2)</th><th>> 51 (> 2)</th></tr>
<tr><th colspan="3">Minimum Thickness of Piping Insulation, mm</th></tr>
<tr><td rowspan="3">Heating Systems (steam, steam condensate and hot water)</td><td>> 177</td><td>0.046 – 0.049</td><td>121</td><td>114</td><td>127</td><td>127</td></tr>
<tr><td>122 – 177</td><td>0.042 – 0.045</td><td>93</td><td>76.2</td><td>101.6</td><td>114</td></tr>
<tr><td>94 – 121</td><td>0.039 – 0.043</td><td>65</td><td>63.5</td><td>63.5</td><td>76.2</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td>

	61 – 93	0.036 – 0.042	52	38.1	50.8	50.8
	41 – 60	0.035 – 0.040	38	25.4	38.1	38.1
Cooling Systems (chilled water, brine and refrigerant)	4 – 16	0.030 – 0.039	24	25.4	25.4	25.4
	< 4	0.030 – 0.039	24	25.4	38.1	38.1

”;

Replace Sentence (3) by the following:

“**3)** Piping for HVAC systems need not comply with Table 5.2.5.3. if it

a) is located within a *conditioned space* and conveys fluids with design operating temperatures greater than 16°C and less than 41°C,

b) is used only to reject heat and is located outside the *building envelope*, or

c) is used for the circulation of a fluid that is neither heated nor cooled by electricity or a fossil fuel. (See Note A-5.2.5.3.(3)c).)”;

Strike out “(See Note A-5.2.2.5.(8) and 5.2.5.3.(7).)” in Sentence (7).
</td></tr>
<tr><td>

5.2.6.
</td><td>

Insert the following after the heading of the Subsection:

“(See Note A-5.2.3.1. and 5.2.6.)”.
</td></tr>
<tr><td>

5.2.6.1.
</td><td>

Replace Sentences (1) and (2) by the following:

“**1)** This Subsection applies to pumping of HVAC systems

a) with a total of the pump system motor power ratings in Sentence (2) of at least 7.5 kW, and

b) including control valves designed to modulate or to open and close in steps as a function of thermal energy load.

2) For the purposes of this Subsection, the total of the pump motor power ratings of the HVAC system shall be the sum of the nameplate power ratings of each pump motor required to operate at design conditions to supply thermal energy to an HVAC system or *conditioned space*.”.
</td></tr>
<tr><td>

5.2.6.2.
</td><td>

Replace the Article by the following:

“**5.2.6.2. Requirements for Pumping Systems of HVAC Systems**

1) Except as provided in Sentence (2), pumping systems that provide thermal energy to an HVAC system or a *conditioned space* shall be

a) designed for variable fluid flow, and

b) capable of reducing system flow to 50% or less of design flow.

(See Note A-5.2.6.2.(1).)
</td></tr>
</table>

	2) Sentence (1) does not apply to pumping systems that provide thermal energy to an HVAC system or a *conditioned space* a) in which a minimum flow greater than 50% of the design flow is required for the proper operation of the HVAC system, b) with a single control valve, or c) that include controls to reset the fluid supply temperature based on either outdoor temperature or HVAC system loads.”.
5.2.6.3.	Strike out the Article.
5.2.8.1.	Replace “include at least one automatic space temperature control device that is accurate to within 1°C” in Sentence (1) by “serve at least one *temperature-control zone*”; Strike out Sentence (2).
5.2.8.2.	Replace Sentence (1) by the following: “**1)** Each *dwelling unit* shall be considered as at least one *temperature-control zone*.”; Strike out Sentence (2).
5.2.8.4.	Replace Clause (1)(b) by the following: “b) on interior walls or on exterior walls with an *effective thermal resistance* of at least 3.60 (m²×K)/W”.
5.2.8.5.	Strike out “(See Note A-5.2.8.5.(1) and 5.2.11.1.(2)(e).)” in Sentence (1).
5.2.8.6.	Replace “to a zone” in Sentence (1) by “to a *temperature-control zone*”; Replace “the zone(s) it serves” in Clause (2)(b) by “the *temperature-control zone(s)* it serves”; Replace “a space” in Sentence (3) by “a *temperature-control zone*”; Replace Sentences (4) and (5) by the following:

	“**4)** Where heating and cooling to a *temperature-control zone* are controlled by the same thermostatic control, the difference between the heating cycle shutdown temperature and the cooling cycle startup temperature shall be at least 1.5°C and conversely. **5)** Vestibules between *conditioned spaces* and the outdoors shall a) have a temperature-control device that limits the maximum heating temperature in the vestibule to 15°C, or b) be heated by an air curtain equipped with shut-off settings activated when the exterior entry doors are closed.”.
5.2.8.7.	Replace the Article by the following: “**5.2.8.7. Ice- and Snow-Melting Heater Controls and Frost Protection Equipment** **1)** Ice- and snow-melting heating systems located outside the *building* shall be provided with automatic controls that shut the systems down where a) the outdoor temperature is more than 4.4°C, or b) the temperature of the surface with a heating system is more than 10°C. **2)** Equipment for protecting piping located outside the *building* against frost using a heating cable shall be equipped with automatic controls that shut down the equipment a) where the outdoor temperature is more than 4.4°C, or b) where there is no risk of frost for the fluid circulating in the protected piping.”.
5.2.8.8.	Replace Sentence (2) by the following: “**2)** Reheating supply air previously cooled to reach the required humidity level is permitted. (See Note A-5.2.8.8.(2).)”; --- Insert “(See Note A-5.2.8.8.(3).)” at the end of Sentence (3).
5.2.8.9.	Replace the term “Except as provided in Sentence (4)” wherever it appears in Sentences (1) to (3) by “Except as provided in Sentence (6)”; --- Replace Sentence (4) by the following: “**4)** Except as provided in Sentence (6), the airflow rate that is reheated, cooled or mixed in the *temperature-control zones* without a direct digital control system shall not exceed the highest flow among the following: a) 30% of the maximum supply flow in the *temperature-control zone*, or b) the outdoor airflow rate required for acceptable indoor air quality as prescribed by the NBC.

	(See Note A-5.2.8.9.(4) and (5).) **5)** Except as provided in Sentence (6), *temperature-control zones* with a direct digital control system shall have a) a supply airflow rate not exceeding the highest flow from among the following, where the supply airflow rate of the *temperature-control zone* is neither heated nor cooled: i) 20% of the maximum supply flow of the *temperature-control zone*, or ii) the outdoor airflow required for acceptable indoor air quality as prescribed by the NBC, b) an airflow reheated, cooled or mixed less than 50% of the maximum supply flow of the *temperature-control zone*, and c) the following heating sequence: i) a first heating stage to modulate the zone temperature setpoint to the maximum supply temperature and to maintain an airflow rate equal to that established in Clause (5)(a), and ii) a second heating stage to maintain the zone temperature setpoint to its maximum value and to modulate the airflow rate to the airflow rate provided for in Clause (5)(b). (See Note A-5.2.8.9.(4) and (5).) **6)** Sentences (1) to (5) do not apply in *temperature-control zones* in which at least 75% of the energy necessary for heating shall be provided by a) the energy recovered at the site, or b) the solar energy produced at the site, except the energy due to passive heat gain created by *fenestration*. (See Note A-5.2.8.9.(6).)”.
5.2.9.	Replace the heading of the Subsection by the following: “**5.2.9. Humidification and Dehumidification**”.
5.2.10.1.	Replace Sentence (1) by the following: “**1)** Except as provided in Sentence (3), when the quantity of sensible heat of the exhaust air equipment as calculated in accordance with Sentence (4) exceeds 50 kW, the HVAC system shall be equipped with energy recovery equipment compliant with Sentence (5). (See Note A-5.2.10.1.(1).)”; --- Replace Sentences (3) to (5) by the following: “**3)** The following equipment need not comply with Sentence (1): a) specialized exhaust equipment, such as those used to exhaust smoke, grease-laden vapours, or toxic, flammable, paint, or corrosive fumes or dust, b) exhaust equipment operated less than 20 h per week, and

	c) exhaust equipment serving *conditioned spaces* with a temperature maintained at less than 16°C. **4)** The sensible heat, in kW, referred to in Sentence (1), which is the sensible heat content of the total quantity of exhaust, shall be calculated as follows: $\text{Sensible heat} = 0.00123 \times \mathrm{Q} \times (\mathrm{T_e} - \mathrm{T_o})$ where Q = rated capacity of the exhaust system at normal exhaust air temperature, in L/s, T_e = temperature of exhaust air before heat recovery, in °C, and T_o = outdoor 2.5% January design temperature, in °C. **5)** Heat- or energy-recovery equipment shall have a) a net sensible efficiency of at least 60% where the efficiency is i) established at 100% of the heating test flow, ii) measured according to AHRI 1061 (SI), “Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment,” and iii) certified by AHRI, by Intertek Testing Services NA Ltd. or by Element Materials Technology Canada Inc., or b) a sensible heat-recovery capacity of at least 55% where the recovery capacity is i) established at a flow of at least 22 L/s for a temperature at the supply air inlet of −25°C, ii) measured according to CAN/CSA-C439, “Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators,” and iii) certified by HVI or other certification body that is accredited by the Standards Council of Canada.”.
5.2.10.2.	Replace the Article by the following: “**5.2.10.2. Swimming Pools** **1)** HVAC systems for swimming pools with a surface area of at least 10 m² located within *conditioned spaces* shall comply with Sentences (2) and (3). **2)** Exhaust air equipment of the swimming pool referred to in Sentence (1) shall a) have an exhaust airflow limited to the outdoor airflow required for acceptable indoor air quality as prescribed by the NBC, and b) recover at least 60% of the sensible heat of the exhaust air at the design conditions in compliance with Sentence 5.2.10.1.(5). (See Note A-5.2.10.2.(2).)

	3) HVAC systems that serve a swimming pool referred to in Sentence (1) shall include mechanical dehumidification equipment that a) ensures untreated dehumidification by the exhaust air equipment described in Sentence (2), and b) rejects heat from dehumidification in *building* systems. (See Note A-5.2.10.2.(3)(b).)”.
5.2.10.3.	Replace the Article by the following: “**5.2.10.3. Refrigeration Systems** **1)** The following systems shall comply with Sentences (2) and (3): a) refrigeration systems for creating or maintaining an ice sheet in heated *buildings*, such as an ice arena or a curling rink, and b) refrigeration systems i) for food conservation, ii) installed in heated *buildings* with a *building* area of more than 2500 m², and iii) composed of several equipment connected to a centralized refrigeration system. (See Note A-5.2.10.3.(1)(b).) **2)** The refrigeration systems referred to in Sentence (1) shall include heat-recovery equipment a) that recovers at least 25% of the heat before it is rejected to the condenser (see Note A-5.2.10.3.(2)(a)), or b) that meets at least 80% of the space heating or *service water* heating capacity. (See Note A-5.2.10.3.(2)(b).) **3)** The heat-recovery equipment described in Sentence (2) shall not increase the refrigerant saturation temperature beyond the temperature established at design conditions. **4)** Auxiliary heating in a space heated by the heat-recovery equipment described in Sentence (2) is not permitted to operate where the equipment may completely ensure the heating load of that space.”.
5.2.10.4.	Replace the Article by the following: “**5.2.10.4. Dwelling units** **1)** The principal mechanical ventilation system of a *dwelling unit* shall be equipped with heat- or energy-recovery equipment. (See Note A-5.2.10.4.(1).) **2)** The heat- or energy-recovery equipment referred to in Sentence (1) shall have a) for equipment serving only one *dwelling unit*, a sensible heat-recovery capacity of at least 55% in the case of a *building* located in a municipality whose number of degree-days under 18°C is less than 6000 and of at least 60% in the case of a *building* located in another municipality where the recovery capacity is

	i) established at a flow of at least 22 L/s for a supply air inlet temperature of −25°C, ii) measured according to CAN/CSA-C439, “Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators,” and iii) certified by HVI or by other certification body that is accredited by the Standards Council of Canada (see Note A-5.2.10.4.(2)(a)), or b) in other cases, net sensible efficiency of at least 60% in the case of a *building* located in a municipality whose number of degree-days under 18°C is less than 6000 and of at least 65% in the case of a *building* located in another municipality where the efficiency is i) established at 100% of the heating test flow, ii) measured according to AHRI 1061 (SI), “Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment,” and iii) certified by AHRI, by Intertek Testing Services NA Ltd. Or by Element Materials Technology Canada Inc.”.
5.2.11.1.	Replace Sentence (1) by the following: “**1)** The following HVAC systems shall be equipped with automatic controls complying with Sentences (2) and (4): a) HVAC systems that are not intended to operate continuously, b) HVAC systems serving *dwelling units*, c) HVAC systems whose heating or cooling capacity is more than 5 kW, or d) HVAC systems i) whose heating or cooling capacity is 5 kW or less, and ii) serving *temperature-control zones* that are not equipped with readily accessible manual controls. (See Note A-5.2.11.1.(1).)”; --- Replace Clause (2)(e) by the following: “e) in the case of heat pumps, temporarily suppressing supplementary heating elements or anticipation of the reaching of the setpoint established during periods of occupancy. (See Note A-5.2.11.1.(2)(e)”; --- Strike out Sentence (3).
5.2.11.2.	Replace Sentences (1) to (3) by the following: “**1)** Except as provided in Sentences (7) and (8), each air distribution system serving multiple *temperature-control zones* shall be divided into *airflow control areas*. (See Note A-5.2.11.2.(1) and (2).)

	2) Each *airflow control area* required by Sentence (1) shall serve a *floor surface area* of not more than 2300 m². (See Note A-5.2.11.2.(1) and (2).) **3)** Each *airflow control area* required by Sentence (1) shall include only the *temperature-control zones* to be operated simultaneously.”;
	Replace “Sentences (1) and (2)” in Sentence (4) by “Sentence (1)”;
	Insert “(See Note A-5.2.11.2.(5).)” at the end of Sentence (5);
	Replace Sentences (7) and (8) by the following: “**7)** Controls and devices such as direct digital control and variable-air-volume systems shall be provided to allow stable operation of all HVAC systems for any length of time while they are serving a single *airflow control area* (see note A-5.2.11.2.(7)). **8)** The following need not be incorporated into *airflow control areas*: a) *temperature-control zones* in which outdoor air and exhaust requirements prevent the reduction or stopping of the air supply, or b) *dwelling units*.”.
5.2.11.3.	Replace “HVAC pumping systems” in Sentence (1) by “HVAC systems”.
5.2.11.4.	Insert “(See Note A-5.2.11.4.(1).)” at the end of Sentence (1); Replace Sentences (2) and (3) by the following: “**2)** Except as provided in Sentence (3), where the heating load of *boilers* of an HVAC system exceeds 176 kW, the HVAC system shall consist of a) more than one *boiler*, b) a multi-stage *boiler,* or c) a fully modulating *boiler*. **3)** Where the heating load of the *boilers* of an HVAC system exceeds 352 kW, those *boilers* shall be fully modulating.”.
5.2.11.5.	Replace Sentence (1) by the following: “**1)** Except as provided in Sentences (2) and (3), chilled- or hot-water systems with a design capacity greater than 88 kW supplying chilled or heated water to an HVAC system shall be equipped with automatic controls that reset the supply water loop temperatures

	a) in relation to the outdoor temperature using an indoor/outdoor controller, or b) in relation to the *building* heating and cooling loads. (See Note A-5.2.11.5.(1).)"; ——— Insert "(See Note A-5.2.11.5.(2).)" at the end of Sentence (2).
5.2.12.1.	Replace Sentence (1) by the following: "**1)** Unitary and packaged equipment and components that are part of a *building* HVAC system shall comply a) with the efficiency requirements provided for in the Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulations, as well as Federal regulations, or b) in the absence of the requirements described in Clause (a), with the requirements listed in Tables 5.2.12.1.-A to 5.2.12.1.-P. (See Notes A-5.2.12.1.(1), and A-5.2.12.1.(1), 6.2.2.1.(1), 7.2.3.1.(1) and 7.2.4.1.(1).) (See Note 6.2.2.4.)".
5.2.12.2.	Strike out the Article.
5.2.12.3.	Strike out the Article.
5.2.12.4.	Strike out the Article.
	Add the following Subsection: "**5.2.13. Commercial Cooking Ventilating System**".
	Add the following Article: "**5.2.13.1. Commercial Cooking Ventilating System** **1)** The make-up airflow introduced directly in the commercial cooking air exhaust system shall be less than 10% of the exhaust airflow. (See Note A-5.2.13.1.(1).) **2)** Commercial cooking exhaust air systems with a cumulative flow of more than 2360 L/s shall comply with one of the following requirements: a) at least 50% of the airflow rate necessary to offset the cooking exhaust rate shall come from available transfer air, in L/s, established using the following equation: $\text{Available transfer air } = \mathrm{D_a} - \mathrm{D_w} - \mathrm{D_e}$ where

	D_a = outdoor airflow entering the *building*, excluding the make-up outdoor airflow directly serving the kitchen, in L/s, D_w = airflow extracted from washrooms, in L/s, and D_e = outdoor airflow to offset other exhaust equipment, in L/s (see Note A-5.2.13.1.(2)(a)); b) at least 75% of the cooking exhaust rate shall come from an exhaust demand air system that shall i) detect cooking emissions (see Note A-5.2.13.1.(2)(b)(i)), and ii) reduce to at least 50% exhaust and make-up flows in the absence of cooking emission, or c) at least 40% of the sensible heat shall be recovered over at least 50% of the cooking exhaust rate by a heat-recovery unit designed for that purpose.”.
5.4.1.2.	Replace the Article by the following: “**5.4.1.2. Limitations** **1)** The performance path shall not take into consideration the energy performance a) of back-up HVAC systems, b) air distribution systems, c) air intake and outlet dampers, d) Piping for an HVAC system, e) space temperature control, and f) *airflow control areas*. (See Note A-5.4.1.2.(1) and 2).) **2)** The elements in Sentence (1) shall comply with Section 5.2. (See Note A-5.4.1.2.(1) and (2).)”.
5.5.1.1.	Replace the heading of the appropriate Article in Table 5.5.1.1. by the following: “**5.2.6.2. Requirements for Pumping Systems of HVAC Systems**”; --- Replace respectively, in numerical order, the headings, objectives and functional statements of the Articles concerned below by the following in Table 5.5.1.1: “**5.2.8.7. Ice- and Snow-Melting Heater Controls and Frost Protection Equipment** (1) [F95-OE1.1] (2) [F95-OE1.1]”; “**5.2.10.3. Refrigeration Systems** (1) [F95,F96,F100-OE1.1] (2) [F95,F96,F100-OE1.1]

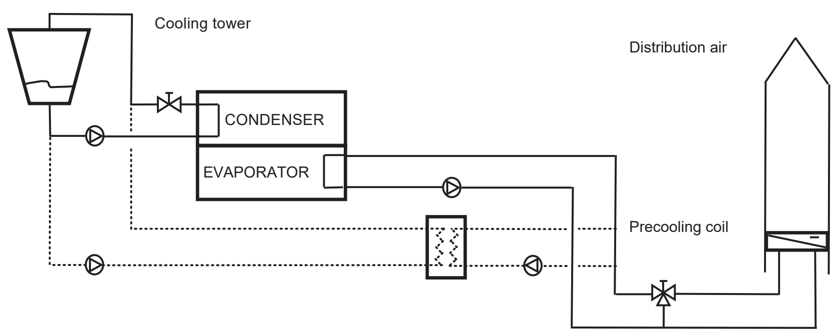
	(3) [F95,F96,F100-OE1.1] (4) [F95,F96,F100-OE1.1]”; --- Replace the attributions for the Article concerned below by the following in Table 5.5.1.1: “**5.2.2.3. Duct Sealing** (1) [F91,F99-OE1.1] (3) [F91,F99-OE1.1] (4) [F91,F99-OE1.1] (5) [F91,F99-OE1.1]”; “**5.2.2.4. Leakage Testing of Ducts** (1) [F91,F99-OE1.1] (2) [F91,F99-OE1.1] (3) [F91,F99-OE1.1]”; “**5.2.2.7. Outdoor Air Cooling** (1) [F95-OE1.1] (3) [F95-OE1.1] (4) [F95-OE1.1]”; “**5.2.3.1. Application** (2) [F95,F97-OE1.1] (4) [F95,F97-OE1.1] (5) [F95,F97-OE1.1] (6) [F95,F97-OE1.1]”; “**5.2.10.2. Swimming Pools** (1) [F95,F100-OE1.1] (2) [F95,F100-OE1.1] (3) [F95,F100-OE1.1]”; “**5.4.1.2. Limitations** (1) [F98,F99-OE1.1] (2) [F98,F99-OE1.1]”; --- Insert respectively, in numerical order, the following objectives and functional statements in Table 5.5.1.1.: “**5.2.3.3. Variable-Air-Volume Fan Systems** (4) [F95,F97-OE1.1] (5) [F95,F97-OE1.1]”; “**5.2.8.9. Control of Space Temperature by Reheating or Recooling**

	(4) [F95-OE1.1] (5) [F95-OE1.1]”; --- Insert, in numerical order, the following Article, objectives and functional statements in Table 5.5.1.1.: “**5.2.13.1. Commercial Cooking Ventilating System** (1) [F95-OE1.1] (2) [F95-OE1.1]”; --- Strike out respectively the following objectives and functional statements in Table 5.5.1.1: “**5.2.2.5. Duct and Plenum Insulation** (6) [F93-OE1.1] (8) [F92,F93-OE1.1] (9) [F93,F95,F99-OE1.1]”; “**5.2.2.8. Cooling by Direct Use of Outdoor Air (Air Economizer System)** (5) [F95-OE1.1]”; “**5.2.8.1. Temperature Controls** (2) [F95-OE1.1]”; “**5.2.8.2. Temperature Control within Dwelling Units** (2) [F95-OE1.1]”; “**5.2.10.4. Heat Recovery in Dwelling Units** (3) [F95,F100-OE1.1] (4) [F95,F100-OE1.1] (5) [F95,F100-OE1.1]”; --- Strike out the following Articles, objectives and functional statements in Table 5.5.1.1.: “**5.2.3.4. Demand Control Ventilation Systems** (1) [F95,F97-OE1.1]”; (2) [F95,F97-OE1.1]”; “**5.2.6.3. Pumping Power Demand** (1) [F95,F97,F98,F99-OE1.1]”; “**5.2.12.2. Heat Rejection Equipment** (2) [F95,F97,F98,F99-OE1.1] (3) [F95,F97-OE1.1]”; “**5.2.12.3. Field-Assembled Equipment and Components**

	(1) [F99-OE1.1]”; “**5.2.12.4. Service Water Heating Equipment Used for Space Heating** (1) [F98-OE1.1]”.
Division B Notes to Part 5	
A-5.1.1.2.(2)	Strike out the Note.
	Add the following Note: “**A-5.1.1.2.(2) and (4) HVAC System and Process or Activities.** An HVAC system fully dedicated to a process or an activity described in Sentence 5.1.1.2.(2) is exempted from complying with Part 5. The Code provides provisions to the contrary, in particular for HVAC systems serving the following rooms, processes and activities that are not exempted from Part 5 requirements: • server rooms (Article 5.2.2.7.), • laboratories and vivariums (Subsection 5.2.3.), • hospitals (Article 5.2.2.7. and Subsection 5.2.3.), • swimming pools (Article 5.2.10.2.), • ice-making machines and food refrigeration equipment (Article 5.2.10.3.), and • commercial cooking exhaust equipment (Subsection 5.2.13.). In addition, Sentence 5.1.1.2.(4) provides that an HVAC system serving both a room that requires usual comfort conditions and a room in which a process calls for temperatures, airflows or humidity rates outside the normal range required cannot benefit from the exemption permitted in Sentence 5.1.1.2.(2). In compliance with the performance path, process and activity HVAC systems must be modeled since they have an impact on the heating, cooling and/or humidification load of rooms adjacent to the process or activity.”.
A-5.1.1.3.(2)	Replace “primary system” in the Note by “HVAC systems”.

A-5.2.2.3.(1)	Replace the Note by the following: “**A-5.2.2.3.(1) Duct Sealing.** Even if ANSI/SMACNA 006, “HVAC Duct Construction Standards – Metal and Flexible” is less restrictive for certain sealing classes, all air ducts and plenums must be sealed as a class A duct, i.e. at every transversal joints, along all the longitudinal assembly lines and where the ducts penetrate walls, as required by Sentence 5.2.2.3.(1). Sealing applies both to positive pressure ducts and negative pressure ducts.”.
A-5.2.2.3.(4)	Strike out the Note.
A-5.2.2.4.(1)	Strike out the Note.
A-5.2.2.5.(2), 5.2.5.3.(8) and 6.2.3.1.(6)	Add the following paragraph at the end of the Note: “The minimum insulation thicknesses required may have to be increased to eliminate condensation on ducts or to protect against burns.”.
A-5.2.2.5.(4)	Strike out the Note.
A-5.2.2.5.(8) and 5.2.5.3.(7)	Strike out the Note.
	Add the following Notes: “**A-5.2.2.7.(2)(d) Non-particle Filtration.** Contrary to particle filtration, non-particle filtration is generally used where the outdoor air is polluted or where the indoor air quality must be controlled, such as a medical environment where a molecular filter is used to remove ozone and nitrogen oxides. That type of air handler uses energy and the addition of an economizer system requires to design the air handler not for the minimum new air but for 100% of the supply flow. In that case, the energy gain obtained by not operating the mechanical cooling may cancel itself or even transform itself into greater energy consumption. **A-5.2.2.7.(2)(f) Heat-Recovery Unit in Coolers.** Where the cooler has a heat-recovery unit on its condenser, shutting down of the cooler for using the economizer system would cancel the heating savings due to recovery.

	A-5.2.2.7.(2)(g) Semi-conditioned Spaces During Operating Hours. Energy savings related to an economizer system depend mostly on the cooling needs of the spaces during heating. In most cases, a cooling setpoint of at least 26°C does not generate sufficient cooling needs to justify the cost for the installation of an economizer system. **A-5.2.2.7.(3) Cooling by the Use of Outdoor Air Integrated to the Mechanical Cooling.** Based on the outdoor air temperature and the cooling demand, the cooling load will be ensured only by the economizer system, by a combination of the economizer system and mechanical cooling or only by mechanical cooling. **A-5.2.2.7.(4) Water Economizer System where the HVAC System Includes Hydronic Loop Cooling and a Humidification System.** The humidification systems used simultaneously with an air economizer system may consume a lot of energy because the introduction of dry air in winter adds a significant humidification load. To prevent excessive energy consumption, the economizer system, where required, must be on the water system and not on the air system. That requirement is limited to hydronic loop mechanical cooling and not to direct expansion cooling.”.
A-5.2.2.8.(2)	Replace the Note by the following: “**A-5.2.2.8.(2) Outdoor Air Intake for Acceptable Indoor Air Quality.** Outdoor air requirements for acceptable indoor air quality are covered in Part 6 of Division B of the NBC. **Types of Shut-off Settings** Only the shut-off settings in Table 5.2.2.8.-A are permitted. Combining two types of settings or dividing one type of setting is not permitted.”.
	Add the following Notes: “**A-5.2.2.8.(3) Minimum Mechanical Cooling Stage Controlled Directly from Room Temperature.** When the direct expansion mechanical cooling activates in addition to the outdoor air cooling, the objective is not to reduce the supply temperature so as to create discomfort in the conditioned zone. That means that the mechanical cooling operates at a minimum of two stages, by the use of multiple compressors, by the use of only one two-stage compressor or by the use of a variable-speed compressor. Sentence 5.2.2.8.(3) applies to mechanical cooling directly controlled from room temperature rather than the supply temperature of the air handler. In the latter case, the requirements of Sentence 5.2.2.8.(4) apply. **A-5.2.2.8.(4) Minimum Mechanical Cooling Stage.** Sentence 5.2.2.8.(4) applies in particular to variable-air-volume HVAC systems controlled from the air handler supply air temperature. For example, where three mechanical cooling stages are required, the requirement may be complied with using a variable-speed compressor. In that case, the minimum displacement of the compressor must be less than or equal to 33% of the total cooling capacity.

	Another possibility is to use two compressors, the first stage uses a compressor with a 33% total cooling capacity, the second stage uses a compressor with 66% displacement and the third stage uses the combination of two compressors to reach 100% of the total cooling capacity. In that case, the cooling capacity provided by the first stage is equivalent to the minimum displacement of 33% of a variable-speed compressor.”.
A-5.2.2.8.(6)	Strike out the Note.
	Add the following Note: “**A-5.2.2.9. Water Economizer System.** The water economizer system reduces the mechanical cooling load by cooling the heat transfer fluid of the cooling system with outdoor air. The energy savings are made by reducing the compressor use time. There are two typical compliant configurations for the water economizer system, • evaporation cooling, also called “water precooling,” such as that shown in Figure A-5.2.2.9.-A, and • sensible heat transfer cooling, also called “air precooling,” such as that shown in Figure A-5.2.2.9.-B. The dotted lines represent the portion of the economizer system.  **Figure A-5.2.2.9.-A** **Evaporation cooling economizer system – water precooling by a water economizer system**

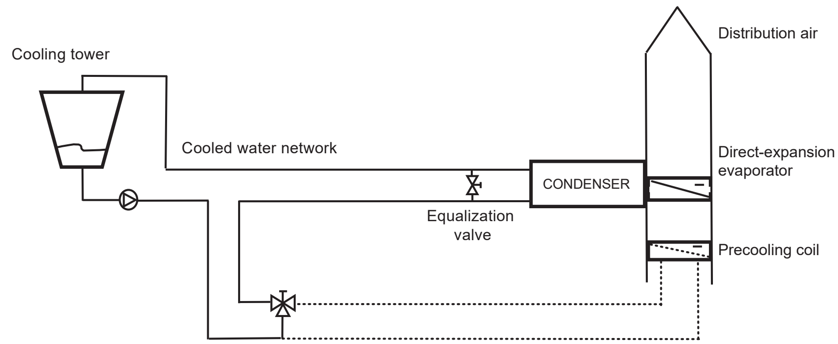


Figure A-5.2.2.9.-B

Sensible heat transfer cooling economizer system – air precooling by a water economizer system".

Add the following Notes:

"**A-5.2.3.1. and 5.2.6. Brake Horsepower, Rated Capacity and Power Demand.** The capacity of a fan varies depending on the location where it is measured on a "fan, motor, variable-speed drive" set.

The brake horsepower is measured directly on the fan, on its drive shaft. It is sometimes expressed by the fan manufacturer in bhp. The brake horsepower is the power necessary to drive the fan blades.

The rated capacity is measured on the fan motor and is indicated on its nameplate. The rated capacity is the brake horsepower to which the power necessary to offset losses due to the strap and the internal losses of the electric motor is added.

The power demand is measured at the circuit breaker of the electrical panel. It is the electric power necessary to supply the "fan, motor, variable-speed drive" set. The power demand is the rated capacity to which the power necessary to offset the losses due to the variable-speed drive is added, where applicable.

For a "fan, motor, variable-speed drive" set, the brake horsepower is always less than the rated capacity, that is itself always less than the power demand.

Figure A-5.2.3.1. and 5.2.6. shows the various locations where the capacity of a fan can be measured.

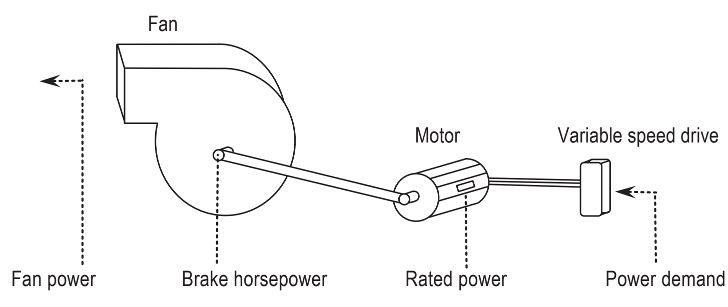


Figure A-5.2.3.1. and 5.2.6.

Power that may be measured on the "fan, motor, variable-speed drive" set

The pump capacities follow the same principles as those described above for fans, with the necessary modifications. For example, the power demand of a pump is also measured at the circuit breaker of an electrical panel. It is the electrical power necessary to supply the "turbine, motor, variable-speed drive" set.

A-5.2.3.1.(1) to (3) Application. Fans to take into consideration in the calculation of the total of the powers are those that

- belong to the same HVAC system. Figure A-5.2.3.1.(1) to (3) shows an example of an HVAC system with multiple fans. For example, if two HVAC systems have their own supply fans, their own heating and cooling coils and serve the same zone, they are considered to be two separate HVAC systems even if they serve the same zone. Two separate calculations must then be made to establish the total of the powers,
- operate when the two design conditions, heating and cooling, are met. The power limit of 4 kW applies to fans whose total rated capacity is the highest between the heating conditions and the cooling conditions, and
- carry heated or cooled air. The calculation must take into account all the supply fans, return fans, relief fans, and fans for series fan-terminal zone boxes.

Some fans may not be included in the calculation of the total of the power, such as the following:

- as mentioned in Clause 5.2.3.1.(3)(b), garage exhaust fans or server room transfer fans, where the spaces are not heated or cooled, and
- as mentioned in Sentence 5.2.3.1.(2), fans in parallel fan-terminal zone boxes where they do not operate at the cooling design conditions and the conditions are higher than the heating design conditions.

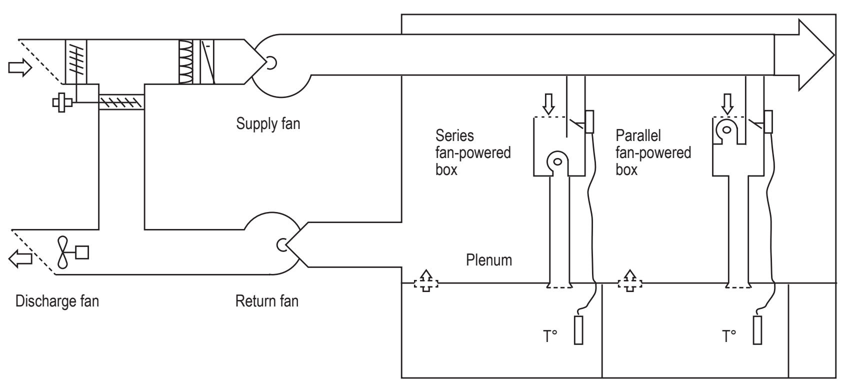


Figure A-5.2.3.1.(1) to (3)

Example of an HVAC system with multiple fans".

A-5.2.3.1.(2)	Strike out the Note.
	Add the following Note: "**A-Table 5.2.3.1. Static Pressure Adjustments.** Multiple units and accessories in the ventilation system create a significant pressure loss and therefore require that the fan have a greater power to provide the flow required by the design conditions. The list of static pressure positive adjustments makes it possible to increase the limit of the allowed brake horsepower based on the accessories installed on the ventilation system. Certain adjustments are however negative and lower the power limit permitted.".
A-5.2.3.2.(1)	Replace the Note by the following: "**A-5.2.3.2.(1) Constant-Volume Fan Systems.** This type of system is found in particular in bypass variable-air-volume systems in which the airflow through the fan is not varied.".
	Add the following Note: "**A-5.2.3.2.(2) Maintenance of Pressure for Health or Safety Purposes.** Constant-volume systems are common in hospitals, vivariums and laboratories. If a room needs to be kept under negative pressure so as not to contaminate the other rooms, a control will open the exhaust or return duct damper of the said room and will close the damper of the other rooms. The fans of such a system may use the power limits of variable-air-volume fan systems.".
A-5.2.3.3.(1)	Strike out the Note.
	Add the following Notes: "**A-5.2.3.3. Variable-Air-Volume Fan Systems.** A fan that automatically varies the airflow based on static pressure is controlled from the sensors in each terminal zone box. Consequently, the following systems cannot be considered variable-air-volume fans and must use the limit of the constant-volume fan established in Article 5.2.3.2: • a constant-volume fan serving multiple zones and equipped with a bypass duct between its inlet and outlet (called "changeover bypass"), • a constant-volume fan serving multiple zones and equipped with terminal zone boxes bypassing supply air in the return plenum (called "bypass terminal unit"), and • a constant-volume fan for which a variable-speed drive is used only at airflow balancing.

	A-5.2.3.3.(2) Part-load Maximum Power. Generally, a forward curved fan with inlet vanes or a variable-speed motor fan meets the requirement. **A-5.2.3.3.(3) Location of Static Pressure Sensors.** In a variable-volume system, the location of a static pressure sensor is critical for the good operation of terminal zone boxes. The pressure upstream from the terminal zone box must be greater than the pressure loss caused by that same box; otherwise, the airflow at the outlet of the terminal zone box will be less than the specified airflow. A pressure too high upstream of the terminal zone box will generate noise and a higher energy use at the location of the fan. The location of a static pressure sensor is therefore a compromise between control and energy saving. To guarantee savings with respect to a variable-volume system, the Code requires that the sensor be located so that the static pressure setpoint be at a maximum of 300 Pa. That pressure is sufficient to carry sensor air to conditioned zones. Where the system includes multiple main branches and it is impossible to comply with the requirement in Subclause 5.2.3.3.(3)(b)(i), the use of a static pressure sensor will be necessary at each branch of the main duct. **A-5.2.3.3.(4) Automatic Reset of Static Pressure Setpoint.** Where the terminal zone boxes are equipped with direct digital controls centralized at the main control panel of the supply fan, the highest pressure among all the conditioned spaces of the system is the ideal pressure to be developed by the fan. The conditioned space with the highest pressure generally corresponds to the space where the terminal zone box damper is the most open. That pressure is ideal because it allows all the terminal zone boxes to have an inlet pressure sufficient to operate correctly and it allows the supply fan to develop the weakest pressure possible to minimize energy consumption. In that context, the static pressure setpoint must be constantly adjusted to follow the ideal pressure under the requirements of Sentence 5.2.3.3.(4).”.
A-5.2.3.4.(1)	Strike out the Note.
A-5.2.3.4.(2)	Strike out the Note.
A-5.2.5.3.(1)	Add the following at the end of the Note: “**Piping** The accessories connected to pipes include in particular strainers and valves.”.
	Add the following Note: “**A-5.2.5.3.(3)(c) Piping in which the Fluid Conveyed is not Heated or Cooled by Electricity or Fossil Fuel.** Natural gas or condensate pipes are examples of piping in which the fluid conveyed is not heated or cooled by electricity or fossil fuel.”.

A-5.2.6.2.(1)	Replace the Note by the following: “**A-5.2.6.2.(1) Requirements for Pumping Systems for HVAC Systems.** During part-load operation, a constant-flow pumping system is more energy consuming because it uses three-way valves to divert the fluid from coils, thermal beams or any other type of appliance. Flow may be varied by one of several methods such as variable-speed-driven pumps, staged multiple pumps or pumps riding their performance curves, (i.e. uncontrolled pumps).”.
A-5.2.8.5.(1) and 5.2.11.1.(2)(e)	Strike out the Note.
A-5.2.8.8.(2)	Replace the Note by the following: “**A-5.2.8.8.(2) Reheating Supply Air for Humidity Control.** Sentence 5.2.8.8.(2) could apply to server rooms, operating rooms in health care institutions and museums. For those buildings, dehumidification is usually carried out by cooling mixture air under the dew point required to maintain humidity at the specified rate. However, that temperature may be too low in relation to the setpoint temperature in the space, so that reheating would be required at the cooling coil outlet to do so.”.
	Add the following Note: “**A-5.2.8.8.(3) Reheating Supply Air by Recovered Energy.** The energy rejected by the mechanical cooling system may be used to heat supply air without increasing the energy consumption of the building.”.
A-5.2.8.9.(4)	Strike out the Note.
	Add the following Notes: “**A-5.2.8.9.(4) and (5) Zones with Limited Flow of Reheated, Cooled or Mixed Air.** Simultaneous heating and cooling are permitted by Sentences 5.2.8.9.(4) and 5.2.8.9.(5) where the flow, during heating, cooling or mixture, is limited. The maximum limit has been established by the minimum opening of terminal zone boxes of variable-volume built-up systems. That minimum opening is necessary to ensure a differential pressure adequate for the control of the terminal zone box. The limits have been established at 20% for digital control systems and at 30% for other control systems (such as pneumatic control systems). **A-5.2.8.9.(6) Heat Recovery and Solar Energy.** The energy recovered at the site designates the heat recovered in the building to prevent energy consumption purchased from an energy supplier.

	Solar energy represents the thermal, chemical or electrical energy derived from the conversion of solar radiation. The conversion must be carried out on the site to prevent energy consumption purchased from an energy supplier.”.
A-5.2.10.1.(1)	Replace “of the exhaust/relief airstream, exhaust air recirculation, and the incoming ventilation airstream” in the Note by “of exhaust or relief air, exhaust air recirculation, and incoming ventilation air”; --- Add the following Sentence at the end of the Note: “Sentence 5.2.10.1.(1) allows the HVAC system to be equipped with only one heat-recovery equipment for a number of exhaust equipment of a same system. The quantity of sensible heat of 50 kW is the sensible heat content of the total quantity of exhaust. If the HVAC system is equipped with more than one exhaust air system, the exhaust air from each system should be added.”.
A-5.2.10.1.(4)	Strike out the Note.
A-5.2.10.2.(1)	Strike out the Note.
	Add the following Notes: “**A-5.2.10.2.(2) Heat Recovery from Exhaust Air from Swimming Pools.** Controlling humidity levels of the swimming pool with outdoor air is an energy consuming process and difficult to control in Québec’s climate. The purpose of Clause 5.2.10.2.(2)(a) is to limit to a minimum air renewal of the swimming pool. The heat-recovery requirement in Clause 5.2.10.2.(2)(b) applies to a swimming pool even if the quantity of sensible heat recovered is less than the 50 kW limit in Sentence 5.2.10.1.(1). **A-5.2.10.2.(3)(b) Heat Rejection from the Mechanical Dehumidification Equipment.** Heat rejection from the mechanical dehumidification equipment may be reused for heating swimming pool or shower water.”.
A-5.2.10.3.(1)	Strike out the Note.
	Add the following Notes: “**A-5.2.10.3.(1)(b) Heat Recovery from Grocery Store Refrigeration Systems.** The requirement covers in particular large surface grocery stores that often have a large number of food counters connected to a refrigeration system.

	A-5.2.10.3.(2)(a) Heat Recovery from Refrigeration Systems. The heat at the condenser may usually be calculated by multiplying the cooler refrigeration capacity by its heat rejection factor. **A-5.2.10.3.(2)(b) Heat Recovery.** Heat recovered from refrigeration equipment can be used for ice resurfacing or heating the soil beneath the ice's surface to prevent frost heave.”.
A-5.2.10.4.(1)	Strike out the last sentence of the first Sentence of the Note; Add the following Sentence at the end of the Note: “Supplementary exhaust fans such as kitchen hoods or bathroom fans need not comply with the heat- or energy-recovery requirements.”.
A-5.2.10.4.(2)	Strike out the Note.
	Add the following Note: “**A-5.2.10.4.(2)(a) Heat- or Energy-Recovery Ventilators.** CAN/CSA-C439, “Standard laboratory methods of test for rating the performance of heat/energy-recovery ventilators,” describes a laboratory test that determines the energy performance of a heat- or energy-recovery ventilator. Test results for many models are listed in HVI's “Certified Home Ventilating Products Directory.” The results also usually appear on a label on the equipment itself or in the manufacturer's published literature.”.
A-5.2.10.4.(5)	Strike out the Note.
A-5.2.11.1.(2)(d)	Replace “Setback” by “Off-hour”.
A-5.2.11.1.(2)(e)	Replace the Note by the following: “**A-5.2.11.1.(2)(e) Heat Pump Controls for Recovery from Off-hours.** The requirements of Clause 5.2.11.1.(2)(e) can be achieved through several methods: • installation of a separate exterior temperature sensor limiting or stopping the operation of the supplementary heating element where the heat pump capacity is sufficient to ensure heating load, • setting a gradual rise of the temperature setpoint so that, at the end of the off-hours, the heat pump limits or stops the use of electrical backup, or

	• installation of controls that “learn” when to start recovery based on stored data, such as a start-stop optimization controller equipped with a self-learning function.”.
	Add the following Note: “**A-5.2.11.2.(1) and (2) Airflow Control Area.** Large central HVAC systems often serve temperature-control zones occupied by different commercial tenants according to different schedules. Where one central system is present and only part of the zones is occupied, energy for conditioning the unoccupied zones is wasted. The purpose of Sentence 5.2.11.2.(1) is to force the designer to separate from other zones those that are not operated simultaneously. Zones thus grouped form an airflow control area that, according to Sentences 5.2.11.2.(2) to 5.2.11.2.(4), may not exceed 2300 m² and may not span more than one storey. Where the designer does not know the occupation schedule at the time of designing, an airflow control area for each commercial rental space is suggested.”.
A-5.2.11.2.(3)	Strike out the Note.
	Add the following Notes: “**A-5.2.11.2.(5) Control for Airflow Control Areas.** Each airflow control area must include controls that allow to consider the area as having a separate HVAC system. Each airflow control area can operate according to occupation schedules different from other areas. Control of each area may be carried out by • direct digital control systems installed on the terminal zone boxes, • terminal zone boxes “normally closed,” including a spring that closes the air supply damper where the terminal zone box actuator is no longer supplied with electricity, or • a motorized damper in the distribution duct. **A-5.2.11.2.(7) Stable Operation of Fans and Associated HVAC Systems.** Dividing a central HVAC system into several airflow control areas requires that the designer design the system so that it operates adequately at part-load, e.g. for the whole time the smallest temperature-control zone is the only one occupied. During different zone occupation periods, the operation of the principal fan and the HVAC heating and cooling equipment must be stable, adapted to the different part-loads and designed to frequently cycle between stop and start. **A-5.2.11.4.(1) Prevention of Heat Loss Between Boilers.** Some boilers have a bypass. Because those boilers are in operation, they need not comply with Sentence 5.2.11.4.(1).

	A-5.2.11.5.(1) Temperature Reset Methods. The 88 kW design capacity in Sentence 5.2.11.5.(1) applies to a system with a chilled water loop, a hot water loop or both. Different methods allow the reset of the supply hot water loop temperature. For example, since the heating load of a building varies depending on outdoor temperature, an acceptable method could be the installation of a device that reduces the heating loop temperature where the outdoor temperature increases. However, that method on its own is not reliable for resetting the cooling loop temperature because most cooling loads do not vary on the basis of outdoor temperature. Another method consists in taking into account the actual heating or cooling load by resetting the heating or cooling loop temperature so that the coil valve that has the higher demand is maintained at its maximum opening. A variant of that method consists in estimating the average load of the loop using the return temperature. **A-5.2.11.5.(2) Exemptions of HVAC Equipment and Systems.** Dehumidification systems that must operate continuously all year for health reasons, such as in a hospital, or for protecting art work, such as in a museum, are examples of systems that may use the exemption in Sentence 5.2.11.5.(2). However, a coil temperature ill-adapted to the loop reset may not be considered as an acceptable exemption. The designer must ensure that all equipment will operate once the loop temperature is reset. More specifically, equipment must be designed to operate correctly at the hottest temperature of a chilled water system and at the coldest temperature of the hot water system.”.
A-5.2.12.1.(1) and 6.2.2.1.(1)	Strike out the Note.
	Add the following Note: “**A-5.2.12.1.(1), 6.2.2.1.(1), 7.2.3.1.(1) and 7.2.4.1.(1) Performance Requirements and Levels.** **Performance Requirements** HVAC and service water heating equipment standards are reviewed and updated on a regular basis, whereas the “Energy Efficiency Regulations” are revised or updated to include new types of equipment at irregular intervals. The regulations follow a legislative protocol prior to becoming a federal requirement. This means that the publication of revisions to these documents does not always coincide with the publication of a new edition of the Code. As such, the performance requirement of

	any equipment or component in Tables 5.2.12.1.-A to 5.2.12.1.-P and 6.2.2.1. can change without notice between Code cycles. **Performance Levels** The federal “Energy Efficiency Act,” which was introduced in 1992, provides for the development and enforcement of regulations concerning minimum energy performance levels for energy-using products and products that affect energy use, as well as the labeling of energy-using products and the collection of data on energy use. The “Energy Efficiency Regulations,” which came into effect in 1995, establish energy efficiency standards for a wide range of energy-using products imported into Canada or manufactured in Canada with the objective of eliminating the least energy-efficient products from the Canadian market. They set test procedures and require that each product carry a verification mark from a product certification body accredited by the Standards Council of Canada, which certifies that the product's energy performance is in compliance with the Regulations' energy efficiency standard for that type of product. The Regulations are amended on a regular basis in accordance with the federal government's regulatory process; a summary of the current Regulations is available at www.nrcan.gc.ca/energy-efficiency/energy-efficiency-regulations/guide-canadas-energy-efficiency-regulations/6861. In Québec, the Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulation, the Regulation respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01, r. 1), prohibits the manufacturing, offering, selling or leasing of an appliance or otherwise disposing of it by gratuitous or onerous title by way of a commercial transaction if the appliance does not conform to the applicable energy efficiency and energy conservation standards.”.
A-5.2.12.2.(1)	Strike out the Note.
	Add the following Notes: “**A-5.2.13.1.(1) Make-up Air for Exhaust of Air by Hood.** It is possible to offset hood air exhaust with outdoor air directly in the hood. However, several studies have shown that, where the percentage of outdoor air exceeds 10%, hood air exhaust significantly reduces contaminant capture which forces users to increase hood flow. That increase results in a higher consumption to ensure exhaust of air and offset with outdoor air. **A-5.2.13.1.(2)(a) Transfer air.** Available transfer air is air that would have been discharged otherwise or that has first circulated in a space other than the kitchen. **A-5.2.13.1.(2)(b)(i) On Demand Exhaust.** Cooking fumes may in particular be detected by smoke detectors, temperature detectors under the hood, cooktop temperature detectors or a combination of those detectors. **A-5.4.1.2.(1) and (2) Limitations.** The HVAC systems and equipment listed in Sentence 5.4.1.2.(1) are covered by the prescriptive requirements in

	• Sentence 5.1.1.3.(2) for back-up HVAC systems, • Articles 5.2.2.1. to 5.2.2.6. for air duct systems, • Subsection 5.2.4. for air intake and outlet dampers, • Subsection 5.2.5. for piping for an HVAC system, • Article 5.2.8.5. for space temperature control, and • Article 5.2.11.2. for airflow control areas.”.
Division B Part 6	Replace the heading of the Part by the following: “**Part 6** **Service Water Systems and Swimming Pools**”.
6.1.1.1.	Replace Sentence (1) by the following: “**1)** This Part applies a) to the systems used to heat *service water*, b) to the pumping systems that are part of *service water* systems, and c) to swimming pools.”.
6.1.1.2.	Insert “and except as provided in Sentence (2)” after “firefighting services” in Sentence (1); --- Add the following Sentence: “**2)** This Part does not apply to existing parts of *service water* heating systems that are extended to serve *additions*.”.
6.2.2.1.	Replace Sentence (1) by the following: “**1)** Water heaters and pool heaters shall comply a) with the efficiency requirements provided for in the Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulations, as well as Federal regulations, or b) in the absence of the requirements described in Clause (a), with the requirements listed in Table 6.2.2.1. (See Notes A-6.2.2.1.(1), and A-5.2.12.1.(1), 6.2.2.1.(1), 7.2.3.1.(1) and 7.2.4.1.(1).)”.
6.2.2.2.	Replace Sentence (1) by the following: “**1)** Hot *service water* storage tanks shall be covered with insulation having a minimum thermal resistance of 2.22 m²×K/W”.

<table>
<tr><td>6.2.2.4.</td><td>Replace “22 kW” in Clause (1)(a) by “44 kW”;<hr>Insert the following at the end of Sentence (1): “(See Note A-6.2.2.4.(1).)”;<hr>Replace “in the applicable standards listed in Tables 5.2.12.1.-A to 5.2.12.1.-P and 6.2.2.1. or, where such equipment is not covered in these Tables, with the “Energy Efficiency Act” and the “Energy Efficiency Regulations.”” in Sentence (2) by “in Sentences 5.2.12.1.(1) and 6.2.1.1.(1)”.</td></tr>
<tr><td>6.2.2.5.</td><td>Replace “in the applicable standards listed in Tables 5.2.12.1.-A to 5.2.12.1.-P and 6.2.2.1. or, where such equipment is not covered in these Tables, with the “Energy Efficiency Act” and the “Energy Efficiency Regulations.”” in Sentence (1) by “in Sentences 5.2.12.1.(1) and 6.2.1.1.(1)”.</td></tr>
<tr><td>6.2.3.1.</td><td>Replace Sentence (1) by the following:
“1) All piping conveying hot service water in the following systems shall be insulated in accordance with Table 6.2.3.1. and Sentences (2) to (4):
a) circulating systems,
b) except as provided in Sentence (5), systems with a storage-type service water heater, and
c) systems equipped with electrical elements along pipes to maintain the temperature in the pipes.”;<hr>Replace Sentence (5) by the following:
“5) In service water heating systems with a storage-type service water heater, non-circulating and equipped with heat traps, only the following piping sections shall be insulated in accordance with Table 6.2.3.1.:
a) hot water piping and cold water piping located between heat traps and the storage or expansion tank,
b) the piping forming the heat traps, and
c) the first 2.4 metres of the hot water piping located after the heat trap.
(See Note A-6.2.3.1.(5) and 6.2.3.2.(1).)”;<hr>Replace Table 6.2.3.1. by the following:
“Table 6.2.3.1.
Minimum Thickness of Piping Insulation for Service Water Heating Systems
Forming Part of Sentences 6.2.3.1.(1) to (3), (5) and (6)
<table>
<tr><th rowspan="2">Location of Piping</th><th colspan="2">Thermal Conductivity of Insulation</th><th rowspan="2">Nominal Pipe Diameter, in. (mm)</th><th rowspan="2">Minimum Thickness of Piping Insulation, mm</th></tr>
<tr><th>Conductivity Range, W/m×°C</th><th>Mean Rating Temperature,°C</th></tr>
<tr><td></td><td>0.035 – 0.040</td><td>38</td><td>≤ 1 (≤ 25.4)</td><td>25.4</td></tr>
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<td>
<table>
<tr><td>Conditioned space</td><td></td><td></td><td>> 1 (> 25.4)</td><td>38.1</td></tr>
<tr><td rowspan="3">Unconditioned space or space outside of the building envelope</td><td rowspan="3">0.046 – 0.049</td><td rowspan="3">38</td><td>≤ 2 (≤ 51)</td><td>63.5</td></tr>
<tr><td>> 2 and ≤ 4
(> 51 and ≤ 102)</td><td>76.2</td></tr>
<tr><td>> 4 (> 102)</td><td>88.9</td></tr>
</table>
”.
</td>
</tr>
<tr>
<td></td>
<td>
Add the following Articles:
“6.2.3.2. Heat Traps
1) A storage-type service water heater or a storage tank serving a non-circulating system shall include a heat trap on the hot water piping and cold water piping. (See Note A-6.2.3.1.(5) and 6.2.3.2.(1).)
6.2.3.3. Equipment for Protecting the Piping Against Freezing
1) The equipment for protecting the piping against freezing located outside shall be equipped with automatic controls to shut down the equipment
a) where the outdoor temperature is more than 4.4°C, or
b) where there is no risk that the fluid in the protected piping will freeze.”.
</td>
</tr>
<tr><td>6.2.4.1.</td><td>Strike out the Article.</td></tr>
<tr><td>6.2.6.</td><td>Strike out the Subsection.</td></tr>
<tr><td>6.2.7.2.</td><td>Replace “have a nominal thermal transmittance of no more than 0.48 W/m^2×°C” in Sentence (2) by “shall have a thermal resistance of at least 2.08 (m^2×°C)/W”.</td></tr>
<tr><td>6.2.8.1.</td><td>Strike out the Article.</td></tr>
<tr><td>6.4.1.2.</td><td>
Replace the Article by the following:
“6.4.1.2. Limitations
1) The performance path shall not take into consideration the energy performance of back-up service water heating systems.
</td></tr>
</table>

	2) Back-up *service water* heating systems shall comply with Sentence 6.1.1.3.(2).”.
6.5.1.1.	Insert, in numerical order, the following Articles, objectives and functional statements in Table 6.5.1.1.: “**6.2.3.2. Heat Traps** (1) [F96-OE1.1]”; “**6.2.3.3. Equipment for Protecting the Piping Against Freezing** (1) [F95-OE1.1]”; <hr>Strike out the following Articles, objectives and functional statements in Table 6.5.1.1.: “**6.2.4.1. Temperature Controls** (1) [F96-OE1.1]”; **“6.2.6.1. Showers** (1) [F96-OE1.1] (2) [F96-OE1.1]”; “**6.2.6.2. Lavatories** (1) [F96-OE1.1] (2) [F96-OE1.1]”; “**6.2.8.1. Size of Water Storage Tank** (1) [F97,F99-OE1.1] (2) [F97,F99-OE1.1]”.
Division B Notes to Part 6	Replace the heading of the Notes by the following: “**Notes to Part 6** **Service Water Systems and Swimming Pools**”.
	Add the following Note: “**A-6.2.2.4.(1) Combined Heating of Spaces and Service Water.** Systems designed to both heat space and heat service water meet respectively a seasonal load and a fixed load. In the summer, where only the hot service water fixed load must be satisfied, energy is wasted because the heating system is oversized in relation with the small hot service water load necessary. The purpose of Sentence 6.2.2.4.(1) is therefore to limit that practice. For example, if the system considered has a combined maximum input power of air heating and service water heating of 45 kW, Clause 6.2.2.4.(1)(b) must be complied with. To do so, the design service water heating load must be greater than half the power of the system, i.e. 22.5 kW.

	The requirement of Sentence (1) applies in particular to combined water heaters and to water heaters for which water is indirectly heated by a hot water system.”.
A-6.2.3.1.(1)	Strike out the Note.
	Add the following Note: “**A-6.2.3.1.(5) and 6.2.3.2.(1) Heat Traps.** ASHRAE/IES 90.1, “User’s Manual,” defines a heat trap as follows: “A heat trap is a device or arrangement of piping that keeps the buoyant hot water from circulating through a piping distribution system through natural convection. By restricting the flow from the storage tank, standby heat loss is minimized.

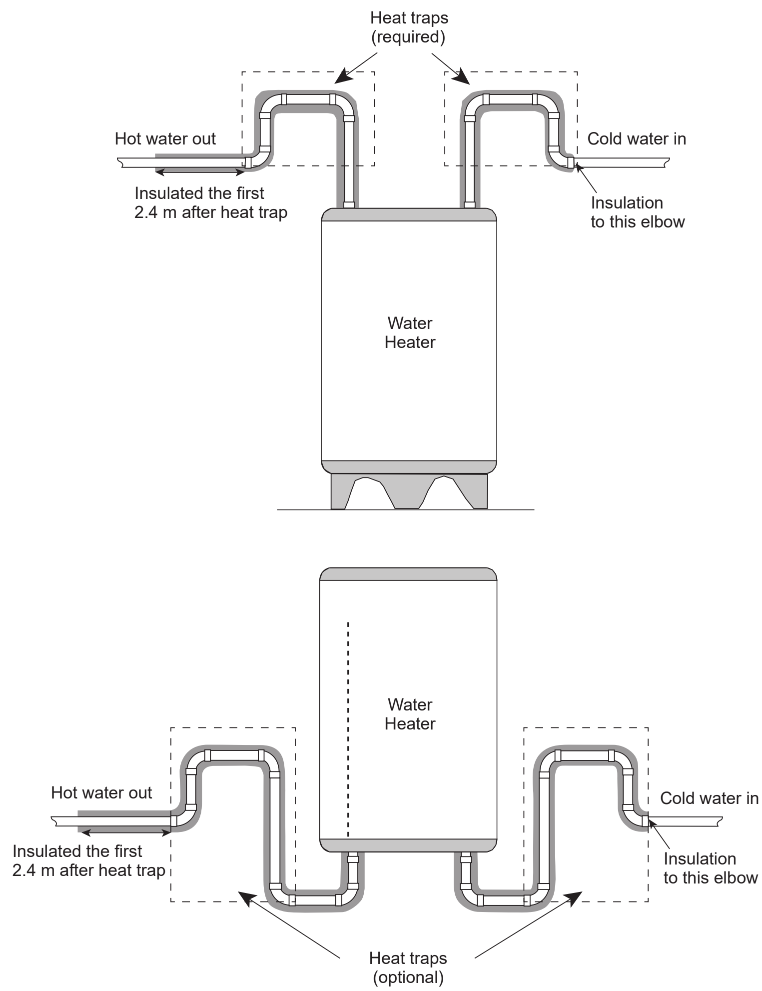

Figure A-6.2.3.1.(5) and 6.2.3.2.(1)

Heat Traps

“In all configurations heat traps can be a 360° loop of piping, a pre-manufactured device, or some arrangement of piping and elbows that forms an inverted "U" on the tank fittings. Tanks that have horizontal outlets need only a section of vertical pipe that turns downward after leaving the tank (an inverted “L”).”

Figure A-6.2.3.1.(5) and 6.2.3.2.(1) illustrates two examples of site-built heat traps.”.

A-6.2.4.1.(1)	Strike out the Note.
A-6.2.6.1.(1)	Strike out the Note.
A-6.2.6.1.(2) and 6.2.6.2.(2)	Strike out the Note.
A-6.2.8.1.	Strike out the Note.
A-6.2.8.2.(1)	Replace the Note by the following: “**A-6.2.8.2.(1) Sensors for Pressure Booster Systems.** Pressure booster systems should have one or more pressure sensors located near the fixtures that sets the system design pressure, or another type of sensor capable of estimating the pressure near the fixtures.”.
Division B Part 7	Replace the Part by the following: “**Part 7** **Transformers and Electrical Motors** **Section 7.1. General** **7.1.1. General** **7.1.1.1. Scope** **1)** This Part is concerned with transformers and electrical motors for the application listed in Article 7.1.1.2. **7.1.1.2. Application** **1)** Except as provided in Sentence (2), this Part applies to all transformers and electrical motors that are connected to the *building's* electrical service, including those installed outside the *building*. **2)** This Part does not apply to existing transformers and electrical motors that are extended to serve *additions*. **7.1.1.3. Compliance** **1)** Compliance with this Part shall be achieved by following a) the prescriptive path described in Section 7.2., or

b) the performance path described in Section 7.4. (see Note A-3.1.1.3.(1)(c)).

7.1.1.4. Definitions

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

Section 7.2. Prescriptive Path

7.2.1. Deleted

7.2.2. Deleted

7.2.3. Transformers

7.2.3.1. Transformer Selection

1) Transformers shall comply with the efficiency requirements provided for in the Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulations, as well as Federal regulations. (See Notes A-6.2.2.1.(1), and A-5.2.12.1.(1), 6.2.2.1.(1), 7.2.3.1.(1) and 7.2.4.1.(1).)

7.2.4. Electrical Motors

7.2.4.1. Efficiency

1) Permanently wired polyphase motors serving the *building* shall comply with the efficiency requirements provided for in the Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulations, as well as Federal regulations. (See Notes A-6.2.2.1.(1), and A-5.2.12.1.(1), 6.2.2.1.(1), 7.2.3.1.(1) and 7.2.4.1.(1).)

Section 7.3. Reserved

Section 7.4. Performance Path

(See Note A-1.1.2.1.)

7.4.1. General

7.4.1.1. Scope

1) Where transformers and electrical motors do not comply with the requirements of Section 7.2., they shall comply with Part 8.

Section 7.5. Objective and Functional Statements

7.5.1. Objective and Functional Statements

7.5.1.1. Attributions to Acceptable Solutions

1) For the purpose of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objective and functional statements attributed to the acceptable solutions in this Part shall be the objective and functional statements listed in Table 7.5.1.1. (See Note A-1.1.3.1.(1).)

<table>
<tr>
<td></td>
<td>
Table 7.5.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 7
Forming Part of Sentence 7.5.1.1.(1)
<table>
<tr><th>Provision</th><th>Functional Statements and Objectives[1]</th></tr>
<tr><td colspan="2">7.2.3.1. Transformer Selection</td></tr>
<tr><td>(1)</td><td>[F97,F98-OE1.1]</td></tr>
<tr><td colspan="2">7.2.4.1. Efficiency</td></tr>
<tr><td>(1)</td><td>[F97,F98,F99-OE1.1]</td></tr>
</table>
Notes to Table 7.5.1.1.:
[1] See Parts 2 and 3 of Division A.”.
</td>
</tr>
<tr>
<td>Division B Notes to Part 7</td>
<td>Strike out the Notes to Part 7.</td>
</tr>
<tr>
<td>Division B Part 8</td>
<td></td>
</tr>
<tr>
<td>8.1.1.1.</td>
<td>Replace Sentence (1) by the following:
“1) Compliance with this Code is permitted to be achieved by applying the provisions of this Part. (See Note A-1.1.2.1.).”.</td>
</tr>
<tr>
<td>8.1.1.2.</td>
<td>Add the following line after “8.1.1.2. Application”:
“(See Note A-8.1.1.2.)”;<hr>Replace Sentence (1) by the following:
“1) This Part applies only to buildings
a) whose function is known,
b) for which the building envelope is defined in the plans and specifications, and
c) except as provided in Sentence (2), for which sufficient information is known about their components, materials and assemblies that are covered by the scope of this Code.”;<hr>Strike out “3.2.,” in Sentence (2).</td>
</tr>
</table>

8.4.1.	Add the following line after "**8.4.1. Compliance**": "(See Note A-8.4.1.)".
8.4.1.1.	Replace Sentences (1) to (3) by the following: "**1)** The performance path shall take into consideration the energy needs of the *building* components in accordance with the prescriptive requirements of Sections 3.2., 4.2., 5.2., 6.2. and 7.2. for the climate zone under consideration. **2)** Where the construction techniques, systems or *building* components used are more energy-efficient than those prescribed by the prescriptive requirements, the performance compliance calculations are permitted to take this increased performance level into account in the determination of the annual energy needs, provided it can be quantified and is not dependent on occupant behaviour. **3)** *Exterior lighting* must be excluded from the performance compliance calculations. **4)** The areas of *opaque building assemblies*, *fenestration* and doors shall be calculated in accordance with the requirements of Article 3.1.1.6.".
8.4.1.2.	Replace "Sentences (2) to (5)" in Sentence (1) by "Sentences (2) to (4)"; --- Replace Sentences (2) to (5) by the following: "**2)** The annual energy needs of the proposed *building* must not be greater than those of the reference *building* and must assessed as follows: $2200\ D_{Prop} + AEC \leq 2200\ D_{Ref} + BET$ where D_{Prop} = the maximum power demand of the electrical system determined during one year, from 1 December to 31 March inclusively, analyzed using time intervals no greater than 15 minutes unless the calculation engine only offers 60-minute intervals, for the proposed *building*, in kW; AEC = the *annual energy consumption* of the proposed *building*, corresponding to the sum of the annual electricity needs, in kW × h, and the annual fuel needs, in kW×h equivalents; D_{Ref} = the maximum power demand of the electrical system determined during one year, from 1 December to 31 March inclusively, analyzed using time intervals no greater than 15 minutes unless the calculation engine only offers 60-minute intervals, for the reference *building*, in kW; and BET = the *building energy target* of the reference *building* corresponding to the sum of the annual electricity needs, in kW×h, and the annual fuel needs, in kW×h equivalents. **3)** The number of cumulative hours during which heating or cooling needs are not met shall not exceed 300 h in a simulated year for both the proposed and reference *buildings.* (See Note A-8.4.1.2.(3) and (4).)

	4) The number of cumulative hours during which the heating or cooling needs of the proposed *building* are not met during a simulated year shall be less than or equal to the number of hours corresponding to the reference *building*. (See Note A-8.4.1.2.(3) and (4).)”.
8.4.1.4.	Replace the Article by the following: “**8.4.1.4. Treatment of Additions** **1)** For the purpose of performance compliance calculations, the assessment of *additions* shall be based on the *addition* being considered by itself. **2)** Where the HVAC systems of the existing *building* are extended to serve the *addition*, they shall be modeled for the proposed *building* a) as if they met the prescriptive requirements of the Code, or b) using the characteristics of the existing system (see Note A-8.4.1.4.(2)(b)). **3)** Where the party wall between the existing *building* and the *addition* divides *conditioned spaces* that must be maintained at temperatures varying by more than 10°C at design conditions, the thermal exchanges between the *addition* and the existing *building* shall be considered in the modeling. (See Note A-8.4.1.4.(3).)”.
8.4.2.	Add the following line after “**8.4.2. Compliance Calculations**”: “(See Note A-8.4.2.)”.
8.4.2.2.	Replace Sentences (1) to (5) by the following: “**1)** Except as provided in Article 8.4.3.9., only the programs that have not shown any major failure or limitation following tests provided for in ANSI/ASHRAE 140, “Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs,” except Sections 7 and 8, may be used for the modeling provided for in this Part. (See Note A-8.4.2.2.(1).) **2)** The same program shall be used to determine the maximum power demand of the electrical system and the *annual energy consumption* of the proposed *building*, as well as the maximum power demand of the electrical system and the *building energy target* of the reference *building*. **3)** The programs shall a) consider the internal loads, in particular those due to occupants, activities and processes i) using actual values, when they are known, or ii) in the absence of actual values, using representative values (see Note A-8.4.3.8.(1)), and b) include the energy consumption of the systems that have an impact on the energy consumption of the *building*, including those of i) HVAC systems, ii) *interior lighting* devices,

	iii) *service water* heating equipment, and iv) elevators, moving walkways and escalators. (See Note A-8.4.2.2.(3).) **4)** The programs shall account for a) sensible and latent heat transfers due to the internal loads in Sentence (3) other than those of *interior lighting* devices, b) the sensible heat transfer due to *interior lighting* devices i) in their illumination space, and ii) in return air of HVAC systems, c) the dynamic evolution of the temperature in the spaces, d) the effect of thermal mass, and e) air leaks through the *building envelope*. **5)** The programs shall be performed for a one-year period (8760 h) using time intervals no greater than 1 h. **6)** Operating schedules and climatic data input in the programs shall use a time interval no greater than 1 h. **7)** The internal loads shall be adjusted for each time interval referred to in Sentence (5) based on the applicable operating schedules. (See Notes A-8.4.3.2.(1) and A-8.4.3.8.(1).) **8)** Energy consumption of backup equipment is permitted to be excluded from the energy model, provided it is equipped with controls that operate the equipment only when the backed-up equipment is not operating.”.
8.4.2.3.	Replace Sentence (1) by the following: “**1)** The programs shall use as input climatic data whose temperature, humidity and insolation, derived from climatic data, a) were shown to be good representations of the climate at the *building* site compared to the average of at least 10 years of measured data, and b) were collected at the weather station nearest to the *building* site.”; --- Replace “the energy model calculations shall be performed using” in Sentence (2) by “the programs shall consider as input”.
8.4.2.4.	Strike out the Article.
8.4.2.5.	Strike out the Article.

<table>
<tr><td>8.4.2.6.</td><td>Replace the words “energy model calculations” wherever they appear in Sentences (1) and (2) by “programs”;<hr>Replace “solid partitions or solid building elements” in Sentence (2) by “walls”.</td></tr>
<tr><td>8.4.2.7.</td><td>Strike out the Article.</td></tr>
<tr><td>8.4.2.8.</td><td>Replace the Article by the following:
“8.4.2.8. Building Envelope
(See Note A-8.4.2.8.)
1) Programs shall account for heat transfers through the building envelope, due to solar radiation and indoor and outdoor temperature difference of the building envelope.
2) Programs shall account for the thermodynamic behaviour of opaque building assemblies and other assemblies such as floors and interior walls.
3) Programs shall account for heat transfers due to solar absorptance and transmittance and the orientation and optical characteristics of each surface.
4) Except as provided in Sentence 8.4.3.3.(6), the values of the effective thermal resistance of opaque building assemblies of the proposed building and the reference building shall be derated using the following equation, whether or not the proposed building envelope complies with the requirements of Sentences 3.2.1.2.(1) to (7) and (10), using the values in Tables 8.4.2.8.-A and 8.4.2.8.-B (See Note A-8.4.2.8.(4)):
$$\mathrm{RSI_{EDi}} = \frac{1}{\frac{\sum_{j=1}^{m}(\Psi_j \times L_j) + \sum_{k=1}^{n}(\chi_k \times N_k)}{A_i} + \frac{1}{\mathrm{RSI_{Ei}}}}$$
where
RSI_{EDi} = derated effective thermal resistance of opaque building assembly i of the proposed or reference building, in (m²×K)/W,
Ψ_j = linear thermal transmittance of the type j intersection calculated in accordance with Sentence 3.1.1.5.(7), in W/(m×K),
L_j = length of the type j intersection, in m,
m = total number of types of intersections,
χ_k = point thermal transmittance of the type k penetration calculated in accordance with Sentence 3.1.1.5.(7), in W/K,
N_k = number of type k point penetrations,
n = total number of types of penetrations,
A_i = area of opaque building assembly i, calculated in accordance with Article 3.1.1.6., in m², and</td></tr>
</table>

	RSI_{Ei} = *effective thermal resistance* of the non-derated *opaque building assembly*, calculated in accordance with any of Sentences 3.1.1.5.(5) and (6), in (m²×K)/W.

Table 8.4.2.8.-A
Default Linear Thermal Transmittance of Certain Intersections
Forming Part of Sentence 8.4.2.8.(4)

Intersection	Maximum *Linear Thermal Transmittance*, Ψ, in W/(m×K) Intersection of the reference *building* and the proposed *building* that complies with the prescriptive requirements	Maximum *Linear Thermal Transmittance*, Ψ, in W/(m×K) Intersection of the proposed *building* that does not comply with the prescriptive requirements
Wall/roof	0.325	0.800
Wall/intermediate floor	0.300	0.850
Wall/projection(1)	0.500	1.000
Wall/*foundation*	0.450	0.850
Wall/opening or wall/wall, minor(2)	0.200	0.500
Wall/wall, major(3)	0.450	0.850

Notes to Table 8.4.2.8.-A:

(1) Projections include linear penetrations that fully go through or partially penetrate the *building* assembly, extending on the exterior side of the *building* assembly (e.g. a balcony).

(2) Minor intersections are intersections that generally result in moderate thermal loss.

(3) Major intersections are intersections that may result in more significant thermal loss.

Table 8.4.2.8.-B
Point Thermal Transmittance of Penetrations
Forming Part of Sentence 8.4.2.8.(4)

	Point Thermal Transmittance, in W/K Penetration of the reference *building* and the proposed *building* that complies with the prescriptive requirements	*Point Thermal Transmittance*, in W/K Penetration of the proposed *building* that does not comply with the prescriptive requirements
Any penetration	0.5	1.0

5) The derated *effective thermal resistance*, calculated in accordance with Sentence (4), may be determined for an entire *opaque building assembly*, provided that the adjacent *temperature-control zones* are maintained at temperatures that vary by not more than 10°C. (See Note A-8.4.2.8.(5).)".

8.4.2.9.	Replace the Article by the following: "**8.4.2.9. Manually Operated Shading Devices** **1)** The energy model shall not include the effect of manually operated shading devices such as blinds and shades.".

8.4.2.10.	Replace Sentences (1) to (5) by the following: “**1)** HVAC systems shall be modeled according to the established program conventions, without substituting their components with thermodynamically similar components or using approximated calculations. **2)** Programs shall account for the effect of HVAC systems on supply and return air temperature and on that of *conditioned spaces* including a) temperature rise of air due to heat from constant, variable or multiple speed fans, b) fan power as a function of modulation of supply airflow, c) temperature or humidity rise or drop of supply or return air due to sensible and latent heat transferred from a heat-recovery device, and d) temperature rise of the outdoor air due to preheaters. **3)** Programs shall account for the variation of efficiency and capacity of the HVAC systems as a function of part load of the systems. (See Note A-8.4.2.10.(3).) **4)** Where the program requires an individual efficiency rate of an equipment component of an HVAC system, the global efficiency rate of the equipment shall be adjusted accordingly before being entered into the program. (See Note A-8.4.2.10.(4).) **5)** Programs shall be able to assess the peak load according to the design conditions and to size accordingly the equipment and other components of the HVAC system.”.
8.4.3.	Replace the heading by the following: “**8.4.3. Annual energy consumption and maximum power demand of the electrical system of the proposed building**”.
8.4.3.1.	Replace Sentence (1) by the following: “**1)** The *annual energy consumption* and the maximum power demand of the electrical system of the proposed *building* must be calculated in accordance with this Subsection.”; --- Replace “specifications” in Sentence (2) by “plans and specifications”; --- Replace Clauses (2)(d) and (2)(e) by the following: “d) *service water* heating system types, capacities and controls, e) electrical systems, and f) the delimitation of *temperature-control zones*.”; --- Strike out Sentences (3) to (8).

<table>
<tr><td>8.4.3.2.</td><td>Replace the Article by the following:
“8.4.3.2. Operating Schedules
1) The operating schedules of the energy model shall be established
a) using the planned operating schedules, where they are known, or
b) in the absence of planned operating schedules, using operating schedules representative of the type of proposed building or functions of spaces.
(See Note A-8.4.3.2.(1).)”.</td></tr>
<tr><td>8.4.3.3.</td><td>Replace Sentences (2) to (4) by the following:
“2) Where the modeler takes into account fenestration shading effects, the following conditions shall be complied with:
a) the energy model shall include permanent shading devices, such as sun screens and reflective sills, and automated shading devices,
b) the energy model shall include the surrounding shading effects from, for example, nearby buildings and landscaping elements,
c) the energy model shall include the shading effects from the building itself, for example, caused by balconies, overhanging floors and the other wings of the building, and
d) the solar heat gain and the visible solar transmittance coefficient of the fenestration of all the building shall be multiplied by an adjustment factor of 0.9.
(See Note A-8.4.3.3.(2).)
3) Where the modeler does not take into account fenestration shading effects,
a) the solar heat gain coefficient and the visible solar transmittance coefficient of the fenestration of all the building shall be multiplied by an adjustment factor of 0.8 (see Note A-8.4.3.3.(3)(a)), and
b) two adjacent outside surfaces whose azimuth or slope differ by not more than 45° may be modeled as a single surface.
4) The air leakage rate of the total above-ground gross areas of walls and roofs shall be set to a constant value of 0.25 L/(s×m²). (See Note A-8.4.3.3.(4).)
5) Where an opaque building assembly covers less than 5% of the total area of a wall or roof, the assembly may be excluded from the energy model, provided that the area is included in the adjacent opaque building assembly with
a) an effective thermal resistance that differs by less than 20%, and
b) an azimuth or slope that differs by not more than 45°.
6) Where multiple opaque building assemblies have the same orientation, the energy model may use the same derated effective thermal resistance value for those assemblies, calculated as provided in Sentence 8.4.2.8.(4) using
a) the following three values:
i) the least performing effective thermal resistance, RSI_{Ei}, in (m²×K)/W, of the opaque building assemblies,</td></tr>
</table>

	ii) the least performing *linear thermal transmittance*, Ψ, en W/(m×K), of the *opaque building assemblies* for each of the types of intersections, and iii) the least performing *point thermal transmittance*, χ, in W/K, of the *opaque building assemblies* for each of the types of penetrations, or b) the following three values: i) the weighted *effective thermal resistance*, $RSI_{Eweighted}$, in (m²×K)/W, calculated using the following equation: $$\mathrm{RSI_{Eweighted}} = \frac{\sum_{i=1}^{n}(A_i)}{\sum_{i=1}^{n}\left(\frac{A_i}{\mathrm{RSI_{Ei}}}\right)}$$ where n = total number of *opaque building assemblies*, A_i = area of *opaque building assembly* i, calculated in accordance with the requirements of Article 3.1.1.6., in m², and RSI_{Ei} = *effective thermal resistance* of *opaque building assembly* i, in (m²×K)/W, ii) the weighted *linear thermal transmittance* for each of the types j intersections, $\Psi_{weighted,j}$, in W/(m×K), calculated using the following equation: $$\Psi_{\mathrm{weighted,j}} = \frac{\sum_{i=1}^{n}(\Psi_i \times L_i)}{\sum_{i=1}^{n}(L_i)}$$ where n = total number of *opaque building assemblies*, Ψ_i = *linear thermal transmittance* of the type j intersection present on *opaque building assembly* i, in W/(m×K), and L_i = length of the type j intersection occurring on *opaque building assembly* i, in m, and iii) the weighted *point thermal transmittance* for each of the types j penetrations, $\chi_{weighted,j}$, in W/K, calculated using the following equation: $$\chi_{\mathrm{weighted,j}} = \frac{\sum_{i=1}^{n}(\chi_i \times N_i)}{\sum_{i=1}^{n}(N_i)}$$ where n = total number of *opaque building assemblies*, χ_i = *point thermal transmittance* of the type j penetration occurring on *opaque building assembly* i, in W/K, and N_i = number of type j point penetrations occurring on the *opaque building assembly*. **7)** Performance exchanges with *opaque building assemblies* in contact with the ground may be considered in the model on the following conditions: a) the program shall not use methods based on regression analyses or on analytical calculations to calculate the annual heat transfer of *opaque building assemblies* in contact with the ground,

b) the program shall permit accurate modeling of the arrangement of the insulation and the properties of *opaque building assemblies* in contact with the ground, and

c) the calculation methods implemented by the programs shall be identical for the proposed and reference *buildings*.

(See Note A-8.4.3.3.(7).)

8) Where the *effective thermal resistance* of the opaque section of curtain walls has not been determined in accordance with Sentence 3.1.1.5.(6), the values in Sentence 3.3.1.3.(4) shall be used in the proposed *building*.”.

8.4.3.4.

Replace Sentences (2) to (4) by the following:

“**2)** Where the proposed *building* contains controls based on space occupancy, personal controls or photocontrols, the lighting power connected to the control shall be multiplied by the factor for occupancy control, $F_{occ,i}$, the factor for personal control, $F_{pers,i}$, and the factor for photocontrol, F_{pho}, as determined in accordance with the following equations:

a) for the factor for occupancy control, $F_{occ,i}$:

$$F_{occ,i} = 1 - (C_{A,i} \times C_{occ,ctrl,i})$$

where

$C_{A,i}$ = factor to account for the relative absence of occupants in the space determined using Table 8.4.3.4.-A,

$C_{occ,ctrl,i}$ = factor to account for the occupancy-sensing mechanism determined using Table 8.4.3.4.-B,

b) for the factor for personal control, $F_{pers,i}$:

$$F_{pers,i} = 1 - C_{pers,ctrl,i}$$

where

$C_{pers,ctrl,i}$ = factor to account for personal control determined using Table 8.4.3.4.-A, and

c) for the factor for photocontrol, $F_{pho,i}$:

$$F_{pho,i} = 1 - C_{pho,i}$$

where

$C_{pho,i}$ = factor to account for the reduction of photocontrol power determined in accordance with Sentence (3).

(See Note A-8.4.3.4.(2).)

Table 8.4.3.4.-A
Factors for Relative Absence of Occupants and Personal Control According to Space Type
Forming Part of Sentence 8.4.3.4.(2)

Space Types	Factors	
	Relative Absence of Occupants, $C_{A,i}$	Personal Control(1), $C_{pers,ctrl,i}$
Common Space Types		

Atrium	0	0 0.1 where C2
Audience seating area – permanent		
for auditorium	0.3	0
for convention centre	0.2	0
for gymnasium	0	0
for motion picture *theatre*	0	0
for penitentiary	0	0
for performing arts *theatre*	0	0
for religious *building*	0.3	0
for sports arena	0	0
other	0	0
Banking activity area and offices	0	0
Classroom/Lecture hall/Training room		
for penitentiary	0.5	0 0.1 where C2
other	0.5	0 0.1 where C2
Conference/Meeting/Multi-purpose room	0.5	0 0.1 where C2
Confinement cell	0	0
Copy/Print room	0.2	0
Corridor/Transition area		
for hospital	0	0 0.1 where C2
for manufacturing facility	0	0 0.1 where C2
for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	0	0 0.1 where C2
other	0	0 0.1 where C2
Courtroom	0.2	0 0.1 where C2
Dining area		
for bar lounge/leisure dining	0	0 0.1 where C2
for cafeteria/fast food dining	0	0 0.1 where C2
for family dining	0	0 0.1 where C2

	for penitentiary	0	0 0.1 where C2
	for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	0	0 0.1 where C2
	other	0	0 0.1 where C2
	Dressing/Fitting room for performing arts *theatre*	0.4	0
	Electrical/Mechanical room	0.9	0
	Emergency vehicle garage	0.5	0 0.1 where C2
	Food preparation area	0	0
	Guest room	0	0
	Laboratory		
	for classroom	0.4	0 0.1 where C2
	other	0	0
	Laundry/Washing area	0	0
	Loading dock – interior	0	0
	Lobby		
	for elevator	0	0 0.1 where C2
	for hotel	0	0 0.1 where C2
	for motion picture *theatre*	0	0 0.1 where C2
	for performing arts *theatre*	0	0 0.1 where C2
	for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	0	0 0.1 where C2
	other	0	0 0.1 where C2
	Locker room	0.5	0
	Lounge/Break room		
	for health care facility	0	0
	other	0	0
	Office		
	enclosed	0.3	0 0.05 where C1 or C2
	open plan	0.2	0 0.05 where C1 or C2 0.25 where C3 0.3 where C4

Pharmacy area	0	0
Sales area	0	0
Seating area - general	0	0
Computer/Server room	0.7	0
Stairway, except stairwell	0	0
Stairwell	0	0
Storage garage - interior	0.4	0 0.1 where C2
Storage room	0.6	0
Vehicle maintenance area	0	0
Washroom		
for space designed to ANSI/IES RP-28, "Lighting and the Visual Environment for Senior Living" (and used primarily by residents)	0.5	0
other	0.5	0
Workshop	0	0
Building-Specific Space Types		
Convention centre – exhibit space	0	0
Dormitory – living quarters	0	0
Fire station – sleeping quarters	0	0
Gymnasium/Fitness centre		
exercise area	0	0.1 where C2
playing area	0	0.1 where C2
Health care facility		
exam/treatment room	0.3	0
imaging room	0	0
medical supply room	0.5	0
nursery	0	0
nurses' station	0	0
operating room	0.1	0
patient room	0.1	0
physical therapy room	0.2	0

	recovery room	0	0
	Library		
	reading area	0	0
	stacks	0	0
	Manufacturing facility		
	detailed manufacturing area	0	0
	equipment room	0.2	0
	extra high bay area (> 15 m floor-to-ceiling height)	0	0
	high bay area (7.5 m to 15 m floor-to-ceiling height)	0	0
	low bay area (< 7.5 m floor-to-ceiling height)	0	0
	Museum		
	general exhibition area	0.2	0
	restoration room	0.3	0
	Post office - sorting area	0	0
	Religious *building*		
	fellowship hall	0.3	0
	worship/pulpit/choir area	0.1	0
	Retail facility		
	dressing/fitting room	0.4	0
	mall concourse	0	0 0.1 where C2
	Space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living”		
	chapel (used primarily by residents)	0.5	0
	recreation room (used primarily by residents)	0.2	0
	Sports area – playing area		
	playing area with facilities for more than 5000 spectators	0	0
	playing area with facilities for more than 2000 spectators and not more than 5000 spectators	0	0

playing area with facilities for more than 200 spectators and not more than 2000 spectators	0	0
playing area with facilities for less than 200 spectators or without a facility for spectators	0	0
Transportation facility		
airport concourse	0	0
baggage/carousel area	0	0
terminal ticket counter	0	0
Warehouse – storage area		
medium to bulky palletized items	0.5	0
small hand-carried items[2]	0.5	0

Notes to Table 8.4.3.4.-A:

(1) Controls C1, C2, C3 and C4 are defined in Table 4.2.1.6.
(2) See Note A-Table 4.2.1.6.

Table 8.4.3.4.-B
Factor to Account for Occupancy-Sensing Mechanism, Cocc,ctrl,i
Forming Part of Sentence 8.4.3.4.(2)

Occupancy-Sensing Mechanism	$C_{occ,ctrl,i\,i}$
Automatic full off (full on)	0.67
Automatic full off (restricted to manual on or automatic partial on)	0.75
Automatic partial off (restricted to manual on)	0.34
Manual (on/off or bi-level)	0.30
None	0

Table 8.4.3.4.-C
Factor to Account for Reduction of Photocontrol Power, $C_{pho,i}$
Forming Part of Sentence 8.4.3.4.(3)

Photocontrol Mechanism	$C_{pho,i\,i}$
Bi-level photocontrol	0.1
Continuous dimming photocontrol	0.3
Multi-level photocontrol	0.2
None	0

3) The factor for photocontrol, $F_{pho,i}$, may be determined by

a) Table 8.4.3.4.-C, or

b) a program whose functions consist in performing detailed calculations of daylighting and the dynamic response of photocontrols.

4) The use of the factor for photocontrol, $F_{pho,i}$, is permitted to reduce the *installed interior lighting power*

a) where lighting devices are in a daylighted space and are connected to photocontrols, and

	b) where the setpoint of lighting devices connected to photocontrols is representative of the use of the space without task lighting. (See Note A-8.4.3.4.(4).)”.
8.4.3.5.	Replace “a gas-fired” in Sentence (2) by “an electrical”; --- Replace Clause (2)(b) by the following: “b) has a constant efficiency of 100% independently from the load.”; --- Replace “Forming Part of Sentences 8.4.3.5.(3) and 8.4.4.6.(2)” under the heading of Table 8.4.3.5. by the following: “Forming Part of Sentence 8.4.3.5.(3)”; --- Replace “a gas-fired” in Sentence (4) by “an electrical”; --- Replace Clause (4)(b) by the following: “b) has a constant efficiency of 100% independently from the load, and”; --- Insert “proposed” before “storage tank” in Clause (4)(c).
8.4.3.6.	Replace the Article by the following: “**8.4.3.6. HVAC Systems** **1)** The program shall provide that the exhaust airflow and outdoor air ventilation of each HVAC system are not less than the minimum outdoor airflow required for acceptable indoor air quality as prescribed by the NBC. (See Note A-8.4.3.6.(1).) **2)** Part-load operation of HVAC system’s equipment of the proposed *building* shall be modeled a) from the equipment technical characteristics, where they are known and the program is able to model the part load of HVAC system’s equipment, or b) in other cases i) in accordance with the performance curves under part load in Subsection 8.4.5., or ii) with the operating curves under default part load provided for in the programs provided that they are representative. (See Note A-8.4.3.6.(2).)

8.4.3.7.	Replace the Article by the following: “**8.4.3.7. Temperature-Control Zones** **1)** Each *temperature-control zone* of the proposed *building* shall be modeled in one of the following manners: a) heated, if only heating HVAC systems are provided or planned, b) cooled, if only cooling HVAC systems are provided or planned, or c) heated and cooled, if heating and cooling HVAC systems are provided or planned. **2)** Except as provided in Sentence (4), where the spaces served by the HVAC system are specified in the plans and specifications, each space shall be modeled as a single *temperature-control zone*. **3)** Except as provided in Sentence (4), where the spaces served by the HVAC system are not entirely specified in the plans and specifications, the spaces shall be modeled in several *temperature-control zones* delimited as follows: a) an indoor *temperature-control zone*, delimited at 4.5 m from the outdoor glazed facade, b) one or more peripheral *temperature-control zones* delimited between i) the indoor *temperature-control zone* in Clause (a), ii) the outdoor glazed facades, and iii) the location where the azimuth of an outdoor glazed facade varies by more than 45° in relation to another adjacent outdoor glazed facade, and c) *temperature-control zones* delimited by *storey*. (See Note A-8.4.3.7.(3).) **4)** The grouping of *temperature-control zones* in *thermal blocks* is permitted.”.
8.4.3.8.	Replace the Article by the following: “**8.4.3.8. Internal and Service Water Heating Loads** **1)** The internal loads and the needs in *service water* used in calculating energy compliance shall be representative of the functions of the spaces or the type of proposed *building*. (See Note A-8.4.3.8.(1).)”.
8.4.3.9.	Replace the Article by the following: “**8.4.3.9. Energy Recovered on Site and Renewable Energy Produced on Site** **1)** Where the proposed *building* uses technologies for recovering energy that is not required in Subsection 5.2.10., it is permitted to subtract that energy from the *annual energy consumption* if it is not intended for sale. (See Note A-8.4.3.9.(1) and (2).) **2)** Where the proposed *building* uses technologies for producing renewable energy on site, it is permitted to subtract that energy from the *annual energy consumption*, up to 5% of the *annual energy consumption*, if it is not intended for sale. (See Note A-8.4.3.9.(1) and (2).)

	3) Where the program in Article 8.4.2.2. does not have the function of modeling the technology in Sentences (1) and (2), it is permitted to quantify the energy recovered on site or the renewable energy produced on site by using another tool or another calculation method covering a one-year period (8760 h).”.
8.4.4.	Replace the heading by the following: “**8.4.4. Building energy target and maximum power demand of the electrical system of the reference building**”.
8.4.4.1.	Replace Sentence (1) by the following: “**1)** The *building energy target* and the maximum power demand of the electrical system of the reference *building* must be calculated based on the parameters described in this Subsection.”; --- Add “(See Note A-8.4.4.1.(2).)” at the end of Sentence (2); --- Insert “and Subsection 8.4.3.” after “this Subsection” in Sentence (4); --- Replace Clauses (4)(c) to (4)(e) by the following: “c) number, type and need for heating or cooling *thermal blocks* and *temperature-control zones*, d) shape and exterior dimensions, including contiguous ground level, e) orientation, f) air leakage rates, g) solar heat gain coefficient and visible solar transmittance coefficient of *fenestration*, h) *fenestration* shading effects due to surrounding elements and those from the *building* itself, i) insulation arrangement and *effective thermal resistance* of *opaque building assemblies* in contact with the ground, j) thermal mass of *building envelope*, k) operating schedules, l) setpoint temperatures and humidity of spaces, m) setpoint *service water* heating temperature, n) temperature of water from the public distribution network or a private source, o) plug loads, p) values associated to activities and processes, such as power, energy sources and heat produced, q) HVAC systems associated only to processes,

	r) densities of *installed interior lighting power* of *dwelling units*, s) factor for occupancy control determined in accordance with Clause 8.4.3.4.(2)(a), t) radiating and convective distribution of heat gains emitted by lighting, u) *interior lighting* for the functions, spaces or equipment referred to in Sentence 4.2.1.4.(4), v) occupancy densities, w) sensible heat and latent heat produced by occupants, x) location, orientation and dimensions of *fenestration* and doors, and y) thermal properties of ground, such as thermal conductivity, specific heat and density. (See Note A-8.4.4.1.(4).)”;
	Replace Sentences (5) to (7) by the following: “**5)** Climatic data used in compliance calculations for the proposed *building* shall be applied as being identical in the reference *building*. **6)** Where the proposed *building* uses an energy source, that energy source shall also be present for the same purposes in the modeling of the reference *building*. **7)** Where the proposed *building* uses more than one energy source, the power ratios between the energy sources and priority of use of those sources in the proposed *building* shall be modeled as being identical in the reference *building*. **8)** Except as provided in Sentence (9), the energy efficiency of the reference *building* equipment shall a) comply with Sentences 5.2.12.1.(1), 6.2.2.1.(1), 7.2.3.1.(1) and 7.2.4.1.(1), or b) in the absence of applicable values under Clause (a), be identical to that of the proposed *building’s* corresponding equipment. (See Note A-8.4.4.1.(8) and (9).) **9)** The use, in modeling the reference *building*, of the minimum equipment energy efficiency provided for in the Energy Efficiency Act (S.C. 1992, c. 36) and its regulations, is permitted a) where that equipment is covered by the Energy Efficiency Act (S.C. 1992, c. 36) and its regulations, and b) where that equipment is not covered by the Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulations. (See Note A-8.4.4.1.(8) and (9).)”.

8.4.4.2.	Strike out the Article.
8.4.4.3.	Replace Sentences (1) to (8) by the following: “**1)** The solar absorptance of *opaque building assemblies* shall be set at 0.7. **2)** Where, in the proposed *building*, a) the ratio in Sentence 3.2.1.4.(1) is greater than 40%, the ratio shall be set, in the reference *building*, at 40% of the gross wall area i) by proportionally reducing the area of each of the doors and each of the *fenestration* elements, excluding *skylights*, and ii) so that the relative opening proportion on each of the proposed *building* orientations is identical to that of the reference *building*, and b) the ratio in Sentence 3.2.1.4.(2) is greater than 3%, the ratio shall be set, in the reference *building*, at 3% of the gross roof area by proportionally reducing the area of each of the *skylights*. **3)** Permanent *fenestration* shading devices and projections shall not be modeled in the reference *building*. (See Note A-8.4.4.3.(3).) **4)** Where performance exchanges with *opaque building assemblies* in contact with the ground shall be considered in the proposed *building*, in accordance with Sentence 8.4.3.3.(7), those assemblies shall be modeled in the reference *building* so as to comply with the requirements of Subsection 3.2.3.”.
8.4.4.4.	Replace Sentence (1) by the following: “**1)** The thermal characteristics of the reference *building's building envelope* is permitted to be modeled as being identical to those of lightweight construction having a weight of 55 kg/m^2 and a thermal capacity of 50 kJ/(m^2×°C). (See Note A-8.4.4.4.(1).)”.
8.4.4.5.	Replace Sentence (3) by the following: “**3)** Where controls based on space occupancy are provided in the proposed *building*, the lighting power related to that control in the reference *building* shall be multiplied by the same factor for occupancy control, $F_{occ,i}$, as determined in accordance with Article 8.4.3.4. for the appropriate occupancy-sensing mechanism.”; Strike out Sentences (4) to (12).

8.4.4.6.	Replace the Article by the following: “**8.4.4.6. HVAC Systems and Service Water Heating Systems** **1)** The reference *building’s* corresponding equipment shall be modeled in accordance with the requirements in Sentences 8.4.3.5.(2) to (5) a) where the heating equipment of the proposed *building* uses purchased energy, or b) where the cooling equipment of the proposed *building* uses purchased energy. **2)** Where the proposed *building* uses a heat pump for heating, the reference *building’s* corresponding equipment shall a) be sized for the peak heating load of the heating system, in accordance with Sentence 8.4.2.10.(5), and b) use electricity as energy source and be modeled i) in a hydronic loop compliant with the requirements of Sentence 8.4.4.9.(2), where the heat pump is on a water loop, a water-source or ground-source, or ii) as equipment with an electric resistance in accordance with the requirements of Sentence 8.4.4.9.(4), in the case of an air-source heat pump. (See Note A-8.4.4.6.(2) and (3).) **3)** Where the proposed *building* uses a heat pump for cooling, the reference *building's* corresponding equipment shall be a chiller and shall a) be sized for the peak cooling load of the cooling system, in accordance with Sentence 8.4.2.10.(5), b) use electricity as energy source and be modeled as i) an air chiller, in accordance with Sentence 8.4.4.10.(2), where the heat pump is a water-source or ground-source heat pump, ii) a water chiller, in accordance with Sentence 8.4.4.10.(2), where the heat pump is a water-loop heat pump, or iii) a direct-expansion chiller, in accordance with Sentence 8.4.4.10.(3), where the heat pump is an air heat pump, and c) have a COP varying depending on the load. (See Note A-8.4.4.6.(2) and (3).) **4)** The capacity or flow of an equipment of the HVAC system of the reference *building* shall be proportionally adjusted according to the corresponding equipment sizing factor of the proposed *building’s* equipment calculated based on the procedure described in ASHRAE/IES 90.1, “User’s Manual” (see Note A-8.4.4.6.(4)). **5)** The performance characteristics of HVAC systems and *service water* heating devices shall be modeled in accordance with part-load performance curves in Subsection 8.4.5. **6)** The reference *building’*s fans of the HVAC system shall a) comply with the requirements of Subsection 5.2.3., or

b) where Subsection 5.2.3. does not apply, have a “peak/flow power demand” identical to that of the proposed *building’s* corresponding fans.

7) The reference *building*’s HVAC systems shall comply with the requirements of Subsection 5.2.10.

8) Where the proposed *building* is provided with a commercial cooking ventilation system, the system referred to in Sentence 5.2.13.1.(2) shall be modeled in the reference *building* so that exhaust and compensation flows are reduced to 50% of the rated flows during half of the operating hours.

9) The equipment of the HVAC system modeled in the reference *building* shall be controlled in accordance with the requirements of Subsection 5.2.8.”.

8.4.4.7.

Replace Sentences (1) to (4) by the following:

“**1)** Each HVAC system of the proposed *building* shall have a corresponding HVAC system for the reference *building* determined in accordance with Sentences (2) to (4).

2) Except as stated otherwise in this Subsection, each air distribution system modeled in the proposed *building* shall be present in the modeling of the reference *building*. (See Note A-8.4.4.7.(2) and (3).)

3) Except as stated otherwise in this Subsection, each hydronic loop of the proposed *building* shall be present in the modeling of the reference *building*. (See Note A-8.4.4.7.(2) and (3).)

4) Each HVAC system of the proposed *building* shall be modeled using the reference *building’s* corresponding HVAC system, determined in accordance with Table 8.4.4.7.-A, the corresponding descriptions shown in Tables 8.4.4.7.-B to 8.4.4.7.-E.

Table 8.4.4.7.-A
HVAC System Selection for the Reference Building
Forming Part of Sentence 8.4.4.7.(4)

HVAC system of the proposed *building*			HVAC system of the reference *building*
Type of Dominating Cooling(1) supplied to one or a number of *Temperature-control* zones	Type of Dominating Heating(1) supplied to one or a number of *Temperature-control Zone*	Outdoor Air Supplied :	
Central system distributing cooled air	Central system distributing heating air or air heated by one or more terminal zone boxes	One *temperature-control zone*	S1a/S1b – Single-zone
		Several *temperature-control zones*	S2a/S2b – Multi-zone
	Forced convection terminal system	One *temperature-control zone*	S1a/S1b/S1c – Single-zone
		Several *temperature-control zones*	S2a/S2b/S2c – Multi-zone
	Single natural convection perimeter system	One *temperature-control zone*	S1a/S1b – Single-zone
		Several *temperature-control zones*	S2a/S2b – Multi-zone

Forced convection terminal system	Central system distributing heating air or air heated by one or more terminal zone boxes	One *temperature-control zone*	S1c – Single-zone
		Several *temperature-control zones*	S2c – Multi-zone
	Forced convection terminal system	One *temperature-control zone*	S3a – 100% outdoor air with local ventilation
		Several *temperature-control zones*	S3b – 100% outdoor air with local ventilation
	Single natural convection perimeter system	One *temperature-control zone*	S3a – 100% outdoor air with local ventilation
		Several *temperature-control zones*	S3b – 100% outdoor air with local ventilation
Induction terminal system(2)	All types of heating	One *temperature-control zone*	S1b – Single-zone
		Several *temperature-control zones*	S2b – Multi-zone
No cooling	Central system distributing heating air or air heated by one or more terminal zone boxes	One *temperature-control zone*	S1d – Single-zone
		Several *temperature-control zones*	S2d – Multi-zone
	Forced convection terminal system	One *temperature-control zone*	S3a – 100% outdoor air with local ventilation
		Several *temperature-control zones*	S3b – 100% outdoor air with local ventilation
	Single natural convection perimeter system	One *temperature-control zone*	S4a – 100% outdoor air without local ventilation
		Several *temperature-control zones*	S4b – 100% outdoor air without local ventilation

Notes to Table 8.4.4.7.-A:

(1) System that takes most of the heating or cooling load, as the case may be.

(2) See Note A-Table 8.4.4.7.-A.

Table 8.4.4.7.-B
S1a, S1b, S1c and S1d Systems – Single-zone, Single-sleeve, Constant Flow
Forming Part of Sentences 8.4.4.7.(4) and 8.4.4.18.(3)

Description	Constant-air-volume system that varies the supply temperature. Control of the system is provided by a zone thermostat. It may be a combined heating and conditioning system installed on the roof or an integrated system served by a chiller-*boiler* assembly.
Supply airflow	Constant, as defined in Article 8.4.4.18.

Supply air temperature	Variable according to the load of the *temperature-control zone*.
Supply fan	S1a – If the cooling system of the proposed *building* is direct-expansion, the supply fan must provide a static pressure of 325 Pa and have a combined energy efficiency of at least 40%.
	S1b – If the cooling system of the proposed *building* is hydronic, the supply fan must provide a static pressure of 500 Pa and have a combined energy efficiency of at least 50%.
	S1c and S1d – If cooling or heating of the zone is provided only by a forced or natural convection system, or if the proposed *building* does not have a cooling system, the supply fan must provide a static pressure of 200 Pa and have a combined energy efficiency of at least 40%.
	For S1a, S1b, S1c and S1d: – if the proposed *building* has a return fan, the reference *building* shall be modeled with a return fan providing a static pressure of 150 Pa and having an energy efficiency of at least 25%; – possibility of adjusting the reference static pressure in accordance with Sentence 8.4.4.18.(3).
Local fan	S1c –Fan providing the cooling or heating forced convection of the zone. The fan must provide a power of 0.6 W/L/s. Operates on demand when the system is operating.
Outdoor air	As described in Article 8.4.4.15. Where Article 5.2.2.7. applies, the supply is 100% of outdoor air controlled by a fixed dry bulb in accordance with Table 5.2.2.8.-A. The economizer system is integrated with the mechanical cooling in accordance with Article 5.2.2.7.(3).
Operating schedule	As described in Article 8.4.3.2.
Heating system	As described in Article 8.4.4.9.
Cooling system	As described in Article 8.4.4.10.

Table 8.4.4.7.-C
S2a, S2b, S2c and S2d Systems – Multi-zone, Single-sleeve, Variable Flow
Forming Part of Sentences 8.4.4.7.(4) and 8.4.4.18.(3)

Description	Variable-air-volume and constant supply temperature system. The airflow is determined by the zone variable-air-volume terminal zone boxes. It may be a combined heating and conditioning system installed on the roof or an integrated system served by a chiller-*boiler* assembly type.
Terminal zone boxes	If the proposed *building's temperature-control zone* is supplied by terminal zone boxes with fan, – refer to Sentence 8.4.4.17.(5) to size the minimum and maximum flow of the terminal zone box, – the terminal zone box fan must provide a combined power of 0.74 W/L/s.

	If the proposed *building's temperature-control zone* is supplied by terminal zone boxes without fan, – refer to Sentence 8.4.4.17.(4) to size the minimum and maximum flow of the terminal zone box, – if the terminal zone box is controlled by a direct digital control system, the static pressure setpoint shall be adjusted in accordance with Sentence 5.2.3.3.(5).
Supply airflow	Variable, maximum flow as defined in Article 8.4.4.18.
Supply air temperature	Variable according to outdoor temperature, – if the outdoor temperature is less than 13°C, the supply temperature is 18°C; – if the outdoor temperature is greater than 18°C, the supply temperature is 13°C; – where the outdoor temperature is between 13°C and 18°C, the supply temperature varies linearly between 18°C and 13°C.
Supply fan	S2a – If the proposed *building's* cooling system is direct-expansion, the supply fan must provide a static pressure of 750 Pa and have a combined energy efficiency of 45%; if the proposed *building* has a return fan, the reference *building* shall be modeled with a return fan providing a static pressure of 150 Pa and have an energy efficiency of at least 25%.
	S2b – If the proposed *building's* cooling system is hydronic, the supply fan must provide a static pressure of 1000 Pa and have a combined energy efficiency of 55%; if the proposed *building* has a return fan, the reference *building* shall be modeled with a return fan providing a static pressure of 250 Pa and have an energy efficiency of at least 45%.
	S2c and S2d – If the zone cooling or heating is provided only by a forced or natural convection system, or if the proposed *building* does not have a cooling system, the supply fan must provide a static pressure of 620 Pa and have a combined energy efficiency of 40%; if the proposed *building* has a return fan, the reference *building* shall be modeled with a return fan providing a static pressure of 150 Pa and have an energy efficiency of at least 25%.
	For S2a, S2b, S2c and S2d: – possibility of adjusting the reference static pressure as described in Sentence 8.4.4.18.(3), – part-load curve as described in Article 8.4.5.11., – the supply fan shall be modeled as a forward curved fan with inlet vanes.
Local fan	S2c – System fan providing the cooling or heating forced convection of the zone. The fan shall provide a power of 0.6 W/L/s. Operates on demand where the system is operating.
Outdoor air	As described in Article 8.4.4.15. Where Article 5.2.2.7. applies, the supply is 100% outdoor air controlled by a fixed dry bulb in accordance with Table 5.2.2.8.-A. The economizer system is integrated with the mechanical cooling in accordance with Article 5.2.2.7.(3).
Operating schedule	As described in Article 8.4.3.2.
Heating system	As described in Article 8.4.4.9.
Cooling system	As described in Article 8.4.4.10.

Table 8.4.4.7.-D
S3a, S3b Systems – 100% Outdoor Air with Local Ventilation for Heating
Forming Part of Sentences 8.4.4.7.(4) and 8.4.4.18.(3)

Description	System conveying 100% outdoor air to the *temperature-control zone*.
Outdoor airflow	Constant, as defined in Article 8.4.4.18.
Supply air temperature	Identical to that of the proposed *building*.
Supply fan (100% outdoor air)	Operates continually when the system is operating.
	S3a – If the supply fan supplies only that *temperature-control zone*, the supply fan must provide a static pressure of 150 Pa and have a combined energy efficiency (fan-motor-drive) of at least 20%, without return fan.
	S3b – If the supply fan supplies several *temperature-control zones*, the supply fan must provide a static pressure of 325 Pa and have a combined energy efficiency of at least 40%, without return fan.
	Possibility of adjusting the static pressure as described in Sentence 8.4.4.18.(3).
Local fan	Fan providing a power of 0.6 W/L/s. Operates on demand where the system is operating.
Outdoor air	As described in Article 8.4.4.15.
Operating schedule	As described in Article 8.4.3.2.
Heating system	As described in Article 8.4.4.9.
Cooling system	As described in Article 8.4.4.10.

Table 8.4.4.7.-E
S4a, S4b Systems – 100% Outdoor Air without Local Ventilation for Heating
Forming Part of Sentences 8.4.4.7.(4) and 8.4.4.18.(3)

Description	System conveying 100% outdoor air to the *temperature-control zone*.
Outdoor airflow	Constant, as described in Article 8.4.4.18.
Supply air temperature	Identical to that of the proposed *building*.
Supply fan (100% outdoor air)	Operates continually when the system is operating.
	S4a – If the supply fan supplies only that *temperature-control zone*, the supply fan must provide a static pressure of 150 Pa and have a combined energy efficiency (fan-motor-drive) of at least 20%, without return fan.
	S4b – If the supply fan supplies several *temperature-control zones*, the supply fan must provide a static pressure of 325 Pa and have a combined energy efficiency of at least 40%, without return fan.
	Possibility of adjusting the static pressure as described in Sentence 8.4.4.18.(3).
Outdoor air	As described in Article 8.4.4.15.
Operating schedule	As described in Article 8.4.3.2.

<table>
<tr><td></td><td><table><tr><td>Heating system</td><td>As described in Article 8.4.4.9.</td></tr><tr><td>Cooling system</td><td>As described in Article 8.4.4.10.</td></tr></table>”.</td></tr>
<tr><td>8.4.4.8.</td><td>Strike out the Article.</td></tr>
<tr><td>8.4.4.9.</td><td>Replace Sentences (1) to (8) by the following:
“1) Where the proposed building’s HVAC system has no heating capacity, the reference building’s corresponding HVAC system shall have no heating capacity.
2) Where, in the proposed building, the heating system is hydronic, the reference building’s corresponding heating system shall be modeled using a hydronic loop on the following conditions:
a) the heating system shall be
i) a single-stage boiler, where the heating capacity is not more than 176 kW,
ii) a two-stage boiler, the lowest stage operating first at 50%, where the heating capacity is more than 176 kW but not more than 352 kW, or
iii) a modulating boiler between 25% and 100% of its capacity, where the heating capacity is more than 352 kW,
b) the pumping system shall be modeled by a variable-flow pump on a single primary water loop, and that pump shall
i) ride its performance curve, or
ii) be variable-speed when the pumping system is referred to in Clause 5.2.6.1.(1)(a),
c) the peak pumping flow rate shall be sized using the following parameters:
i) the heating capacity of the boiler,
ii) a heat transfer fluid supply temperature of 82°C, and
iii) a heat transfer fluid return temperature of 54°C (see Note A-8.4.4.9.(2)(c), 8.4.4.10.(2)(d) and 8.4.4.11.(4)(b)),
d) the peak pumping power demand shall be identical to the sum of the peak pumping power demands used for the proposed building heating loop (see Note A-8.4.4.9.(2)(d), 8.4.4.10.(2)(e) and 8.4.4.11.(4)(c)), and
e) the hot water supply temperature shall be set to
i) at least 82°C for an outside air temperature of not more than -16°C, and
ii) not more than 60°C for an outside air temperature of at least 0°C.
3) Where the heating system of the proposed building is a furnace, the reference building’s corresponding heating system shall be a furnace and it shall be modeled as follows:
a) where the heating capacity is not more than 66 kW, the furnace shall be modeled as a two-stage heating device of equal capacity, and</td></tr>
</table>

	b) where the heating capacity is more than 66 kW, the *furnace* shall be modeled as a device whose number of heating stages is equal to its capacity divided by 66 kW, then rounded to the next whole number. **4)** Where the heating system of the proposed *building* is an electric resistance, the reference *building's* corresponding heating system shall be an electric resistance having a constant efficiency of 100% independently of load.".
8.4.4.10.	Replace Sentences (1) to (9) by the following: "**1)** Where the proposed *building's* HVAC system has no cooling capacity, the reference *building's* corresponding HVAC system shall have no cooling capacity. **2)** Where the cooling system of the proposed *building's* is hydronic, the cooling system of the reference *building* shall be hydronic and shall be modeled according to the following conditions: a) the number and type of chillers shall be determined using Table 8.4.4.10., b) a single primary chilled water loop shall be modeled with as many pumps as there are chillers defined in Clause (a), c) the pumping system shall be modeled with variable flow, and its pumps shall i) ride their performance curve, or ii) be variable-speed where the pumping system is referred to in Clause 5.2.6.1.(1)(a), d) the peak pumping flow shall be sized using the following parameters: i) the total cooling capacity of the reference *building's* system, ii) a heat transfer fluid supply temperature of 7°C, and iii) a heat transfer fluid return temperature of 13°C (see Note A-8.4.4.9.(2)(c), 8.4.4.10.(2)(d) and 8.4.4.11.(4)(b)), and e) the peak pumping power demand shall be identical to the sum of the peak pumping power demands used for the proposed *building's* cooling loop (see Note A-8.4.4.9.(2)(d), 8.4.4.10.(2)(e) and 8.4.4.11.(4)(c)).

Table 8.4.4.10.
Number and Type of Chillers
Forming Part of Sentence 8.4.4.10.(2)

Total Cooling Capacity	Number	Type
≤ 352 kW	1	Reciprocating, water-cooled
> 352 kW and ≤ 1055 kW	1	Scroll, water-cooled
> 1055 kW and ≤ 2110 kW	2, of equal cooling capacity	Scroll, water cooled
> 2110 kW	2 or more, of equal cooling capacity; the cooling capacity of each chiller shall be not more than 2813 kW	Centrifugal, water-cooled

3) Where the cooling system of the proposed *building* is a direct-expansion system, the reference *building's* cooling system shall be a direct-expansion system and that system shall be modeled as follows:

	a) where the cooling capacity of the system is not more than 66 kW, the system shall be modeled as a two-stage system of equal capacity, and b) where the cooling capacity is more than 66 kW, the system shall be modeled as a system whose number of stages is equal to its capacity divided by 66 kW, then rounded to the next whole number.”.
8.4.4.11.	Strike out “Where applicable,” in Sentence (1); --- Replace Sentences (4) to (7) by the following: “**4)** The cooling tower pumping system shall be modeled a) as a constant-speed system, b) with a flow rate sized using the following parameters: i) the cooling tower’s capacity, and ii) a rise of the heat transfer fluid temperature of 6°C (see Note A-8.4.4.9.(2)(c), 8.4.4.10.(2)(d) and 8.4.4.11.(4)(b)), and c) with a peak pumping power demand identical to the sum of the peak pumping power demands used for the proposed *building* loop (see Note A-8.4.4.9.(2)(d), 8.4.4.10.(2)(e) and 8.4.4.11.(4)(c)). **5)** The fan of each cooling tower cell shall be modeled as a constant-speed axial fan a) with a stop-start control that maintains the tower outlet water temperature at 29°C, and b) whose motor has a rated capacity equal to 1.5% of the cell cooling capacity, in kW.”.
8.4.4.12.	Strike out the Article.
8.4.4.13.	Strike out the Article.
8.4.4.14.	Replace the Article by the following: “**8.4.4.14. Pumps** **1)** Except as provided in Sentences 8.4.4.9.(2), 8.4.4.10.(2), 8.4.4.11.(4) and 8.4.4.20.(4), pumps shall be modeled in the reference *building* so that, for each pump, the ratio between the peak power demand and the peak pumping flow is identical to that of the proposed *building’s* corresponding pump. **2)** Where the pumping system is a variable-flow system, the pumps referred to in Sentence (1) shall be modeled in accordance with Article 8.4.5.10. as a) pumps that ride their performance curve, or

	b) pumps with variable speed drive, where the pumping system is referred to in Clause 5.2.6.1.(1)(a).”.
8.4.4.15.	Replace Sentence (2) by the following: “**2)** It is permitted to consider that the outdoor airflow of a *temperature-control zone* of the reference *building* is the outdoor airflow of the same *temperature-control zone* of the proposed *building* multiplied by 1.2 a) where the distribution air of the proposed *building* is circulated i) near the floor; ii) at a temperature less than that of the *temperature-control zone*, iii) unidirectionally, and iv) at low velocity, and b) where the return air of the proposed *building* is captured near the ceilings.”.
8.4.4.16.	Strike out the Article.
8.4.4.17.	Replace the Article by the following: “**8.4.4.17. Fans** **1)** Where the HVAC system of a *thermal block* of the proposed *building* includes a fan that exhausts air directly to the outside and meets the requirements of Sentences 5.2.3.1.(3) or 5.2.10.1.(3), its flow rate, power demand, operating schedule and part-load performance shall be modeled identically in the reference *building*. **2)** Constant-volume fans shall be modeled as airfoils without inlet vanes riding their performance curves, in accordance with Article 8.4.5.11. **3)** Variable-volume fans shall be modeled as forward curves with inlet vanes, in accordance with Article 8.4.5.11. **4)** The terminal zone boxes without fan of a variable-flow HVAC system shall be modeled taking into consideration a minimum flow as being the greater of a) 30% of the peak flow of the *temperature-control zone*, or b) the outdoor airflow required for acceptable indoor air quality in the *temperature-control zone* as prescribed by the NBC. **5)** The terminal zone boxes with fan of a variable-flow HVAC system shall be modeled as having a) a minimum flow equal to the outdoor airflow required for acceptable indoor air quality in the *temperature-control zone* as prescribed by the NBC, and b) a parallel fan i) whose maximum flow is set at 50% of the peak flow of the *temperature-control zone*, and ii) whose ratio between the peak power demand and the flow is 0.74 W/(L/s).

	6) Return or relief fans shall be modeled with a peak flow as being the greater of a) the supply fan peak flow less the outdoor airflow rate, and b) 90% of the supply fan peak flow.”.
8.4.4.18.	Replace the Article by the following: “**8.4.4.18. Air Supply System** **1)** The supply airflow rate provided by HVAC systems shall be modeled as being equal to the sum of the airflow rates supplied to each *temperature-control zones* calculated in accordance with Sentence (2). **2)** The supply airflow rate to a *temperature-control zone* shall be modeled as being the greatest of a) the airflow rate for heating, based on the peak heating load and a temperature difference of 21°C, b) the airflow rate for cooling, based on the peak cooling load and a temperature difference of 11°C, or c) the outdoor air ventilation rate supplied to the *temperature-control zone*, in accordance with Article 8.4.4.15. **3)** Where a fan of the proposed *building* is part of an HVAC system whose total fan power ratings is at least 4 kW, the static pressure of the reference *building's* corresponding fan is permitted to be adjusted using the following equation: $$P_{Ref\,adjusted} = P_{Ref} + \sum_{i=1}^{n} \frac{SPA_i \times D_{i,Prop}}{D_{vi,Prop}}$$ where $P_{Ref\,adjusted}$ = adjusted pressure of the fan in the reference *building*, in Pa, P_{Ref} = pressure of the fan in the reference *building* as established in Tables 8.4.4.7.-B to 8.4.4.7.-E, in Pa, SPA_i = static pressure adjustment due to the i^{th} equipment as established in Table 5.2.3.1., in Pa, n = number of equipment requiring static pressure adjustment, $D_{i,Prop}$ = flow through the i^{th} equipment of the proposed *building*, in L/s, and $D_{vi,Prop}$ = design flow rate of fan serving the i^{th} equipment of the proposed *building*, in L/s.”.
8.4.4.19.	Replace Sentences (1) to (3) by the following: “**1)** Where the proposed *building*’s HVAC system must be equipped with heat- or energy-recovery equipment under Sentence 5.2.10.1.(1), that equipment shall be modeled in the reference *building* to the following conditions: a) the static pressures of fans shall be adjusted according to Sentence 8.4.4.18.(3), and

<table>
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b) the heat-recovery efficiency shall be
i) 60%, or
ii) 65% for dwelling units located in a municipality whose number of heating degree-days under 18°C is 6000 or more.

2) Where the proposed building has refrigeration systems referred to in Article 5.2.10.3., the reference building's refrigeration system shall be modeled to the following conditions:
a) the operating and performance characteristics, capacity, part-load performance and pumping flows shall be identical to those of the proposed building's refrigeration system,
b) peak load and demand schedules shall be identical to those of the proposed building,
c) the heat-recovery equipment shall have
i) the capacity to reject recovered heat to the hydronic heating systems, and
ii) the same means to reject unrecovered heat as that of the proposed building, and
d) the efficiency of the heat-recovery equipment shall be the smaller of the following values:
i) 25% of the recovery efficiency, or
ii) 80% of the space heating capacity and service water heating capacity.
(See Note A-8.4.4.19.(2).)

3) Where the proposed building has a pool referred to in Sentence 5.2.10.2.(1), the dehumidification equipment referred to in Sentence 5.2.10.2.(3) serving that temperature-control zone shall be modeled in the reference building as an electric air-cooled chiller
a) sized for the peak dehumidification load,
b) to the conditions described in Sentence 8.4.4.10.(2),
c) having a COP varying according to the load, and
d) equipped with a heat-recovery unit compliant with Sentence 5.2.10.2.(2).”.
</td></tr>
<tr><td>8.4.4.20.</td><td>
Replace the article by the following:
“8.4.4.20. Service Water Heating System
1) The reference building's service water heating system shall be modeled as being identical to that of the proposed building as regards the following characteristics:
a) storage capacity, and
b) power input.

2) Where the proposed building's service water heating system includes a storage tank, the service water setpoint temperature of the reference building's storage tank shall be identical to that of the proposed building.
</td></tr>
</table>

	3) Where the proposed *building*'s *service water* heating system comprises multiple water heaters, the reference *building's service water* heating system shall be modeled with the same number of water heaters. **4)** Where the proposed *building*'s *service water* heating system is a recirculation system, the reference *building's* circulation pumps shall be modeled as a single pump with a) constant speed operation, and b) a total flow rate and pumping power, in W/(L/s), that are identical to that of the proposed *building*'s circulation pumps.".
	Add the following Article: "**8.4.4.21. Energy Recovered on Site and Renewable Energy Produced on Site** **1)** Except as provided in Sentence (2), where the proposed *building* uses energy recovered on site or renewable energy produced on site to serve an HVAC system or a *service water* heating system, the corresponding HVAC system or *service water* heating system modeled in the reference *building* shall a) be the same type as the proposed *building's* system, b) use the same primary supply energy source as the system used in the proposed *building*, and c) be sized to fully meet the load. **2)** Where no supply energy source is used in the proposed *building*, the reference *building* shall consist of a) an electric resistance sized for the peak heating load, where the energy recovered on site or the renewable energy produced on site is used for heating purposes, or b) an electric air-cooled chiller sized for the peak cooling load, where the energy recovered on site or the renewable energy produced on site is used for cooling purposes. **3)** Where the energy recovered on site or the renewable energy produced on site is electricity, that electricity shall not be accounted for in modeling the reference *building*.".
8.4.5.1.	Replace Sentence (1) by the following: "**1)** In the absence of equivalent functionalities of programs modeling the part-load operation of HVAC system's equipment or *service water* heating systems, the part-load performance curves for the same reference *building's* equipment shall be calculated in accordance with this Subsection. (See Note A-8.4.5.1.(1).)".
	Add the following Articles:

"**8.4.5.10. Pumps**

1) The power draw of pumps at part-load, $P_{partload}$, in kW, of the reference *building* shall be calculated

a) using the following equation, where the flow ratio at part-load conditions, $V_{partload}$, in L/s, to the flow rate at rated conditions, V_{rated}, in L/s, is less than the power coefficient d taken from Table 8.4.5.10.:

$$\mathrm{P_{partload}} = \mathrm{P_{rated}} \times \mathrm{e}$$

where

P_{rated} = power draw at rated conditions, in kW, and

e = applicable power coefficient taken from Table 8.4.5.10., or

b) using the following equation, where the flow ratio at part-load conditions, $V_{partload}$, in L/s, to the flow rate at rated conditions, V_{rated}, in L/s, is not less than the power coefficient d taken from Table 8.4.5.10.:

$$P_{partload} = \left\{P_{rated} \times \left[a + \left(b \times \frac{V_{partload}}{V_{rated}}\right)\right]\right\} + \left[c \times \left(\frac{V_{partload}}{V_{rated}}\right)^2\right]$$

where

P_{rated} = power draw at rated conditions, in kW, and

a, b and c = applicable power coefficients taken from Table 8.4.5.10.

Table 8.4.5.10.
Capacity Coefficients Used in the Calculation of $P_{partload}$
Forming Part of Sentence 8.4.5.10.(1)

Type of Pump	Coefficients for Calculation of $P_{partload}$				
	a	b	c	d	e
Pump riding its curve	0.227143	1.178929	−0.41071	0.47	0.68
Pump with variable speed drive	0.00153028	0.00520806	1.0086242	0.2	0.04

8.4.5.11. Fans

1) The divided power ratio, P, to flow ratio, F, of the fans of the reference *building* at part-load shall be calculated

a) using the following equation, where the ratio of output capacity to rated power, P, is less than the power coefficient d taken from Table 8.4.5.11.:

$$\mathrm{F} = \mathrm{e}$$

where

F = ratio of outlet flow to rated flow, and

e = applicable power coefficient taken from Table 8.4.5.11., or

b) using the following equation, where the ratio of output capacity to rated power, P, is not less than the power coefficient d taken from Table 8.4.5.11.:

$$F = a + (b \times P) + (c \times P^2)$$

where

P = ratio of output capacity to rated power,

F = ratio of outlet flow to rated flow, and

a, b and c = applicable power coefficients taken from Table 8.4.5.11.

Table 8.4.5.11.
Capacity Coefficients Used in the Calculation of P/F
Forming Part of Sentence 8.4.5.11.(1)

<table>
<tr><th rowspan="2">Type of Fan</th><th colspan="5">Coefficients</th></tr>
<tr><th>a</th><th>b</th><th>c</th><th>d</th><th>e</th></tr>
<tr><td>Airfoil without inlet vane riding its performance curve</td><td rowspan="2">0.227143</td><td rowspan="2">1.178929</td><td rowspan="2">−0.41071</td><td rowspan="2">0.47</td><td rowspan="2">0.68</td></tr>
<tr><td>Backward inclined fan without inlet vane riding its performance curve</td></tr>
<tr><td>Airfoil with inlet vanes</td><td rowspan="2">0.584345</td><td rowspan="2">−0.57917</td><td rowspan="2">0.970238</td><td rowspan="2">0.35</td><td rowspan="2">0.50</td></tr>
<tr><td>Backward inclined fan with inlet vanes</td></tr>
<tr><td>Forward curved fan with inlet vanes</td><td>0.339619</td><td>−0.84814</td><td>1.495671</td><td>0.25</td><td>0.22</td></tr>
<tr><td>Variable speed drive</td><td>0.00153028</td><td>0.00520806</td><td>1.0086242</td><td>0.20</td><td>0.04</td></tr>
</table>

”.

8.5.1.1.

Replace respectively, in numerical order, the headings, objectives and functional statements of the Articles concerned below by the following in Table 8.5.1.1:

“**8.4.2.9. Manually Operated Shading Devices**

(1) [F99-OE1.1]”;

“**8.4.3.2. Operating Schedules**

(1) [F99-OE1.1]”;

“**8.4.3.6. HVAC Systems**

(1) [F99-OE1.1]

(2) [F99-OE1.1]”;

	“**8.4.3.7. Temperature-Control Zones** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1] (4) [F99-OE1.1]”; “**8.4.3.8. Internal and Service Water Heating Loads** (1) [F99-OE1.1]”; “**8.4.3.9. Energy Recovered on Site and Renewable Energy Produced on Site** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1]”; “**8.4.4.6. HVAC Systems and Service Water Heating Systems** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1] (4) [F99-OE1.1] (5) [F99-OE1.1] (6) [F99-OE1.1] (7) [F99-OE1.1] (8) [F99-OE1.1] (9) [F99-OE1.1]”; “**8.4.4.14. Pumps** (1) [F99-OE1.1] (2) [F99-OE1.1]”; “**8.4.4.20. Service Water Heating Systems** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1]”; --- Replace the objectives and functional statements of the Articles concerned below by the following in Table 8.5.1.1: “**8.4.3.1. General** (2) [F99-OE1.1]”; “**8.4.4.3. Building Envelope Components** (1) [F99-OE1.1] (2) [F99-OE1.1]

	(3) [F99-OE1.1] (4) [F99-OE1.1]"; "**8.4.4.9. Heating System** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1] (4) [F99-OE1.1]"; "**8.4.4.10. Cooling System** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1]";
	Insert, in numerical order, the following objectives and functional statements in Table 8.5.1.1.: "**8.4.2.2. Calculation Methods** (5) [F99-OE1.1] (6) [F99-OE1.1] (7) [F99-OE1.1]"; "**8.4.3.3. Building Envelope Components** (4) [F99-OE1.1] (5) [F99-OE1.1] (6) [F99-OE1.1] (7) [F99-OE1.1] (8) [F99-OE1.1]"; "**8.4.4.1. General** (8) [F99-OE1.1] (9) [F99-OE1.1]"; "**8.4.4.7. HVAC System Selection** (2) [F99-OE1.1]";
	Insert, in numerical order, the following Articles, objectives and functional statements in Table 8.5.1.1.: "**8.4.4.21. Energy Recovered on Site and Renewable Energy Produced on Site** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1]"; "**8.4.5.10. Pumps**

	(1) [F99-OE1.1]"; "**8.4.5.11. Fans** (1) [F99-OE1.1]"; --- Strike out respectively the following objectives and functional statements in Table 8.5.1.1.: "**8.4.1.2. Determination of Compliance** (5) [F99-OE1.1]"; "**8.4.2.8. Building Envelope** (6) [F99-OE1.1] (7) [F99-OE1.1] (8) [F99-OE1.1] (9) [F99-OE1.1] (10) [F99-OE1.1]"; "**8.4.4.5. Lighting** (4) [F99-OE1.1] (5) [F99-OE1.1] (6) [F99-OE1.1] (7) [F99-OE1.1] (8) [F99-OE1.1] (9) [F99-OE1.1] (10) [F99-OE1.1] (11) [F99-OE1.1] (12) [F99-OE1.1]"; "**8.4.4.11. Cooling Tower Systems** (6) [F99-OE1.1] (7) [F99-OE1.1]"; "**8.4.4.18. Supply Air Systems** (4) [F99-OE1.1] (5) [F99-OE1.1] (6) [F99-OE1.1]"; --- Strike out the following Articles, objectives and functional statements in Table 8.5.1.1.: "**8.4.2.4. Thermal Mass** (1) [F99-OE1.1]";

	“**8.4.2.5. Space Temperature** (1) [F99-OE1.1]”; “**8.4.2.7. Internal and Service Water Heating Loads** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1] (4) [F99-OE1.1] (5) [F99-OE1.1]”; “**8.4.4.2. Operating Schedules, Internal Loads, Service Water Heating Loads and Set-point Temperature** (1) [F99-OE1.1] (2) [F99-OE1.1] (3) [F99-OE1.1]”; “**8.4.4.8. Equipment Oversizing** (1) [F99-OE1.1] (2) [F99-OE1.1]”; “**8.4.4.12. Cooling with Outside Air** (1) [F99-OE1.1]”; “**8.4.4.13. Heat Pumps** (1) [F99-OE1.1] (2) [F99-OE1.1]”; “**8.4.4.16. Space Temperature Control** (1) [F99-OE1.1] (2) [F99-OE1.1]”.
Division B Notes to Part 8	
	Add the following Notes: “**A-8.1.1.2. Application.** The provisions of Sentence 8.1.1.2.(2) make compulsory compliance of electrical or mechanical systems with the relevant prescriptive requirements of Sections 4.2., 5.2., 6.2. and 7.2., and any other applicable provision in Section 8.4. where they are not defined in the plans and specifications. That means that, if at the time of assessment of compliance with the Code using this Part, the information on the systems is insufficient or incomplete, the prescriptive requirements must be applied. For the purposes of energy simulations, the system concerned of the reference building will have to be identical to that of the proposed building. Thus, the energy performance compliance path allows to consider only the

	energy performance of systems and components defined in the plans and specifications. Because the envelope has a very significant impact on energy consumption, the thermal and geometric characteristics of the envelope are essential to assess compliance of the building. **A-8.4.1. Compliance.** The energy performance compliance path offers designers an alternative to the prescriptive requirements and trade-offs in Parts 3 to 7 of the Code. Those prescriptive requirements and trade-offs constitute compliance demonstration means relatively simple to apply, but offer less flexibility to designers who wish to design projects meeting the regulatory objectives without necessarily applying all the prescriptive requirements of the Code. For example, the energy performance compliance path allows the increase of the fenestration area of a building above the prescribed limit. In return, the designer may choose a heat-recovery unit with an efficiency greater than the minimum prescribed requirements that will make up for energy efficiency losses caused by the increase of the fenestration area. The objective is that the annual energy needs of the proposed building be lower than or equal to the annual energy needs of the reference building, determined according to the energy performance compliance path provided for in this Part. Contrary to the prescriptive requirements and trade-offs, the energy performance compliance path allows accounting the cross effects and interdependence of solutions implemented in the proposed building. For example, the importance of thermal gains of indoor lighting systems will have an impact on the sizing of the HVAC systems and their subsequent energy consumption. Similarly, the efficiency of a heating system will influence the choice of a designer to insulate more the building envelope in order to reach the annual energy needs of the reference building. **A-8.4.1.2.(3) and (4) Determination of Compliance.** The sizing of the HVAC systems of a building have a significant impact on energy consumption. In practice, it may be justified, depending on circumstances, to oversize or undersize the HVAC systems of a project. To achieve equivalence in the comparison, the same sizing rules must apply to the reference building and the proposed building. To prevent unjustified transfer of “energy credits” caused by an abusive undersizing of the HVAC systems of the proposed building, the HVAC systems of the proposed and reference buildings must meet the same thermal comfort needs of the spaces served. To that end, the Code does not permit considering a proposed building whose thermal discomfort hours exceed those of the reference building or considering that the proposed and reference buildings have more than 300 h of heat discomfort in a simulated year.”.
A-8.4.1.4.	Strike out the Note.

A-8.4.1.4.(2)(b)	Replace the Note by the following: “**A-8.4.1.4.(2)(b) Existing Equipment Characteristics.** Where the HVAC systems of the existing building serve the addition, the existing systems are modeled as they are, i.e. in accordance with the original plans and specifications, in accordance with the applicable regulatory requirements at the time of their installation or from on-site readings.”.
	Add the following Notes: “**A-8.4.1.4.(3) Addition.** The party wall of the existing building will be modeled without heat gain or loss, unless the temperature difference between both sides of the wall is greater than 10°C, in which case heat exchanges between the addition and the existing building will be considered in the modeling. **A-8.4.2. Compliance Calculation.** The maximum power demand of the electrical system and the annual energy consumption are evaluated by an energy modeling software, also called energy simulation software. The software includes at least one program, also called calculation engine. The software often includes graphic interfaces facilitating data entry and result analysis. **A-8.4.2.2.(1) Major Program Deficiencies and Limitations.** The addenda of ANSI/ASHRAE 140, “Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs,” allow it possible to verify whether a program has major deficiencies or limitations.”.
A-8.4.2.2.(1)(g)	Strike out the Note.
	Add the following Note: “**A-8.4.2.2.(3) Internal Loads.** Normal internal loads include loads due to lighting, the presence of occupants, equipment directly used by occupants such as personal computers, automatic equipment such as computer servers, and other loads that do not consume energy such as food that must be kept in a freezer. Internal loads normally produce heat gains in the form of sensible heat, latent heat or radiant heat. Except for lighting, internal loads are not covered by the prescriptive paths of the Code. However, internal loads add cooling and/or heating loads to the building’s HVAC systems and service water heating systems. For that reason, internal loads representative of the building type or space function must be included in the compliance calculations. It will make it possible to correctly evaluate part-load performance of the HVAC systems and service water heating systems, and, by extension, the energy consumption of the proposed and reference buildings. Sentence 8.4.4.1.(4) provides that the internal loads must be modeled identically in the proposed and reference building energy models; only the energy consumed by the equipment and systems regulated by the Code can be modeled differently in the proposed and reference buildings.

	Tables A-8.4.3.8.(1)-A and A-8.4.3.8.(1)-B provide default values that are generally representative of the internal loads based on building or space type. It must be evaluated whether expected internal loads are correctly represented by the default values. Generally, if the default values provided in Tables A-8.4.3.8.(1)-A and A-8.4.3.8.(1)-B appear too small compared to the expected internal loads, some commercial and/or industrial operations and/or processes will not be correctly represented. The following loads, often associated to processes and/or activities, are examples of loads that are not represented in the default values in Tables A-8.4.3.8.(1)-A and A-8.4.3.8.(1)-B: • manufacturing machinery in an industrial building, • medical imaging equipment in a hospital, • computer servers in a data centre of an office building, • swimming pool water heating in a recreation centre, • cooking appliances and refrigeration equipment in a commercial kitchen or restaurant. HVAC systems of processes and/or activities that require temperatures, airflows or a humidity rate that do not correspond to the usual comfort conditions are excluded from the prescriptive path; there is no requirement for their operation or efficiency. In the performance path, those HVAC systems must be modeled because they have an impact on the cooling or humidification heating load of zones adjacent to the process.”.
A-8.4.2.7.(1)	Strike out the Note.
	Add the following Notes: “**A-8.4.2.8. Modeling of Building Envelope Assemblies.** The programs generally permit modeling opaque building assemblies by a succession of materials in continuous layers. For example, a metal-frame wall construction could be modeled with three layers of materials representing the exterior cladding, the insulation and the interior finish. In order for the material assembly to have the value of the derated effective thermal resistance calculated in accordance with Sentence 8.4.2.8.(4), the thickness of the insulating layer will generally be adjusted by the program for each opaque building assembly of the proposed building having a different derated effective thermal resistance. Similarly, the thickness of the insulating layer will be adjusted by the program in the reference building to reach the value of the derated effective thermal resistance calculated from the values of the effective thermal resistance, the linear thermal transmittance and the point thermal transmittance required in Part 3. **A-8.4.2.8.(4) Calculation of Effective Thermal Resistance.** Sentence 8.4.2.8.(4) requires that the effective thermal resistance of the envelope of the proposed building and the effective thermal resistance of the envelope of the reference building be derated to consider heat losses. The penetrations and

	transitions of the proposed building shall be derated, whether or not they comply with the prescriptive requirements of Sentences 3.2.1.2.(1) to (7) and (10). Contrary to the trade-off path in Part 3, the compliant intersections of the proposed building shall be derated. The values of the compliant intersections of the proposed building shown in Tables 8.4.2.8.-A and 8.4.2.8.-B may be used. It is possible to use a value that better represents the intersections of the proposed building if that value was obtained in accordance with the requirements of Sentence 3.1.1.5.(7). The effective thermal resistance of opaque building assemblies of the reference building shall also be derated since that derating will have a different impact on the annual energy consumption of each of the buildings. **A-8.4.2.8.(5) Derated Effective Thermal Resistance According to Temperature-control Zones.** In order to facilitate modeling, the derated effective thermal resistance may be considered for each opaque building assembly, independently of the adjacent temperature-control zones, where they are maintained at a temperature differential of not more than 10°C. For example, in an apartment building, if several sections of walls have been simplified to be considered as only one wall and that wall is in contact with eight temperature-control zones representing eight dwelling units, then the effective thermal resistance may be derated globally for that wall. Thus, a single value of the derated thermal resistance is entered in the energy modeling for the eight zones. That single value of the effective thermal resistance for that wall considers all the partial or complete penetrations of the envelope and the transitions between the different constructive systems of the envelope. However, in the case of a mixed-use building including a grocery store on the first floor having six temperature-control zones maintained at 21°C and two grocery storage zones maintained at 4°C, the effective thermal resistance is derated separately for the section of wall in contact with the first six zones and for the section of wall in contact with the other two zones.”.
A-8.4.2.9.(2)	Strike out the Note.
	Add the following Notes: “**A-8.4.2.10.(3) Part-load Parameters.** The part-load of an HVAC system may vary in particular due to a change in climate conditions or in the fluid inlet temperature in the system. **A-8.4.2.10.(4) Independent Modeling of an HVAC System’s Equipment Components.** Generally, the modeling of an HVAC system in a program requires to enter the individual efficiency rates of some components of the systems, such as supply fans, cooling compressors and condensers. However, energy or efficiency indexes of some HVAC equipment such as the EER (energy-efficiency ratio), may include, for example, the efficiency rate of a supply fan. The energy efficiency rate of the component must be isolated from the EER of the equipment and entered in the program. Consequently, the equipment efficiency, measured, for example, by the EER, must be adjusted to reflect the separate processing of the components

	before entering that value in the program. It is possible to calculate the adjusted EER or to obtain it by contacting the equipment manufacturer.”.
A-8.4.3.2.(1)	Replace the first Sentence of the Note by the following: “Operating schedules generally account for the following elements: • the presence of occupants, • the operation of interior lighting, • the operation of receptacle equipment, • the operation of HVAC systems, • the operation of service water systems. Tables A-8.4.3.2.(1)-A to A-8.4.3.2.(1)-K contain default values of operating schedules of building parameters for simulation purposes. These schedules may be used with Table A-8.4.3.8.(1)-A or A-8.4.3.8.(1)-B if more accurate information is not available. If the building or space type is not listed in Table A-8.4.3.8.(1)-A or A-8.4.3.8.(1)-B, the schedule that most closely corresponds to the occupancy of the proposed building or space should be used.”.
A-8.4.3.2.(2)	Strike out the Note.
A-8.4.3.3.(2)	Replace the Note by the following: “**A-8.4.3.3.(2) Energy Modeling of the Proposed Building Considering the Fenestration Shading Effects.** Where the modeler considers the effect of shading on fenestration, the existing surrounding elements that have an impact on the building must be considered in the modeling. For example, the potential energy gain due to the sun breaker system is partly cancelled where a neighbouring immovable or structure casts its shadow on the proposed building. The 10% reduction of sun gain and visible sun transmittance coefficients of the fenestration considers the darkening due to dirt and dust present on the fenestration.”.
	Add the following Notes: “**A-8.4.3.3.(3)(a) Solar Heat Gain and Visible Sun Transmittance Coefficients of Fenestration.** The 20% reduction of solar heat gain and visible sun transmittance coefficients of the fenestration is explained by the darkening effect set at 10% due to dirt and dust on the fenestration and by the darkening effect set at 10% due to surrounding elements, the building itself and the permanent automated shading devices. Those adjusted coefficients allow the modeler to not model the shading in the program as provided in Sentence 8.4.3.3.(2).

A-8.4.3.3.(4) Air Leakage Rate of the Building Envelope. The air leakage rate of 0.25 L/(s·m²), which is a typical infiltration rate at 5 Pa, is used in the energy consumption model and may not reflect the real value encountered under operating conditions. That rate is based on pressure differentials typically encountered under operating conditions.

A-8.4.3.3.(7) Modeling of Building Assemblies in Contact with the Ground. The detailed calculation of the annual heat transfer of building assemblies in contact with the ground is complex and may require a significant investment of time. Indeed, the heat transfer with the ground varies in particular based on the geometry of the building, the depth of the foundations, the climate zone, and the arrangement of the materials composing the opaque building assemblies in contact with the ground. In addition, thermal conductivity of the ground, the most important parameter for quantifying the heat transfer with the ground, varies significantly based on several factors such as ground humidity rate, type of ground, ground temperature and ground density. The effect of frost, snow cover and depth of the groundwater may also have an influence on heat transfer.

The calculation of heat transfer of the building assemblies in contact with the ground is treated in different manners in programs. Some programs implement detailed calculation methods while others use simplified methods to estimate the annual heat transfer of opaque building assemblies in contact with the ground. The purpose of Sentence 8.4.3.3.(7) is to prohibit performance exchanges with building assemblies in contact with the ground where simplified methods for calculating heat transfer with the ground are used by the program. Although simplified methods generally allow the definition of the properties of the insulation under the slab and those at the foundation wall level, those methods are not sufficiently accurate to quantify heat transfer with the ground. Such simplified methods are described in the “ASHRAE Handbook – Fundamentals”. Another example of a simplified method, defined from regression analyses and used in some programs, takes into account factors representing heat transfer through the floor and walls (factors F and C).

For performance exchanges of building assemblies in contact with the ground to be considered in the performance path, Sentence 8.4.3.3.(7) requires that the program be capable to accurately represent the arrangement of the insulation and the properties of the building assemblies in contact with the ground such as dimensions, specific heat, density and thermal conductivity.

Before considering modeling performance exchanges of building assemblies in contact with the ground, compliance of the calculation method used with Sentence 8.4.3.3.(7) must be verified. If it does not, as specified in Article 3.4.1.2., the prescriptive requirements of Subsection 3.2.3. apply to building assemblies in contact with the ground of the proposed building. In accordance with Clause 8.4.4.1.(4)(i), those assemblies will be modeled in the same manner as the reference building.

A-8.4.3.4.(2) Occupancy Control Factors. As provided in Sentence 4.4.1.2.(2), the interior lighting controls in Subsection 4.2.2. are mandatory and cannot be exchanged. That means that the controls must be present in the plans and specifications and must be modeled in the same manner for both the proposed and reference buildings. It concerns in particular controls in Table 4.2.1.6., listed in the columns under “Type of Lighting Control”.

Contrary to the occupancy control factors, personal control factors and photocontrol factors may reduce the power of the installed lighting power of the proposed building but will not reduce the interior lighting power of the reference building.”.

A-8.4.3.4.(4)

Replace “See Table A-8.4.3.2.(2)-B” by “See Tables A-8.4.3.8.(1)-A and A-8.4.3.8.(1)-B”.

A-8.4.3.6.(1)

Replace the Note by the following:

“**A-8.4.3.6.(1) HVAC System.** The basic ventilation rates for the proposed building must be set to the minimum rates required by the applicable standards. The increase or reduction of outdoor air ventilation and exhaust rates are not means to comply with the energy performance compliance path.”.

Add the following Notes:

“**A-8.4.3.6.(2) Part-load HVAC System’s Equipment Operation.** HVAC system’s equipment rarely operates at full load. Consequently, the part-load efficiency must be adequately modeled. The designer must use available part-load performance curves of the proposed equipment, generally provided by the manufacturer, and must adapt those curves to the requirements of the programs. That adaptation is necessary since to model part-load equipment operation, each program includes its own mathematical models, generally in the form of a polynomial equation.

Where the program does not have the function of modeling the part-load operation of an HVAC system’s equipment (for example, due to an atypical curve), Subsection 8.4.5. or the default curves of the programs may be used.

A-8.4.3.7.(3) Temperature-control Zone Delimitation. Where the temperature-control zones and HVAC systems are not entirely stated in the plans, modeling of those zones in accordance with the requirements of Sentence 8.4.3.7.(3) is necessary. Those requirements must be applied, for example, in the case of a commercial building whose layout of rental suites is unknown at the time of modeling.

A-8.4.3.8.(1) Internal and Service Water Heating Loads and Illuminance Levels. Tables A-8.4.3.8.(1)-A and A-8.4.3.8.(1)-B contain default values for internal and service water heating loads and their operating schedules for simulations purposes.

Table A-8.4.3.8.(1)-A
Modeling Guidance for Loads, Operating Schedules and Illuminance Levels by Building Type

Building Type	Occupant Density, m²/occupant	Peak Receptacle Load, W/m²	Service Water Heating Load, W/occupant	Operating Schedule from Note A-8.4.3.2.(1)	Illuminance Levels, in lx(1)
Automotive facility	20	5	90	E	400
Convention centre	8	2.5	30	C	300
Courthouse	15	5	60	A	400
Dining					
bar lounge/leisure	10	1	115	B	125
cafeteria/fast food	10	1	115	B	300
family	10	1	115	B	300
Dormitory	30	2.5	500	G	100

Exercise centre	10	1	90	B	350
Fire station	25	2.5	400	F	400
Gymnasium	10	1	90	B	500
Health care clinic	20	7.5	90	A	600
Hospital	20	7.5	90	H	350
Hotel/Motel	25	2.5	500	F	150
Library	20	2.5	90	C	500
Long-term care dwelling units other	 25 25	 1.5 1.5	 500 500	 J B	 400 400
Manufacturing facility	30	10	90	A	450
Motion picture theatre	8	1	30	C	150
Multi-unit residential building	25	5	500	G	125
Museum	20	2.5	60	C	100
Office	25	7.5	90	A	400
Penitentiary	30	2.5	400	H	250
Performing arts theatre	8	1	30	C	250
Police station	25	7.5	90	H	400
Post office	25	7.5	90	A	400
Religious building	5	1	15	I	250
Retail area	30	2.5	40	C	450
School/University	8	5	60	D	400
Sports arena	10	1	90	B	400
Storage garage	1000	0	0	K	75
Town hall	25	7.5	90	D	400
Transportation facility	15	1	65	H	225
Warehouse	1500	1	300	A	150
Workshop	30	10	90	A	500

Notes to Table A-8.4.3.8.(1)-A:

(1) The values are weighted averages that correspond to typical overall illuminance levels recommended for the building types listed and include both general lighting and task lighting. They are based on recommendations published by the IES.

Table A-8.4.3.8.(1)-B
Modeling Guidance for Loads, Operating Schedules and Illuminance Levels by Space Type

Common Space Types					
Space Type	Occupant Density, m²/occupant	Peak Receptacle Load, W/m²	Service Water Heating Load, W/occupant	Operating Schedule(1) from Note A-8.4.3.2.(1)	Illuminance Levels, in lx(2)
Atrium (any height)	10	2.5	0	*	250
Audience seating area – permanent for auditorium for convention centre for gymnasium for motion picture theatre for penitentiary for performing arts theatre for religious building for sports arena other	 5 5 5 5 5 7.5 5 5 5	 2.5 2.5 0 2.5 2.5 2.5 1 0 1	 30 30 30 30 30 30 15 30 15	 C C B C C C I B *	 100 350 350 250 250 250 150 150 100
Banking activity area and offices	25	5	60	A	400
Classroom/Lecture hall/Training room	7.5	5	65	D	400
Computer/Server room	100	200	90	* or H(3)	350
Conference/Meeting/Multi-purpose room	5	1	45	C	350
Confinement cell	25	0	325	G	400
Copy/Print room	100	60	90	A	400
Corridor/Transition area	100	0	0	*	150
Courtroom	5	2.5	30	A	400
Dining area for bar lounge/leisure dining	 10	 1	 90	 B	 100

	for cafeteria/fast food dining	10	1	120	B	200
	for family dining	10	1	120	B	200
	for penitentiary	10	1	120	B	200
	for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	10	1	120	B	200
	other	10	1	120	B	200
	Dressing/Fitting room for performing arts theatre	30	2.5	40	C	250
	Electrical/Mechanical room	200	1	0	*	350
	Emergency vehicle garage	25	2.5	325	H	350
	Food preparation area	20	10	120	B	500
	Guest room	25	2.5	600	F	200
	Laboratory					
	for classrooms	20	10	180	D	500
	other	20	10	180	A	650
	Laundry/Washing area	20	0	60	C	350
	Loading dock – interior	500	0	0	H	200
	Lobby					
	for elevator	10	1	0	C	200
	for hotel	10	2.5	30	H	250
	for motion picture theatre	10	1	0	C	150
	for performing arts theatre	10	1	0	C	200
	for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	10	2.5	30	B	150
	Other	10	1	0	C	150
	Locker room	10	2.5	0	*	100
	Lounge/Break room					
	for health care facility	10	1	60	B	150
	other	10	1	60	B	150
	Office	20	7.5	90	A	400
	Pharmacy area	20	2.5	45	C	400
	Sales area	30	2.5	40	C	500
	Seating area - general	10	0	65	*	150
	Stairway/Stairwell	200	0	0	*	150
	Storage garage – interior	1000	0	0	K	75
	Storage room					
	≥ 5 m²	100	1	300	*	100
	< 5 m²	100	0	0	*	100
	Vehicle maintenance area	20	5	90	E	500
	Washroom					
	for space designed to ANSI/IES RP-28, “Lighting and the Visual Environment for Senior Living” (and used primarily by residents)	30	1	0	*	150
	other	30	1	0	*	150
	Workshop	30	10	90	A	500
	Building-Specific Space Types					
	Convention centre – exhibit space	10	2.5	30	C	500
	Dormitory – living quarters	25	2.5	500	G	125
	Dwelling unit	25	5	500	G	125
	Fire station – living quarters	25	2.5	500	G	150
	Gymnasium/Fitness centre					
	exercise area	5	1	90	B	350
	playing area	5	1.5	90	B	350
	Health care facility					
	exam/treatment room	20	10	90	C	600
	imaging room	20	10	90	H	225

medical supply room	20	1	0	H	400
nursery	20	10	90	H	400
nurses' station	20	2.5	45	H	400
operating room	20	10	300	H	1000
patient room	20	10	90	H	400
physical therapy room	20	10	45	C	350
recovery room	20	10	180	H	250
Library					
reading area	20	1	90	C	500
stacks	20	0	90	C	500
Manufacturing facility					
detailed manufacturing area	30	10	90	A	600
equipment room	30	10	90	A	250
extra high bay area (> 15 m floor-to-ceiling height)	30	10	90	A	400
high bay area (7.5 m to 15 m floor-to-ceiling height)	30	10	90	A	400
low bay area (< 7.5 m floor-to-ceiling height)	30	10	90	A	400
Museum					
general exhibition area	5	2.5	60	C	250
restoration room	20	5	50	A	600
Post office – sorting area	20	7.5	90	A	400
Religious building					
fellowship hall	5	1	45	C	250
worship/pulpit/choir area	5	1	15	I	250
Retail facility					
dressing/fitting room	30	2.5	40	C	350
mall concourse	20	1	30	C	400
Space designed to ANSI/IES RP-28, "Lighting and the Visual Environment for Senior Living"					
chapel (used primarily by residents)	10	1	15	I	150
recreation room (used primarily by residents)	20	1	60	B	150
Sports arena– playing area					
playing area with facilities for more than 5000 spectators	5	1.5	90	B	1600
playing area with facilities for more than 2000 spectators but not more than 5000 spectators	5	1.5	90	B	1000
playing area with facilities for more than 200 spectators but not more than 2000 spectators	5	1.5	90	B	800
playing area with facilities for less than 200 spectators or without a facility for spectators	5	1.5	90	B	500
Transportation facility					
airport concourse	20	0	65	H	150
baggage/carousel area	20	2.5	65	H	250
terminal ticket counter	10	2.5	65	H	250
Warehouse – storage area					
medium to bulky palletized items	100	1	65	A	200
small hand-carried items[4]	50	1	65	A	300

	(1) An asterisk (*) in this column indicates that there is no recommended default schedule for the space type listed. In general, such space types will be simulated using a schedule that is similar to the adjacent spaces served: e.g. a corridor space serving an adjacent office space will be simulated using a schedule that is similar to that of the office space. (2) The values are weighted averages that correspond to typical overall illuminance levels recommended for the buildings/space types listed and include both general lighting and task lighting. They are based on recommendations published by the IES. (3) A computer/server room that serves a single building or a limited group of users would tend to have operating schedules matching those of that group or building. Computer/server rooms that serve as data centres operating independently of the building in which they are located would tend to operate continuously. (4) See Table A-4.2.1.6.”.
A-8.4.3.9.	Strike out the Note.
	Add the following Notes: “**A-8.4.3.9.(1) and (2) Energy Recovered on Site and Renewable Energy Produced on Site.** Sentence 8.4.3.9.(1) applies, for example, in the case of heat recovery from an exothermic process. Where heat-recovery technology is provided for in Subsection 5.2.10., the highest performance of the heat-recovery equipment planned in the proposed building is not permitted to be considered. In such a case, since that equipment must be modeled in the reference building under Article 8.4.4.19., the highest performance of that equipment in the proposed building will be considered by the program. Sentence 8.4.3.9.(2) applies, for example, for the production of electricity by a photovoltaic panel. **A-8.4.4.1.(2) Prescriptive Compliance.** The basic principle guiding the modeling of the reference building is that every component, device or system included in the building must comply with the applicable prescriptive requirements of Sections 3.2., 4.2., 5.2., 6.2. and 7.2. The requirements of Subsection 8.4.4. clarify the specific treatment of parameters some of which are not covered by the prescriptive requirements of the Code. **A-8.4.4.1.(4) Building Characteristics.** The characteristics in Sentence 8.4.4.1.(4) are two-fold. Some characteristics of the building do not have specific prescriptive requirements but have considerable influence on energy consumption: the shape of the building, its orientation, receptacle loads, heat from a process, the consumption of an HVAC system dedicated only to a process, etc. The modeler cannot take into account those characteristics to improve the performance of the proposed building; they must be modeled identically in the proposed and reference buildings. Other building characteristics, for example, the airtightness rate, have specific prescriptive requirements but their compliance is difficult to verify in the building once built. That is why the modeler is not permitted to use those characteristics to improve the performance of the proposed building. They must also be modeled identically in the proposed and the reference buildings.

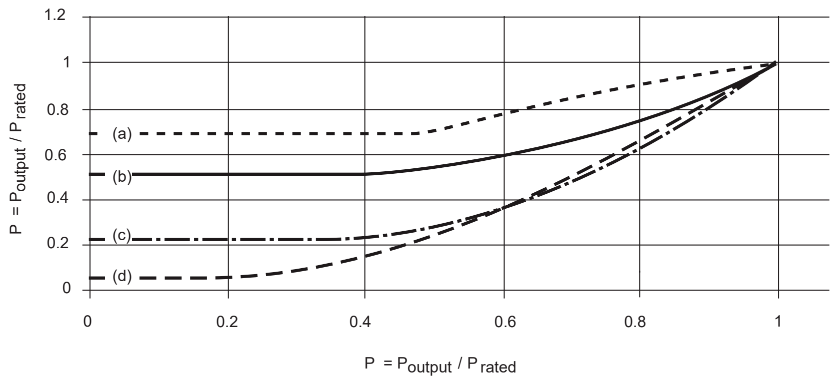
	Some indications to the contrary may be provided for in Subsections 8.4.3. and 8.4.4., in particular • for Clause (4)(i), Sentence 8.4.4.3.(4) (see Note A-8.4.3.3.(7)), • for Clause (4)(j), Sentence 8.4.4.4.(1), and • for Clause (4)(x), Sentence 8.4.4.3.(2). **A-8.4.4.1.(8) and (9) Equipment Energy Efficiency for Modeling the Reference Building.** The Energy Efficiency Act (S.C. 1992, c. 36) and its regulations fall under federal jurisdiction. The Act respecting energy efficiency and energy conservation standards for certain products (chapter N-1.01) and its regulations fall under Québec's jurisdiction. They provide minimum levels for some types of equipment. Where a minimum energy efficiency level for equipment is provided for in Québec legislation, Sentences 8.4.4.1.(8) and (9) provide for the use of that value for modeling the reference building. Where no minimum level is provided in Québec legislation, the energy efficiency of the equipment must be identical to that of the corresponding equipment in the proposed building, or that provided for in federal legislation.".
A-8.4.4.2.(1)	Strike out the Note.
A-8.4.4.2.(3)	Strike out the Note.
	Add the following Note: "**A-8.4.4.3.(3) Energy Modeling of the Reference Building Considering Fenestration Shading Effects.** Where the modeler takes into consideration fenestration shading effects in the proposed building, the permanent and automated shading devices are not modeled in the reference building. However, as provided in Sentence 8.4.4.3.(3), shading effects due to surrounding elements and to the building itself must be modeled in the same manner as the proposed building. As provided in Sentence 8.4.2.9.(1), manually-operated interior shading devices, such as blinds, must not be modeled in neither the proposed building nor the reference building.".
A-8.4.4.3.(8)	Strike out the Note.
A-8.4.4.4.(1)	Replace the Note by the following: "**A-8.4.4.4.(1) Thermal Mass.** Sentence 8.4.4.4.(1) allows the modeling of the thermal mass of the reference building by specifying the thermal characteristics of a lightweight assembly rather than considering a thermal mass identical to that of the proposed building. Where the reference building is modeled with a thermal mass

	different from that of the proposed building, the parameters determining thermal inertia of the elements of the reference building envelope, such as specific heat and the density of a constructive layer, must be adjusted in accordance with that Sentence to reflect a lightweight construction having an overall weight of 55 kg/m² and a heat capacity of 50 kJ/(m²×°C).”.
A-8.4.4.5.(3)	Strike out the Note.
A-8.4.4.5.(6)	Strike out the Note.
A-8.4.4.5.(7)	Strike out the Note.
A-8.4.4.5.(10)(b)	Strike out the Note.
A-8.4.4.5.(11)	Strike out the Note.
	Add the following Notes: “**A-8.4.4.6.(2) and (3) Types of Heat Pumps.** The following types of heat pumps are the most commonly used: Water-loop heat pump: a heat pump connected to an internal water loop used as a heat source and/or sink. The loop may include an auxiliary heat source (e.g. a boiler) and/or heat rejection device (e.g. a cooling tower). Water-source heat pump: a heat pump using as a heat source and/or sink • surface water (e.g. river, pond or lake), • groundwater, • a water loop directly carrying waste heat generated outside the building, or • a water loop indirectly carrying waste heat generated outside the building using a heat exchanger that separates the heat source and/or sink from an internal water loop. Ground-source heat pump: a heat pump using the ground as a heat source and/or sink through the use of a ground-heat exchanger in which circulates either a refrigerant supplied by the heat pump or a heat transfer fluid coming from an internal water loop. Air-source heat pump: a heat pump using the outside air as a heat source and/or sink.

	A-8.4.4.6.(4) Automatic Sizing of an HVAC System's Equipment. It is possible that, so as not to exceed the annual maximum number of discomfort hours provided for in Sentences 8.4.1.2.(3) and (4), the program requires oversizing or undersizing of the HVAC system's equipment for modeling purposes. If an equipment of the proposed building is undersized or oversized in comparison to the calculated peak heating or cooling loads, the reference building's corresponding equipment must be as well, according to the sizing factor of the proposed equipment. The sizing factor is calculated based on the procedure described in ASHRAE/IES 90.1, "User's Manual," and summarized here: 1. the calculation engine calculates (ideal) peak loads for the proposed equipment, 2. the sizing factor is obtained by dividing the capacity (or flow) of the proposed equipment (indicated in the plans and specifications) by the capacity (or flow) calculated in (1), 3. the calculation engine calculates (ideal) peak loads for the corresponding equipment of the reference building, and lastly 4. the sizing factor calculated in (2) is applied to the capacity (or flow) of the corresponding equipment of the reference building determined in (3). **A-8.4.4.7.(2) and (3) Modeling of Air Distribution and Hydronic Loop Systems.** The requirements of Sentences 8.4.4.7.(2) and (3) do not aim to represent accurately the number of fans and individual pumps of a project but rather seek to match the distribution principles used for a temperature-control zone of the proposed building to those of the reference building corresponding zone. **A-Table 8.4.4.7.-A HVAC System for the Proposed Building**. An example of the induction cooling system is an active chilled beam designed to recover ambient air from a room, cool it then return it to the room. Outdoor air, which comes in the chilled beam by the ventilation system, carries by induction the room ambient air that passes through a cooling coil.".
A-8.4.4.8.	Strike out the Note.
	Add the following Notes: "**A-8.4.4.9.(2)(c), 8.4.4.10.(2)(d) and 8.4.4.11.(4)(b) Pumping Flow.** Where the pumping flow rate, PFR, in L/min, is not calculated by the program, it may be evaluated using the following equation: $$\mathrm{PFR} = \frac{\mathrm{P} \times 60\ 000}{\mathrm{Cp} \times \rho \times \Delta \mathrm{T}}$$ where P = power of the heating or cooling equipment, in kW, Cp = specific heat of the heat transfer fluid, in kJ/(kg×K),

	ΔT = difference between the supply and return temperature of the heat transfer fluid, in °C, and ρ = density for the heat transfer fluid, in kg/m³. The specific heat and the density vary based on the temperature and composition of the heat transfer fluid. Consequently, those two values will be different whether it is a hot or cool water loop, and will also vary based on the percentage of glycol in the heat transfer fluid. To take into account that reality, those values may be evaluated by considering the average temperature of the liquid circulating in the loop. For example, for a hot water loop with a supply at 82°C and a return at 54°C, the average will be 68°C. Water at a temperature of 68°C has a density of 978.87 kg/m³ and a specific heat of 4.19 kJ/(kg×K). **A-8.4.4.9.(2)(d), 8.4.4.10.(2)(e) and 8.4.4.11.(4)(c) Pumping Power Demand.** Where the pumping power demand, PPD, in W, is not defined by the program, it may be established using the following equation: $$\mathrm{PPD} = \frac{\mathrm{PFR} \times \mathrm{H} \times \rho \times \mathrm{g}}{60\,000 \times \eta}$$ where PFR = pumping flow rate, in L/min (see Note A-8.4.4.9.(2)(c), 8.4.4.10.(2)(d) and 8.4.4.11.(4)(b)), H = loss of pressure in the system, in m of pressure head, ρ = density of the liquid, in kg/m³, g = gravitational constant of 9.81 m/s², and η = combined efficiency turbine-motor-variable speed drive of pump. The reference building pump must have a power demand equivalent to the sum of the power demands of each hydronic loop pump of the proposed building.”.
A-8.4.4.13.	Strike out the Note.
A-8.4.4.13.(1)	Strike out the Note.
A-8.4.4.14.(2)	Strike out the Note.
A-8.4.4.17.(1)	Strike out the Note.
A-8.4.4.17.(2)	Strike out the Note.

	Add the following Note: “**A-8.4.4.19.(2) Heat Recovery from Ice-making Machines.** A water-cooled, double-bundle water chiller having a load profile corresponding to the load planned on the ice-making machine is adequate for the purposes of Part 8 and allows the modeling of heat recovery. The following documents may be helpful in setting a more detailed model using refrigeration equipment rather than a water chiller and modeling the ice sheet itself and its interaction with adjacent components and spaces: • Zmeureanu, R., E.M. Zelaya and D. Giguère. (2002). Simulation de la consommation d'énergie d'un aréna à l'aide du logiciel DOE-2.IE. ESim 2002 Conference, Montréal. • Ouzzane, M. et al. Cooling Load and Environmental Measurements in a Canadian Indoor Ice Rink. ASHRAE Transactions, Vol. 112, Pt. 2, Paper no. QC-06-008, pp. 538-545, 2006. • Sunyé, R. et al. ASHRAE Research Report 1289, Develop and Verify Methods For Determining Ice Sheet Cooling Loads, 2007. • Teyssedou, G., R. Zmeureanu, and D. Giguère. (2009). Thermal Response of the Concrete Slab of an Indoor Ice Rink. ASHRAE HVAC&R Research, Vol. 15, No. 3, May 2009. Since ice-making for rinks and curling rinks is often associated with resurfacing activities, which require a significant amount of heated service water, the energy models of the proposed and reference buildings should account for the load in accordance with Clause 8.4.4.1.(4)(b).”.
A-8.4.4.20.(4)(a)	Strike out the Note.
A-8.4.4.20.(6)	Strike out the Note.
A-8.4.4.20.(7)	Strike out the Note.

	Add the following Note: “**A-8.4.5.1.(1) Fan Part-Load Curves.** Figure A-8.4.5.1.(1) illustrates the equations for fan power versus flow rate as a graph.  (a) air foil or backward inclined riding fan curve without inlet vanes following its performance curve (b) air foil or backward inclined with inlet vanes (c) forward curved with inlet vanes (d) variable speed drive **Figure A-8.4.5.1.(1)** **Fan part-load curves**”.
Division B Climatic Data	
Table C-1	Strike out the Note to Table C-1; Strike out the column “Degree-Days Below 15°C” in Table C.
Division B Part 10	Strike out the Part.
Division C Part 2	

2.2.1.1.	Strike out Sentence (2).
2.2.2.1.	Replace Sentences (1) and (2) by the following: “**1)** The information available for verification purposes shall be provided to show that the proposed work will conform to this Code and indicate the compliance paths that were used. **2)** Plans shall be drawn to scale and shall indicate the nature and extent of the work and proposed function in sufficient detail to establish that, when completed, the work and the proposed function will conform to this Code.”.
2.2.2.2.	Replace “inspection upon request” in Sentence (1) by “verification”.
2.2.2.3.	Replace the portion before Clause (1)(a) by the following: “**1)** The following documentation on the *building envelope* shall be provided for verification purposes:”; Replace Clauses (1)(b) and (1)(c) by the following: “b) total *fenestration* and door area excluding *skylights*, c) total automatic sliding door, revolving door and fire shutter area,”; Replace Clauses (1)(h) to (1)(m) by the following: “h) ratio of total f*enestration* and door area excluding *skylights* to gross wall area, i) the *effective thermal resistance* of building assemblies other than *fenestration* and doors, and the calculation method used to determine the *effective thermal resistance*, j) *overall thermal transmittance* of i) *fenestration,* ii) doors with or without glazing forming part of the *building envelope*, and iii) access hatches, k) description and location of *air barrier assemblies* in *opaque building assemblies*, l) details on the reduction of thermal bridging required in Article 3.2.1.2. of Division B, m) where Sentence 3.2.1.3.(1) of Division B applies, the indoor design temperature, and n) where Sentence 3.2.1.3.(2) of Division B applies, the heating setpoint in winter months.”;

	Add the following Sentence: “**2)** Where Section 3.3. of Division B is applied, calculation details shall be provided for verification purposes and shall contain the information necessary to ensure compliance with the requirements of that Section.”.
2.2.2.4.	Replace the portion before Clause (1)(a) by the following: “**1)** The following documentation on the lighting systems shall be provided for verification purposes:”; ——— Strike out Clause (1)(b); ——— Replace Clauses (1)(c) to (1)(e) by the following: “c) method used to determine the *interior lighting power allowance* in each space assembly, d) where the *building* area method is used, for each space assembly, i) the *floor surface area*, in m², ii) the density of the *interior lighting power allowance*, in W/m², iii) the *interior lighting power allowance*, in kW, and iv) the *installed interior lighting power*, in kW, e) where the space-by-space method is used, for each space assembly, i) the *floor surface area*, in m², of each space, ii) the density of the *interior lighting power allowance*, in W/m², of each space, iii) the *interior lighting power allowance*, in kW, and iv) the *installed interior lighting power*, in kW,”; ——— Strike out Clause (1)(f); ——— Strike out “and justification for spaces exempted” in Clause (1)(g); ——— Replace Clauses (1)(h) and (1)(i) by the following: “h) adjustment and additional *interior lighting* power used, i) list of functions, spaces and/or equipment that are not included in the calculation of the *installed interior lighting power* and their controls, j) lighting zone used to determine *exterior lighting* power allowances, k) list of installed photocontrols and controlled indoor spaces, l) for each exterior application, i) the *exterior lighting* power allowance, in kW, and ii) the installed *exterior lighting* power, in kW, and

	m) installed exterior automatic controls.”; Add the following Sentence: “**2)** Where Section 4.3. of Division B is applied, calculation details shall be provided for verification purposes and shall contain the information necessary to ensure compliance with the requirements of that Section.”.
2.2.2.5.	Replace Sentence (1) by the following: “**1)** The following documentation on the HVAC systems shall be provided for verification purposes: a) a description of each system, detailing its function, design details, performance characteristics and distribution arrangement, b) schematic and control diagrams and sequences of operation, c) start/stop and adjustment procedures, d) proposed temperature control devices in the spaces, e) details on heat-recovery equipment, if applicable, f) details on ice-making machines, if applicable, g) details on food refrigeration equipment, if applicable, h) details on commercial cooking equipment, if applicable, i) temperature setpoints of the spaces, j) thermal resistance of the installed duct and *plenum* insulation and that of piping insulation, and k) limits of *temperature-control zones*, if applicable.”.
2.2.2.6.	Replace the Article by the following: “**2.2.2.6. Documentation on Service Water Heating Systems** **1)** The following documentation on the *service water* heating shall be provided for verification purposes: a) a description of each system detailing its function, design details, performance characteristics and distribution arrangement, b) schematic and control diagrams and sequences of operation, c) start/stop and adjustment procedures, and d) thermal resistance of piping insulation.”.
2.2.2.7.	Replace the Article by the following: “**2.2.2.7. Documentation on Transformers and Electric Motors** **1)** Documentation on the performance characteristics of the transformers and electric motors in Part 7 shall be provided for verification purposes.”.

<table>
<tr><td>2.2.2.8.</td><td>
Strike out Sentence (2);
<hr>
Replace Clauses (3)(c) to (3)(e) by the following:
“c) the lighting systems data summary section of the report shall contain the documentation required in Article 2.2.2.4. for both the proposed building and the reference building and, if daylight calculations are made, the calculation method and the results,
d) the HVAC systems data summary section of the report shall contain the documentation required in Article 2.2.2.5. for the proposed building and the reference building,
e) the service water heating data summary section of the report shall contain the documentation required in Article 2.2.2.6. for the proposed building and the reference building, and”;
<hr>
Replace Subclauses (3)(f)(iv) and (3)(f)(v) by the following:
“ iv) the building energy target of the reference building (sum of all energy sources), in MJ,
v) a breakdown of energy usage, per energy source, for the following building components and systems: space-heating equipment, space-cooling equipment, interior lighting, service water heating equipment, elevators and escalators, fans, pumps and other HVAC equipment, miscellaneous equipment and receptacle power equipment, and
vi) the maximum power demand of the electrical system determined during one year, from 1 December to 31 March inclusively, analyzed using time intervals no greater than 15 minutes unless the calculation engine only offers 60-minute intervals, for the proposed building and the reference building, in kW.”;
<hr>
Replace Sentence (4) by the following:
“4) The climatic data and the modeling file of the proposed building and the reference building containing inputs for the programs shall be provided for verification purposes.”;
<hr>
Replace Sentence (5) by the following:
“5) If the annual energy needs of the proposed building are not greater than the annual energy needs of the reference building, the report must specify that the proposed building meets the requirements of the annual energy needs, as described in Article 8.4.1.2. and in this Code.”;
<hr>
Replace Sentence (6) by the following:
“6) The report shall indicate that the analysis was performed in accordance with Part 8 of Division B of the NECB.”;
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</td></tr>
</table>

	Add the following Sentences at the end of the Article: “**10)** The report shall provide an explanation for each program error message and for each discrepancy between the results of the software and the range of values recommended in ANSI/ASHRAE 140, “Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs.” **11)** The report shall specify any portion of energy that reduces the *annual energy consumption* of the proposed *building*, as a reduction due to renewable energy produced on site and/or a reduction due to energy recovered on site. **12)** The report shall indicate the program(s) used.”.
2.3.1.	Replace the Subsection by the following: “**2.3.1. Approval of Alternative Solutions** **2.3.1.1. Conditions for Approval** **1)** The proposed alternative solutions shall be approved by the Board on the conditions it sets pursuant to section 127 of the Building Act (chapter B-1.1).”.
Division C Notes to Part 2	Strike out the Notes.

O.C. 486-2020, s. 1; O.C. 281-2024, s. 1; O.C. 850-2024, s. 2.

DIVISION III

OFFENCE

O.C. 486-2020, s. 1.

1.1.7. Any contravention of one of the provisions of this Chapter constitutes an offence.

O.C. 486-2020, s. 1.

CHAPTER II

GAS

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

DIVISION I

DEFINITIONS

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.01. In this Chapter, unless the context indicates otherwise,

"gas" means natural gas, biomethane, manufactured gas, and mixtures of propane gas and air, propane, propylene, butanes (normal butane and isobutane) and butylenes, and a mixture or a type of those gases; (*gaz*)

"gas installation" means a fixed or mobile installation, including its immediate piping, intended to use, store or distribute gas; (*installation de gaz*)

"natural gas" means natural gas, biomethane, mixtures of propane gas and air and a type or a mixture of those gases; (*gaz naturel*)

"propane" means a liquefied petroleum gas consisting mainly of propane, propylene, butane, butylene, a type or a mixture of those gases. (*propane*)

O.C. 875-2003, s. 1; O.C. 1172-2005, s. 1; O.C. 120-2006, s. 1; O.C. 991-2018, s. 1.

DIVISION II

SCOPE

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.02. This Chapter applies to construction work for a gas installation, including its surroundings.

It does not apply to an installation intended to use gas other than an installation used to produce energy, heat or light from a gas.

In addition, it does not apply to installations intended to

(1) store or distribute gas by tank vehicle as long as the tank is not used as a storage tank at the point of use;

(2) use gas to ensure the motive power of a vehicle;

(3) use gas in a refinery, whatever its origin, as raw material for the petroleum refining process or a petrochemical plant;

(4) store, in a refinery, gas resulting from the refining of petroleum;

(5) store or use gas on boats;

(6) use gas as a refrigerant;

(7) store gas in underground natural formations or hollows in the ground; and

(8) use or store on the premises gas collected from a landfill or gas from an anaerobic digester.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

DIVISION III

STANDARDS INCORPORATED BY REFERENCE

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.03. The following standards, published by CSA Group, are incorporated by reference into this Chapter subject to the amendments provided for in Division VII:

(1) CSA B108, Compressed natural gas fuelling stations installation code;

(2) CSA B149.1, Natural gas and propane installation code;

(3) CSA B149.2, Propane storage and handling code;

(4) CSA B149.3, Code for the field approval of fuel- related components on appliances and equipment;

(5) CSA-Z276, Liquefied natural gas (LNG) - Production, storage and handling;

(6) CAN/CSA-Z662, Oil and gas pipeline systems.

O.C. 875-2003, s. 1; O.C. 120-2006, s. 2; O.C. 1263-2012, s. 2; O.C. 991-2018, s. 1.

2.04. In this Chapter, a reference to a standard refers to the most recent edition and includes any subsequent amendments made to that edition.

However, the amendments and editions published after 15 November 2018 apply to gas installations only from the last day of the sixth month following the date of publication of the French and English versions of the texts. Where those versions are not published at the same time, the time limit runs from the date of publication of the last version.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

DIVISION IV

REFERENCES

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.05. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 875-2003, s. 1; O.C. 120-2006, ss. 1 and 3; O.C. 991-2018, s. 1; O.C. 1419-2021, s. 2.

DIVISION V

APPROVAL OF APPLIANCES AND EQUIPMENT

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.06. Any appliance or equipment used in a gas installation must be approved for the use for which it is intended.

It is prohibited to sell or lease an appliance or equipment that has not been approved. It is also prohibited, except for approval purposes, to use an appliance or equipment that has not been approved in an installation intended to use gas.

However, an appliance or equipment may, during an exhibition, a presentation or a demonstration, be used without prior approval, provided that it is accompanied by a notice with the following warning in characters measuring at least 15 mm: “WARNING: this material has not been approved for sale or lease as required under Chapter II of the Construction Code (chapter B-1.1, r. 2).”.

This section does not apply to the following appliances or equipment:

(1) a manual appliance whose heat input does not exceed 20,000 Btu/h (5.86 kW) intended for industrial applications;

(2) a Bunsen burner;

(3) an internal combustion engine.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.07. Any appliance or equipment certified by a certification agency accredited by the Standards Council of Canada in the field of gas and whose affixation of a seal or label of approval or of certification of that agency attests compliance with Canadian standards, is deemed to be approved.

An appliance on which a label is affixed certifying that, without being certified by one of the agencies referred to in the first paragraph, that appliance is recognized by one of the agencies as complying with the construction and testing requirements of CSA Standard B149.3, is also deemed to be approved. However, approval is not required for each component of an appliance where the appliance has received overall approval.

For the purposes of this Chapter, “certification” or “certified” means recognition by a certification agency accredited by the Standards Council of Canada in the field of gas, by means of a label affixed on each certified appliance or equipment certifying that the appliance or equipment complies with the construction and testing requirements of the standards published by the standards development organizations accredited by the Standards Council of Canada to develop gas standards.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

DIVISION VI

DECLARATION OF WORK

O.C. 875-2003, a. 1; O.C. 991-2018, s. 1.

2.08. A contractor or an owner-builder in gas must declare to the Board the construction work the contractor or owner-builder has carried out and to which this Chapter applies, except construction work for an installation intended to distribute natural gas by pipeline and maintenance or repair work to a gas installation.

An owner-builder who keeps a register containing the information required by the declaration of work is exempt from that declaration.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.09. The declaration of work must contain

(1) the address of the work site;

(2) the name, address and telephone number of the person for whom the work is carried out;

(3) the name, address, telephone number and licence number of the contractor or owner-builder in gas who carried out the work;

(4) the dates scheduled for the beginning and end of the construction work;

(5) the occupancy of the building and the number of stories and dwelling units;

(6) the nature and type of work, in particular work for a new installation or alterations;

(7) the number, heat input and nature of the appliances installed;

(8) the type of gas and its state (gaseous or liquid);

(9) the gas supply pressure of the gas installation; and

(10) the date of the declaration.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.10. The work must be declared on the form provided for that purpose by the Board and be sent to the Board not later than the 20th day of the month that follows the date of the beginning of the work.

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

DIVISION VII

AMENDMENTS TO STANDARDS

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.11. CSA Standard B108 is amended

(1) by replacing the first paragraph in Clause 2 by the following:

“The documents incorporated by reference into this Code are those indicated below and include any subsequent amendments and editions that may be published.

Despite the first paragraph, where a document indicated below is adopted by reference by a chapter of the Construction Code (chapter B-1.1, r. 2) or the Safety Code (chapter B-1.1, r. 3), or by another regulation of the Board, the document incorporated by reference into this Code is then the document as adopted by that chapter or regulation.”;

(2) in Clause 3

(a) by replacing the first sentence of the Clause by the following:

“Unless the context indicates otherwise, the following definitions shall apply in this Code:”;

(b) by replacing the definition “**Approved**” by the following:

“**Approved**: approved or authorized by the Régie du bâtiment du Québec under sections 2.06 and 2.07 of the Construction Code or section 127 or 128 of the Building Act (chapter B-1.1).”;

(c) by replacing the definition “**Authority having jurisdiction**” by the following:

“**Authority having jurisdiction**: Régie du bâtiment du Québec.”;

(d) by striking out the definition “**Certified**”;

(3) by adding the following after Clause 6.21:

“6.22. Every tank used to store and transport compressed natural gas shall be designed, manufactured, tested and marked in accordance with the most recent edition of CSA Standard B51, including any subsequent amendments to the Act respecting pressure vessels (chapter A-20.01) and its regulations that may be published.”.

O.C. 875-2003, s. 1; O.C. 1172-2005, s. 2; O.C. 120-2006, ss. 1 and 4; O.C. 991-2018, s. 1.

2.12. CSA Standard B149.1 is amended

(1) by replacing Clause 1.1 by the following:

“1.1. This Code applies to

(a) gas installations where gas is to be used for fuel purposes, subject to paragraph b;

(b) piping and tubing systems extending from the termination of the gas undertaking’s installations for natural gas or from the distributor’s liquefied petroleum gas tanks; the termination of the gas undertaking’s installations is the point where its piping ends;

(c) natural gas vehicle refuelling appliances and their equipment, excluding storage installations;

(d) gas engines and turbines.”;

(2) by revoking Clause 1.2;

(3) by replacing Clause 1.3 by the following:

“1.3. Where the term “gas” is used, the requirements of this Code apply equally to and include any of the following gases, type or mixture of them: natural gas, biomethane, manufactured gas and mixtures of propane gas and air, propane, propylene, butanes (normal butane or isobutane) and butylenes.

Where the term “natural gas” is used, the requirements of this Code apply equally to and include the following gases, type or mixtures of them: natural gas, biomethane and mixtures of propane gas and air.

Where the term “propane” is used, the requirements of this Code apply equally to and include the following gases, type or mixture of them: propane, propylene, butanes (normal butane or isobutane) and butylenes.”;

(4) by replacing the first paragraph of Clause 2 by the following:

“The documents incorporated by reference into this Code are those indicated below and include any subsequent amendments and editions that may be published.

Despite the first paragraph, where a document indicated below is adopted by reference by a chapter of the Construction Code (chapter B-1.1, r. 2) or the Safety Code (chapter B-1.1, r. 3), or by another regulation of the Board, the document incorporated by reference into this Code is then the document as adopted by that chapter or regulation.”;

(5) in Clause 3

(a) by replacing “The following definitions shall apply in this Code:” after the note by “Unless the context indicates otherwise, the following definitions shall apply in this Code:”;

(b) by replacing the definition “**Approved**” by the following:

“**Approved**: approved or authorized by the Régie du bâtiment du Québec under sections 2.06 and 2.07 of the Construction Code or section 127 or 128 of the Building Act (chapter B-1.1).”;

(c) by replacing the definition “**Authority having jurisdiction**” by the following:

«**Authority having jurisdiction**: Régie du bâtiment du Québec.»;

(d) by striking out the definition “**Certified**”;

(e) by inserting the following after “**Gas hose**”:

“**Gas undertaking (natural gas)**: undertaking for the distribution of natural gas.”;

(f) by inserting the following after the definition “**Dirt pocket (dust pocket)**”:

“**Distributor**: undertaking for the distribution of liquefied petroleum gas.”;

(g) by replacing the definition “**Installer**” by the following:

“**Installer**: contractor or owner-builder holding the appropriate licence issued under the Building Act.”;

(6) by revoking Clause 4.2;

(7) by replacing Clause 6.7.2(b) by the following:

“(b) in a chimney, flue, laundry chute, garbage chute or, in the case of an elevator, dumbwaiter or small dumbwaiter, in a sleeve, machine location, machine room, control site or control room;”;

(8) by replacing Clause 6.9.3 by the following:

"6.9.3. Welding of gas piping shall be performed in compliance with a welding method established and complying with Clauses 7.6, 7.7 and 7.11 of CAN/CSA Standard Z662 by a welder holding the appropriate qualification certificate issued under the Act respecting workforce vocational training and qualification (chapter F-5).";

(9) by inserting the following after Clause 7.1.3:

"7.1.4. Boilers converted to gas shall be in compliance with Clauses 9.4.1 and 9.4.2 of CSA Standard B149.3.";

(10) by replacing Clause 8.2.1 by the following:

"8.2.1. Subject to the exceptions referred to in the second paragraph and in Clause 8.2.3, an outdoor air supply sized in accordance with Clause 8.2.2 shall be provided to either an enclosure or a structure in which appliances are installed.

Except for boilers, water heaters and pool heaters that include a finned-tube heat exchanger, an outdoor air supply shall not be required in structures built before 1986 where the doors and windows of that structure have not been replaced after 1985 and the volume of the enclosure or the structure in which the appliances are installed is greater than 50 ft^3 per 1,000 Btu/h (4.84 m^3 per kW) of the total heat input of all the appliances in the enclosure or the structure.";

(11) by striking out "and the Structure Complies with Clause 8.2.1 (a) or (b)" and "and Tables 8.3 and 8.4" in the heading of Table 8.1;

(12) by striking out "and the Structure Complies with Clause 8.2.1 (a) or (b)" in the heading of Table 8.2;

(13) by replacing Clause 8.2.3 by the following:

"8.2.3. An outdoor air supply shall not be required for a mechanically vented water heater with a heat input of 50,000 Btu/h (14.64 kW) or less where there are no other appliances that require an air supply installed in the enclosure or the structure, it is not used to heat the structure, and the volume of the enclosure or the structure is greater than 50 ft^3 per 1,000 Btu/h (4.84 m^3 per kW) of its heat input.";

(14) by revoking Clauses 8.2.4 and 8.2.5 and Tables 8.3 and 8.4;

(15) by striking out in Clause 8.2.6 ", provided that the structure is not constructed as described in Clause 8.2.1(a) and does not comply with Clause 8.2.1(b). Otherwise, the volume of the enclosure shall be used.";

(16) by striking out the reference to Clause 8.2.4 in Clauses 8.3.1, 8.3.3 and 8.3.4;

(17) by inserting the following after Clause 8.13.3:

"8.13.4. The tables in Annex C shall be used in accordance with the General Venting Requirements (GVR) specified in that Annex.";

(18) by adding the following paragraph at the end of Clause 8.14.8:

"Notwithstanding paragraph (g), a vent shall not terminate less than 6 feet (1.8 m) under an awning window.";

(19) by inserting the following after Clause 8.18.23:

"8.18.24. The total length of a vent connector shall comply with that provided for in Table C.9 of Annex C or be sized in accordance with a calculation prepared by an engineer.";

(20) by replacing “in accordance with Clause 8.2.1” in Clause C.2.2 General Venting Requirements (GVR) of Annex C by “after 1985 or where the doors and windows were replaced after 1985”.

O.C. 875-2003, s. 1; O.C. 120-2006, ss. 1 and 5; O.C. 991-2018, s. 1.

2.13. CSA Standard B149.2 is amended

(1) by replacing Clauses 1.1 and 1.2 by the following:

“1.1. This Code applies to

(a) installations intended to store, handle or transfer liquefied petroleum gas; and

(b) installations intended to use liquefied petroleum gas.”;

(2) in Clause 2

(a) by replacing the first paragraph by the following:

“The documents incorporated by reference into this Code are those indicated below and include any subsequent amendments and editions that may be published.

Despite the first paragraph, where a document indicated below is adopted by reference by a chapter of the Construction Code (chapter B-1.1, r. 2) or the Safety Code (chapter B-1.1, r. 3), or by another regulation of the Board, the document incorporated by reference into this Code is then the document as adopted by that chapter or regulation.”;

(b) by inserting the following after the reference “NFPA 30B-2011 Code for the Manufacture and Storage of Aerosol Products”:

“NFPA 68, Standard on Explosion Protection by Deflagration Venting, 2013 Edition.”;

(3) in Clause 3

(a) by replacing “The following definitions shall apply in this Code:” after the note by “Unless the context indicates otherwise, the following definitions shall apply in this Code:”;

(b) by replacing the definition “**Approved**” by the following:

“**Approved**: approved or authorized by the Régie du bâtiment du Québec under sections 2.06 and 2.07 of the Construction Code or section 127 or 128 of the Building Act (chapter B-1.1).”;

(c) by replacing the definition “**Authority having jurisdiction**” by the following:

«**Authority having jurisdiction**: Régie du bâtiment du Québec.»;

(d) by striking out the definition “**Certified**”;

(e) by inserting the following after the definition “**Kiosk**”:

“**Liquefied petroleum gas**: propane, propylene, butanes (normal butane or isobutane), butylene or a mixture of those gases.”;

(f) by replacing the definition “**Installer**” by the following:

“**Installer**: contractor or owner-builder holding an appropriate licence issued under the Building Act.”;

(4) by revoking Clause 4.2;

(5) by revoking Clause 5.2.11;

(6) by replacing Clause 6.5.10.2(c) by the following:

"(c) an explosion relief panel in compliance with standard NFPA 68; or";

(7) by replacing Clause 7.17.3(e)(iii) by the following:

"(iii) an explosion relief panel in compliance with standard NFPA 68; or".

O.C. 875-2003, s. 1; O.C. 120-2006, ss. 1 and 6; O.C. 991-2018, s. 1.

2.14. CSA Standard B149.3 is amended

(1) by replacing "**D** (informative)" in "**Annexes**" in the Table of Contents by "**D** (mandatory)";

(2) by revoking Clause 1.2;

(3) by replacing the first paragraph of Clause 2 by the following:

"The documents incorporated by reference into this Code are those indicated below and include any subsequent amendments and editions that may be published.

Despite the first paragraph, where a document indicated below is adopted by reference by a chapter of the Construction Code (chapter B-1.1, r. 2) or the Safety Code (chapter B-1.1, r. 3), or by another regulation of the Board, the document incorporated by reference into this Code is then the document as adopted by that chapter or regulation.";

(4) in Clause 3

(a) by replacing "The following definitions shall apply in this Code:" after the note by "Unless the context indicates otherwise, the following definitions shall apply in this Code:";

(b) by replacing the definition "**Approved**" by the following:

"**Approved**: approved or authorized by the Régie du bâtiment du Québec under sections 2.06 and 2.07 of the Construction Code or section 127 or 128 of the Building Act (chapter B-1.1).";

(c) by replacing the definition of "**Authority having jurisdiction**" by the following:

"**Authority having jurisdiction**: Régie du bâtiment du Québec.";

(5) by replacing Clause 5.4.3 by the following:

"5.4.3. When an electronic-type fuel-air ratio control (FARC) system is used, it shall be in compliance with standard ISO 23552-1 or the provisions of Annex D.";

(6) by replacing "(informative)" in the title of Annex D by "(mandatory)";

(7) by replacing the note in Annex D by the following:

"**Note**: This Annex is a mandatory part of this Code.";

(8) by replacing the first two paragraphs of Clause D.2 in Annex D by the following:

"These Guidelines provide a listing of the features that shall be incorporated with electronic-type fuel-air ratio control (FARC) systems.

The provisions shall be satisfied.".

O.C. 875-2003, s. 1; O.C. 1172-2005, s. 3; O.C. 120-2006, s. 7; O.C. 991-2018, s. 1.

2.15. CSA Standard Z276 is amended

(1) by replacing "D (informative)" in "Annexes" in the Table of Contents by "D (mandatory)";

(2) by replacing Clause 1.1 by the following:

"1.1. This Standard applies to fixed and mobile facilities intended for the liquefaction, storage, vaporization, transfer or handling of liquefied natural gas regardless of their locations and for the distribution of the liquefied natural gas.";

(3) by replacing Clause 1.2.2 by the following:

"1.2.2. This Standard includes non-mandatory guidelines for small LNG facilities (see the definition of "small facility" in Chapter 3 and Annex B) and mandatory guidelines for LNG vehicle fuelling stations employed for fleet or public LNG vehicle fuel dispensing operations (see the definition of "fuelling station" in Clause D.2 and Annex D). If Annex D cannot be complied with, the facility shall be approved by the Régie du bâtiment du Québec according to the conditions it sets under sections 127 and 128 of the Building Act (chapter B-1.1).";

(4) by revoking Clause 1.2.3;

(5) by revoking Clause 1.3;

(6) by replacing the first paragraph of Clause 2 by the following:

"The documents incorporated by reference into this Standard are those indicated below and include any subsequent amendments and editions that may be published.

Despite the first paragraph, where a document indicated below is adopted by reference by a chapter of the Construction Code (chapter B-1.1, r. 2) or the Safety Code (chapter B-1.1, r. 3), or by another regulation of the Board, the document incorporated by reference into this Standard is then the document as adopted by that chapter or regulation.";

(7) in Clause 3

(a) by replacing the first sentence of the Clause by the following:

"Unless the context indicates otherwise, the following definitions shall apply in this Code:";

(b) by inserting the following definition before "**Authority having jurisdiction**":

"**Approved**: approved or authorized by the Régie du bâtiment du Québec under sections 2.06 and 2.07 of the Construction Code or section 127 or 128 of the Building Act.";

(c) by replacing the definition "**Authority having jurisdiction**" by the following:

«**Authority having jurisdiction**: Régie du bâtiment du Québec.»;

(8) by replacing "informative" in the title of Annex D by "mandatory";

(9) by replacing the notes in Annex D by the following:

"**Note**: This Annex constitutes a mandatory part of this Standard.".

O.C. 875-2003, s. 1; O.C. 120-2006, ss. 1 and 8; O.C. 991-2018, s. 1.

2.16. CAN/CSA Standard Z662 is amended

(1) by replacing Clause 1.1 by the following:

"1.1. This Standard covers intraprovincial gas pipeline systems to the extremity of the operator's installations, that is, the point where the operator's piping ends.";

(2) by replacing the first paragraph of Clause 2.1 by the following:

"The documents incorporated by reference into this Standard are indicated below and include any subsequent amendments and editions that may be published.

Despite the first paragraph, where a document indicated below is adopted by reference by a chapter of the Construction Code (chapter B-1.1, r. 2) or the Safety Code (chapter B-1.1, r. 3), or by another regulation of the Board, the document incorporated by reference into this Standard is then the document as adopted by that chapter or regulation.";

(3) in Clause 2.2

(a) by replacing the first sentence of the Clause by the following:

"Unless the context indicates otherwise, the following definitions shall apply in this Code:";

(b) by striking out the definition "**Construction**";

(c) by replacing the definition of "**Contractor**" by the following:

"**Contractor**: a contractor or an owner-builder within the meaning of section 7 of the Building Act (chapter B-1.1), who carries out or has carried out construction work covered by this Standard.";

(d) by adding the following after the definition "**Ductile cast iron**":

"**Easily accessible**: within reach for the operation, replacement, maintenance or inspection without having to climb, remove an obstacle or use a mobile ladder.";

(4) by inserting the following after Clause 10.6.4.4:

"10.6.5. Right of way encroachment where high pressure gas pipeline is installed (operated at more than 30% of their SMYS)

10.6.5.1. Except for agricultural work carried out at a maximum depth of 30 cm, no soil disturbance may be carried out in a right of way unless prior written authorization has been obtained from the operator.

For the purposes of this Clause, "soil disturbance" means all work, operations or activities, above ground or underground, causing a movement or a shift of soil or ground cover, including in particular the following activities: excavation, trench, vertical drilling, dethatching, soil levelling, tree planting, soil aeration, mechanical stone collection, rutting and installation of fence posts, bars, rods, stakes or anchors.

10.6.5.2. No building (including a shed) or other object permanently fixed may be erected in a right of way.

10.6.5.3. No flammable material, solid or liquid residue, refuse, waste or effluent may be deposited or stored in a right of way.

10.6.5.4. Except for vehicles travelling on a public road crossing the right of way, only vehicles belonging to an operator or authorized by an operator may travel on that right of way for inspection, maintenance or leak detection purposes.";

(5) by inserting the following after Clause 12.2:

"12.2.1. The service line of a building shall come out of the ground before entering the building and it shall be equipped with a service shut-off valve outside the building.

However, if the location where the service line comes out of the ground presents a danger and the service line cannot be protected, it shall enter the building below ground level and be equipped with an underground service shut-off valve located outside the building and with another service shut-off valve inside, as near as possible to the foundation wall.

Where buildings are connected by a common area, service lines may serve their respective building through the common area provided they are equipped with a service shut-off valve identified and connected to a common service line equipped with a main service shut-off valve above ground.

However, an identification indicating the presence of natural gas and the location of the service shut-off valves shall be present outside near the main entrance to each of the buildings served.

12.2.2. The service shut-off valves above ground shall be easily accessible for their operation.

12.2.3. Before supplying gas to an installation, an operator shall affix to the building, above or within a radius of not more than one metre from any service entrance, a distinctive mark visible at all times.".

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

DIVISION VIII

INSPECTION FEES

O.C. 875-2003, s. 1; O.C. 991-2018, s. 1.

2.17. A contractor or an owner-builder in gas must pay to the Board, for the inspection of construction work for a gas installation carried out further to the issue of a remedial notice provided for in section 122 of the Building Act (chapter B-1.1), inspection fees of $178.56 for the first hour or fraction thereof, half of the hourly rate for each half-hour or fraction thereof in addition to the first hour and fees of $84.02 for each trip.

O.C. 991-2018, s. 1.

DIVISION IX

OFFENCE

O.C. 991-2018, s. 1.

2.18. Any contravention of one of the provisions of this Chapter, except the provisions of Division VIII, constitutes an offence.

O.C. 991-2018, s. 1.

CHAPTER III

PLUMBING

O.C. 961-2002, s. 5; O.C. 294-2008, s. 1; O.C. 65-2021, s. 1.

DIVISION I

SCOPE

O.C. 961-2002, s. 5; O.C. 294-2008, s. 1; O.C. 65-2021, s. 1.

3.01. In this Chapter, unless the context indicates otherwise, "Code" means the "National Plumbing Code of Canada 2020" (NRCC-CONST-56436E), First Printing, published by the Canadian Commission on Building and Fire Codes, National Research Council of Canada, as well as all subsequent amendments that may be published by that organization.

That Code is incorporated by reference into this Chapter subject to the amendments provided for in Division II.

Despite the foregoing, amendments to that edition published after 11 July 2024 apply to construction work on a plumbing system only from the last day of the sixth month following the publication of the French and English versions of those amendments. If those versions are not published at the same time, the 6-month period runs from the date of publication of the last version.

The third paragraph does not apply to errata, which take effect as soon as they are published by the Canadian Commission on Building and Fire Codes.

O.C. 961-2002, s. 5; O.C. 120-2006, s. 9; O.C. 294-2008, s. 1; O.C. 939-2009, s. 4; O.C. 30-2014, s. 1; O.C. 65-2021, s. 1; O.C. 983-2024, s. 1; O.C. 1071-2024.

3.02. Subject to the exceptions set out in section 3.02.01, the Code applies to all construction work on a plumbing system in

(1) a building to which the Building Act (chapter B-1.1) applies or outside such a building but within the limits of the property on which it is situated;

(2) a facility intended for use by the public that is a tent or an air-supported structure to which Chapter I of the Construction Code applies and which is used

(a) for residential, care, treatment or detention occupancy whose floor area is 100 m^2 or more, or

(b) for assembly or mercantile occupancy whose floor area is more than 150 m^2 or whose load capacity is more than 60 persons.

For the purposes of this section, the definitions of "plumbing system" and "building" are those provided in the Code, as adopted by this Chapter. In addition, the definitions of the following terms are those provided in the National Building Code, as adopted by Chapter I of the Construction Code: "tent", "air-supported structure", "residential occupancy", "care occupancy", "treatment occupancy", "detention occupancy", "floor area", "assembly occupancy", "mercantile occupancy".

O.C. 961-2002, s. 5; O.C. 294-2008, s. 1; O.C. 30-2014, s. 2; O.C. 65-2021, s. 1; O.C. 983-2024, s. 2.

3.02.01. The following plumbing systems are exempt from the application of this Chapter:

(1) drainage piping or water distribution piping independent of a building;

(2) roof gutters;

(3) subsoil drainage pipes (French drain);

(4) downstream installation of an individual backflow preventer;

(5) municipal retention pond and its outlet pipe;

(6) private sewage disposal system.

O.C. 983-2024, s. 2.

3.03. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 961-2002, s. 5; O.C. 873-2005, s. 1; O.C. 294-2008, s. 1; O.C. 1263-2012, s. 2; O.C. 65-2021, s. 1; O.C. 1419-2021, s. 2.

DIVISION II

AMENDMENTS TO THE CODE

O.C. 961-2002, s. 5; O.C. 294-2008, s. 1; O.C. 65-2021, s. 1.

3.04. The amendments to the Code are as follows:

Provisions	Amendments
Division A	
Part 1	
1.1.1.1.	Replace the Article by the following: “**1.1.1.1. Application of this Code** **1)** This Code applies to the construction work performed on a *plumbing system* as provided in section 3.02 of the Construction Code made pursuant to the Building Act (chapter B-1.1). **2)** In accordance with Part 7 of Division B of the National Building Code of Canada 2020 and except as provided in Sentence (3), every *building* shall have plumbing facilities. **3)** If a hot water system is required under the NBC, the facility shall provide an adequate hot water supply.”.
1.2.1.1.	Insert “approved by the Régie du bâtiment du Québec in accordance with section 127 of the Building Act” after “applicable acceptable solutions” in Clause (1)(b).
1.4.1.2.	Strike out the defined term “*Care or detention occupancy*” in Sentence (1);
	Insert “in inches” after “diameter” in the definition of “*Nominal pipe size (NPS)*” in Sentence (1);
	Replace “(See Figure A-1.4.1.2.(1)-L” in the definition of “*Plumbing system**” by “(See Figures A-1.4.1.2.(1)-L and A-1.4.1.2.(1)-M” in Sentence (1);
	Insert “, retention pit” after “sump” in the definition of “*Storm building drain*” in Sentence (1).

<table>
<tr><th>Provisions</th><th>Amendments</th></tr>
<tr><td>Notes to Part 1</td><td></td></tr>
<tr><td>A-1.4.1.2.(1)</td><td>
Insert the following Figure at the end of the note:

“

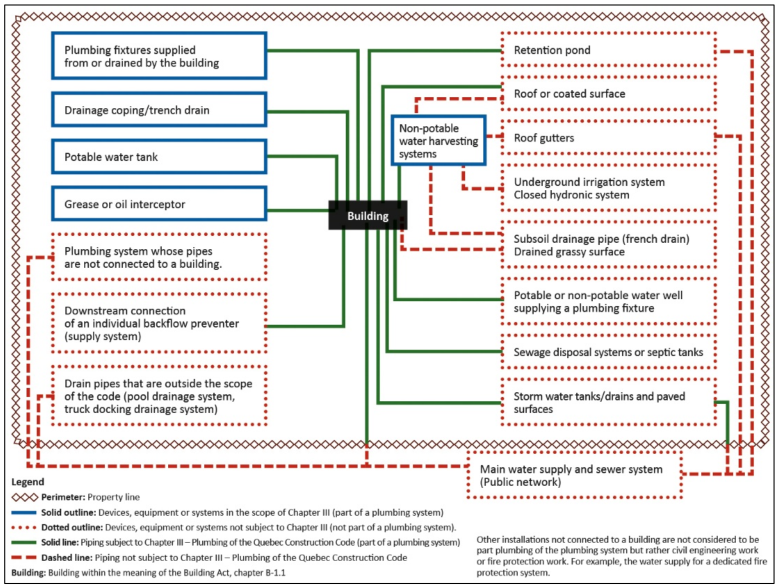

Figure A-1.4.1.2.(1)-M

Limit of plumbing system outside a building

”.
</td></tr>
<tr><td>Part 3</td><td></td></tr>
<tr><td>3.2.1.1.</td><td>
Insert the functional statement

“**F23** To maintain equipment in place during structural movement.”

after

“**F21** To limit or accommodate dimensional change.”;
</td></tr>
<tr><td></td><td></td></tr>
</table>

<table>
<tr><th>Provisions</th><th>Amendments</th></tr>
<tr><td></td><td>Insert the following functional statements after the statement
“F46 To minimize the risk of contamination of potable water”:
“F60 To control the accumulation and pressure of surface water, groundwater and sewage.
F61 To resist the ingress of water or moisture from the exterior or from the ground.”.</td></tr>
<tr><td>Division B</td><td></td></tr>
<tr><td>Part 1</td><td></td></tr>
<tr><td>1.3.1.2.</td><td>Replace the documents concerned by the following in Table 1.3.1.2.:
“</td></tr>
</table>

ASME/CSA	ASME A112.18.1-2018/ CSA B125.1-18	Plumbing Supply Fittings	2.2.10.6.(1) 2.2.10.7.(1) 2.2.10.7.(4)
ASSE/ASME/ CSA	ASSE 1016-2017/ ASME A112.1016-2017/ CSA B125.16-17	Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations	A-2.2.10.6.(3)
ASSE/ASME/ CSA	ASSE 1070-2015/ ASME A112.1070-2015/ CSA B125.70-15	Performance requirements for water temperature limiting devices	2.2.10.6.(1) 2.2.10.7.(2) 2.2.10.7.(5)
ASTM	B828-16	Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings	2.3.2.4.(1)
AWWA	ANSI/AWWA C104/ A21.4-16	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings	2.2.6.4.(2)
AWWA	ANSI/AWWA C111/ A21.11-17	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings	2.2.6.4.(4)
AWWA	ANSI/AWWA C151/ A21.51-17	Ductile-Iron Pipe, Centrifugally Cast	2.2.6.4.(1) A-2.2.5. to 2.2.8.
AWWA	ANSI/AWWA C228-14	Stainless-Steel Pipe Flange Joints for Water Service – Sizes 2 in. through 72 in. (50 mm through 1,800 mm)	2.2.6.12.(1)
CCBFC	NRCC-CONST-56435E	National Building Code of Canada 2020	1.1.1.1.(2)[3] 1.1.1.1.(3)[3] 1.4.1.2.(1)[3] A-2.2.1.1.(1)[3]

Provisions	Amendments			
				A-3.2.1.1.(1)[(3)] 2.1.3.1.(1) 2.1.4.1.(1) 2.2.5.11.(2) 2.2.5.11.(3) 2.2.6.7.(3) 2.4.3.1.(1) 2.4.10.4.(1) 2.7.1.1.(3) A-2.2.5. to 2.2.8. A-2.4.10. A-2.4.10.4.(1) A-2.6.3.1.(2) 2.2.2.1.(2)[(4)]
	CSA	B64.4-11	Reduced pressure principle (RP) backflow preventers	2.2.10.10.(1) 2.6.2.4.(2) 2.6.2.4.(4)
	CSA	B64.10-17	Selection and installation of backflow preventers	2.6.2.1.(3) 2.6.2.1.(4) 2.6.2.13.(1)
	CSA	B70-12	Cast iron soil pipe, fittings, and means of joining	2.2.6.1.(1) 2.2.10.19.(1) A-2.2.5. to 2.2.8.
	CSA	B125.3-18	Plumbing fittings	2.2.10.6.(1) 2.2.10.7.(2) 2.2.10.7.(3) 2.2.10.7.(5) 2.2.10.22.(1) A-2.6.1.11.(1)
	CSA	CAN/CSA-B128.1-06	Design and Installation of Non-Potable Water Systems	2.7.1.1.(1) 2.7.1.2.(1) A-2.7.1.1.(1)
	CSA	B181.1-18	Acrylonitrile-butadiene-styrene (ABS) drain, waste, and vent pipe and pipe fittings	2.2.5.9.(1) 2.2.5.10.(1) 2.2.5.11.(1) 2.2.10.19.(1) A-2.2.5. to 2.2.8. A-2.2.5.9. to 2.2.5.11.
	CSA	B181.2-18	Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) drain, waste, and vent pipe and pipe fittings	2.2.5.9.(1) 2.2.5.10.(1) 2.2.5.11.(1) 2.2.5.16.(1) 2.2.5.16.(2) 2.2.10.19.(1) A-2.2.5. to 2.2.8. A-2.2.5.9. to 2.2.5.11.

Provisions	Amendments
	(continuation of inserted table, see below) ”;
	Insert the following documents in Table 1.3.1.2., in order of the issuing agencies and document numbers: “ (see table below)

CSA	B182.1-18	Plastic drain and sewer pipe and pipe fittings	2.2.5.9.(1) 2.2.10.19.(1) A-2.2.5. to 2.2.8.
CSA	B481.3-12	Sizing, selection, location, and installation of grease interceptors	2.2.3.2.(4)
CSA	CAN/CSA-B483.1-07	Drinking Water Treatment Systems	2.2.10.17.(1) 2.2.10.17.(2) 2.2.10.17.(3) 2.2.10.17.(4)
CSA/ICC	CSA B805-18/ICC 805-2018	Rainwater harvesting systems	2.7.2.4.(1) 2.7.2.4.(4) A-2.7.2.4.(1)

”;

Insert the following documents in Table 1.3.1.2., in order of the issuing agencies and document numbers:

“

ANSI/ASME	A112.6.2-2000	Framing-Affixed Supports for Off-the-Floor Water Closets with Concealed Tanks	2.2.6.1.(3)
ANSI/CSA	ANSI Z21.10.1-2017/ CSA 4.1-2017	Gas water heaters, volume I, storage water heaters with input ratings of 75,000 Btu per hour or less	2.2.10.13.(1)
ANSI/CSA	ANSI Z21.10.3-2017/ CSA 4.3-2017	Gas-fired water heaters, volume III, storage water heaters with input ratings above 75,000 Btu per hour, circulating and instantaneous	2.2.10.13.(1)
ANSI/UL/ULC	ANSI/CAN/UL/ULC 1201:2016	Sensor Operated Backwater Prevention Systems	2.2.10.19.(1)
ASME	A112.6.1M-1997	Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use	2.2.6.1.(3)
ASME	A112.6.4-2003	Roof, Deck, And Balcony Drains	2.2.10.21.(1)
ASME	B16.51-2021	Copper and Copper Alloy Press-Connect Pressure Fittings	2.2.7.10.(1)
ASSE	1061-2015	Performance Requirements for Push-Fit Fittings	2.2.7.9.(1)

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	ASSE	1072-2007	Performance Requirements for Barrier Type Floor Drain Trap Seal Protection Devices	2.2.10.24.(1)
	BNQ	NQ 2622-126-2009	Reinforced Concrete and Unreinforced Concrete Pipe and Monolithic Lateral Connection for Evacuation of Domestic Wastewater and Storm Water	2.2.5.2.(1)
	BNQ	NQ 3623-085-2002	Ductile-Iron Pipe for Water Pressure Piping Systems — Characteristics and Test Methods	2.2.6.4.(1)
	BNQ	BNQ 3624-027-2016	Polyethylene (PE) Pipe for the Transport of Fluids Under Pressure	2.2.5.4.(1)
	BNQ	BNQ 3624-120-2016	Smooth Inside Wall Open-Profile Polyethylene (PE) Pipe and Polyethylene (PE) Fittings for Storm Sewers, Culverts and Soil Drainage	2.2.5.9.(1)
	BNQ	BNQ 3624-130-2015	Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings – Pipes of 150 mm in Diameter or Smaller	2.2.5.9.(1)
	BNQ	BNQ 3624-135-2015	Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings – Pipes of 200 mm in Diameter or Larger for Sewage and Soil Drainage	2.2.5.9.(1)
	BNQ	BNQ 3624-250-2015	Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings – Rigid Pipe for Pressurized Water Supply and Distribution	2.2.5.7.(1)
	CSA/IAPMO	CSA B45.8-13/IAPMO Z403-2013	Terrazzo, concrete, and natural stone plumbing fixtures	2.2.2.2.(1)
	CSA/IAPMO	CSA B45.11-17/IAPMO Z401-2017	Glass plumbing fixtures	2.2.2.2.(1)
	CSA/IAPMO	CSA B45.12-13/IAPMO Z402-2013	Aluminum and copper plumbing fixtures	2.2.2.2.(1)
	CSA	B55.2-15	Drain water heat recovery units	2.2.10.26.(1)
	CSA	B64.1.4-11	Vacuum breaker, air space type (ASVB)	2.2.10.10.(1)
	CSA	B64.10.1-17	Maintenance and field testing of backflow preventors	2.6.2.1.(4) A-2.6.2.1.(3)
	CSA	B79-08	Commercial and residential drains and cleanouts	2.2.10.20.(1)

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CSA/IAPMO	CSA B125.5-11/IAPMO Z600-11	Flexible water connectors with excess flow shut-off devices	2.2.10.6.(1)
CSA	B140.12-03	Oil-Burning Equipment: Service Water Heaters for Domestic Hot Water, Space Heating, and Swimming Pools	2.2.10.13.(1)
CSA	B481 SERIES-12	Grease interceptors	2.2.3.2.(3) A-2.4.4.3.(1)
CSA	CAN/CSA-C22.2 Nº 110-94	Construction and Test of Electric Storage-Tank Water Heaters	2.2.10.13.(1)
CSA	C22.2 Nº 64-10	Household cooking and liquid-heating appliances	2.2.10.13.(1)
CSA	CAN/CSA-E60335-2-35-01	Safety of Household and Similar Electrical Appliances – Part 2-35: Particular Requirements for Instantaneous Water Heaters	2.2.10.13.(1)
ISO	11143-2008	Dentistry — Amalgam separators	2.2.3.2.(5)
MSS	SP-58-2009	Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation	2.2.10.23.(1)
NSF	NSF/ANSI 53-2016	Drinking Water Treatment Units - Health Effects	2.2.10.17.(4)
NSF	NSF/ANSI 55-2016	Ultraviolet Microbiological Water Treatment Systems	2.2.10.17.(1)
NSF	NSF/ANSI 61-2016	Drinking Water System Components – Health Effects	2.2.10.25.(1)
NSF	NSF/ANSI 62-2016	Drinking Water Distillation Systems	2.2.10.17.(3)
ULC	CAN/ULC-S656-14	Standard for Oil-Water Separators	2.2.3.2.(6)

”;

Strike out the following document in Table 1.3.1.2.:

“

CSA	B481.0-12	Material, design, and construction requirements for grease interceptors	2.2.3.2.(3)

”;

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	Add the following Note to Table 1.3.1.2: “(4) Code reference is in Division C.”.
1.3.2.1.	Insert the following in Sentence (1), in alphabetical order: “BNQ .... Bureau de normalisation du Québec (www.bnq.qc.ca)”; “CGSB .... Canadian General Standards Board (www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html)”; “ISO .... International Organization for Standardization (www.iso.org)”; “MSS .... Manufacturers Standardization Society of the Valve and Fittings Industry (www.mss-hq.com)”.
Part 2	
2.1.4.	Replace the Subsection by the following: “**2.1.4. Structural Movement** **2.1.4.1. Structural Movement** **1)** *Plumbing systems* of *buildings* subject to Chapter I of the Construction Code and to which Part 4 of Division B of the NBC applies shall be designed and installed to accommodate the maximum relative structural movement provided for in the construction of the *building*. (See Article 4.1.3.5., Subsection 4.1.8., Sentence 4.1.3.3.(2) and Note A-6.2.1.4. of Division B of the NBC for information on the types of structural movements that may be encountered.)”.
2.2.2.2.	Replace Clauses (1)(h) and (1)(i) by the following: “h) macerating toilet systems shall conform to ASME A112.3.4/CSA B45.9, “Macerating Toilet Systems and Waste-Pumping Systems for Plumbing Fixtures,” i) toilet seats with bidet functionality shall conform to ASME A112.4.2/CSA B45.16, “Personal hygiene devices for water closets,” j) glass lavatories shall conform to CSA B45.11/IAPMO Z401, “Glass plumbing fixtures,” k) terrazzo, concrete or natural stone plumbing *fixtures* shall conform to CSA B45.8/IAPMO Z403, “Terrazzo, concrete and natural stone plumbing fixtures,” and

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	l) aluminum or copper plumbing *fixtures* shall conform to CSA B45.12/IAPMO Z402, “Aluminum and copper plumbing fixtures.””.
2.2.3.2.	Replace Sentence (3) by the following: “**3)** Grease *interceptors* shall conform to CSA B481 Series, “Grease Interceptors.” (See Note A-2.2.3.2.(3). **4)** Grease *interceptors* shall be selected and installed in conformance with CSA B481.3, “Sizing, Selection, Location, and Installation of Grease Interceptors.” **5)** Amalgam separators shall conform to ISO 11143, “Dentistry — Amalgam separators.” **6)** Oil *interceptors* shall conform to CAN/ULC-S656, “Standard for Oil-Water Separators.””.
2.2.4.2.	Replace “A single” by “Except as provided in Article 2.4.3.7., a single” in Sentence (1).
2.2.4.3.	Add the following at the end of Sentence (1): “The prohibition also applies to any combination of 45° elbows displaying the same characteristics.”.
2.2.5.2.	Strike out “or” in Clause (1)(a);
	Replace Clause (1)(b) by the following: “b) CSA A257.2, “Reinforced circular concrete culvert, storm drain, sewer pipe, and fittings,” or c) NQ 2622-126, “Reinforced Concrete and Unreinforced Concrete Pipes and Monolithic Lateral Connections for Evacuation of Domestic Wastewater and Storm Water.””.
2.2.5.4.	Replace Sentence (1) by the following: “**1)** Polyethylene water pipe, tubing and fittings shall conform to Series 160 of a) CSA B137.1, “Polyethylene (PE) pipe, tubing, and fittings for cold-water pressure services,” or b) BNQ 3624-027, “Polyethylene (PE) Pipe for the Transport of Fluids Under Pressure.””.

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2.2.5.7.	Replace Clause (1)(a) by the following: “a) conform to i) CSA B137.3, “Rigid polyvinylchloride (PVC) pipe and fittings for pressure applications,” or ii) BNQ 3624-250, “Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings – Rigid Pipe for Pressurized Water Supply and Distribution,” and”.
2.2.5.9.	Replace Clauses (1)(g) and (1)(h) by the following: “g) CSA B182.6, “Profile polyethylene (PE) sewer pipe and fittings for leak-proof sewer applications,” with a pipe stiffness not less than 320 kPa, h) CSA B182.8, “Profile polyethylene (PE) storm sewer and drainage pipe and fittings,” for Type 1 joints and non-perforated pipes, i) BNQ 3624-120, “Smooth Inside Wall Open-Profile Polyethylene (PE) Pipe and Polyethylene (PE) Fittings for Storm Sewers, Culverts and Soil Drainage,” j) BNQ 3624-130, “Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings – Pipes of 150 mm in Diameter or Smaller,” or k) BNQ 3624-135, “Unplasticized Poly(Vinyl Chloride) [PVC-U] Pipe and Fittings – Pipes of 200 mm in Diameter or Larger for Sewage and Soil Drainage.””.
2.2.6.1.	Add the following Sentence: “**3)** Wall supports for water closets shall conform to a) ASME A112.6.1M, “Supports for Off-the-Floor Plumbing Fixtures for Public Use,” or b) ASME A112.6.2, “Framing-Affixed Supports for Off-the-Floor Water Closets with Concealed Tanks.””.
2.2.6.4.	Replace Sentence (1) by the following: “**1)** Cast-iron water pipes shall conform to a) ANSI/AWWA C151/A21.51, “Ductile-Iron Pipe, Centrifugally Cast,” or b) NQ 3623-085, “Ductile-Iron Pipe for Water Pressure Piping Systems – Characteristics and Test Methods.””.

<table>
<tr><th>Provisions</th><th>Amendments</th></tr>
<tr><td>2.2.6.12.</td><td>Replace “Flanges” by “Flange Joints” in Clause (1)(b).</td></tr>
<tr><td></td><td>Add the following Articles:
“2.2.7.9. Quick Connection Push-Fit Fittings
1) Quick connection push-fit fittings shall conform to ASSE 1061, “Performance Requirements for Push-Fit Fittings.”

2.2.7.10. Mechanical Press Fittings
1) Mechanical press fittings shall conform to ASME B16.51, “Copper and Copper Alloy Press-Connect Pressure Fittings.””.</td></tr>
<tr><td>2.2.10.5.</td><td>Replace Sentence (1) by the following:
“1) A saddle hub or fitting shall not be installed in drainage, venting or water systems except at the point of connection for standpipe systems. (See Note A-2.2.10.5.(1).)”.</td></tr>
<tr><td>2.2.10.6.</td><td>Replace Clauses (1)(a) and (1)(b) by the following:
“a) ASME A112.18.1/CSA B125.1, “Plumbing Supply Fittings,”
b) CSA B125.3, “Plumbing fittings,”
c) CSA B125.5/IAPMO Z600, “Flexible water connectors with excess flow shut-off devices,” or
d) ASSE 1070/ASME 112.1070/CSA B125.70, “Performance requirements for water temperature limiting devices.””.</td></tr>
<tr><td>2.2.10.7.</td><td>Replace the Article by the following:
“2.2.10.7. Water Temperature Control
(See Note A-2.2.10.7.)
1) Except as provided in Sentences (2) to (4), valves supplying shower heads or bathtubs shall
a) be of the pressure-balanced, thermostatic, or combination pressure-balanced/thermostatic type, and
b) conform to ASME A112.18.1/CAN/CSA B125.1, “Plumbing Supply Fittings.”</td></tr>
</table>

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	2) Valves supplying only bathtubs need not be of one of the types referred to in Sentence (1) if the hot water supply is controlled by a) a thermostatic-mixing valve conforming to CSA B125.3, “Plumbing Fittings,” or b) an automatic temperature-limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70, “Performance requirements for water temperature limiting devices.” **3)** Valves supplying only shower heads need not be of one of the types referred to in Sentence (1) if the water supply is controlled by an automatic compensating valve conforming to CSA B125.3, “Plumbing fittings.” **4)** Except as provided in Sentence (5), valves supplying shower heads or bathtubs of a care occupancy or private seniors’ residence within the meaning of the Act respecting health services and social services (chapter S-4.2) shall a) be of the thermostatic or combination pressure-balanced/thermostatic type, and b) conform to ASME A112.18.1/CAN/CSA B125.1, “Plumbing Supply Fittings.” **5)** Valves supplying only bathtubs of a care occupancy or private seniors’ residence and installed within the limits of a bathroom need not be of one of the types referred to in Sentence (4) if the hot water supply is controlled by a) a thermostatic-mixing valve conforming to CSA B125.3, “Plumbing Fittings,” or b) an automatic temperature-limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70, “Performance requirements for water temperature limiting devices.” **6)** Valves, mixing valves and limiting devices shall be adjusted to provide a water outlet temperature that does not exceed a) 49°C when subject to Sentences (1) to (3), or b) 43°C when subject to Sentences (4) and (5).”
2.2.10.10.	Replace Sentence (1) by the following: “**1)** Except as provided in Sentence (2*), back-siphonage preventers* and *backflow preventers* shall conform to a) CSA B64.0, “Definitions, general requirements, and test methods for vacuum breakers and backflow preventers,”

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	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 B64.2.2, “Hose connection vacuum breakers (HCVB) with automatic draining feature,” i) CSA B64.3, “Dual check valve backflow preventers with atmospheric port (DCAP),” j) CSA B64.4, “Reduced pressure principle (RP) backflow preventers,” k) CSA B64.4.1, “Reduced pressure principle backflow preventers for fire protection systems (RPF),” l) CSA B64.5, “Double check valve (DCVA) backflow preventers,” m) CSA B64.5.1, “Double check valve backflow preventers for fire protection systems (DCVAF),” n) CSA B64.6, “Dual check valve (DuC) backflow preventers,” o) CSA B64.6.1, “Dual check valve backflow preventers for fire protection systems (DuCF),” p) CSA B64.7, “Laboratory faucet vacuum breakers (LFVB),” q) CSA B64.8, “Dual check valve backflow preventers with intermediate vent (DuCV),” or r) CSA B64.9, “Single check valve backflow preventers for fire protection systems (SCVAF).””.
2.2.10.13.	Replace the Article by the following: “**2.2.10.13. Service Water Heaters** **1)** *Service water heaters* shall conform to a) ANSI Z21.10.1/CSA 4.1, “Gas water heaters, volume I, storage water heaters with input ratings of 75,000 Btu per hour or less,” b) ANSI Z21.10.3/CSA 4.3, “Gas water heaters, volume III, storage water heaters with input ratings above 75,000 Btu per hour, circulating and instantaneous,”

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	c) CAN/CSA-C22.2 No. 110, “Construction and Test of Electric Storage-Tank Water Heaters,” d) CSA B140.12, “Oil-Burning Equipment: Service Water Heaters for Domestic Hot Water, Space Heating, and Swimming Pools,” e) CAN/CSA-F379 SERIES, “Packaged solar domestic hot water systems (liquid-to-liquid heat transfer),” f) CSA C22.2 No. 64, “Household cooking and liquid-heating appliances,” or g) CAN/CSA-E60335-2-35, “Safety of Household and Similar Electrical Appliances – Part 2-35: Particular Requirements for Instantaneous Water Heaters.””.
2.2.10.17.	Replace the Article by the following: “**2.2.10.17. Drinking Water Treatment Systems** **1)** *Potable* water disinfection units using ultraviolet designed to meet the requirements of the Regulation respecting the quality of drinking water (chapter Q-2, r. 40) shall conform to a) NSF/ANSI 55, “Ultraviolet Microbiological Water Treatment Systems,” or b) CAN/CSA-B483.1, “Drinking Water Treatment Systems,” if they are designed to be installed at the point of use. **2)** Reverse osmosis *potable* water treatment systems installed at the point of use and designed to meet the requirements of the Regulation respecting the quality of drinking water shall conform to CAN/CSA-B483.1, “Drinking Water Treatment Systems.” **3)** *Potable* water distillation systems designed to meet the requirements of the Regulation respecting the quality of drinking water shall conform to a) NSF/ANSI 62, “Drinking Water Distillation Systems,” or b) CAN/CSA-B483.1, “Drinking Water Treatment Systems,” if they are designed to be installed at the point of use. **4)** *Potable* water treatment units not covered by Sentences (1) to (3) and designed to meet the requirements of the Regulation respecting the quality of drinking water shall conform to a) NSF/ANSI 53, “Drinking Water Treatment Units - Health Effects,” or b) CAN/CSA-B483.1, “Drinking Water Treatment Systems,” if they are designed to be installed at the point of use.”

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	Insert the following Articles: “**2.2.10.19. Backwater Valves** **1)** *Backwater valves* shall conform to a) CSA B70, “Cast iron soil pipe, fittings, and means of joining,” b) CSA B181.1, “Acrylonitrile-butadiene-styrene (ABS) drain, waste, and vent pipe and pipe fittings,” c) CSA B181.2, “Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) drain, waste, and vent pipe and pipe fittings,” d) CSA B182.1, “Plastic drain and sewer pipe and pipe fittings,” or e) ANSI/CAN/UL/ULC 1201, “Sensor Operated Backwater Prevention Systems.” **2.2.10.20. Floor Drains and Shower Drains** **1)** Floor drains, including *emergency floor drains*, and shower drains installed on the floor shall conform to CSA B79, “Commercial and residential drains and cleanouts.” **2.2.10.21. Roof Drains** **1)** *Roof drains* shall conform to ASME A112.6.4, “Roof, Deck, and Balcony Drains.” **2.2.10.22. Trap Seal Primer Devices** **1)** Trap seal primer devices shall conform to CSA B125.3, “Plumbing fittings.” **2.2.10.23. Pipe Hangers and Supports** **1)** Manufactured pipe hangers and supports shall conform to MSS SP-58, “Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation.”

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	2.2.10.24. Floor Drain Trap Seals **1)** Floor drain *trap* seals used to maintain *trap seal depth* shall conform to ASSE 1072, “Performance Requirements for Barrier Type Floor Drain Trap Seal Protection Devices.” **2.2.10.25. Expansion Tanks** **1)** Expansion tanks for *potable water distribution systems* shall conform to NSF/ANSI 61, “Drinking Water System Components – Health Effects.” **2.2.10.26. Heat Recovery Units** **1)** Vertical drain water heat recovery units shall conform to CSA B55.2, “Drain water heat recovery units.””.
2.3.2.4.	Replace “Specification” by “Practice” in Sentence (1).
2.3.4.5.	Replace “Les suspentes des tuyaux *d’allure horizontale*” in Sentence (5) in the French text by “Lorsque des suspentes pour tuyaux *d’allure horizontale* sont utilisées, elles”
2.3.6.1.	Replace “a water pressure test or an air pressure test” in Sentence (1) by “a water pressure test, a smoke pressure test or an air pressure test”.
2.3.6.2.	Insert “, smoke test” after “air pressure test” in Sentence (1).
2.3.6.3.	Insert “, smoke test” after “air pressure test” in Sentence (1).
	Add the following Article: “**2.3.6.8. Smoke Tests** **1)** Where a smoke test is made a) smoke from smoke-generating machines shall be forced into the system, and b) a pressure equivalent to a 25 mm water column shall be maintained.”.

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2.4.2.1.	Insert “(see Note A-2.4.2.1.(1)(a)(i) and (e))” in Subclause (1)(a)(i) after “*system*”;
	Strike out “(see Note A-2.4.2.1.(1)(a)(ii) and (e)(vi)” in Subclause (1)(a)(ii);
	Replace Subclauses (1)(e)(v) and (1)(e)(vi) by the following: “ v) a water treatment device, vi) a drain or overflow from a *water system* or a heating system, vii) a drain from an ice machine, or viii) a drain from a heating, air-conditioning or ventilation system (see Note A-2.4.2.1.(1)(a)(i) and (e)).”;
	Replace Sentence (2) by the following: “**2)** Where the upper vertical part of an offset *stack* receives water from *fixtures* from more than one *storey*, a connection in that offset *stack* shall not be less than 1.5 m downstream from the base of the upper section of the *stack* or from another connection receiving *sewage* from another *stack* connected to the *offset*. (See Note A-2.4.2.1.(2).)”.
	Insert “or dishwashing sink” after “more than one clothes washer” in the text preceding Clause (4)(a);
	Insert the following Sentences: “**6)** Every connection at the bottom of a *stack* shall be more than 1.5 m in a *building drain* or a *branch* receiving *sewage* from the *stack*. (See Note A-2.4.2.1.(6).) **7)** Every *trap arm* of a bathtub, shower, bidet, floor drain or service sink installed on the floor shall have a *nominally horizontal* part not less than 450 mm in *developed length*. The *developed length* of the *trap arm* of a floor drain shall be increased to 1.5 m if it is connected less than 3 m downstream from the bottom of a *stack* or a *leader*. (See Note A-2.4.2.1.(7).)”.

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2.4.2.3.	Replace Sentences (1) to (3) by the following: “**1)** Two or more *fixture outlet pipes* that serve outlets from a single *fixture* that is listed in Clause 2.4.2.1.(1)(e) are permitted to be *directly connected* to a *branch* that a) has a *nominal pipe size* of not less than *NPS* 1¼, b) is terminated above the *flood level rim* of a *directly connected fixture* to form an *air break*, and c) is located in the same room or *suite*. **2)** *Fixture drains* from *fixtures* that are listed in Subclauses 2.4.2.1.(1)(e)(i) and (e)(ii) are permitted to be *directly connected* to a pipe that a) is terminated to form an *air break* above the *flood level rim* of a *fixture* that is *directly connected* to a *sanitary drainage system*, b) is extended through the roof when *fixtures* on 3 or more *storeys* are connected to it (see Note A-2.4.2.1.(1)(a)(i) and (e)), and c) is located in the same room or *suite*. **3)** *Fixture drains* from *fixtures* that are listed in Subclauses 2.4.2.1.(1)(e)(iii) to (e)(viii) are permitted to be *directly connected* to a pipe that a) is terminated to form an *air break* above the *flood level rim* of a *fixture* that is *directly connected* to a *storm drainage system*, b) is extended through the roof when *fixtures* on 3 or more *storeys* are connected to it, and c) is located in the same room or *suite.”*
	Add the following Article: “**2.4.2.4. Toilet Wall Supports** **1)** Toilet wall supports shall be fixed to the structural elements of the *building* to prevent stress from being transmitted to the *plumbing system*.”.

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2.4.3.5.	Replace the title by the following: “**2.4.3.5. Macerating Toilets and Macerating Systems**”.
	Replace “macerating toilet system shall only be installed” in Sentence (1) by “macerating toilet or macerating system shall only be installed”.
2.4.3.6.	Replace “that connects the sump well to the *drainage system*” in Clause (1)(b) by “that connects the pit to the sump well”.
	Insert the following Article: “**2.4.3.7. Retention Pit** **1)** A retention pit shall be made in one piece, be leakproof and smooth inside. Its length shall not be less than 600 mm and its minimum width shall not be less than 450 mm, the length being taken in the direction of its *fixture drain*. A round retention pit shall be not less than 560 mm diam. **2)** The *fixture drain* of the retention pit shall be not less than *NPS* 3 and be protected by a reversed sanitary T fitting with a *cleanout* at the end or by a 100 mm-deep running *trap* with *cleanout*. The *fixture drain* shall be *NPS* 4 if the retention pit receives *storm water*. Despite the foregoing, for a single-family house, the *fixture drain* may be *NPS* 3. **3)** Except as provided in Sentence (6), a reversed sanitary T fitting shall be located inside the retention pit and the running *trap* may be located inside or outside the retention pit. In the last case, the *trap cleanout* shall be extended to the floor level. The retention pit shall have a running *trap* where it is connected to an oil *interceptor*. **4)** The lower end of the reversed sanitary T fitting shall be placed 150 mm or more from the bottom of the retention pit. In the case of a retention pit that receives water from a *subsoil drainage pipe*, the reversed sanitary T fitting shall be placed 75 mm or more from the bottom of the retention pit. For a running *trap*, the upper end of the *trap* shall be placed not less than 300 mm from the bottom of the retention pit. **5)** The retention pit shall be covered, at the floor or ground level, by a cover designed to withstand the intended loads. **6)** The *fixture drain* of a retention pit exposed to frost shall have a *trap* inside the *building*, unless it drains into another retention pit that is not exposed.

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	7) The *fixture drain* of a retention pit shall be *directly connected* to the *drainage system* and drain into it by gravity or in the manner described in Article 2.4.6.3. **8)** The invert of a discharge pipe connected to a retention pit shall be higher than the invert of the *fixture drain*. **9)** Except as provided in Sentence (2), a retention pit shall have a *fixture drain* of *NPS* 3 for a draining area not more than 370 m^2. For a *fixture drain* more than *NPS* 3, the drained area may be increased by 280 m^2 per additional *NPS*. **10)** The requirements of Clause 2.5.1.1.(3)(c) do not apply to a retention pit used as a floor drain. **11)** Retention pits to which a *subsoil drainage pipe* is connected shall have a) an air-tight cover, and b) a *vent pipe* at least *NPS* 1½ if the content of the retention pit is pumped.”
2.4.4.1.	Insert the following Sentences: “**2)** Every beauty parlour lavatory shall be equipped with a hair *interceptor*. **3)** Every *fixture* that can receive dental amalgam waste shall have an amalgam *interceptor*.”.
2.4.5.3.	Insert “or a retention pit” after “a trapped sump” in Sentence (1).
2.4.5.5.	Strike out “or” in Clause (1)(b);
	Replace Clause (1)(c) by the following: “c) using a floor drain trap seal, or d) other equally effective means.”
	Add the following Sentence: “**2)** Water from the *trap* seal of a floor drain in a *dwelling unit* need not be maintained by a *trap* seal primer. (See Note A-2.4.5.5.(2).)”.

Provisions	Amendments
2.4.6.3.	Replace Sentence (3) by the following: “**3)** Every sump or receiving tank to which a *subsoil drainage pipe* is connected shall have a) an air tight cover, and b) a *vent pipe* at least *NPS* 1½ if the sump or tank is pumped.”.
2.4.6.4.	Replace Sentences (1) to (5) by the following: “**2.4.6.4. Protection from Backflow** **1)** Except as provided in Sentences (2), (3), (6) and (7), where a *fixture*, a retention pit, a sump or running *trap* is located below the *flood level rim* of the adjoining street or *private sewage disposal system*, a gate valve or a *backwater valve* shall be installed on every drain connected to a *building drain* or a *branch*. **2)** Where more than one *fixture* is located on a *storey* and all are connected to the same *branch*, the gate valve or the *backwater valve* is permitted to be installed on the *branch*. **3)** A *subsoil drainage pipe* that drains into a *sanitary drainage system* that is subject to surcharge shall be connected in such a manner that *sewage* cannot back up into the *subsoil drainage pipe*. (See Note A-2.4.6.4.(3).) **4)** Except as permitted in Sentence (5), a *backwater valve* or a gate valve that would prevent the free circulation of air shall not be installed in a *building drain* or in a *building sewer*. **5)** A *backwater valve* is permitted to be installed in a *building drain*, provided that a) it is a “normally open” design, and b) it does not serve more than one *dwelling unit*. **6)** Where the *fixture* is a floor drain, a removable screw cap is permitted to be installed on the upstream side of the *trap*. **7)** The installation of a gate valve or a *backwater valve* covered by Sentence (1) is not required if the *building drain* is protected from *backflows* in accordance with Sentence (5).”.
2.4.7.1.	Add the following Sentence: “**12)** In a separate system, a *storm building drain* shall be located to the left of the *sanitary building drain*, towards the street, from the *building*.”

Provisions	Amendments
2.4.10.3.	Replace “an air-conditioning *fixture*” in Sentence (1) by “an air-conditioning equipment”.
2.4.10.4.	Replace Sentence (4) by the following: “**4)** Where the height of the parapet is more than 150 mm or exceeds the height of the adjacent wall flashing, emergency roof overflows or scuppers described in Clause (2)(c) shall be provided.”.
2.5.2.1.	Replace “2.5.8.1.” in Clauses (1)(a) and (1)(f) by “2.5.8.1.-A or 2.5.8.1.-B”;
	Replace Clauses (1)(d) and (1)(e) by the following: “d) the *trap arms* of the water closets connected to a vertical pipe are installed downstream of all other *fixtures*, e) *trap arms* and *fixture drains* do not exceed *NPS* 2 when connected to a *wet vent* that extends above more than 1 *storey*, except for connections from *emergency floor drains* in accordance with Sentence 2.5.1.1.(3),”;
	Replace Clauses (1)(j) and (1)(k) by the following: “j) the *nominal pipe size* of the wet-vented portion is not reduced, except for the portion that is upstream of *emergency floor drains* in accordance with Sentence 2.5.1.1.(3), k) the length of the *wet vent* is not limited, l) the portion of the *stack* having a *wet vent* that extends through more than one *storey* is the same *NPS* from its bottom to the uppermost connection of a *fixture*, m) it is extended as a *stack vent* or as a *continuous vent*, and n) *trap arms* are connected separately and directly to the *wet vent*.”.
2.5.6.2.	Add the following Sentence: “**4)** The plumbing *venting system* shall not be used in other systems.”.
2.5.6.5.	Add “, except pipes 4 in and bigger that may be of the same *NPS*,” at the end of Clause (6)(a).”.

Provisions	Amendments
2.5.7.3.	Replace “2.5.8.1.” in Sentence (2) by “2.5.8.1.-A or 2.5.8.1.-B”.
2.5.8.1.	Replace the Article by the following: “**2.5.8.1. Hydraulic Loads** **1)** The hydraulic load that drains to a *wet vent* shall conform to Table 2.5.8.1.-A or 2.5.8.1.-B. **2)** When determining the *nominal pipe size* of a *wet vent*, the hydraulic load from the most downstream *fixture* or symmetrically connected *fixtures* shall not be included. (See Note A-2.5.8.1.(2).)

Table 2.5.8.1.-A
Maximum Permitted Hydraulic Loads Drained to a Wet Vent Serving Fixtures on the Same Storey
Forming Part of Sentences 2.5.7.3.(2) and 2.5.8.1.(1)

Nominal Pipe Size of *Wet Vent, NPS*	Maximum Hydraulic Load, *fixture units*
1¼	1
1½	2
2	5
3	18
4	120

Table 2.5.8.1.-B
Maximum Permitted Hydraulic Loads Drained to a Wet Vent
Forming Part of Sentences 2.5.7.3.(2) and 2.5.8.1.(1)

Nominal Pipe Size of *Wet Vent, NPS*	Maximum Hydraulic Load, *fixture units*	
	Not Serving Water Closets	*Fixtures*, Other Than Water Closets, That Serve Not More Than 2 Water Closets
1½	2	n/a
2	4	3
3	12	8
4	36	14
5	n/a	18
6	n/a	23

”.

<table>
<tr><th>Provisions</th><th>Amendments</th></tr>
<tr><td>2.5.8.4.</td><td>Add the following Sentence:
“**5)** At least one *stack* or vertical *sanitary drainage pipe* shall extend into a *stack vent* or into a *vent pipe* that is terminated in open air. That *stack* or vertical *sanitary drainage pipe* shall be not less than *NPS* 3 up to the outlet on the roof.”.</td></tr>
<tr><td>2.5.9.2.</td><td>Replace Clauses (1)(c) and (1)(d) by the following:
“c) *fixtures* in one- and two-family dwellings during renovation work only, or
d) *fixtures* in an existing *building* where connection to a vent may not be practical.”.</td></tr>
<tr><td>2.6.1.1.</td><td>Add the following Sentences:
“**3)** In a hot *water distribution system* with a recirculation loop, the temperature of the water being recirculated shall not be less than 55°C at any point of the system.
4) The recirculation loop covered by Sentence (3) may be replaced by a self-regulating heat tracing system.”.</td></tr>
<tr><td>2.6.1.6.</td><td>Replace Table 2.6.1.6. by the following:
“
<table>
<tr><th>Fixtures</th><th>Maximum Water Usage per Flush Cycle, Lpf</th></tr>
<tr><td>Water closets – dwelling units</td><td></td></tr>
<tr><td>single-flush</td><td>4.8</td></tr>
<tr><td>dual-flush</td><td>6.0/4.1</td></tr>
<tr><td>Water closets – industrial, commercial, institutional, residential other than dwelling units</td><td>4.8</td></tr>
<tr><td>Urinals</td><td>1.9</td></tr>
</table>
”.</td></tr>
</table>

Provisions	Amendments
	Replace Sentence (4) by the following: “**4)** In industrial, commercial and institutional *buildings*, and residential occupancies other than *dwelling units*, a maximum water usage of 6.0 Lpf shall be permitted for single-flush water closets where it can be demonstrated that a maximum water usage of 4.8 Lpf could lead to blockage given the configuration of the *drainage system* or municipal infrastructure.”.
2.6.1.7.	Replace Clauses (1)(a) and (1)(b) by the following: “a) designed to open when the water pressure in the tank reaches the rated working pressure of the tank, b) so located that the pressure in the tank shall not exceed the pressure at the relief valve by more than 35 kPa under any condition of flow within the distribution system, c) that has a drainage pipe complying with the requirements of Sentence (5).”;
	Replace “The drain pan” in the text preceding Clause (10)(a) by “Except as permitted in Sentence (11), the drain pan”;
	Insert “without being less than *NPS* 1¼,” in Clause (10)(b) after “discharge pipe”;
	Add the following Sentence: “**11)** The drain pan is not required to have a *fixture drain* where the relief valve discharge pipe conforms to Sentence (5).”.
2.6.1.9.	Replace Sentence (1) by the following: “**1)** *Water distribution systems* shall be protected from the adverse effects of water hammer by prefabricated water-hammer arrester. (See Note A-2.6.1.9.(1).)”.
2.6.1.12.	Replace Sentence (1) by the following: “**1)** The temperature control device for *service water heaters* shall be set so that the temperature of stored water is not less than 60°C. (See Note A-2.6.1.12.(1).)

Provisions	Amendments
	2) Drain water heat recovery units shall only be used to supply *service water heaters*.”.
2.6.2.1.	Add “(See Note A-2.6.2.1.(3).)” at the end of Sentence (3).
	Add the following Sentence: “**4)** In the case of *backflow preventers* that, according to CSA B64.10, “Selection and Installation of Backflow Prevention Devices,” require testing after installation, the person testing the *backflow preventers* shall hold a certificate issued in accordance with CSA B64.10.1, “Maintenance and field testing of backflow preventers,” by an organization or association certified by AWWA.”.
2.6.2.2.	Replace Clauses (2)(j) and (2)(k) by the following: “j) a laboratory faucet type *vacuum breaker*, k) a dual *check valve backflow preventer* with vent, or l) an air space type *vacuum breaker*.”.
2.6.2.4.	Replace Sentence (4) by the following: “**4)** Where a reduced pressure principle *backflow preventer* is required on a *water service pipe* at a fire service connection located on the same premises as the *fire service pipe* in *Class 3, 4, 5* and *6 fire sprinkler/standpipe systems*, a reduced pressure principle *backflow preventer* conforming to the following standards shall also be required on the fire service connection: a) CSA B64.4, “Reduced pressure principle (RP) backflow preventers,” or b) CSA B64.4.1, “Reduced pressure principle backflow preventers for fire protection systems (RPF).””.
	Add the following Article: “**2.6.2.13. Personal Hygiene Devices** **1)** Water closet personal hygiene devices connected to a *potable water system* shall have a *backflow preventer* conforming to CSA B64.10, “Selection and installation of backflow preventers.””.

Provisions	Amendments
2.6.3.2.	Replace “in Table 2.6.3.2.-A” in Sentence (2) by “in Table 2.6.3.2.-A, 2.6.3.2.-B or 2.6.3.2.-C”;
	Replace “ | Bathtub with *NPS* ¾ spout | ¾ | 7.5 | 7.5 | 10 | 7.5 | 7.5 | 10 | ” in Table 2.6.3.2.-A by the following line: “ | Bathtub with *NPS* ¾ spout | ¾ | 2.25 | 2.25 | 3 | 4.5 | 4.5 | 6 | ”;
	Replace Tables 2.6.3.2.-B and 2.6.3.2.-C by the following: “

Table 2.6.3.2.-B
Sizing of Water Distribution Systems for Urinals with Direct Flush Valves
Forming Part of Sentences 2.6.3.2.(4) and 2.6.3.4.(5)

Minimum *Nominal Pipe Size* of Supply Pipe, *NPS*	*Private Use* Hydraulic Load, *fixture units*			*Public Use* Hydraulic Load, *fixture units*		
	Cold	Hot	Total	Cold	Hot	Total
¾	n/a	n/a	n/a	5	n/a	5
½	2	n/a	2	4	n/a	4

<table>
<tr><th>Provisions</th><th>Amendments</th></tr>
<tr><td></td><td>
Table 2.6.3.2.-C
Sizing of Water Distribution Systems for Water Closets with Direct Flush Valves
Forming Part of Sentences 2.6.3.2.(4) and 2.6.3.4.(5)
<table>
<tr><th rowspan="2">Minimum Nominal Pipe Size of Supply Pipe, NPS</th><th colspan="3">Private Use Hydraulic Load, fixture units</th><th colspan="3">Public Use Hydraulic Load, fixture units</th></tr>
<tr><th>Cold</th><th>Hot</th><th>Total</th><th>Cold</th><th>Hot</th><th>Total</th></tr>
<tr><td>1</td><td>6</td><td>n/a</td><td>6</td><td>10</td><td>n/a</td><td>10</td></tr>
</table>
”.
</td></tr>
<tr><td>2.6.3.4.</td><td>Add “, 2.6.3.2.-B, 2.6.3.2.-C or 2.6.3.2.-D” in Sentence (2) after “2.6.3.2.-A”.</td></tr>
<tr><td>2.6.3.5.</td><td>Add “without ever exceeding 3 m/s” in Sentence (1) after “manufacturer”.</td></tr>
<tr><td>2.7.1.1.</td><td>Replace Sentences (1) and (2) by the following:
“1) Non-potable water systems shall be designed, fabricated and installed in accordance with this Subsection and with good engineering practices such as those described in the ASHRAE Handbooks, the ASPE Handbooks and CAN/CSA-B128.1, “Design and Installation of Non-Potable Water Systems.” (See Note A-2.7.1.1.(1).)
2) Except as provided in Sentence (3), non-potable water systems shall only be used to supply water closets, urinals, trap seal primers, directly connected underground irrigation systems that only dispense water below the surface of the ground, closed hydronic systems (heating and air-conditioning), and lavatories in tourist establishments covered by Chapter V.1 of the Regulation respecting the quality of drinking water (chapter Q-2, r. 40).”.</td></tr>
<tr><td></td><td>Replace Sentence (3) by the following:
“3) Non-potable water systems shall not be used to supply fixtures in buildings used for one of the occupancies provided for in Article 3.1.2.1. of Division B of the NBC and classified as one of the following buildings or occupancies:
a) hospitals,
b) long-term care centres,
c) private seniors’ residences,</td></tr>
</table>

Provisions	Amendments
	d) healthcare occupancies, e) social service occupancies, f) blood transfusion facilities, g) medical and human specimen laboratories, h) dental offices, i) educational buildings including preschool, j) childcare facilities, k) childcare centres, and l) daycare centres.”;
	Insert “also” in Sentence (4) after “non-*potable water system* is”.
2.7.2.1.	Insert “tank” in Sentence (2) after “barrel”.
2.7.2.2.	Replace Clauses (1)(e) to (1)(h) by the following: “e) underground irrigation systems, or f) closed hydronic systems.”.
2.7.2.3.	Add “and cause a health hazard” in Sentence (2) after “use”.
2.7.2.4.	Replace “good engineering practice. » in Sentence (1) by “and CSA B805/ICC 805, “Rainwater harvesting systems.”;
	Replace Sentence (4) by the following: “**4)** Except as provided in Sentence (3), non-*potable* rainwater harvesting systems shall be provided with a means to treat the harvested rainwater in such a manner that the quality of the non-*potable* water conforms to the water treatment and quality requirements stated in CSA B805/ICC 805, “Rainwater harvesting systems.” (See Note A-2.7.2.2.(1) and 2.7.2.4.(3) and (4).)”;
	Replace “lieu d’élimination” in Clause (7)(d) in the French text by “point de rejet”;

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	Replace Sentence (8) by the following: “**8)** Where the storage tank outlet is located below the level of the adjoining street, the storage tank overflow required by Sentence (7) shall terminate with an indirect connection above a floor drain, sump, or other safe location with an *air break*.”.
2.8.1.1.	Replace the title of the appropriate Article in Table 2.8.1.1.. by the following: “**2.4.3.5. Macerating Toilets and Macerating Systems**”;
	Replace respectively, in numerical order, the titles, objectives and functional statements in Table 2.8.1.1. by the following: “**2.1.4.1. Structural Movement** (1) [F23,F43-OS3.4] [F23-OH1.1] [F23-OH2.1,OH2.4] [F23-OH5] [F43-OH2.1,OH2.4] [F43-OH5] [F23,F43-OP5]”; “**2.2.10.13. Service Water Heaters** (1) [F31,F81-OS3.2] [F43-OS3.4] [F46-OH2.2] [F80,F81-OP5]”; “**2.2.10.17. Drinking Water Treatment Systems** (1) [F70,F81,F46-OH2.1,OH2.2,OH2.3] (2) [F70,F81,F46-OH2.1,OH2.2,OH2.3] (3) [F70,F81,F46-OH2.1,OH2.2,OH2.3] (4) [F70,F81,F46-OH2.1,OH2.2,OH2.3] (5) [F70,F81,F46-OH2.1,OH2.2,OH2.3]”;
	Replace the attributions for the Article concerned below by the following in Table 2.8.1.1.: “**2.2.3.2. Interceptors**

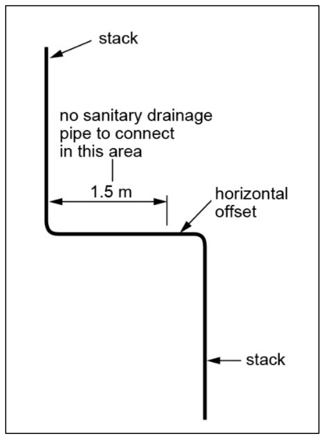
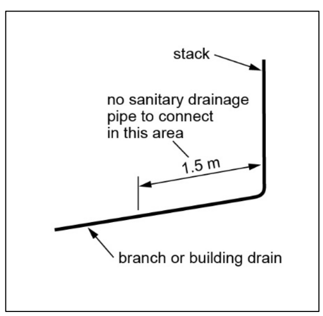
Provisions	Amendments
	(1) [F81-OH2.1,OH2.3,OH2.4] (2) [F81-OH2.1,OH2.3,OH2.4] [F46-OH2.2] (3) [F81-OH2.1,OH2.3,OH2.4] (4) [F81-OH2.1] (5) [F80-OH2.1,OH2.3,OH2.4] [F43-OH5] (6) [F80-OH2.1,OH2.3,OH2.4]”; “**2.2.10.7. Water Temperature Control** (1) [F30,F31,F80-OS3.1,OS3.2] (2) [F31,F80-OS3.2] (3) [F30,F31,F80-OS3.1,OS3.2] (4) [F30,F31,F80-OS3.1,OS3.2] (5) [F31,F80-OS3.2] (6) [F31-OS3.2]”; “**2.4.5.2. Traps for Storm Drainage Systems** (3) [F81-OP5]”; “**2.4.5.3. Connection of Subsoil Drainage Pipe to a Sanitary Drainage System** (1) [F81-OH2.1]”; “**2.4.5.4. Location and Cleanout for Building Traps** (1) [F81-OH1.1] [F81-OH2.1]”; “**2.4.6.3. Sumps or Tanks** (2) [F81-OH2.1] Applies to the watertightness of sumps or tanks. (3) [F81-OH2.1] (8) [F43-OH1.1] [F81-OH2.1]”; “**2.4.10.4. Hydraulic Loads from Roofs or Paved Surfaces** (4) [F20,F81-OP5] [F20,F81-OS2.1]”; “**2.6.3.3. Static Pressure** (1) [F81-OS3.2]”;

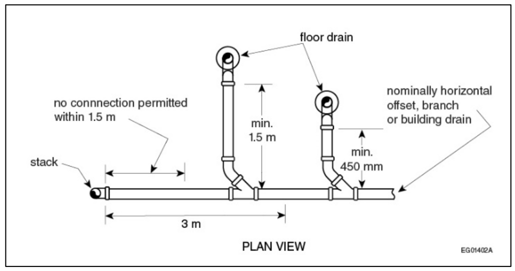
Provisions	Amendments
	Insert respectively, in numerical order, the following objectives and functional statements in Table 2.8.1.1.: “**2.2.6.1. Cast-Iron Drainage and Vent Pipe and Fittings** (3) [F20-OH2.1,OH2.3]”; “**2.4.2.1. Connections to Sanitary Drainage Systems** (6) [F81-OH1.1] (7) [F81-OH1.1]”; “**2.4.4.1. Sewage Treatment** (2) [F81-OH2.1] (3) [F81-OH2.1]”; “**2.4.5.5. Trap Seals** (2) [F81-OH1.1]”; “**2.4.6.4. Protection from Backflow** (7) [F81-OH2.1]”; “**2.4.7.1. Cleanouts for Drainage Systems** (12) [F62-OH1.1] [F72-OH2.3]”; “**2.5.6.2. Vent Pipe Connections** (4) [F43-OS3.4,OH1.1]”; “**2.6.1.1. Design** (3) [F40-OH1.1] (4) [F40-OH1.1]”; “**2.6.1.12. Service Water Heaters** (2) [F30,F31-OS3.1,OS3.2] [F46-OH1.1]”;
	Insert, in numerical order, the following Articles, objectives and functional statements in Table 2.8.1.1.: “**2.2.7.9. Quick Connection Push-Fit Fittings** (1) [F46-OH2.2] [F80-OP5]”;

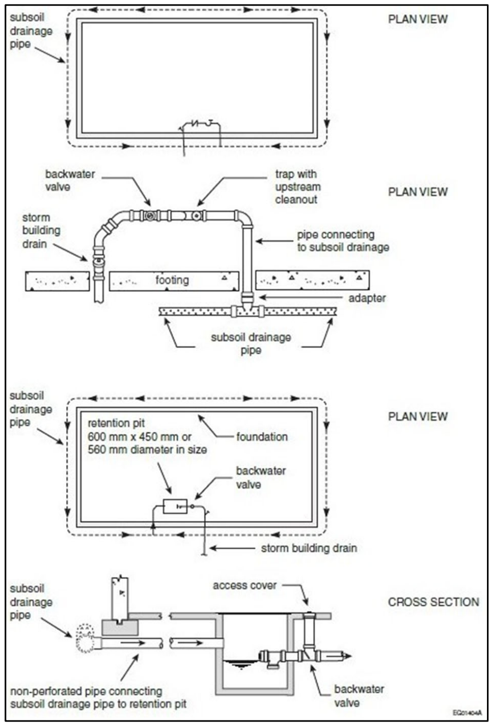
Provisions	Amendments
	“**2.2.7.10. Mechanical Press Fittings** (1) [F46-OH2.2] [F80-OP5]”; “**2.2.10.19. Backwater Valves** (1) [F80-OH2.1] ”; “**2.2.10.20. Floor Drains and Shower Drains** (1) [F80-OH2.1,OH2.4]”; “**2.2.10.21. Roof Drains** (1) [F80-OP5] [F80-OS2.1]”; “**2.2.10.22. Trap Seal Primer Devices** (1) [F80-OH1.1]”; “**2.2.10.23. Pipe Supports and Hangers** (1) [F20-OH2.1] [F20-OS3.1] [F80-OP5]”; “**2.2.10.24. Floor Drain Trap Seals** (1) [F80,F82-OH1.1]”; “**2.2.10.25. Expansion Tanks** (1) [F80,F82-OH1.1]”; “**2.2.10.26. Heat Recovery Units** (1) [F80,F82-OH1.1]”; “**2.3.6.8. Smoke Tests** (1) [F81-OH1.1] [F81-OH2.1,OH2.3]”; “**2.4.2.4. Toilet Wall Supports** (1) [F20,F81-OH2.1,OH2.3]”; “**2.4.3.7. Retention Pits** (1) [F60,F61-OH1.1] (2) [F81-OH1.1] [F81-OH2.1] (3) [F81-OH1.1]

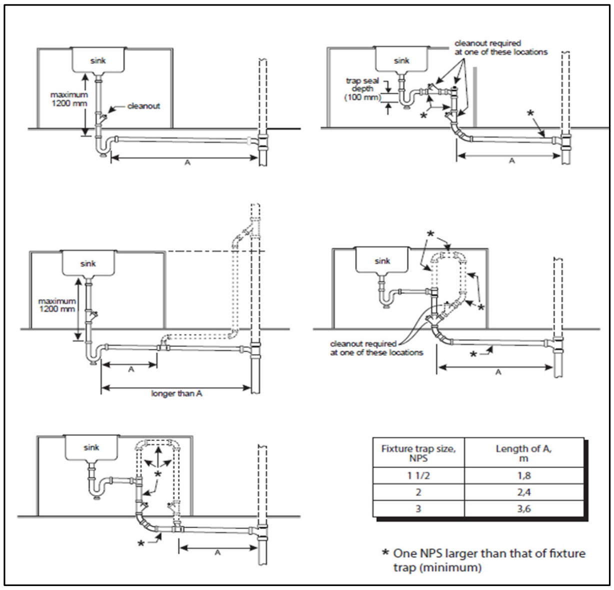
Provisions	Amendments
	(4) [F81-OH1.1] (5) [F40-OH1.1] [F30-OS3.1] (6) [F81-OH2.1,OH2.3] [F81-OP5] (7) [F81-OH2.1,OH2.2] [F72-OH2.1] (8) [F81-OH2.1] (9) [F72-OH2.1] [F81-OS2.1] [F81-OP5] (10) [F81-OH1.1] (11) [F43-OH1.1] [F81-OH2.1]";
	Strike out the following objective and functional statement in Table 2.8.1.1.: "**2.4.7.2. Size and Spacing of Cleanouts** (5) [F81-OH2.1]".
Notes to Part 2	
A-2.2.5.15.(1)	Replace "**Tube**" by "**Tubes and Fittings**" in the title of the Note.
A-2.2.10.5.(1)	Replace "**ou**" in the title of the Note in the French text by "**et**".
A-2.2.10.7.	Replace the Note by the following: "**A-2.2.10.7. Water Temperature Control.** Hot water produced by a service water heater shall be at a minimum temperature of 60°C to prevent the development of potentially fatal bacteria. At that temperature, water causes second degree burns to the skin in 1 to 5 seconds. Consequently, Article 2.2.10.7. provides for the installation and adjustment of valves, mixing valves and limiting devices to provide a water outlet temperature that is lower than the temperature produced by a service water heater. Compliance with that Article reduces the risk of scalding in showers and

Provisions	Amendments
	bathtubs, where severe burns occur, and reduces the risk of thermal shock that may occur in the shower and lead to falls. Children, the elderly and handicapped persons are particularly at risk of scald burns because they are not always able to remove themselves quickly from a situation that could lead to burns. At 49°C, the time for a scald burn to occur on a healthy adult is nearly 10 minutes, whereas the time for a skin burn to occur on an elderly is 3 minutes, because the elderly's skin is thinner and less vascularized. For those persons, a temperature of 43°C provides a more adapted protection against burns because they can only occur after a number of hours of exposure. In private seniors' residences and care occupancies, Article 2.2.10.7. provides that the valves and thermostatic-mixing valves shall be adjusted to provide a maximum water outlet temperature at 43°C. The installation of pressure-balanced valves is also prohibited, because those valves are sensitive to seasonal changes of the cold water temperature and require some settings per year in order not to exceed the prescribed temperature. The water outlet temperature at other fixtures, such as lavatories, sinks, laundry trays or bidets, is not addressed by Article 2.2.10.7., but a scald risk may exist at such fixtures nonetheless.".
A-2.4.2.1.(1)(a)(ii) and (e)(vi)	Replace "(1)(a)(ii) and (e)(vi)" wherever it appears in the Note by "(1)(a)(i) and (e)".

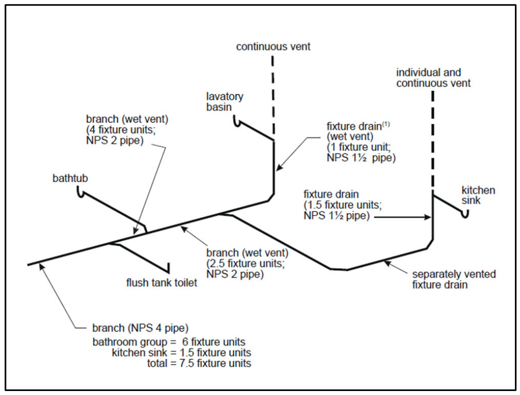
Provisions	Amendments
A-2.4.2.1.(2)	Replace Figure A-2.4.2.1.(2) by the following: “  ”.
	Add the following Notes: “**A-2.4.2.1.(6) Sanitary drainage pipe connections at the bottom of a stack.**  **Figure A-2.4.2.1.(6)** **Sanitary drainage pipe connections at the bottom of a stack**

Provisions	Amendments
	A-2.4.2.1.(7) Sanitary drainage pipe connections.  **Figure A-2.4.2.1.(7)** **Sanitary drainage pipe connections** ”.
A-2.4.4.3.(1)	Replace “Grease Interceptors.”” in the Note by “Grease Interceptors,” or CSA B481 SERIES, “Grease interceptors.””.
A-2.4.5.1.(5)	Replace “A-2.4.2.1.(1)(a)(ii) and (e)(vi)” in the Note by “A-2.4.2.1.(1)(a)(i) and (e)”.
A-2.4.5.3.(1)	Replace the Note by the following: “**A-2.4.5.3.(1) Connection of Subsoil Drainage Pipe to a Drainage System.** This Code does not regulate the installation of subsoil drainage pipes, but does regulate the connection of such pipes to the plumbing system. The intent of this Article is to place a trap between the subsoil drainage pipe and the storm water or combined system. The cleanout must be installed in accordance with Sentence 2.4.7.1.(2).

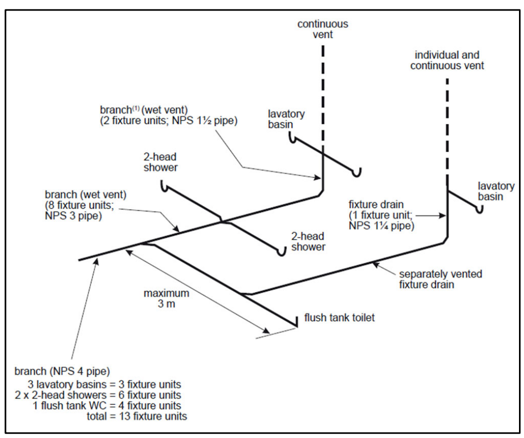
Provisions	Amendments
	 **Figure A-2.4.5.3.(1)** **Connection of subsoil drainage pipe to a drainage system**”.
	Add the following Note: “**A-2.4.5.5.(2) Maintaining Trap Seals in Floor Drains in Dwelling Units.** Periodic manual replenishment of the water in a trap maintains the trap seal in floor drains in dwelling units.”.

Provisions	Amendments
A-2.4.8.2.(1)	Replace the Note by the following: “**A-2.4.8.2.(1) Island Fixture Installation.**  **Figure A-2.4.8.2.(1)** **Island fixture installation** ”.

<table>
<tr><th>Provisions</th><th>Amendments</th></tr>
<tr><td rowspan="2">A-2.5.2.1.</td><td>Replace Figure A-2.5.2.1.-E by the following:
“



”;</td></tr>
<tr><td>Replace Figure A-2.5.2.1.-F by the following:
“



”.</td></tr>
</table>

Provisions	Amendments
A-2.6.1.12.(1)	Replace the Note by the following: “**A-2.6.1.12.(1) Service Water Heaters.** Storing hot water at temperatures below 60°C in the hot water tank or in the delivery system may lead to the growth of legionella bacteria. Water heated at a temperature equal to or greater than 60°C reduces bacterial contamination of the hot water distribution system.”.
	Insert the following Note: “**A-2.6.2.1.(3) Backflow preventers.** CSA B64.10.1, “Maintenance and field testing of backflow preventers,” contains the methods of maintenance and field testing of backflow preventers.”.
A-2.6.3.1.(2)	Insert the following paragraph under “Small Building Method”: ““Small building” means a building used for Group A, D, E, or F, Division 2 or 3, occupancy described in Subsection 3.1.2. of Division B of the NBC, not more than 3 storeys in building height (according to the definition of the NBC), and having a building area not more than 600 m².”.
A-2.7.1.1.(1)	Replace the title by the following: “**A-2.7.1.1.(1) Design, Manufacture and Installation.**”.
	Replace “of good engineering practice in the” in the text by “relating to”;
	Add the following at the end of the Note: “Article 2.7.1.1. applies to non-potable water systems, regardless of the origin of the water. The non-potable water must meet applicable water quality standards as determined by an authority having jurisdiction.”.
A-2.7.2.4.(1)	Replace the title of the Note by the following: “**A-2.7.2.4.(1) Examples Relating to Design.**”;
	Replace “of good engineering practice in the” in the text by “relating to”;
	Strike out “de l’art” in the French text.

Provisions	Amendments
Division C	
Part 2	
2.2.1.	Strike out this Subsection.
2.2.2.	Replace this Subsection by the following: “**2.2.2. Plans and Specifications** **2.2.2.1. Requirements** **1)** Except as provided in Sentence (2), a plumbing contractor or owner-builder may not begin construction work on a *plumbing system* to which Chapter III of the Construction Code applies unless there are plans and specifications for the work, prepared by a recognized person, if the total hydraulic load to be installed exceeds 180 *fixture units*. **2)** Sentence (1) does not apply to construction work on a *plumbing system* in a *building* to which Part 9 of Division B of the NBC applies. **3)** When required, the plans and specifications shall be available on the worksite. **4)** For the purposes of this Subsection, every engineer who is a member of the Ordre des ingénieurs du Québec is recognized *ex officio*. **2.2.2.2. Content** **1)** Plans shall be drawn to scale and show a) a plan view of the location and dimension of the drains and *cleanouts*, the location of *fixtures* and the *water distribution system*, b) an elevation view of the location of *fixtures* and *traps*, the dimension of drains, *leaders*, *stacks*, *stack vents* and *vent stacks* as well as the *water distribution system*, and c) the connection of the *subsoil drainage pipe* if it enters the *building*.

Provisions	Amendments
	2.2.3. Approval of Materials **2.2.3.1. Approved Materials, Fixtures and Facilities used in a Plumbing System** **1)** In a *plumbing system*, only materials, fixtures or facilities that are certified or approved by one of the following organizations may be used: a) Canadian Gas Association (CGA), b) Bureau de normalisation du Québec (BNQ), c) CSA Group (CSA), d) IAPMO Group (UPC), e) ICC Evaluation Service (ICC-ES), f) Underwriters' Laboratories of Canada (ULC), g) LabTest Certification Inc. (LC), h) NSF International (NSF), i) Canadian General Standards Board (CGSB), j) Quality Auditing Institute (QAI), k) Intertek Testing Services NA ltd. (ETL), l) Underwriters Laboratories Inc. (UL), m) Water Quality Association (WQA), or n) any other organization accredited by the Standards Council of Canada as a certifying organization in the field of plumbing which has notified the Régie du bâtiment du Québec of its accreditation. A list of these organizations is published on the Board's website. **2.2.3.2. Sale and Lease** **1)** Materials, fixtures or facilities that may be used in a *plumbing system* shall be certified or approved by an organization listed in Sentence 2.2.3.1.(1) before being sold or leased.

Provisions	Amendments
	2.2.4. Declaration of Work **2.2.4.1. Application** **1)** A plumbing contractor or owner-builder shall declare to the Régie du bâtiment du Québec all construction work performed and to which Chapter III of the Construction Code applies if the work pertains to a new *plumbing system* or requires the replacement of a *service water heater* or pipes. **2.2.4.2. Submission of the Declaration** **1)** The declaration required under Article 2.2.4.1. shall be forwarded to the Régie du bâtiment du Québec not later than the twentieth day of the month following the date on which work starts. **2.2.4.3. Form** **1)** The declaration of work shall be made on the form provided by the Régie du bâtiment du Québec or on any other document prepared for that purpose. **2.2.4.4. Content** **1)** The declaration shall contain a) the address of the site where the work is performed, b) the name, address and telephone number of the person for whom the work is performed, c) the name, address, telephone number and licence number of the plumbing contractor or owner-builder, where applicable, d) the estimated start and end dates of the construction work, e) the nature and type of the work, f) the *occupancy* of the *building* or facility intended for use by the public and the existing and planned number of *storeys*, and g) the number of *fixtures* and *service water heaters* to be installed.

Provisions	Amendments
	2.2.5. Fees Payable **2.2.5.1. Calculation** **1)** The following fees shall be paid to the Régie du bâtiment du Québec by the plumbing contractor or owner-builder, when the plumbing contractor declares the construction work pertaining to *plumbing systems* for which a declaration is required under Article 2.2.4.1.: a) $173.62 for a new single-family detached or semi-detached house or row house, b) $105.10 per *dwelling unit* other than those covered by Clause (a) for the construction of a new *building* intended for housing or for the conversion of a *building* of another nature into a *building* intended for housing, regardless of the number of *fixtures* and *service water heaters*, or c) in the case of work other than work covered by Clauses (a) and (b), i) $13.94 per *fixture* or *service water heater*, where the work is performed on more than one, or ii) $23.91 where the work is performed on only one or no *fixture* or *service water heater*. **2)** A plumbing contractor or owner-builder shall pay the following inspection fees to the Régie du bâtiment du Québec for the inspection of a *plumbing system* following the issue of a remedial notice provided for in section 122 of the Building Act (chapter B-1.1): a) $117.28 for the first hour or any fraction thereof, and b) half the hourly rate established in Clause (a) for each half-hour or fraction thereof added to the first hour. **3)** A plumbing owner-builder shall pay to the Régie du bâtiment du Québec the inspection fees fixed in Clauses (2)(a) and (b) for the inspection of a *plumbing system*. **2.2.5.2. Sending** **1)** The fees payable under Sentence 2.2.5.1.(1) shall be included with the declaration of work required under Article 2.2.4.1. **2)** The fees payable under Sentences 2.2.5.1.(2) and (3) shall be paid not later than 30 days after the billing date.”.

Provisions	Amendments
2.3.1.	Replace the Subsection by the following: “**2.3.1. Approval of Alternative Solutions** **2.3.1.1. Conditions for Approval** **1)** The proposed alternative solutions shall be approved by the Régie du bâtiment du Québec on the conditions it sets pursuant to section 127 of the Building Act (chapter B-1.1).”.

O.C. 961-2002, s. 5; O.C. 294-2008, s. 1; O.C. 939-2009, s. 5; O.C. 30-2014, s. 3; O.C. 65-2021, s. 1; O.C. 983-2024, s. 3.

3.05. *(Revoked).*

O.C. 294-2008, s. 1; O.C. 939-2009, s. 6; O.C. 1202-2012, s. 1; O.C. 30-2014, s. 4; I.N. 2014-07-01; O.C. 65-2021, s. 1; O.C. 983-2024, s. 4.

3.06. *(Revoked).*

O.C. 294-2008, s. 1; O.C. 939-2009, s. 7; O.C. 30-2014, s. 5; O.C. 65-2021, s. 1; O.C. 983-2024, s. 4.

DIVISION III

OFFENCE

O.C. 294-2008, s. 1; O.C. 65-2021, s. 1.

3.07. Every contravention against a provision of this Chapter, except Subsection 2.2.5. of Division C of the Code, introduced by section 3.04, constitutes an offence.

O.C. 294-2008, s. 1; O.C. 65-2021, s. 1; O.C. 983-2024, s. 5.

CHAPTER IV

ELEVATORS AND OTHER ELEVATING DEVICES

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

DIVISION I

GENERAL

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.01. This Chapter applies to all construction work on an elevator or elevating device in a building or constituting a facility intended for use by the public under section 4.05.

Despite the first paragraph, this Chapter does not apply to construction work on wind turbine tower elevators.

O.C. 895-2004, s. 1; O.C. 635-2012, s. 1; O.C. 848-2024, s. 1.

4.02. In this Chapter, unless the context indicates otherwise,

"code" means Code ASME A17.1-2019/CSA B44:19, Safety Code for Elevators and Escalators, published by CSA Group;

"elevating device" means a lift referred to and defined in the standard;

"standard" means Standard CSA B355:19, Platform lifts and stair lifts for barrier–free access, published by CSA Group.

In addition, elevator includes freight elevators, dumbwaiters, escalators, moving walks and material lifts referred to and defined in the Code, except wind turbine tower elevators.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.03. The code and standard referred to in the first paragraph of section 4.02 are incorporated into this Chapter by reference, subject to the amendments specified in Division III.

O.C. 895-2004, s. 1; O.C. 1263-2012, s. 2; O.C. 1419-2021, s. 2; O.C. 848-2024, s. 1.

4.04. Any amendment to the Code or the standard, published by CSA Group, applies to construction work as of the last day of the sixth month that follows the publication of the French version of the amendment.

Despite the first paragraph, errata take effect as soon as they are published by CSA Group.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.05. The following facilities are intended for use by the public for the purposes of section 10 of the Building Act (chapter B-1.1):

(1) elevators, dumbwaiters, escalators, moving walks and material lifts covered by the Code, other than wind turbine tower lifts;

(2) elevating devices covered by the standard.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.06. Subject to the second paragraph, a reference in this Chapter to a standard, including a code, is a reference to that standard as adopted by a chapter of the Construction Code, the Safety Code (chapter B-1.1, r. 3) or another regulation made under the Building Act (chapter B-1.1) that refers to it.

Despite paragraph 13 of section 5.05 of the Construction Code, section 38 of the Canadian Electrical Code, Part I, CSA C22.1, published by CSA Group, applies for the purposes of this Chapter.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

DIVISION II

DESIGN, MANUFACTURING AND WORK CONFORMITY

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

§ 1. — *Recognized persons and bodies*

O.C. 848-2024, s. 1.

4.07. For the purposes of this Chapter, every engineer who is a member of the Ordre des ingénieurs du Québec and every holder of a special authorization issued by the Order under section 42.4 of the Professional Code (chapter C-26) whose professional activities are connected with the field of elevators and other lifts are recognized *ex officio*.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.08. For the purposes of this Chapter and the requirements of the Code and the standard, and for the purposes of CSA Standard B44.1/ASME A17.5, Elevator and escalator electrical equipment, and ASME A17.7/CSA Standard B44.7, Performance-based safety code for elevators and escalators, a certification body is any conformity assessment body accredited by one of the following bodies:

(1) the Standards Council of Canada;

(2) a body member of the International Accreditation Forum and signatory of multilateral recognition agreements for the certification of products;

(3) a body designated in accordance with the Protocol on the mutual acceptance of the results of conformity assessment, integrated into the Comprehensive Economic and Trade Agreement between Canada and the European Union and its Member States.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

§ 2. — *Design and manufacturing*

O.C. 848-2024, s. 1.

4.09. Elevators and other elevating devices shall comply with the design and manufacturing requirements of the Code or standard, as the case may be.

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.10. Where the Code or one of the standards referred to in section 4.08 requires that a material, accessory, device, component, system or subsystem be certified, it shall be certified by a certification body referred to in that section.

O.C. 848-2024, s. 1.

4.11. Before carrying out the construction work referred to in section 4.01, a contractor or an owner-builder shall obtain the plans and specifications prepared by a recognized person.

The first paragraph does not apply to maintenance, repair or demolition work on an elevator or other elevating device.

O.C. 848-2024, s. 1.

4.12. The plans shall include, depending on the type of elevator or elevating device, the information provided for in section 2.28 or 3.28 of the Code.

O.C. 848-2024, s. 1.

4.13. The plans shall be drawn to scale and shall, with the specifications, indicate the nature and scope of the work in such manner as to establish if the work carried out complies with this Chapter.

O.C. 848-2024, s. 1.

4.14. Before installing an elevating device, a prototype of the device shall be the subject of a certificate of conformity to the standard prepared by a recognized person. The certificate shall be sent to the Régie du bâtiment du Québec and shall include

(1) the type of device;

(2) the trademark of the device;

(3) the model number of the device;

(4) the features of the device; and

(5) the name of the manufacturer of the device.

The Board shall publish and keep up to date on its website a list of the prototypes of elevating devices that are the subject of the certificate of conformity provided for in the first paragraph.

O.C. 848-2024, s. 1.

§ 3. — *Work conformity*

O.C. 848-2024, s. 1.

4.15. Following the carrying out of the construction work referred to in section 4.01, other than maintenance, repair or demolition work, the contractor or owner-builder shall

(1) submit the elevator or the elevating device to the tests and inspections referred to in section 8.10 of the Code or Annex A of the standard, as the case may be; and

(2) send to the Board, not later than 20 days after the date of completion of the work or the re-use of the elevator or elevating device, a declaration of work including the following information:

(a) the components that were subject to the tests and inspections referred to in paragraph 1;

(b) the date on which the tests and inspections were conducted together with the name and title of the person by whom they were performed;

(c) the name, address, telephone number and email address of the owner;

(d) the address of the work site and the nature of the work;

(e) the type, trademark, model, technical features and the name of the manufacturer of the elevator or the elevating device.

O.C. 848-2024, s. 1.

DIVISION III

AMENDMENTS TO THE CODE AND THE STANDARD

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.16. The amendments to the Code are as follows:

Provision	Amendments
	Replace the terms “inspection”, “inspecter” and “inspecté” wherever they appear in the French text by “vérification”, “vérifier” and “vérifié”, respectively;
	Replace the terms “palier terminal” and “paliers terminaux” wherever they appear in the French text by “palier extrême” and “paliers extrêmes”, respectively.
1.1.2	Add “, except dumbwaiters and material lifts” at the end of *w*).
1.2.1	Add the following at the end: “For the purposes of b) and c), the approval of the Régie du bâtiment du Québec is required, in accordance with section 127 of the Building Act (chapter B-1.1).”.
1.2.2	Add “and provided that the Régie du bâtiment du Québec approves it in accordance with section 127 of the Building Act (chapter B-1.1)” at the end.
1.2.2.1	Strike out the section.
1.2.2.2	Strike out the section.
1.2.2.3	Strike out the section.
1.3	Add the following at the end of the definitions of “*elevator, inclined*” and “**inclined elevator**”: “This term also includes a funicular elevator”;
	Replace the definitions of the defined terms below by the following: “**Authority having jurisdiction** — Régie du bâtiment du Québec (see **Regulatory authority**).”; “**Regulatory authority** — Régie du bâtiment du Québec (see **Authority having jurisdiction**).”; **“Building code** — the National Building Code of Canada (NBC).”;

Provision	Amendments
	Replace the term “ou monte-charge” wherever it appears in the French text of the definition of “**Ascenseur ou monte-charge d’habitation privée**” by “ou petit monte-charge”;
	Replace “des personnes autorisées, de leurs outils et de leur matériel” in the French text of the definition of “**Ascenseur ou monte-charge pour usage spécial**” by “du personnel autorisé, de ses outils et de son matériel”;
	Replace the defined term “Ascenseur ou monte-charge d’habitation privée” in the French text by the following: “**Ascenseur ou petit monte-charge d’habitation privée** — voir **Ascenseur ou monte-charge**”;
	Replace the defined term “**Dispositif de réarmement manuel d’ascenseur ou monte-charge d’habitation privée**” in the French text by the following: “**Dispositif de réarmement manuel d’ascenseur ou petit monte-charge d’habitation privée** — dispositif non accessible aux occupants ou au personnel autorisé qui requiert l’intervention sur place d’un membre du personnel d’ascenseur avant le redémarrage d’un ascenseur ou petit monte-charge.”
	Replace “aux personnes autorisées” in the French text of the definition of “**Dispositif de réarmement manuel d’escalier mécanique et de trottoir roulant**” by “au personnel autorisé”;
	Replace the defined term “**Élingue**” in the French text by the following, respecting alphabetical order: “**Étrier** — voir **Étriers de cabine**.”;
	Replace “des personnes autorisées” in the French text of the definition of “Monte-matériaux” by “du personnel autorisé”;
	Replace “des personnes autorisées” in the French text of the definition of “**Préposé désigné**” by “du personnel autorisé”;
	Replace the definition of “Personne autorisée” in the French text by the following: “**Personnel autorisé** — personne qui a reçu la formation nécessaire lui permettant d’utiliser le matériel et qui a été désigné comme utilisateur de ce matériel par le propriétaire.”;

Provision	Amendments
	Replace the definition of "Phase I Rappel d'urgence" in the French text by the following: "**Phase I ou rappel de secours** — fonctionnement qui rappelle automatiquement ou manuellement un ascenseur ou un monte-charge au palier de rappel et qui retire l'appareil du service normal à la suite du déclenchement de mesures d'urgence contre les incendies.";
	Replace the definition of "Dispositif de déplacement, escalier mécanique ou trottoir roulant" in the French text by the following, respecting alphabetical order: "**Relocalisation d'escalier mécanique ou trottoir roulant** — déplacement d'un escalier mécanique ou d'un trottoir roulant à partir d'une gaine ou cuvette vers une autre gaine ou cuvette, ou l'action de fixer l'escalier mécanique ou trottoir roulant à différentes plaques de soutien ou supports.";
	Replace the definition of "Rétablissement de plongeur télescopique" in the French text by the following, respecting alphabetical order: "**Synchronisation de plongeur télescopique** — opération qui permet de rétablir la position verticale relative des plongeurs multiples d'un ensemble de plongeurs télescopiques.";
	Replace "des personnes autorisés qui connaissent" in the French text of the definition of "Zone réservée" by "du personnel autorisé qui connait".
2.2.2.6	Replace the section by the following: "**2.2.2.6** Struck out. **2.2.2.7** Sump pumps and their control equipment shall not be installed in any elevator pit".
2.5.1.6	Insert ", on each side of the hoistway," after "Where the lowest landing sill";
	Insert "between the lower part of each car platform apron and the hoistway fascia corresponding" after "This clearance shall be maintained".
2.7.8	Replace "à distance" wherever it appears in the French text by "séparés".

Provision	Amendments
2.7.8.4	Replace “à distance” wherever it appears in the French text by “séparés”.
2.13.3.4.10	Replace “aux personnes autorisées” and “SEULES LES PERSONNES AUTORISÉES ONT” in (b) of the French text by “au personnel autorisé” and “SEUL LE PERSONNEL AUTORISÉ A”, respectively.
2.14.1.3	Replace “gaine” in the heading of the French text by “cabine”.
2.14.2.1.2	Replace “et un indice de propagation des flammes maximal de 0 à 450” in b) of the French text by “et un indice de dégagement des fumées de 0 à 450”.
2.15.9	Insert “and non-retractable” after “smooth”.
2.20.6	Strike out “ascenseurs ou” in the French text.
2.20.8.1	Replace “le découplement de l’alimentation électrique” in the French text of c) by “la coupure de l’alimentation électrique”.
2.25.3.3.1	Replace “des conducteurs intégrés au câble mobile” in the second paragraph of the French text by “des conducteurs intégrés au câble pendentif”.
2.27.7.2	Replace “rappel d’urgence” in the French text of the heading of Figure 2.27.7.2 by “rappel de secours”.
2.27.11 to 2.27.11.6.10	Replace 2.27.11 to 2.27.11.6.10 by the following: “**2.27.11 Occupant Evacuation Operation** Occupant evacuation using an elevator is prohibited.”.
3.4.1.2	Replace “tout appareillage sur la cabine” in the French text of a) by “tout matériel sur la cabine”.

Provision	Amendments
3.12	Replace the heading in the French text by the following: “**3.12 Dispositifs de verrouillage et de détection de fermeture de porte ou barrière palière et interrupteurs d’accès à la gaine**”.
3.19.2.2	Replace “de série 40” in the French text by “de Schedule 40”.
3.25.1.1	Replace “le rétablissement (voir l’article 3.26.7)” in the third paragraph of the French text by “la synchronisation (voir l’article 3.26.7)”.
3.25.2.4.4	Replace “Les dispositifs redondants utilisés pour satisfaire à l’alinéa i)” in the French text of a)2) by “Les dispositifs redondants utilisés pour satisfaire à l’alinéa 1)”.
3.26.1	Replace “Les exigences de l’article 2.26.10” in the French text of e) by “Les exigences de l’article 2.26.6”.
3.26.3.1.5	Replace “le rétablissement” in the French text of b) by “la synchronisation”.
3.26.7	Replace the terms “Rétablissement”, “le rétablissement” and “de rétablissement” wherever they appear in the French text by “Synchronisation”, “la synchronisation” and “de synchronisation”, respectively.
3.26.11.1	Replace “(article 2.13)” in the French text of b) by “(article 3.13)”;
	Replace “rétablissement” in the French text of h) by “synchronisation”.
3.26.11.3	Replace “ou de la batterie d’ascenseurs” in a) of the French text by “ou du groupe des ascenseurs”
4.2.5.1	Replace “emplacement de la machinerie distinct” in the French text by “emplacement de la machinerie séparé”.
4.2.5.3	Replace “emplacement de la machinerie distinct” in the French text by “emplacement de la machinerie séparé”.

Provision	Amendments
4.2.15.11	Replace “à une personne autorisée” in the French text by “au personnel autorisé”.
5	Replace “ascenseurs ou monte-charges à utilisation limitée ou à usage limité” in the French text of b) by “ascenseurs à utilisation limitée et à usage limité”.
5.1.7	Replace “Appareillage” in the heading of the French text by “Matériel”.
5.2	Replace the title in the French text by the following: “5.2 Ascenseurs à utilisation limitée et à usage limité”;
	Replace “ascenseurs ou monte-charges à utilisation limitée/à usage limité” in the French text by “ascenseurs à utilisation limitée et à usage limité”;
	Replace “ascenseurs ou monte-charges à utilisation limitée ou à usage limité” in the French text of the Note by “ascenseurs à utilisation limitée et à usage limité”.
5.2.1	Strike out “ou monte-charges” in the French text.
5.2.1.1.1	Strike out “ou monte-charges” in the French text.
5.2.1.4.1	Strike out “ou monte-charges” in the French text.
5.2.1.16.2	Strike out “ou monte-charge” in the French text of a).
5.2.1.16.3	Strike out “ou monte-charges” in the French text.
5.2.1.20.1	Strike out the term “ou monte-charges” wherever it appears in the French text.
5.2.1.24.1	Strike out “ou monte-charges” in the French text.
5.2.1.28	Strike out “ou monte-charges” in the French text.

Provision	Amendments
5.2.2	Strike out “ou monte-charges” in the French text of the heading;
	Replace “ascenseurs ou monte-charges à utilisation limitée/usage limité” in the French text by “ascenseurs à utilisation limitée et à usage limité”.
5.2.2.5.1	Strike out “ou monte-charges” in the first paragraph of the French text.
5.2.2.6	Replace the French text of the section by the following: “**5.2.2.6 Vérins hydrauliques et poulies** Les vérins hydrauliques et les poulies doivent être conformes à l’article 3.18. Toute référence à l’article 2.20 dans l’article 3.18.1.2.1 doit être remplacée par une référence à l’article 5.2.1.20. Toute référence à l’article 2.24.2 dans l’article 3.18.1.2.3 doit être remplacée par une référence aux l’articles 5.2.1.24.2 et 5.2.1.24.3.”.
5.3.1.7.3	Replace the heading of the French text by the following: “**5.3.1.7.3 Locaux des machines et des commandes séparés et emplacements de la machinerie séparés**”.
5.3.2.4.6	Replace “l’article 7.2.5” in the French text of e) by “l’article 5.3.1.12.6”.
5.7	Replace “des personnes autorisées, de leurs outils et de leur matériel” in the French text by “du personnel autorisé, de ses outils et de son matériel”.
5.7.18.9	Replace “aux personnes autorisées” in the French text by “au personnel autorisé”.
5.10.1.7.1	Replace “aux personnes autorisées” in the French text of b) by “au personnel autorisé”.
5.10.1.9.5	Replace “il doit aussi y avoir des serrures positives” in the French text of a) by “il doit aussi y avoir des dispositifs à action positive”.
5.11	Strike out the section.

Provision	Amendments
5.12 to 5.12.3	Replace sections 5.12 to 5.12.3 by the following: “**5.12 OUTSIDE EMERGENCY ELEVATORS.** Outside emergency elevators are prohibited.”.
6.1.3.15	Replace the section by the following: “**6.1.3.15 Water Accumulation.** Permanent provisions shall prevent accumulation of groundwater in the pit.”.
6.1.6.1.1	Replace the section by the following: “**6.1.6.1.1 Automatic Operation.** Automatic starting is prohibited. Automatic stopping, except as required in 6.1.6, is prohibited.”.
	Add the following section: “**6.1.7.3.5** If machinery or the controller of an escalator is installed outside the trusses, the following requirements for machine rooms and control rooms shall apply, with the necessary modifications: 2.7.1, 2.7.2, 2.7.3.1.1, 2.7.3.1.3, 2.7.3.3, 2.7.3.4.1, 2.7.3.4.2, 2.7.3.5, 2.7.6.6, 2.7.9.2, 2.8.1, 2.8.2.1, 2.8.3, 2.8.4, 2.8.5, 6.1.7.1.1 and 8.1.3. Machine rooms and control rooms shall have clear headroom of not less than 2 130 mm (84 in.). Moving equipment (chain and belt of the driving machine, gearing, key, keyways, and screws in projecting shafts) shall be guarded to protect against accidental contact.”.
6.2.3.18	Replace the section by the following: “**6.2.3.18 Water Accumulation.** Permanent provisions shall prevent accumulation of groundwater in the pit.”.
6.2.6.1.2	Replace the section by the following: “**6.2.6.1.2 Automatic Operation.** Automatic starting is prohibited. Automatic stopping, except as required in 6.2.6, is prohibited.”.
	Add the following section: “**6.2.7.3.5** If machinery or the controller of a moving walk is installed outside the trusses, the following requirements for machine rooms and control rooms

Provision	Amendments
	shall apply, with the necessary modifications: 2.7.1, 2.7.2, 2.7.3.1.1, 2.7.3.1.3, 2.7.3.3, 2.7.3.4.1, 2.7.3.4.2, 2.7.3.5, 2.7.6.6, 2.7.9.2, 2.8.1, 2.8.2.1, 2.8.3, 2.8.4, 2.8.5, 6.1.7.1.1 and 8.1.3. Machine rooms and control rooms shall have clear headroom of not less than 2 130 mm (84 in.). Moving equipment (chain and belt of the driving machine, gearing, key, keyways, and screws in projecting shafts) shall be guarded to protect against accidental contact.”.
7.1.7.1	Replace “emplacement de la machinerie distinct” in the French text by “emplacement de la machinerie séparé”.
7.1.7.2	Replace “emplacement de la machinerie distinct” in the French text by “emplacement de la machinerie séparé”.
7.2.12.36	Replace “Les moteurs monophasés” in the French text by “Les moteurs simple phase C.A.”.
7.4.1	Replace “des personnes autorisées” in the French text by “du personnel autorisé”.
7.4.2.2	Replace “7.6 m (25 ft)” in (*c*) by “5 m (200 in.)”.
7.4.10.3	Strike out the section.
7.4.14.2	Strike out the section.
7.4.14.3	Strike out the section.
7.5.12.2.18	Strike out the section.
7.5.12.2.24	Replace “Les moteurs monophasés” in the French text by “Les moteurs simple phase C.A.”.

<table>
<tr><th>Provision</th><th>Amendments</th></tr>
<tr><td rowspan="2">8.1.3</td><td>Replace “personne autorisée” in the French text of the heading by “personnel autorisé”;</td></tr>
<tr><td>Strike out “authorized and”.</td></tr>
<tr><td>8.1.4</td><td>Replace “aux personnes autorisées” in the French text by “au personnel autorisé”.</td></tr>
<tr><td>8.2.2.5.1</td><td>Replace “bas” in the title of Figure 8.2.2.5.1 in the French text by “basé.”</td></tr>
<tr><td>8.2.8.4</td><td>Replace “de série d’au moins 80 ou mieux” in the French text of the last paragraph by “de Schedule d’au moins 80”.</td></tr>
<tr><td>8.3.3.4.9</td><td>Replace the section in the French text by the following:
“8.3.3.4.9 Distances d’isolation électrique
Les distances d’isolation électrique doivent être conformes à l’article 16 de CSA B44.1/ASME A17.5.”.</td></tr>
<tr><td>8.4.8.2.2</td><td>Add the following in the French text after “Rapport $\frac{L}{\ell}$”:
“L = distance entre les butées supérieure et inférieure du contrepoids, mm (po)
ℓ = distance entre les étriers de fixation de guide, mm (po)
W = masse réelle du contrepoids, kg (lb)
W_a = masse ajustée du contrepoids, kg (lb)
Pour des rapports de $L/\ell < 0,65$, on doit utiliser la masse pondérée du contrepoids $W_a = QW$ pour déterminer l’espacement des étriers de fixation de guide et le nombre d’étriers-tirants intermédiaires nécessaire.
Exemple (pour un guide de 15 lb) :
(unités SI)
Pour un rapport $L/\ell = 0,15$ et un contrepoids d’une masse réelle de 3630 kg
$Q = 1,35$
$W_a = 1,35 (3630) = 4900$ kg</td></tr>
</table>

Provision	Amendments
	Si l’on prend la figure 8.4.8.2-4, zone de niveau 3 ou supérieure : l’espacement des étriers de fixation de guide = 3200 mm (sans étrier-tirant) ou jusqu’à 4215 mm (un étrier-tirant) ou jusqu’à 4675 mm (deux étriers-tirants) (unités anglo-saxonnes) Pour un rapport L/ℓ = 0,15 et un contrepoids d’une masse réelle de 8000 lb Q = 1,35 W_a1 = 1,35 (8000) = 10 800 lb Si l’on prend la figure 8.4.8.2-4, zone de niveau 3 ou supérieure : l’espacement des étriers de fixation de guide = 10 pi 6 po (sans étrier-tirant) ou jusqu’à 13 pi 10 po (un étrier-tirant) ou jusqu’à 15 pi 4 po (deux étriers-tirants)”.
8.4.11.13	Replace the terms “du mazout” and “de mazout” wherever they appear in the French text by “de l’huile” and “d’huile”, respectively.
8.4.12.2.1	Replace “Ascenseurs ou monte-charges à adhérence ou à câbles” in the French text of a) by “Ascenseurs ou monte-charges à adhérence ou hydrauliques à câbles”.
8.5.2.2	Replace “(1 0,25)” and “(1 0,50)” in the French text of the second column of the table by “(1 ± 0,25)” and “(1 ± 0,50)”, respectively.
8.6.1.1.2	Replace the section by the following: “**8.6.1.1.2** Maintenance, repairs, replacements, and tests shall conform to Section 8.6.”.
8.6.1.1.3	Replace “8.6.1.1.2” by “Chapter IV, Elevators and other elevating devices, of the Safety Code (chapter B-1.1, r. 3)”.
8.6.1.2.1	Replace “provided by the person(s) and/or firm maintaining the equipment” in (*a*) by “in place”;

Provision	Amendments
	Add the following after *e*)*7*): "(*8*) CSA B44.2-10, *Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks*, provides for the mandatory maintenance intervals where the condition, usage or inherent quality of the equipment is not known, or in the absence of the original manufacturer's recommendations. The measure does not apply for equipment installed, altered or modernized according to ASME A17.1-2010/CSA B44-10 or subsequent editions.".
8.6.1.2.2	Replace "des personnes autorisées" in (*d*)(*1*) of the second paragraph in the French text by "du personnel autorisé";
	Replace "des personnes autorisées" in (*d*)(*2*) of the second paragraph in the French text by "du personnel autorisé".
8.6.1.4	Strike out ", or as specified by the authority having jurisdiction".
8.6.1.4.1	Replace "le cas échéant" in the French text of a)2) by "selon le cas";
	Replace "de l'unité de transport" in (a)(3)(-c) of the French text by "de l'appareil";
	Replace "du registre" in (a)(3)(-d) of the French text by "de l'enregistrement";
	Strike out "or as specified by the authority having jurisdiction," in (*b*);
	Strike out "or as specified by the authority having jurisdiction" in (*c*).
8.6.1.7	Replace the section by the following: "**8.6.1.7. Periodic Tests.** The frequency of periodic tests are as follows: (*a*) category 1 tests: each year; (*b*) category 3 tests: every 3 years; (*c*) category 5 tests: every 5 years.".
8.6.1.7.1	Strike out the section.

Provision	Amendments
8.6.1.7.2	Insert “or the record” after “the test tag”.
8.6.1.7.5	Replace “manufacturer’s or the altering company’s procedures” by “manufacturer or those of an engineer”.
8.6.3.4.4	Add “The date on which the pull-through test was performed shall be entered in the record.” at the end.
	Add the following section: “**8.6.4.7.5** Sumps installed in pits shall be covered. The cover shall be secured and level with the pit floor.”.
8.6.4.19	Strike out “Note” and replace “8.11.1.3” by “8.6.1.7”.
8.6.4.20	Strike out “Note” and replace “8.11.1.3” by “8.6.1.7”.
8.6.4.20.4	Replace “ASME A17.12000/CSA B4400” in the second paragraph of the French text by “ASME A17.1-2000/CSA B44-00”.
8.6.5.13	Replace the term “joint d’étanchéité” wherever it appears in the French text by “scellé”.
8.6.5.14	Strike out “Note” and replace “8.11.1.3” by “8.6.1.7”.
8.6.5.15	Strike out “Note” and replace “8.11.1.3” by “8.6.1.7”.
8.6.5.16	Strike out “Note” and replace “8.11.1.3” by “8.6.1.7”.

Provision	Amendments
8.6.5.16.1	Strike out “at intervals specified by the authority having jurisdiction”.
8.6.7.2	Replace the title in the French text by the following: “**8.6.7.2 Ascenseurs à utilisation limitée et à usage limité**”. Replace “ascenseurs ou monte-charges à utilisation limitée ou à usage limité” in the French text by “ascenseurs à utilisation limitée et à usage limité”.
8.6.7.2.1	Replace “ascenseurs ou monte-charges à utilisation limitée ou à usage limité” in the French text by “ascenseurs à utilisation limitée et à usage limité”.
8.6.8.15	Strike out “Note” and replace “8.11.1.3” by “8.6.1.7”.
8.6.11.4.1	Replace “à des personnes autorisées (voir l’article 1.3) et formées” in the French text by “au personnel autorisé (voir l’article 1.3) et formé”.
8.6.11.4.5	Replace “des personnes autorisées formées” in the French text by “du personnel autorisé formé”.
8.6.11.5.4	Replace “Toutes les personnes autorisées” in the French text by “Tout le personnel autorisé”.
8.6.11.5.6	Replace “des personnes autorisées formées” in the French text by “du personnel autorisé formé”.
8.6.11.6.1	Replace a) in the French text by the following: “a) Seul le personnel autorisé (voir l’article 1.3) formé conformément aux articles 8.6.11.6.2 à 8.6.11.6.4 doit mettre en marche un escalier mécanique ou un trottoir roulant.”.
8.6.11.6.3	Replace “des personnes autorisées” in the French text by “du personnel autorisé”.
8.6.11.6.4	Replace “des personnes autorisées formées” in the French text by “du personnel autorisé formé”.

Provision	Amendments
8.6.11.13	Replace “des personnes autorisées” in the French text by “du personnel autorisé”.
8.7.2.16.1	Replace “à presse de serrage à coin graduel et à clavettes” in e) in the first paragraph of the French text by “à mâchoires à coin graduelles et à mâchoires-guides”.
8.7.5.3	Insert “petits” before the word “monte-charges” in the title in the French text; Insert “petit” before the word “monte-charge” wherever it appears in the French text.
8.7.5.4	Insert “petit” before the word “monte-charge” wherever it appears in the French text.
8.8.1	Strike out the section.
8.10.1.1.1	Strike out “by an inspector employed by the authority having jurisdiction, or by a person authorized by the authority having jurisdiction”.
8.10.1.1.2	Strike out “in the presence of the inspector specified in 8.10.1.1.1”.
8.10.1.1.3	Strike out the section.
8.10.1.1.4	Strike out “and of the inspector witnessing the test, including their inspector’s ID number and certifying organization,”.
8.10.1.1.5	Replace “, the name of the person or firm performing the test, the inspector’s name that witnessed the tests and their inspector’s ID number and certifying organization” by “and the name of the person or firm performing the test”.
8.10.1.2	Strike out the section.
8.10.1.6	Replace “Un document sur le matériel d’ascenseur ou monte-charge” in the French text by “Un document sur l’appareil”.

Provision	Amendments
8.10.5.2	Insert “petits” before the word “monte-charges” in the title and the first paragraph of the French text;
	Insert “petit” before “monte-charge” in the second paragraph of the French text.
8.10.5.4	Replace “seulement si des dispositifs de commande ou des parachutes de cabine sur le toit de la cabine et des parachutes de cabine sont installés” in the French text by “seulement si des dispositifs de commande de toit de cabine et des parachutes de cabine sont installés”.
8.10.5.5	Replace “ seulement si des dispositifs de commande et des parachutes de cabine sont installés sur le toit de la cabine” in the second paragraph of the French text by “seulement si des dispositifs de commande de toit de cabine et des parachutes de cabine sont installés”.
8.10.5.13	Replace the title in the French text by the following: “**8.10.5.13 Ascenseurs à utilisation limitée et à usage limité**”;
	Replace “ascenseurs ou monte-charges à utilisation limitée ou à usage limité” in the French text by “ascenseurs à utilisation limitée et à usage limité”.
8.11	Strike out the section.
9.1	Replace “CSA W47.1-1992 (R1998)” by “CSA W47.1 (latest edition)”.
Appendix V	Strike out the Appendix.
Appendix X	Replace “Rétablissement” in the French text of line 18 of Table X-2 by “Synchronisation”.

O.C. 848-2024, s. 1.

4.17. The amendments to the standard are as follows:

Provision	Amendments
	Replace the terms “inspection”, “inspecter” and “inspecté” wherever they appear in the French text by “vérification”, “vérifier” and “vérifié”, respectively.
1.6	Add “and the Régie du bâtiment du Québec has approved it in accordance with section 127 of the Building Act (chapter B-1.1)” at the end of the paragraph.
	Insert the following Clause: “**4.1.6 Elevating devices exposed to the elements** **4.1.6.1** Elevating devices exposed to the elements shall be designed and installed so that exposure to the elements does not hamper their operation. **4.1.6.1.1** Elevating device equipment and supports shall be protected against corrosion. **4.1.6.1.2** Electrical equipment and wiring shall afford a degree of protection suitable for outdoor installation, in accordance with the requirements of the *Canadian Electrical Code, Part I*.”.
4.2.1	Replace paragraph b) by the following: “*b*) enclosed platform lift: i) 7000 mm in the case of a private residence; or ii) 4250 mm in other cases.”.
4.2.5	Insert “or a stair platform lift” after “a stair lift”.
4.4.1	Insert the following at the end of Item b): “provided that the requirements for use by a person sitting or standing specified in the following Clauses are fulfilled: i) 7.7.2; ii) 7.7.3 by replacing “wheelchair-and-attendant platform” by “wheelchair platform”; and iii) 7.7.5 by replacing “wheelchair-and-attendant platform” by “wheelchair platform”;”.

Provision	Amendments
4.4.2	Insert the following at the end of Item b): “provided that the requirements for use by a person sitting or standing specified in the following Clauses are fulfilled: i) 7.7.2; ii) 7.7.3 by replacing “wheelchair-and-attendant platform” by “wheelchair platform”; and iii) 7.7.5 by replacing “wheelchair-and-attendant platform” by “wheelchair platform””.
	Add the following Clause: “**4.8.4** An automatic lighting of the car shall be permitted on the following conditions: a) the lighting may be cut only if the following three conditions exist for at least 5 minutes: i) the car is stopped at a landing; ii) the doors are closed; and iii) no call is made from the car or the landings. b) the momentary interruption of one of those conditions immediately activates the lighting; c) the operation of a switch or safety-related device must maintain or put into operation the lighting.”.
5.1.3.1	Strike out Item c).
5.1.3.2	Replace “lb-pi” in the French text of Items b)ii) and b)iii) by “lbf”.
	Add the following Clause: “**5.2.2.3 Vertical clearance** The vertical clearance between the bottom of the landing door or gate and the landing sill shall not exceed 10 mm (0.375 in.).”.

Provision	Amendments
	Add the following Clause: “**5.2.3.6** Interlocks certified in accordance with Clause 5.2.5.11 a) shall lock the door in the closed position with a minimum locking engagement of 7 mm (0.28 in.) of the locking elements before the interlock contacts associated with the closure of the doors or gates are closed.”.
5.2.5.11	Replace the portion before a) by the following: “Locking engagement shall conform to the following requirement”; Strike out b).
5.4.2	Strike out “more than 300 mm” in the portion before Item a); Replace Items f) and g) by the following: “f) Pits extending to the ground shall be designed to prevent entry of groundwater into the pit. A drain shall be provided to prevent accumulation of water in the pit. g) Drains shall comply with the applicable National Plumbing Code, and they shall be provided with a positive means to prevent water, gases, and odours from entering the runway.”.
5.6.2	Replace “by operation of the safeties” by “application of the safeties”.
6.1.4.7	Replace “prior to use or engagement of the hand-moving device” by “while the hand-moving device is used or engaged”.
	Add the following Clause: “**6.1.7 Suspension means passing through floors or stairs** Ropes and chains passing through a floor or stairway outside the hoistway enclosure shall be enclosed with a solid or openwork enclosure. Any openwork enclosure shall reject a ball exceeding 13 mm (0.5 in.) in diameter. Means for inspection shall be provided. The floor openings shall not be larger than is necessary to clear the suspension means.”.

Provision	Amendments
6.2.1.1	Replace Item b) by the following “b) aircraft cable rope of 7 x 19 construction may be used in those applications where the rope is not subjected to crushing pressures. The aircraft cable shall meet the requirements of NPFC MIL-DTL- 83420M Spec, subject to the following exceptions: i) nonjacketed carbon steel, tin- or zinc-coated (Type 1A) 7 × 19 construction are permitted (see Section 3.4.3.3 of NPFC MIL-DTL-83420M Spec); and ii) identifying colour tracer filaments are not required (see Section 3.6.2 of NPFC MIL-DTL- 83420M Spec).”.
6.2.5.1	Strike out the Clause.
6.2.5.2	Strike out the Clause.
	Add the following Clause: “**6.6.2.1.4** The sizing of the relief valve and the bypass connection shall be sufficient to permit the maximum flow of the pump without the pressure rising above 50% of the working pressure. The use of more than one relief valve shall be permitted.”.
6.9 to 6.9.5.2	Strike out the Clauses.
7.2.7 to 7.2.7.2	Strike out the Clauses.
7.3.2	Replace “designed” in Item a) by “perforated and designed”.
7.6.4.1	Replace “1:10.1” in Item c) by “1:10”.
8.2.3.1	Replace “890 to 1370 mm” in Item d) by “400 to 1200 mm”.
8.3.3.1	Replace “the alarm on an enclosed vertical platform lift shall” by “the alarm and the emergency communication device on an enclosed vertical platform lift shall”.

Provision	Amendments
8.3.5	Replace the second paragraph by the following: “If the call is placed automatically and is not acknowledged by a live person, the call shall be automatically redirected within 45 seconds to a location monitored by personnel who may take the appropriate actions. The communications shall not be transmitted to an automated answering system.”.
8.5.2.3	Replace the Clause by the following: “**8.5.2.3 Pendant control and remote control** Where a pendant control or remote control is used, an emergency stop device conforming to Clause 8.5.2.1 shall be incorporated in the pendant control and the remote control.”.
Annex A	Replace the portion before A.1 by the following: “*Annex A (mandatory) Inspection and testing*”;
Annex A	Insert “and 4.1.6” after “4.1.4” in Clause A.2 a)i);
Annex A	Insert “and 6.1.7” after “6.1.6” in Clause A.2 b)iv);
Annex A	Insert “, 5.2.3.6,” after “5.2” in Clause A.2 c)ii);
Annex A	Insert the following after Clause A.2 d)i): “i.1) automatic lighting of the car (4.8.4)”;
Annex A	Insert “5.2.2.3,” before “7.5.4” in Clause A.2 e)iii).
Annex B	Replace the portion before B.1 by the following: “*Annex B (mandatory) Maintenance for platform lifts and stair lifts*”.

O.C. 848-2024, s. 1.

DIVISION IV

MORE STRINGENT PROVISIONS COVERING ATTACHMENTS USING CABLE CLAMPS

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.18. Where permitted by the Code or the standard, attachments using rope clamps as means of fastening a wire rope shall conform to this Division.

O.C. 848-2024, s. 1.

4.19. The minimum number of rope clips at each end of a rope is

(1) two, for ropes not more than 10 mm in diameter;

(2) three, for ropes greater than 10 mm and not more than 16 mm in diameter;

(3) four, for ropes greater than 16 mm in diameter, but not more than 19 mm.

O.C. 848-2024, s. 1.

4.20. The spacing between the rope clips shall be not more that 6 times the rope diameter.

O.C. 848-2024, s. 1.

4.21. A rope clip shall be placed so that the groove of the U-bolt-type clip bears on the dead end, and the base of the clip bears on the live end of the rope.

O.C. 848-2024, s. 1.

4.22. A rope end shall be bent over a lug whose groove has a radius equal to that of the rope.

O.C. 848-2024, s. 1.

4.23. A clip nut shall be tightened with a tightening torque in conformity with the specifications of the rope clip manufacturer.

O.C. 848-2024, s. 1.

DIVISION V

OFFENCE

O.C. 895-2004, s. 1; O.C. 848-2024, s. 1.

4.24. Any contravention to a provision of this Chapter constitutes an offence.

O.C. 848-2024, s. 1.

CHAPTER V

ELECTRICITY

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

DIVISION I

SCOPE

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

5.01. In this Chapter, unless the context indicates otherwise, “Code” means the Canadian Electrical Code, Part I, Twenty-third edition, CSA C22.1-15, published by CSA Group, as well as any subsequent amendments that may be published by that organization.

That Code is incorporated by reference into this Chapter subject to the amendments provided for in section 5.05.

However, any amendments to that edition published by CSA Group after 1 October 2018 will apply to construction work only from the last day of the sixth month following the publication of the French and English versions of those amendments. If those versions are not published at the same time, the 6-month period runs from the date of publication of the last version.

The provisions of the third paragraph do not apply to errata, which take effect as soon as they are published by CSA Group.

O.C. 961-2002, s. 5; O.C. 1385-2003, s. 1; O.C. 986-2006, s. 1; O.C. 577-2007, s. 1; O.C. 939-2009, s. 8; O.C. 1062-2010, s. 1; O.C. 722-2018, s. 1.

5.02. Subject to the exemptions provided for in section 5.03, this Chapter applies to any construction work on an electrical installation within the meaning of the Code and covered by the Building Act (chapter B-1.1).

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

5.03. The following installations are exempt from this Chapter:

(1) an electric lighting installation attached to a pole used to distribute electric power by a public electricity distribution undertaking;

(2) an installation used for the operation of a subway and powered exclusively by circuits supplying the railway of that subway.

O.C. 961-2002, s. 5; O.C. 1263-2012, s. 2; O.C. 722-2018, s. 1.

5.03.01. *(Replaced).*

O.C. 1385-2003, s. 3; O.C. 722-2018, s. 1.

DIVISION II

REFERENCES

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

5.04. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 961-2002, s. 5; O.C. 1385-2003, s. 3; O.C. 577-2007, s. 2; O.C. 1062-2010, s. 3; O.C. 347-2015, s. 2; O.C. 722-2018, s. 1; O.C. 1419-2021, s. 2.

DIVISION III

AMENDMENTS TO THE CODE

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

5.05. The Code is amended

(**1**) in Section 0:

(1) by striking out the following portion of the second paragraph of “Object”: “Safe installations may be also achieved by alternatives to this Code, when such alternatives meet the fundamental safety principles of IEC 60364-1 (see Appendix K). These alternatives are intended to be used only in conjunction with acceptable means to assess compliance of these alternatives with the fundamental safety principles of IEC 60364-1 by the authorities enforcing this Code.”;

(2) by striking out the part “**Scope**”;

(3) by striking out the definition of “**Energized**”;

(4) by replacing the definition of “**Electrical installation**” by the following:

“**Electrical installation**”: the installation of any wiring in or upon any land or in a building from the point or points where electric power or energy is delivered therein or thereon by the supply authority or from any other source of supply, to the point or points where such power or energy can be used therein or thereon by any electrical equipment and shall include the connection of any such wiring with any of the said equipment (see Appendix B).”;

(5) by striking out the definition of “**Permit**”;

(6) by striking out the definition of “**Current-permit**”;

(7) by striking out the definition of “**Energized part**”;

(8) by inserting the following definition after “**Conduit**”:

“**Connecting point**: The point at which the consumer’s service entrance is connected to the distributor’s supply, as specified by the supply authority.”;

(**2**) in Section 2:

(1) by striking out Rule 2-000;

(2) by replacing Rule 2-004 by the following:

“**2-004 Declaration of work**

(1) An electrical contractor or owner-builder shall declare to the Régie du bâtiment du Québec the construction work carried out to which Chapter V Electricity of the Construction Code (chapter B-1.1, r. 2) applies.

(2) The declaration shall contain the following information:

(a) the address of the work site;

(b) the name, address and telephone number of the person for whom the work is carried out;

(c) the name, address, telephone number and licence number of the electrical contractor or owner-builder;

(d) the dates scheduled for the beginning and end of the construction work;

(e) the nature and type of work, in particular the specific kind of work and a description of the powers to be installed; and

(f) the use of the building or installation and the number of stories and dwellings in the building.

(3) The declaration shall be made on the form provided for that purpose by the Board or on any other document containing the information required by Subrule (2).

(4) The declaration shall be sent to the Board not later than the twentieth day of the month following the date on which the work begins.

(5) Notwithstanding Subrule (1), the declaration of work is not required

(a) in the case of work mentioned in a request for supply made to a supply authority;

(b) in the case of work involving power of no more than 10 kW that does not require a replacement or addition of wiring; or

(c) from an owner-builder who keeps a register containing the information mentioned in Subrule (2).”;

(3) by striking out Rule 2-006;

(4) by replacing Rule 2-008 by the following:

“**2-008 Levies and fees**

(1) The levy which every electrical contractor shall pay annually to the Régie du bâtiment du Québec is $913.85 plus an amount corresponding to a non-indexable value of 2.5% of the contractor’s payroll.

(2) For the purposes of this Rule, “payroll” means the total of payments made, before deductions, to apprentice electricians and journeyman electricians carrying out construction work on an electrical installation, including hourly or piece-work wages, commissions, bonuses, pay for leave and any other form of remuneration. The payments made annually to an apprentice electrician or a journeyman electrician by an electrical contractor are presumed to be made to a person assigned to construction work on an electrical installation.

(3) The following payments are not included in the payroll:

(a) payments to a person who qualifies an electrical contractor for the issue of a licence because of his or her technical knowledge;

(b) payments for construction work on an electrical installation at a hydroelectric power station at the time of the original construction.

(4) An electrical contractor renting the services of an apprentice electrician or a journeyman electrician through a third party that does not hold a licence shall include the cost of those services in calculating the payroll.

(5) An apprentice electrician or a journeyman electrician who is a partner in a partnership is, for calculation of the payroll, presumed to receive annual wages of $43,015.86 for the electrical installation work he or she carries out for the partnership.

(6) The fixed amount of the levy to be paid under Subrule (1) is established in proportion to the number of months for which the licence is valid, a part of a month being considered a full month.

(7) In the case of voluntary abandonment of a holder's licence, the validity period of the licence is deemed to have ended on the date on which the Board received a notice to that effect.

(8) An electrical contractor shall pay the levy under this Rule to the Board not later than:

(a) 31 May for a payroll calculated for the period from 1 January to 31 March of the current year;

(b) 31 August for a payroll calculated for the period from 1 April to 30 June of the current year;

(c) 30 November for a payroll calculated for the period from 1 July to 30 September of the current year;

(d) 28 February for a payroll calculated for the period from 1 October to 31 December of the preceding year.

(9) Each payment shall also include the applicable portion of the fixed amount of the levy. An electrical contractor shall provide with each payment a written statement indicating the portion of the payroll applicable to each apprentice electrician or journeyman electrician identified by name. If a licence is issued to the electrical contractor during the year, the first statement and the first payment shall be made on the first date in Subrule (8) that is at least 2 months after the issue of the licence.

(10) If an electrical contractor fails to send the statement required under this Rule to the Board, or if the Board has reason to believe that the statement is inaccurate, the Board shall make an estimate of the contractor's payroll. In such a case, it is the contractor's responsibility to demonstrate that the estimate is inaccurate.

(11) If it is established that an electrical contractor's payroll differs from the amount used to establish the levy, the Board shall bill or credit, as the case may be, an amount equal to the difference between the amount levied and the amount calculated according to the actual payroll.

(12) The levy that an electrical owner-builder shall pay annually to the Board in accordance with Subrule (8) is $685.42, plus inspection fees of $181.25 for the first hour of inspection or fraction thereof and half that rate for each half-hour or fraction thereof of inspection in addition to the first hour; an amount of $85.27 for each trip related to the inspection shall be added to those fees.

(13) The fees payable under Subrule (12) shall be paid not later than 30 days after the billing date.";

(5) by deleting Rules 2-010 and 2-012;

(6) by replacing Rule 2-014 by the following:

"**2-014 Plans and specifications**

(1) An electrical contractor or owner-builder shall not start construction work on an electrical installation to which Chapter V Electricity of the Construction Code (chapter B-1.1, r. 2) applies unless plans and specifications have been prepared for the work if the installation requires a service exceeding 200 kW.

(2) The plans and specifications referred to in Subrule (1) shall contain the following information:

(a) name and address of the person responsible for preparing them;

(b) type of building or electrical installation and the location of the work;

(c) location of the service line and distribution;

(d) the supply voltage and the single-line diagram of the service line and distribution;

(e) loads, protection characteristics and identification of the feeder and branch circuits at their respective panelboards;

(f) rated power of each apparatus;

(g) type and size of raceways to be used;

(h) number and characteristics of conductors used in the raceways;

(i) cable characteristics;

(j) type of materials, accessories or apparatus installed in hazardous locations;

(k) size and location of grounding conductors;

(l) a description of all underground parts of the installation;

(m) for an addition to an existing electrical installation, all information on the part of the installation on which work is to be carried out and a list of the existing loads or of the maximum demand loads of the existing installation recorded for the last 12 months; and

(n) for an electrical installation exceeding 750 V, the vertical and horizontal clearances of live parts and a description of the grounding and mechanical protection of live parts.";

(7) by deleting Rules 2-016 to 2-020;

(8) by replacing Rules 2-024 to 2-028 by the following:

"**2-024 Approval of electrical equipment used in an electrical installation, intended to consume energy from an electrical installation or to supply such an installation** (see Appendices A and B)

(1) The selling or renting of electrical equipment that has not been approved is prohibited.

(2) All electrical equipment used in an electrical installation shall be approved for the use for which it is intended. In addition, the use of electrical equipment that has not been approved in an electrical installation or the permanent connection of such equipment to such an installation is prohibited. However, for purposes of a test, exhibition, presentation or demonstration, electrical equipment shall be permitted to be used without being approved if a notice containing the following warning in letters at least 15 mm high is posted: "NOTICE: This electrical equipment has not been approved for sale or rental as required by Chapter V Electricity of the Construction Code (chapter B-1.1, r. 2).

(3) Subrules (1) and (2) do no not apply to electrical equipment

(a) located upstream from the connecting point;

(b) intended to be interconnected, in accordance with section 84 of the Code;

(c) located upstream from a stand-alone inverter; or

(d) whose power consumption is not more than 100 VA and whose voltage is not more than 30 V, except in the case of signs, lighting devices, luminaries, thermostats with heat anticipators, electromedical devices or apparatus installed in a hazardous location.

2-025 Approval of a Portable Generator

The selling or renting of a portable generator that has not been approved is prohibited.

2-028 Mark of Approval (see Appendix A)

(1) Electrical equipment that has received certification by a certification organization accredited by the Standards Council of Canada that has notified the Board of its accreditation and whose certification seal or label attests to compliance with Canadian standards is considered to be approved.

(2) Electrical equipment bearing the label of an organization accredited by the Standards Council of Canada that has notified the Board of its accreditation attesting that, without being certified in accordance with Subrule (1), the equipment is recognized as complying with the requirements of CSA SPE-1000-13, "Model Code for the Field Evaluation of Electrical Equipment", or with the requirements of CSA SPE-3000-15, "Model Code for the Field Evaluation of Medical Electrical Equipment and Systems", published by CSA Group, is also considered to be approved. However, amendments or subsequent editions of those Standards shall apply, for the purposes of this section, from the publication of their French and English versions. If those versions are not published at the same time, the amendments or editions shall apply as of the publication of the last version.

(3) Notwithstanding Subrules (1) and (2), approval is not required for each of the components of electrical equipment if the equipment has received an overall approval.";

(9) by striking out Rules 2-128 to 2-132;

(10) by replacing Rule 2-324 by the following:

"**2-324 Electrical equipment near a venting or relief discharge for combustible gas** (see Appendix B)

(1) Arc-producing electrical equipment shall be installed at least 3 m from any venting or relief discharge for combustible gas.

(2) Notwithstanding Subrule (1), in the case of natural gas, the distance shall be permitted to be 1 m.";

(11) by adding the following heading and Rule after Rule 2-404:

"**Circuits from different buildings**

2-500 Feeder or branch circuit from another building (see Appendix B)

A feeder or branch circuit from another building shall not be installed to serve electric equipment linked to a building already supplied by a separate consumer's service, except

(a) in the case of emergency power sources; or

(b) in the cases provided for in Rule 6-106.”;

(**3**) in Section 4:

(1) by replacing Rules 4-006 (3), (4), (5) and (6) by the following:

“(3) Except for underground installations, Subrules (1) and (2) shall also apply to any allowable ampacity obtained from tables other than those mentioned in Subrule (1). If values different from those at 90 °C are not indicated in those tables, the correction factors in Table 12C shall then be applied.”;

(2) by adding the following Subrule at the end of Rule 4.024:

“(5) Notwithstanding Subrule (3), for underground consumer’s services exceeding 600 A fed by parallel conductors, each neutral conductor shall be minimally sized in accordance with Table 69.”;

(**4**) in Section 6:

(1) by replacing Rule 6-104 by the following:

“**6-104 Number of consumer’s services**

(1) The number of low-voltage consumer’s services terminating at any one overhead supply service run shall be limited by the following factors:

(a) the total calculated load shall not exceed 600 A; and

(b) the number of conductors connected to each supply service conductor shall not exceed 4.

(2) In the case of a change to the electrical installation of a building with more than 4 conductors connected to one supply service conductor, replacement of the conductors shall be permitted provided that the total number of conductors is not increased and the total calculated load does not exceed 600 A.”;

(2) in Rule 6-112:

(a) by replacing “9 m” in Subrule (2) by “8 m”;

(b) by adding the following after Subrule (8):

“(9) Notwithstanding Subrule (2), in the case of an existing installation and where it is impossible to comply with the minimum 1 m clearance set out in Subrule (3), the height of the point of attachment of service conductors shall be not more than 9 m, if such a measurement allows compliance with the clearance required.

(10) Notwithstanding Subrules (2) and (9), in the case of an existing installation and where it is impossible to comply with the minimum 1 m clearance set out in Subrule (3), it shall be permitted to install a barrier made of solid material so as to make service conductors exposed to persons from a window, door or porch permanently inaccessible.

(11) Notwithstanding Subrule (6), in the case of an existing installation in which the service presents no noise problem due to the amplification of vibrations caused by the mutual repulsion of the conductors, it shall be permitted to fasten the service conductor support to a solid wooden structural member of a wall with a lag screw not less than 9 mm in diameter. The threaded part of the lag screw shall penetrate the solid wooden structural member to a depth of at least 75 mm.”;

(3) by replacing Rule 6-206 by the following:

“**6-206 Consumer’s service equipment location** (see Appendices B and G)

(1) Service boxes or other equivalent consumer's service equipment shall be

(a) installed in a location that complies with the requirements of the supply authority;

(b) readily accessible or have the means of operation readily accessible; and

(c) except as provided by Subrules (3), (4), (5), and (6), placed within the building being served, as close as practicable to the point where the consumer's service conductors enter the building and not located in

i. coal bins, clothes closets, bathrooms, or stairways;

ii. rooms in which the temperature normally exceeds 30 °C;

iii. dangerous or hazardous locations;

iv. locations where the headroom clearance is less than 2 m, except in the case of a renovation in a building, provided that the existing clearance is not reduced; or

v. any other similar location.

(2) Notwithstanding Subrule (1)(b), where subject to unauthorized operation, the service disconnecting means shall be permitted to be rendered inaccessible by

(a) an integral locking device;

(b) an external lockable cover; or

(c) location of the service box or its equivalent inside a separate building, room, or enclosure.

(3) Notwithstanding Subrule (1)(c), if the environmental conditions inside the structure are not acceptable, it shall be permitted, where a deviation has been allowed in accordance with Rule 2-030, to place the service disconnecting means on the outside of the building or on a pole provided that it is

(a) installed in an enclosure approved for the location or of the type approved as protected against the weather; and

(b) protected against mechanical damage if it is located less than 2 m above ground.

(4) Notwithstanding Subrule (1)(c), in the case of single dwellings or apartment and similar buildings, the service box shall be permitted to be a meter mounting device equipped with a combined breaker outside the building or on a post, provided that an associated distribution panelboard equipped with a main breaker of a current rating equal to or lower than that of the meter mounting device is used inside the building. The service box shall

(a) be weatherproof and specifically approved for that use;

(b) be protected against mechanical damage if installed less than 2 m above ground;

(c) be equipped with a lockable outside cover; and

(d) supply only one feeder dedicated to the associated distribution panelboard.

(5) The meter mounting devices installed in compliance with Subrule (4) shall be grouped.

(6) The consumer's service heads connected to the meter mounting devices installed in accordance with Subrules (4) and (5) shall be grouped so as to require a single connecting point.";

(4) by replacing Rule 6-300(1)(b)(ii)(B) by the following:

"(B) where a conductor transition is necessary to compensate for a voltage drop provided for in Rule 8-102, provided that the conditions set out in Rule 12-112 (5) (a) or (b) are complied with (see Appendix B).";

(5) by replacing Rule 6-302(2) by the following:

"(2) Except for an installation or an existing trestle, no portion of the conductors that is run on the supply side of the consumer's service head on outside building surfaces shall be permitted to be run as exposed wiring.";

(6) in Rule 6-308, by inserting "Except for 347/600 V underground consumer's service in a raceway," at the beginning;

(7) by replacing Rule 6-310 (c) by the following:

"*(c)* where a conductor transition is necessary to compensate for the voltage drop provided for in Rule 8-102, provided that the conditions set out in Rule 12-112(5) are complied with.";

(**5**) in Section 8:

(1) by striking out Rule 8.002;

(2) by striking out Rule 8-102(3) and (4):

(3) by replacing Rule 8-106(6) to (10) by the following:

"(6) The ampacity of conductors of feeders or branch circuits shall be determined in accordance with the Section(s) dealing with the type of equipment being supplied.

(7) Notwithstanding the requirements of this Section, the ampacity of the conductors of a feeder or branch circuit shall not be required to exceed the ampacity of the conductors of the service or of the feeder from which they are supplied.

(8) Where additional loads are to be added to an existing service or feeder, the augmented load shall be permitted to be calculated by adding the sum of the additional loads, with demand factors as permitted by this Code to the maximum demand load of the existing installation as measured over the most recent 12-month period, but the new calculated load shall be subject to Rule 8-104(5) and (6).

(9) The method of calculation in Subrule (8) shall be permitted to be used for the replacement of a service or feeder of an existing installation, with or without additional load.";

(4) in Rule 8-108:

(a) by replacing the part of Subrule (1) preceding Subrule (1)(a) by the following:

"(1) For a single dwelling, the panelboard shall provide space for at least the equivalent of the following number of 120 V branch circuit overcurrent devices, including enough space for two 35 A double-pole overcurrent devices and for all the other devices required:";

(b) by replacing Subrule (2) by the following:

"(2) Notwithstanding Subrule (1), sufficient spaces for overcurrent devices shall be provided in the panelboard for the two 35 A double-pole overcurrent devices and for all other overcurrent devices, and at least 2 additional spaces shall be left for future 120 V branch circuit overcurrent devices, and 2 additional spaces for future 240 V double-pole devices.";

(5) in Rule 8-200:

(a) by replacing “the greater of Item (a) or (b)” in the part of Subrule (1) before Item (a) by “the greater of Item (a) or (b), and be increased to include the load provided for in Item (c) in the case of a single dwelling referred to in that Item”;

(b) by replacing Items (vi) and (vii) of Subrule (1)(a) by the following:

“(vi) any loads provided for in addition to those outlined in Items (i) to (v) at 25% of the rating of each load with a rating in excess of 1,500 W if an electric range has been provided for, or 100% of the rating of each load up to a total of 6,000 W, plus 25% of the load in excess of 6,000 W if an electric range has not been provided for; or”;

(c) in Subrule (1), by adding the following after Item (b):

“*(c)* in the case of a single dwelling with a garage, a carport or a parking area, a load provided for the supply of electric vehicle supply equipment, according to the following cases:

i. 35% of the power rating of the first supply equipment and 70% of the power rating of the second, if an electric range and electric water heater have been provided for and in addition the electric space-heating load does not come from a central unit and is at least 14 kW;

ii. 70% of the power rating of the first supply equipment and 80% of the power rating of the second, if an electric range and electric water heater have been provided for and the electric space-heating load does not come from a central unit and is less than 14 kW; or

iii. 90% of the power rating per supply equipment in the cases not covered by Items (i) and (ii).”;

(d) by adding the following after Rule 8-200(3):

“(4) For the purposes of this Rule, it is prohibited to use, to calculate the minimum ampacity of service or feeder conductors for a single dwelling with a garage, carport, or parking area, the relaxations provided for in Rule 8-106 (1) and in Table 39.”;

(6) in Rule 8-202:

(a) by adding the following after Subrule (1)(a)(vii)(B):

“(C) Notwithstanding Items (A) and (B), in the case of a load for the supply of electric vehicle supply equipment, that load shall be calculated in accordance with the method provided for in Rule 8-200(1)(c); or”;

(b) by replacing Subrule (3)(e) by the following:

“*(e)* in addition, any lighting, heating, and power loads not located in dwelling units shall be added to the preceding loads, by using a demand factor of 75%, except automobile heater receptacles included in the basic load of each dwelling.”;

(7) by replacing Rule 8-204(1)(c) by the following:

“*(c)* electric space-heating, air-conditioning, and total loads of other permanently connected equipment based on the rating of the equipment installed, subject to Rule 8-106(4); plus”;

(8) by replacing Rule 8-206(1)(c) by the following:

“*(c)* electric space-heating, air-conditioning, and total loads of other permanently connected equipment based on the rating of the equipment installed, subject to Rule 8-106(4); plus”;

(9) by replacing Rule 8-208(1)(c) by the following:

"*(c)* electric space-heating, air-conditioning, and total loads of other permanently connected equipment based on the rating of the equipment installed, subject to Rule 8-106(4); plus";

(10) in Rule 8-400:

(a) by replacing Subrule (1) by the following:

"(1) In the application of this Rule, the following definition shall apply:

Controlled — supply to the receptacle is cycled by other than a manual operation.";

(b) by replacing Subrules (3) to (5) by the following:

"(3) Service or feeder conductors shall be considered to have a basic load of

(a) 1,300 W for each of the first 30 duplex receptacles;

(b) 1,100 W for each of the next 30 duplex receptacles; and

(c) 900 W for each additional duplex receptacle.

(4) If the load is controlled, the ampacity of the service or feeder conductors shall:

(a) be determined in accordance with Subrule (3), considering only the maximum number of duplex receptacles that can be supplied simultaneously; or

(b) not be lower than 125% of the rating of the load controller.

(5) For the purposes of Subrules (3) and (4), 2 single receptacles shall be considered to be one duplex receptacle.";

(**6**) In Section 10:

(1) by adding the following in Rule 10-802:

"(3) Copper-clad aluminum is prohibited.";

(2) by replacing Rule 10-812 by the following:

"**10-812 Grounding conductor size for ac systems and for service equipment** (see Appendix B)

(1) Subject to Subrule (2), the copper grounding conductor size connected to a grounding electrode shall not be less than No. 6 AWG.

(2) The copper grounding conductor size connected to water distribution metal piping shall be determined according to the ampacity of the largest ungrounded conductor in the circuit or the equivalent for multi-conductors and shall be sized not smaller than

(a) No. 6 AWG for an ampacity of 250 A or less;

(b) No. 3 AWG for an ampacity of 251 A to 500 A;

(c) No. 0 AWG for an ampacity of 501 A to 1000 A; and

(d) No. 00 AWG for an ampacity of 1001 A or more.

(3) If a material other than copper is used for a grounding conductor, the material shall have a conductivity equivalent to what is required in Subrule (1) or (2).”;

(7) in Section 12:

(1) by replacing Rule 12-012(8) by the following:

“(8) Raceways shall be permitted to be installed directly beneath a concrete slab at grade level, provided that the concrete slab is not less than a nominal 100 mm in thickness, the location is adequately marked, and the raceway will not be subject to damage.”;

(2) by adding the following after Rule 12-020:

“**12-022 Wiring under the metal deck of a roof**

Except for rigid metal conduits, no wiring shall be installed less than 38 mm from the underside of the metal deck of a roof.”;

(3) by replacing Rules 12-108(2) and (3) by the following:

“(2) Notwithstanding Subrule (1)(a), a single splice per conductor shall be permitted if a transition between conductors is necessary to compensate for the maximum voltage drop provided for in Rule 8-102, provided that it is spliced in the same manner, and that

(a) in the case of an overhead installation, the splice is thermit-welded or made by means of a compression connector applied with a compression tool compatible with the particular connector; or

(b) in the case of an underground installation, the splice complies with the conditions set out in Rule 12-112(5)(a) or (b).

(3) Notwithstanding Item (1)(f), conductors of one phase, polarity, or grounded circuit conductor shall not be required to have the same exact length as those of another phase, polarity, or grounded circuit conductor.”;

(4) by adding the following Subrule at the end of Rule 12-116:

“(5) Cutting or adding strands or altering conductors in any other way to connect them to terminal parts, lugs or other junctions is prohibited.”;

(5) by replacing Rule 12-312 by the following:

“**12-312 Conductors over buildings**

Only conductors entering a building shall be permitted to run over the building.”;

(6) by adding the following Subrule at the end of Rule 12-510:

“(5) Except in the locations provided for the installation of cupboards or counters, non-metallic-sheathed cables concealed in the inside walls of a dwelling unit that are located 1 to 2 m from the floor shall

(a) be installed in a completely vertical manner;

(b) have their outer surface located more than 32 mm from the hidden edge of the finishing element; or

(c) be effectively protected from mechanical damage from driven nails or screws.”;

(7) by replacing Rule 12-516 by the following:

"**12-516 Protection for non-metallic-sheathed cable in concealed installations** (see Appendix G)

*(*1*)* The outer surfaces of non-metallic-sheathed cables shall be kept a distance of at least 32 mm from the edges of the members intended to be used as support for sheathing or cladding, or the cable shall be effectively protected from mechanical damage.

*(*2*)* Where non-metallic-sheathed cables pass through a metal member, they shall be protected by an insert approved for the purpose and adequately secured in place.

*(*3*)* Where non-metallic-sheathed cables are installed behind a baseboard, moulding or other similar finishing element, their outer surfaces shall be kept a distance of at least 32 mm from the hidden edge of the element, or they shall be effectively protected from mechanical damage from driven nails or screws.";

(8) by adding the following Subrule at the end of Rule 12-616:

"(3) The installation of armoured cable in a concealed space in a metal element constituting the roof deck of a building or structure is prohibited.";

(9) in Rule 12-904:

(a) by replacing Subrule (1) by the following:

"(1) Except for single-conductors installed in non-metallic raceways, all conductors of a circuit shall be contained in the same raceway, or in the same channel of a multiple-channel raceway except that, where it is necessary to run conductors in parallel due to the capacity of an ac circuit, additional raceways shall be permitted to be used, provided that

(a) the conductors are installed in accordance with Rule 12-108(1);

(b) each raceway includes an equal number of conductors from each phase, including the neutral conductor and the bonding conductor, if required; and

(c) each raceway or cable sheath is of the same material and has the same physical characteristics.";

(b) by striking out "Except for cable tray," at the beginning of Subrule (2);

(10) by striking out "either during installation or afterwards" in Rule 12-1106;

(11) by striking out Rule 12-1204;

(12) by striking out "either during installation or afterwards" in Rule 12-1404(a);

(13) by striking out Rule 12-1718(2);

(14) by replacing Rule 12-2200(7) and (8) by the following:

"(7) At least one expansion joint shall be installed in any cable tray run where the expansion of the cable tray due to the maximum probable temperature change could damage the cable tray.";

(15) by replacing Rule 12-2208 by the following:

"**12-2208 Provisions for bonding**

*(*1*)* Where metal supports for metal cable trays are bolted to the tray and are in good electrical contact with the grounded structural metal frame of a building, the tray shall be deemed to be bonded to ground.

(2) If Subrule (1) does not apply, metal cable tray shall be properly bonded at intervals not exceeding 15 m and the size of bonding conductors shall be based on the ampacity of the largest ungrounded conductor as specified in Rule 10-814 in the circuits carried by the cable tray.”;

(**8**) in Section 14, by striking out Rule 14-104(2);

(**9**) in Section 26:

(1) by striking out Rule 26-354;

(2) by striking out Rule 26-700(13);

(3) in Rule 26-710:

(a) by adding “and” at the end of Item (m);

(b) by replacing “; and” at the end of Item (n) by “.”;

(c) by striking out Item (o);

(4) in Rule 26-712:

(a) by replacing Items (iv) and (v) in Item (d) by the following:

“(iv) at least one receptacle (15 A split or 20 A T-slot) installed at each permanently fixed island counter space;

(v) at least one receptacle (15 A split or 20 A T-slot) installed at each peninsular counter space, except if the wall adjacent to the mating edge of the peninsula is equipped with a receptacle provided for in Item (iii); and”;

(b) by replacing Item (g) by the following:

“*(g)* all receptacles of CSA configuration 5-15R and 5-20R shall be tamper-resistant receptacles and shall be so marked.”;

(c) by striking out Item (h);

(5) by inserting “ground floor” before “single dwelling” in Item(a) of Rule 26-714;

(6) in Rule 26-722:

(a) by adding “and” at the end of Item (e);

(b) by replacing “; and” at the end of Item (f) by “.”;

(c) by striking out Item (g);

(7) by replacing Rule 26-724(g) by the following:

“*(g)* Notwithstanding Item (f), the entire branch circuit shall not be provided with arc-fault protection where

i. an outlet branch-circuit-type arc-fault circuit interrupter is installed at the first outlet on the branch circuit; and

ii. the wiring method for the portion of the branch circuit between the branch circuit overcurrent device and the first outlet consists of metal raceway or an armoured cable;

(h) notwithstanding Rule 8-304, the number of outlets installed on a branch circuit provided with arc-fault protection shall not exceed 10.”;

(**10**) in Section 28:

(1) by adding the following Subrule at the end of Rule 28-204:

“(5) Where a feeder supplies electric equipment, such as a splitter, motor control centre, switchgear or switchboard, it is permitted that the overcurrent protection that supplies the feeder be determined according to the value of the rating of the circuit, provided that it does not exceed the value of the rating indicated on that equipment, unless Rule 14-104 authorizes it.”;

(2) by replacing Items (a), (b) and (c) of Rule 28-604(4) by the following:

“*(a)* it is capable of safely making and interrupting the locked rotor current of the connected load; and

(b) it is capable of being locked in the open position.”;

(**11**) in Section 30:

(1) by replacing Rule 30-308(4) by the following:

“(4) Each fluorescent luminaire installed in a branch circuit exceeding 150 volts-to-ground shall

(a) include a disconnecting means integrated into the luminaire, that cuts simultaneously all the circuit conductors between the branch circuit conductors and the ballast supply conductors; and

(b) bear a conspicuous, legible, and permanent marking adjacent to the disconnecting means, identifying the intended purpose.”;

(2) by replacing item (b) of Rule 30-320(3) by the following:

“*(b)* if the requirement of Item (a) cannot be complied with, be protected by a Class A ground fault circuit interrupter and be installed inside the room without being located within the perimeter of the bath or shower.”;

(3) by striking out Rules 30-500 to 30-510.

(**12**) in Section 32:

(1) by replacing the title of Section 32 by the following:

“**Fire pumps**”;

(2) by replacing Rule 32-000(1) by the following:

“(1) This Section applies to the installation of fire pumps required by Chapter I Building of the Construction Code (chapter B-1.1, r. 2).”;

(3) by striking out Rules 32-100 to 32-110;

(4) by replacing Rule 32-206 by the following:

“**32-206 Disconnecting means and overcurrent protection** (see Appendices B and G)

(1) It shall be permitted to install immediately downstream of the service box the disconnecting means and associated overcurrent protection device permitted in Chapter I Building of the Construction Code (chapter B-1.1, r. 2) and capable of interrupting the circuit of the fire pump.

(2) It shall be permitted to install downstream of the service box of the normal supply circuit, regardless of the presence or not of the disconnecting means referred to in Subrule (1), an unfused switch lockable in the OFF position and labelled in a conspicuous, legible, and permanent manner, identifying it as the fire pump disconnecting means.

(3) The unfused switch referred to in Subrule (2) shall

(a) be capable of safely making and interrupting the locked rotor current of the connected load;

(b) comply with the requirements of the supply authority;

(c) bear a marking indicating the need to maintain it at all times in the ON position to ensure functionality of the fire pump; and

(d) be equipped with at least one of the activation supervision devices permitted under Chapter I Building of the Construction Code (chapter B-1.1, r. 2), to signal the provisional deactivation of the fire pump.”.

(**13**) by striking out Section 38 — Elevators, dumbwaiters, material lifts, escalators, moving walks, lifts for persons with physical disabilities, and similar equipment;

(**14**) in Section 44, by striking out Rule 44-100;

(**15**) in Section 46:

(1) by striking out Rule 46-102(2);

(2) by adding the following Subrule to Rule 46-108:

“(6) Notwithstanding Subrules (4) and (5), it shall be permitted to provide power to new life safety system loads, provided that they are

(a) located in the same building and supplied from a panelboard put into place before 1 March 2011 in that same building; or

(b) supplied from a new panelboard, located in a new part of the building, provided that the panelboard is supplied by a single feeder from a panelboard put into place before 1 March 2011.”;

(3) by replacing Rule 46-202(3) by the following:

“(3) Where a generator is used, it shall be

(a) of sufficient capacity to carry the load; and

(b) arranged to start automatically without failure and without undue delay upon the failure of the normal power supply to any transfer switch connected to the generator.”;

(4) by striking out Rule 46-204;

(**16**) by striking out Section 54 — Community antenna distribution and radio and televisions installations;

(**17**) by striking out Section 58 — Passenger ropeways and similar equipment;

(**18**) in Section 60:

(1) by striking out Rule 60-108;

(2) by striking out Rules 60-500 to 60-510;

(3) by striking out Rules 60-600 to 60-604;

(**19**) in Section 62:

(1) by inserting the following definition in Rule 62-104 in alphabetical order:

“**Wire mesh heating system** — any heating system that uses concrete-embedded wire mesh as a heating element.”;

(2) by striking out Rule 62-108(4);

(3) by inserting “Except for branch circuits supplying water heaters, ” at the beginning of Rule 62-114(7);

(4) by adding the following heading and Rules at the end of Section 62:

“**Wire mesh heating systems**

62-500 Wire mesh heating systems

Rules 62-502 to 62-506 apply to the supply and connection of wire mesh embedded in a concrete slab or concrete wall for heating, from the point of emergence of the wire mesh at the slab level. However, those rules do not apply to the wire mesh or to the part of busbars embedded in concrete.

62-502 Use

*(*1*)* Connection of wire mesh to the electrical supply if the wire mesh is installed in shower rooms, in or around swimming pools or in other locations involving similar hazards, is prohibited.

*(*2*)* If a wire mesh heating system produces electrical currents in metallic parts other than the mesh, the mesh shall be supplied only if the currents have been eliminated.

62-504 Other conductors and outlets in a heated slab

*(*1*)* Any other conductor shall be located at least 50 mm from the wire mesh and busbars and shall be considered to operate at an ambient temperature of 40 °C.

*(*2*)* Any outlet to which a lighting fixture or other heat-producing equipment is likely to be connected shall be located at least 200 mm from the wire mesh.

62-506 Transformers for wire mesh heating systems

*(*1*)* Transformers supplying wire mesh heating systems shall have a grounded electrostatic shield between the primary and secondary windings.

*(*2*)* The secondary voltage of a transformer supplying a wire mesh heating system shall not exceed 30 V measured on the secondary side of a single-phase transformer or between 2 phases on the secondary side of a three-phase transformer.

*(*3*)* The conductors connected to the secondary side of a transformer supplying a wire mesh heating system do not require overcurrent protection.”;

(**20**) by striking out Section 64 — Renewable energy systems;

(**21**) in Section 66:

(1) by replacing Rule 66-000(2) and (3) by the following:

“(2) The requirements of this Section supplement or amend the general requirements of this Code.”;

(2) by adding the following heading and Rules at the end of Section 66:

“**Itinerant rides**

66-600 Bonding

Notwithstanding Rules 66-200 and 66-202, an itinerant ride shall be permitted to be bonded to ground by one of the following means:

(a) a loop-shaped copper conductor at least equal in size to that specified in Table 16 A, but not less than No. 6 AWG, installed so as to form a loop around the ride or around the group of rides connected to the supply system of those rides; the ends of the loop shall be connected to a copper busbar whose terminals are connected to the grounded neutral conductor of the supply system. The non-current-carrying metal parts of the supply system and of the rides connected to the system shall be connected to the loop-shaped conductor by means of a copper conductor at least equal in size to that specified in Table 16 A, but not less than No. 6 AWG; or

(b) an insulated copper conductor, attached to the supply cable, at least equal in size to that specified in Table 16 A, but not less than No. 6 AWG.

66-602 Splitter

An itinerant ride shall be permitted to be connected to the supply system by means of a movable splitter provided that the splitter is waterproof and dustproof and is raised at least 25 mm from the surface on which it is installed.

66-604 Bare live parts

The cover of a box containing live parts shall be screwed shut or key-locked. Failing that, the box shall be inaccessible to the public.

66-606 Supply

A receptacle used to supply an amusement ride shall be of the locking type or the equivalent. In addition, a receptacle that does not ensure the simultaneous disconnecting of all conductors shall be inaccessible to the public.”;

(3) by replacing Rule 68-304 by the following:

“**68-304 Control**

The electric controls of a hydromassage bathtub shall

(a) be located in the room where the bathtub is; and

(b) unless the controls are an integral part of an approved factory-built hydromassage bathtub, be equipped with an on-off switch located behind a barrier or not less than 1 m horizontally from the wall of the bathtub.”;

(**22**) in Section 72, by adding the following Subrules at the end of Rule 72-110:

"(5) Each recreational vehicle lot equipped with sewers shall be provided with at least one receptacle of each type described in Subrule (1)(a) or (b) and (1)(c).

(6) Each recreational vehicle lot equipped with only one water outlet shall be provided with one receptacle of the type described in Subrule (1)(a) or (b).";

(**23**) in Section 76:

(1) in Rule 76-014 by replacing "except by special permission" by "unless an appropriate warning is displayed at all the points of interconnection or other dangerous areas";

(2) in Rule 76-016 by replacing "having CSA configuration 5-15R or 5-20R" by "of 15 A and 20 A to 125 V";

(**24**) in Section 86 by inserting the following Rule after Rule 86-200:

"**86-202 Branch circuits for single dwellings**

(1) For each new single dwelling equipped with a garage, a carport or a parking area, a conduit or cable shall be installed in anticipation of a separate branch circuit dedicated to supply electric vehicle supply equipment, in accordance with Section 12.

(2) The installation provided for in Subrule (1) shall be capable of supplying a circuit of a minimum capacity of 40 A.

(3) The installation provided for in Subrule (1) shall come from a panelboard and end in an outlet box approved for the location and intended to receive a receptacle conforming to CSA configuration 6-50R, 14-50R, L6-50R or L14-50R, located in the garage, in the carport or near the parking area of the single dwelling.";

(**25**) in Table 1, by replacing the allowable ampacities in the first three rows and in columns 2 (60 °C), 3 (75 °C) and 4 (90 °C) by the following:

" 20	20	20
25	25	25
40	40	40 ";

(**26**) in Table 2, by replacing the allowable ampacities in the first three rows and in columns 2 (60 °C), 3 (75 °C) and 4 (90 °C) by the following:

" 15	15	15
20	20	20
30	30	30 ";

(**27**) in Table 3, by replacing the allowable ampacities in the first three rows and in columns 2 (60 °C), 3 (75 °C) and 4 (90 °C) by the following:

" 20	20	20
30	30	30
45	45	45 ";

(**28**) in Table 4, by replacing the allowable ampacities in the first three rows and in columns 2 (60 °C), 3 (75 °C) and 4 (90 °C) by the following:

“ 15	15	15
25	25	25
30	30	30 ”;

(**29**) by striking out Table 68;

(**30**) by adding the following after Table 68:

“**Table 69**

Minimum size of each neutral conductor for underground consumer’s services of more than 600 A supplied by conductors in parallel
[See Rule 4-024 (5).]

Rating of the service box A	Size of each copper neutral conductor, AWG	Size of each aluminium neutral conductor, AWG
601 to 1,200	0	000
1,201 to 2,000	00	0000
2,001 and more	000	250 kcmil

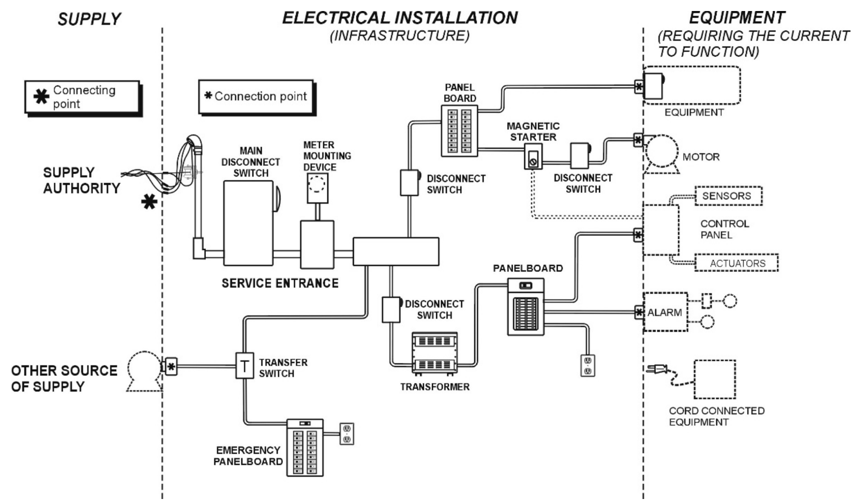
”;

(**31**) in Appendix B:

(1) in Section 0, by inserting the following Note in alphabetical order:

“**Electrical installation**

From the definition of “electrical installation”, it is understood that installations, from the connecting point where the supply authority supplies the customer or from any other supply, to the connection point where the equipment receives its power to function, are electrical installations as defined in the Code. “Electrical installation” therefore means the infrastructure used to direct the electrical current to equipment requiring the current to function (appliance, equipment, specialized system) but not such equipment. The following systems in particular are not electrical installations as defined in the Code: intercommunication systems, public address systems, synchronized clock systems, visual, sound, or voice signalling systems, telephony systems, their interconnection to the telephone network, closed circuit television systems, access cards, community antennae, instrumentation and regulation systems related to heating, air conditioning, air venting and industrial processes, burglar alarm systems, fire alarm systems, and the metering equipment of the supply authority.


SUPPLY
ELECTRICAL INSTALLATION
(INFRASTRUCTURE)
EQUIPMENT
(REQUIRING THE CURRENT TO FUNCTION)
Connecting point
Connection point
SUPPLY AUTHORITY
MAIN DISCONNECT SWITCH
METER MOUNTING DEVICE
SERVICE ENTRANCE
PANEL BOARD
DISCONNECT SWITCH
MAGNETIC STARTER
DISCONNECT SWITCH
EQUIPMENT
MOTOR
SENSORS
CONTROL PANEL
ACTUATORS
PANELBOARD
DISCONNECT SWITCH
ALARM
TRANSFORMER
OTHER SOURCE OF SUPPLY
TRANSFER SWITCH
EMERGENCY PANELBOARD
CORD CONNECTED EQUIPMENT

”;

(2) in Section 2, by striking out the Note concerning Rule 2-026;

(3) in Section 2, by replacing the Note to Rule 2-324 by the following:

“**Rule 2-324**

Flowmeters are not considered to be devices equipped with a vent or relief discharge for combustible gas.

The prescribed distances are measured from the combustible gas relief device and not from the appliance. An appliance may be located near arc-producing equipment provided that an airtight conduit conveys the exhaust gas beyond the prescribed distances.”;

(4) in Section 2, by adding the following Note after the Note to Rule 2-400:

“**Rule 2-500**

The intent of this Rule is to limit as much as possible the mixing of circuits of one building with those of another so as to ensure the safety of occupants, particularly in cases of emergency or maintenance work.”;

(5) in Section 4, by striking out the Note to Rule 4-006;

(6) in Section 4, by striking out the Note to Rule 4-006(4) and (5);

(7) in Section 6, by replacing “that does not exceed 200 A and 750 V, and whose supply service span length is 30 m or less,” in the Note to Rule 6-112(4) by “that does not exceed 750 V”;

(8) in Section 6, by inserting the following after the Note to Rule 6-206(2):

“**Rule 6-300(1)(b)(ii)(B)**

The joints and splices should be installed

(a) in a junction box adequately protected from mechanical damage, located at least 1 m above the ground and attached to a building or post; or

(b) with devices or material specifically approved to make underground joints and splices.

The compatibility of the conductors’ material with the material of the devices used to make the joints and splices should be ensured.

Special care should be given to the location of those joints and splices to limit as much as possible the length of the shortest conductors. All the precautions necessary should also be taken regarding a possible movement of the soil (in particular frost), as specified in Rule 12-012(12).

“**Rule 6-310(c)**

See the Note to Rule 6-300(1)(b)(ii)(B).”;

(9) in Section 8, by striking out the Note to Rule 8-002;

(10) in Section 8, by striking out the Note to Rule 8-102(3);

(11) in Section 8, by striking out the Note to Rule 8-106(10);

(12) in Section 10, by replacing the Note to Rule 10-802 by the following:

“**Rule 10-802**

Although copper is the most common material used to manufacture grounding conductors, other materials may also be used, such as aluminium, copper-clad steel, steel-clad copper, or steel-clad aluminium. For that purpose, copper-clad aluminium is not accepted. Where materials other than copper are used, precautions should be taken, both at the terminations and all along the route as well. Most of the grounding electrical equipment available on the market is compatible with copper only. Different solutions exist to make the materials compatible with the terminations. Thermit-welding or approved adaptors are used the most.

Even if adaptors are used at the terminations to ensure longevity, documentation confirming the suitability of the material may be required, especially if there is a risk that the conductor made from a material other than copper could come into contact with dissimilar metals along its route. Subrule (2), as well as Rules 2-112 and 10-602, require that consideration be given to materials subject to galvanic action or corrosion. For instance, copper conductors in contact with aluminium are subject to galvanic action. Building covering materials and aluminium conductors in contact with masonry or earth are also subject to corrosion. Precautions should be taken at all times to ensure that deterioration from corrosion or galvanic action will be avoided all along the route. The durability of the grounding, which is essential, must be ensured at all times.”;

(13) in Section 12, by inserting the following after the Note to Rule 12-108:

“**Rule 12-108(2)(b)**

See the Note to Rule 6-300(1)(b)(ii) (B).”;

(14) in Section 26, by striking out the Note to Rules 26-700(13) and 26-712(h);

(15) in Section 26, by inserting the following after the Note to Rule 26-704:

“**Rule 26-710(e)(iv)**

It is understood from the expression “unfinished” that even after the installation of the wall covering (gypsum, etc.), it may be impossible to find the appropriate location for the installation of the receptacles required by Rule 26-712(a) if partitions and usable wall space have not yet been delimited. A basement is not considered to be a “finished basement” if the foundation walls are finished but the ceiling is not finished or is partly finished. However, the installation of a duplex receptacle required under Rule 26-710(e)(iv) does not remove the requirement to install the receptacles for specific use already required by other rules of the Code.”;

(16) in Section 26, by striking out the Note to Rule 26-710(o);

(17) in Section 26, by striking out the Note to Items (iv) and (v) of Item (d) of Rule 26-712;

(18) in Section 26, by striking out the Note to Rule 26-712(d)(v);

(19) in Section 32, by replacing the Note to Rule 32-200 by the following:

“**Rule 32-200**

The intent of this Rule is to select the size of the conductors so as not to compromise the integrity of their insulation when they are subject to a fault current (see Rule 32-206 and the associated Note in Appendix B).

The intent of this Rule is also to protect the feeder conductors between a fire pump and an emergency power source from fire damage.

Chapter I Building of the Construction Code (chapter B-1.1, r. 2) requires that conductors supplying life and fire safety equipment be protected against exposure to fire to ensure continued operation of this equipment for a period not less than 1 hour.

NFPA 20 also mandates protection of circuits feeding fire pumps against damage by fire.

Specific requirements pertaining to the fire resistance rating of a material or an assembly of materials can be found in Article 3.2.7.10 of Chapter I Building of the Construction Code (chapter B-1.1, r. 2) or in the appropriate municipal legislation.”;

(20) in Section 32, by replacing the Note to Rule 32-206 by the following:

“**Rule 32-206**

Through the requirements of Chapter I Building of the Construction Code (chapter B-1.1, r. 2) related to the installation of fire pumps (NFPA 20), the intent of this Rule is to allow only a circuit breaker lockable in the closed position and identified as the fire pump disconnecting means to be installed upstream from the fire pump controller in a normal power supply circuit, or upstream from the fire pump transfer switch in an emergency power supply circuit. In Québec, as in the Canadian Electrical Code, it is permitted that the disconnecting means capable of interrupting the circuit of the fire pump, where applicable, be installed immediately downstream of the service box (or equivalent), and not only upstream.

This Rule requires that a fire pump overcurrent protection device be set to enable uninterrupted operation under fire pump starting conditions. Such overcurrent protection devices are installed upstream from a fire pump controller or upstream from a fire pump transfer switch, and have that capability whether they form part of the normal power supply circuit or the emergency power supply circuit.

A typical locked rotor current for a fire pump is at least 500% of the full load current and fire pump suppliers should be consulted to determine the specific locked rotor current for the fire pump selected for a specific application. The setting of the overcurrent protection of the circuit breaker in a normal power supply circuit should be able to carry the locked rotor current of the fire pump indefinitely. The setting of the overcurrent protection of the circuit breaker in an emergency power supply circuit (generator) should be coordinated with the integral overcurrent protection of the fire pump controller or the transfer switch in such a manner that the upstream overcurrent protection devices do not disconnect the circuit prior to the operation of the fire pump controller or transfer switch overcurrent protection.

Chapter I Building of the Construction Code (chapter B-1.1, r. 2), through NFPA 20, allows the bypass of the main protection of the generator by a direct connection between the emergency power supply circuit and the fire pump transfer switch. That relaxation eliminates the requirements of coordination between the main protection of the generator and the protection of the fire pump circuit, as required by Rule 46-208(1).

It should also be noted that Chapter I Building of the Construction Code (chapter B-1.1, r. 2), through NFPA 20, requires that the fire pump controller or transfer switch protection have an instantaneous trip setting of not more than 20 times the full load current. NFPA 20 also requires that the fire pump controller or transfer switch protection carry a minimum of 300% of the fire pump full load current during 8 to 20 seconds.

Lastly, Subrule (2) allows the installation downstream of the service box (or equivalent) of the normal supply circuit, regardless of the presence or not of a disconnecting means referred to in Subrule (1), of an unfused switch between the service box (or equivalent) of the normal power supply circuit and a fire pump transfer switch or controller.

The activation supervision devices allowed under Chapter I Building of the Construction Code (chapter B-1.1, r. 2) (to signal the temporary deactivation of the fire pump) and referred to in Subrule (3)(d) are found in Article 9.2.3.3 of the 2010 edition of NFPA 20.”;

(21) in Section 62, by striking out the Note to Rule 62-108(4);

(**32**) by striking out Appendix L — Engineering guidelines for determining hazardous area classifications.

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

DIVISION IV

OFFENCES

O.C. 961-2002, s. 5; O.C. 722-2018, s. 1.

5.06. Any contravention of any provision of this Chapter, except Rule 2-008 introduced by subparagraph 4 of paragraph 2 of Rule 5.05 of this Chapter, constitutes an offence.

O.C. 722-2018, s. 1.

CHAPTER VII

PASSENGER ROPEWAYS

O.C. 895-2004, s. 2.

DIVISION I

INTERPRETATION

O.C. 895-2004, s. 2.

7.01. In this Chapter, unless the context indicates otherwise, "standard" means the standard "Remontées mécaniques, CAN/CSA Z98-01, Avril 2002" including the amendments in the standard "Z98S1-02 Supplément no 1 à la norme CAN/CSA-Z98-01 Remontées mécaniques, Février 2003" and the updates of July 2002 and October 2003 or "CSA Standard CAN/CSA Z98-01: Passenger Ropeways, June 2001" including the amendments in "Z98S1-02 Supplement No. 1 to CAN/CSA-Z98-01 Passenger Ropeways, December 2002" and the updates of July 2002 and October 2003, published by the Canadian Standards Association, as well as such subsequent amendments and editions as may be published by that organization.

However, the amendments and new editions published after the 21 October 2004 apply to construction work only from the date that corresponds to the last day of the sixth month following the month of publication of the French text of those amendments or editions.

O.C. 895-2004, s. 2.

DIVISION II

APPLICATION OF STANDARDS

O.C. 895-2004, s. 2.

7.02. Subject to the amendments provided for in Division V of this Chapter, the standards and provisions of this Chapter apply to all construction work on a passenger ropeway referred to in the standard and constituting facilities intended for use by the public designated by regulation made by the government under subparagraph 4 of the first paragraph of section 182 of the Building Act (chapter B-1.1) to which the Act applies, including its vicinity, and that is carried out from the 21 October 2004.

Note *Despite this section, for construction work other than maintenance, repair or demolition work, for which contracts were signed before 21 October 2004, a contractor may meet the requirements of either the Regulation respecting the application of a safety code for elevators and a standard for lifts for persons with physical disabilities (O.C. 111-97, 97-01-29) or the Regulation respecting passenger ropeways (O.C. 2476-82, 82-10-27) provided the construction work begins before 19 April 2005. (O.C. 895-2004, s. 3)*

O.C. 895-2004, s. 2.

DIVISION II.1

REFERENCES

O.C. 1419-2021, s. 3.

7.02.01. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 1419-2021, s. 3.

DIVISION III

PLANS AND SPECIFICATIONS

O.C. 895-2004, s. 2.

7.03. A contractor or owner-builder may not begin construction work, except maintenance, repair or demolition work on a passenger ropeway to which Chapter VII of the Construction Code applies, unless the plans and specifications have been prepared for the work.

The plans shall be drawn to scale and shall, with the specifications, indicate the nature and scope of the work to establish if the work carried out complies with section 7.02.

The plans and specifications must contain information on the following:

(1) towers;

(2) upper and lower stations;

(3) sheaves and sheave assemblies;

(4) counterweight sheaves;

(5) deropement equipment and switches;

(6) main drive;

(7) rope grips;

(8) hangers and spring boxes;

(9) hangers and chairs, or cars, or cabins;

(10) brakes and backstops;

(11) tensioning systems and details;

(12) foundations of all structures;

(13) electric power and lightning protection;

(14) electric controls and safety schematics;

(15) communication systems;

(16) hydraulic schematic systems;

(17) haul and counterweight rope details;

(18) structures or buildings;

(19) evacuation equipment (seats, ropes);

(20) service and inspection platforms;

(21) ramps; and

(22) elevation plan.

O.C. 895-2004, s. 2.

DIVISION IV

CERTIFICATE OF CONFORMITY

O.C. 895-2004, s. 2.

7.04. A contractor or owner-builder shall, after construction work, except maintenance, repair or demolition work on a passenger ropeway, provide the Régie du bâtiment du Québec with a certificate of conformity with this Chapter produced and signed by a recognized person stating that

(1) the passenger ropeway is installed in accordance with this Chapter;

(2) the tests and inspections that are provided for the passenger ropeway have been performed and their results are satisfactory; and

(3) the information required from the manufacturer pursuant to the standard has been provided by the latter.

The certificate shall also specify the components inspected, the means used and the data used as the basis for drawing up the certificate, the type, trademark, model, address of the site where the construction work on the passenger ropeway was performed, the nature of the work, the date of the tests and inspections and the name and title of the person by whom they were performed, the date of signature, name, address and telephone number of the engineer who produced the certificate and the date of completion of the construction work. The certificate of conformity may be made on the form provided for that purpose by the Board.

O.C. 895-2004, s. 2.

7.05. An engineer who is a member of the Ordre des ingénieurs du Québec, or the holder of a temporary licence issued under the Engineers Act (chapter I-9), whose professional activities are related to the field of elevators or other elevating devices, is a person recognized for producing and signing the certificate of conformity required under section 7.04.

O.C. 895-2004, s. 2.

7.06. A person is no longer recognized when the person ceases to be a member of the Ordre des ingénieurs du Québec or is no longer the holder of a temporary licence.

O.C. 895-2004, s. 2.

DIVISION V

AMENDMENTS TO THE STANDARD

O.C. 895-2004, s. 2.

7.07. Standard CSA Z98-01 is amended

(1) by revoking Clause 1.5;

(2) by replacing Clause 1.6 by the following:

“**1.6.** For the purposes of this standard, a self-powered reversible above-surface ropeway means a passenger ropeway.”;

(3) by replacing “The owner” in Clause 11.25.3 by “The owner or owner-builder”;

(4) by replacing “It shall be the responsibility of the owner to ensure that the following conditions have been met:” in Clause 11.25.4 by “The owner or owner-builder shall ensure that the following conditions have been met:”.

O.C. 895-2004, s. 2.

DIVISION VI

PENAL

O.C. 895-2004, s. 2.

7.08. Any contravention of any of the provisions of this Chapter constitutes an offence.

O.C. 895-2004, s. 2.

CHAPTER VIII

PETROLEUM EQUIPMENT INSTALLATION

O.C. 220-2007, s. 1.

DIVISION I

DEFINITIONS

O.C. 220-2007, s. 1; O.C. 87-2018, s. 1.

8.01. In this Chapter, unless the context indicates otherwise,

“airport outlet” means a motor fuel dispensing outlet where aviation fuel is dispensed to an aircraft; (*poste d’aéroport*)

“booth” means a shelter situated within a dispensing area, to be used for the sale of motor fuel and, where applicable, for controlling motor fuel dispensing equipment; (*kiosque*)

“bulk plant” means a facility for the storage of bulk petroleum products and having a tank truck, tank car or a cargo tank trailer loading facility; (*dépôt*)

“designated location” means a quarry, mine, forest operations site, agricultural establishment, construction site, snowmobile stop, hunting or fishing camp, or a location not accessible year round by a practicable road in the Québec highway network; (*endroit désigné*) "first storey" means the highest storey having its floor not more than 2 m above average ground level; (*premier étage*)

"flash point" means the minimum temperature at which a liquid within a container gives off vapour in sufficient concentration to form an ignitable mixture with air near the surface of the liquid; (*point d'éclair*)

"high-risk petroleum equipment" means petroleum equipment having one of the following characteristics:

(1) petroleum equipment, one or more components of which is partially or completely buried, having a capacity of

(a) 500 or more litres, when it is installed to store motor fuel; or

(b) 4,000 or more litres, when it is installed to store heating fuel oil, except petroleum equipment of less than 10,000 litres used for heating a single-family dwelling;

(2) aboveground petroleum equipment that has a capacity of 2,500 or more litres, if it is installed to store Class 1 fuel;

(3) petroleum equipment that has a capacity of 10,000 or more litres, if it is installed to store a petroleum product;

(4) petroleum equipment installed for the purposes of trade in petroleum products;

(5) petroleum equipment that is a pipeline.

For the purposes of subparagraph 1, 2 or 3, the capacity of petroleum equipment that is joined, connected to or used with other petroleum equipment, both intended for a common purpose, is determined by combining their respective capacities; (*équipement pétrolier à risque élevé*)

"lower explosive limit" means the minimum concentration of vapour in air at which the propagation of flame occurs on contact with an ignition source; (*limite inférieure d'explosivité*)

"marina outlet" means a motor fuel dispensing outlet where motor fuel is dispensed to motorized vessels; (*poste de marina*)

"motor fuel dispensing outlet" means a self-serve facility, an unattended self-serve facility, an airport outlet, a user outlet, a marina outlet and a service station; (*poste de distribution de carburant*)

"petroleum equipment" means any container, piping, apparatus or other equipment or device that may be used for the distribution, handling, transfer or storage of petroleum products, or forming part of a petroleum equipment installation; (*équipement pétrolier*)

"pipeline" means an intra-provincial structure in which a petroleum product is transported, including the pipes, the components and the other related apparatus that are connected to the pipes as well as the isolation valves used in the stations and other installations marking the beginning and end of that infrastructure. This definition excludes the tank and piping connected to the tank and the piping directly connected to a marine wharf; (*canalisation*)

"recognized person" means a person able to produce or furnish a certificate of conformity pursuant to sections 16 and 35 of the Building Act (chapter B-1.1); (*personne reconnue*)

"self-serve facility" means a motor fuel dispensing outlet where motor fuel is dispensed to a vehicle under the supervision of an attendant; (*libre-service avec surveillance*)

"service centre" means a site where the fuel system of an internal combustion engine is serviced; (*atelier de mécanique*)

"storey" means that part of a building between the top of a floor and the top of the next floor above it, or if there is no floor above it, that part between the top of a floor and the ceiling; (*étage*)

"tank" means a container that holds more than 225 litres; (*réservoir*)

"unattended self-serve facility" means a motor fuel dispensing outlet for commercial vehicles where motor fuel is dispensed to a vehicle without supervision of an attendant; (*libre-service sans surveillance*) “underground piping” means piping or part of piping that is buried in the ground; (*tuyauterie souterraine*)

“underground tank” means a tank that is partially or entirely buried in the ground; (*réservoir souterrain*)

“user outlet” means a motor fuel dispensing outlet used for a purpose other than trade in motor fuel. (*poste d’utilisateur*)

O.C. 220-2007, s. 1; O.C. 87-2018, s. 2.

8.02. For the purposes of this Chapter,

(1) the words and expressions used in the definition of petroleum product provided for in the Building Act (chapter B-1.1) have the meaning assigned to them by the Petroleum Products Regulation (chapter P-30.01, r. 2). In addition, the term “gasoline” includes the blendstock for oxygenate blending and the term “fuel” includes diesel fuel intended to serve as fuel in locomotive and ship engines;

(2) the definition of petroleum product provided for in the Building Act (chapter B-1.1) includes any other liquid mixture of hydrocarbons referred to in the Petroleum Products Regulation (chapter P-30.01, r. 2);

(3) petroleum products comprise the following classes:

(a) Class 1: liquid having a flash point below 37.8 °C determined according to the method provided by ASTM D56, Standard Test Method for Flash Point by Tag Closed Cup Tester, published by the American Society for Testing and Materials International;

(b) Class 2: liquid having a flash point equal to or above 37.8 °C but below 60 °C determined according to the method provided by ASTM D93, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester, published by the American Society for Testing and Materials International;

(c) Class 3: liquid having a flash point equal to or above 60 °C determined according to the method provided by ASTM D93, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester, published by the American Society for Testing and Materials International.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 3.

DIVISION II

SCOPE

O.C. 220-2007, s. 1; O.C. 87-2018, s. 4.

8.03. This Chapter applies to construction work on a petroleum equipment installation, including its vicinity.

It does not apply to equipment or apparatus intended to use a petroleum product, such as an internal combustion engine or fuel burning equipment.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 4.

DIVISION III

REGULATIONS AND TECHNICAL STANDARDS APPLICABLE DEPENDING ON THE TYPE OF WORK

O.C. 220-2007, s. 1; O.C. 87-2018, s. 5.

8.04. In this Chapter, a reference to a regulation, or a technical standard developed by a body other than the Board, refers to the most recent regulation, or the most recent edition of the technical standard and includes any amendments to that edition.

However, the amendments and editions of the technical standards published after 7 April 2018 apply to petroleum equipment only from the last day of the sixth month following the publication of the French and English versions of those texts. Where those versions are not published at the same time, the period runs from the date of publication of the last version. If the amendments or editions are in one language, the period runs from their publication.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 6.

8.05. Where the referenced requirements are inconsistent with the requirements of any provision of this Chapter, the latter prevail.

O.C. 220-2007, s. 1.

8.05.01. Construction work on a petroleum equipment installation must be carried out in accordance with this Chapter, except for

(1) construction work of a petroleum equipment installation covered by CSA Standard B139, Installation code for oil-burning equipment, published by the CSA Group, which must be carried out in accordance with that standard, and with sections 8.08 to 8.22 of this Chapter;

(2) construction work on a petroleum equipment installation located inside a building and not referred to in subparagraph 1, which must be carried out in accordance with Part 4 of Division B of the NFCC, National Fire Code of Canada, published by the Canadian Commission on Building and Fire Codes of the National Research Council of Canada, and with sections 8.08 to 8.22 and with the applicable provisions of Divisions VIII and IX of this Chapter;

(3) construction work of a pipeline, which must be carried out in accordance with CAN/CSA Standard Z662, Oil and Gas Pipeline Systems, published by the CSA Group, and with sections 8.08 to 8.22 of this Chapter.

Sections 8.01 to 8.05 and 8.218 of this Chapter apply to the work referred to in subparagraphs 1 to 3 of the first paragraph.

O.C. 87-2018, s. 7.

8.06. The technical standards developed by another agency and referenced in this Chapter are those indicated in the table below.

TABLE 1
REFERENCED TECHNICAL STANDARDS DEVELOPED BY ANOTHER AGENCY

Designation	Title	Reference
ACC - Association canadienne des carburants / Canadian Fuels Association		
CFA	Colour-Symbol System to Mark Equipment and Vehicles for Product Identification	8.106, 1st paragraph 8.194
API - American Petroleum Institute		
API 5L	Specification for Line Pipe	8.25, 1st paragraph, subpar. 1
API 650	Welded Tanks for Oil Storage	8.24, subpar. 5
API 1104	Welding of Pipelines and Related Facilities	8.70
API 1542	Identification Markings for Dedicated Aviation Fuel Manufacturing and Distribution Facilities, Airport Storage and Mobile Fuelling Equipment	8.188
API 2000	Venting Atmospheric and Low-Pressure Storage Tanks	8.102
ASME - American Society of Mechanical Engineers		
ASME B16.5	Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24 Metric/Inch Standard	8.107, 2nd paragraph
ASME B31.3	Process Piping	8.25, 2nd paragraph
ASTM - American Society for Testing and Materials International		
ASTM A53/A53M	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	8.25, 1st paragraph, subpar. 2
ASTM A193/A193M	Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications	8.109, 1st paragraph
ASTM D56	Standard Test Method for Flash Point by Tag Closed Cup Tester	8.02, subpar. 3 *a*)
ASTM D93	Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester	8.02, subpar. 3 *b*) and *c*)
BNQ - Bureau de normalisation du Québec		
CAN/BNQ 2501-255	Sols - Détermination de la relation teneur en eau - masse volumique sèche – Essai avec énergie de compactage modifiée (2 700 kN.m/m^3)	8.33, 1st paragraph, subpars. 2 and 3
NRCC - Canadian Commission on Building and Fire Codes (National Research Council of Canada)		
NFCC	National Fire Code - Canada	8.05.01, subpar. 2 8.12, 1st paragraph, subpar. 2
Groupe CSA / CSA Group		
CSA B139 Series	Installation code for oil-burning equipment	8.05.01, subpar. 1 8.12, 1st paragraph, subpar. 1
CSA B346	Power-Operated Dispensing Devices for Flammable Liquids	8.141
CSA Z245.1	Steel Pipe	8.25, 1st paragraph, subpar. 3

Designation	Title	Reference
CAN/CSA-Z662	Oil and Gas Pipeline Systems	8.05.01, subpar. 3 8.12, 1st paragraph, subpar. 3 8.103
EPA - Environmental Protection Agency		
EPA/530/UST-90/004	Standard Test Procedures for Evaluating Leak Detection Methods: Volumetric Tank Tightness Testing Methods	8.130, 2nd paragraph
EPA/530/UST-90/007	Standard Test Procedures for Evaluating Leak Detection Methods: Statistical Inventory Reconciliation Methods	8.130, 2nd paragraph
NACE International - National Association of Corrosion Engineers		
NACE SP0169	Control of External Corrosion on Underground or Submerged Metallic Piping Systems	8.42, subpar. 2 8.130, 1st paragraph
NACE SP0285	Corrosion Control of Underground Storage Tank Systems by Cathodic Protection	8.42, subpar. 2 8.130, 1st paragraph
NFPA - National Fire Protection Association		
NFPA 30	Flammable and Combustible Liquids Code	8.65, subpar. 4
SAE International - Society of Automotive Engineers		
SAE AS 1852D	Nozzles and Ports - Gravity Fueling Interface Standard for Civil Aircraft	8.181
ULC - Laboratoires des assureurs du Canada / Underwriters' Laboratories of Canada		
CAN/ULC-S601	Standard for Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids	8.24, subpar. 1 8.54, subpar.2
CAN/ULC-S603	Standard for Steel Underground Tanks for Flammable and Combustible Liquids	8.23, 1st paragraph, subpar. 1
CAN/ULC-S603.1	External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids	8.23, 1st paragraph, subpar. 2 8.35, 1st paragraph, subpar. 2 *b*) 8.42, subpar. 1 8.88, 1st paragraph
CAN/ULC-S612	Standard for Hose and Hose Assemblies for Flammable and Combustible Liquids	8.155
CAN/ULC-S615	Standard for Fibre Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids	8.23, 1st paragraph, subpar. 3
CAN/ULC-S620	Standard for Hose Nozzle Valves for Flammable and Combustible Liquids	8.154
CAN/ULC-S642	Standard for Compounds and Tapes for Threaded Pipe Joints	8.69
CAN/ULC-S651	Standard for Emergency Valves for Flammable and Combustible Liquids	8.115 8.149, 1st paragraph
CAN/ULC-S653	Standard for Aboveground Horizontal Steel Contained Tank Assemblies for Flammable and Combustible Liquids	8.24, subpar. 2 8.143

Designation	Title	Reference
CAN/ULC-S655	Standard for Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids	8.24, subpar. 3
CAN/ULC-S660	Standard for Nonmetallic Underground Piping for Flammable and Combustible Liquids	8.27
CAN/ULC-S661	Standard for Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks	8.61, subpar. 1 *a*) 8.125, subpar. 1 8.127
CAN/ULC-S663	Standard for Spill Containment Devices for Flammable and Combustible Liquid Aboveground Storage Tank	8.61, subpar. 1 *a*)
CAN/ULC-S664	Standard for Containment Sumps, Sump Fittings, and Accessories for Flammable and Combustible Liquids	8.127 8.143
CAN/ULC-S668	Standard for Liners Used for Secondary Containment of Aboveground Flammable and Combustible Liquid Tanks	8.62, subpar. 5 *a*)
CAN/ULC-S675.1	Standard for Volumetric Leak Detection Devices for Underground and Aboveground Storage Tanks for Flammable and Combustible Liquids	8.29, subpar. 2
CAN/ULC-S675.2	Standard for Nonvolumetric Precision Leak Detection Devices for Underground and Aboveground Storage Tanks and Piping for Flammable and Combustible Liquids	8.28, 3rd paragraph 8.29, subpar. 2
CAN/ULC-S676	Standard for Refurbishing of Storage Tanks for Flammable and Combustible Liquids	8.44 8.67, subpar. 1
CAN/ULC-S677	Standard for Fire Tested Aboveground Tank Assemblies for Flammable and Combustible Liquids	8.24, subpar. 4
ULC/ORD-C107.12	Line Leak Detection Devices for Flammable Liquid Piping	8.28, 3rd paragraph
ULC/ORD-C842	Guide for the Investigation of Valves for Flammable and Combustible Liquids	8.115

O.C. 220-2007, s. 1; O.C. 92-2014, s. 1; O.C. 87-2018, s. 8.

8.07. *(Revoked).*

O.C. 220-2007, s. 1; O.C. 1263-2012, s. 3; O.C. 92-2014, s. 2; O.C. 87-2018, s. 9.

DIVISION IV

APPROVAL OF EQUIPMENT

O.C. 220-2007, s. 1.

8.08. Petroleum equipment used in a petroleum equipment installation must, when required by a provision of this Chapter, be approved for the use for which it is intended.

A tank for which subparagraph 1 or 2 of the first paragraph of section 8.05.01 applies must also be approved for the use for which it is intended.

The sale or leasing of such equipment that has not been approved is prohibited. The use of such equipment in a petroleum equipment installation that has not been approved, except for approval purposes, is also prohibited.

Petroleum equipment may, however, during an exhibition, a presentation or a demonstration, be used without prior approval provided that it is accompanied by a notice with the following warning in characters measuring at least 15 mm: "WARNING: this material has not been approved for sale or rental as required under Chapter VIII of the Construction Code.".

O.C. 220-2007, s. 1; O.C. 87-2018, s. 10.

8.09. All petroleum equipment that has been certified by a certification agency accredited by the Standards Council of Canada in the field of petroleum equipment is considered to be approved.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 11.

8.10. Despite section 8.08, approval is not required for each component of petroleum equipment if the petroleum equipment has received overall approval.

O.C. 220-2007, s. 1.

8.11. For the purposes of this Chapter, "certification" or "certified" means recognition by one of the certification agencies accredited by the Standards Council of Canada in the field of petroleum equipment, by means of a label affixed on certified equipment, attesting that the equipment complies with the construction and testing requirements in the standards published by the agency.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 12.

DIVISION V

CERTIFICATE OF CONFORMITY

O.C. 220-2007, s. 1.

8.12. A contractor or owner-builder must, after construction work related to the installation, alteration or demolition of high-risk petroleum equipment or complete piping connected to it, provide the Régie du bâtiment du Québec with a certificate of conformity produced and signed by a recognized person under section 8.13 stating that

(1) in the case of high-risk petroleum equipment covered by CSA Standard B139, Installation code for oil-burning equipment, published by the CSA Group, the work has been carried out in accordance with the requirements of that standard;

(2) in the case of high-risk petroleum equipment located inside a building and not covered by subparagraph 1, the work has been carried out in accordance with the requirements of Part 4 of Division B of the NFC, National Fire Code of Canada, published by the Canadian Commission on Building and Fire Codes of the National Research Council Canada and the applicable provisions of Division VIII and IX of this Chapter;

(3) in the case of a pipeline, the work has been carried out in accordance with the requirements of CAN/CSA Standard Z662, Oil and Pipeline Systems, published by the CSA Group;

(4) in the case of high-risk petroleum equipment that is not referred to in subparagraphs 1 to 3, the work has been carried out in accordance with sections 8.23, 8.24, 8.26 to 8.28, paragraphs 1 to 3 of section 8.29, section 8.30, sections 8.31 and 8.32, only with regard to the clearance between the top of the tank and ground level, sections 8.42 to 8.44, paragraphs 1 and 2 of section 8.45, section 8.46, except subparagraphs 1 to 3 of the second paragraph, sections 8.48 to 8.50, paragraph 1 of section 8.51, sections 8.53, 8.55 to 8.57, 8.60 to 8.65, except paragraph 4 of that section, paragraph 2 of section 8.66, sections 8.69, 8.72, 8.75, 8.78 to 8.80 and section 8.83, only with regard to the clearance between the piping and ground level, sections 8.85, 8.88 to 8.95, the third paragraph of section 8.96, sections 8.97, 8.98, 8.100, 8.102, 8.108, subparagraph 1 of the first paragraph of section 8.110, the third paragraph of section 8.112, sections 8.116, 8.124, 8.125, 8.127, 8.128, 8.138, 8.141 to 8.147, 8.149 to 8.154, 8.156, 8.158 to 8.160, the first paragraph of section 8.162, section 8.164, the first and second paragraphs of section 8.166, sections 8.168, 8.170 to 8.172, 8.174, 8.175, the second paragraph of section 8.177, section 8.178, except paragraph 5 of that section, sections 8.179, 8.180, 8.182, 8.185, 8.186, 8.195 and 8.197 to 8.199, section 8.200, with regard to the manual valve, sections 8.201, 8.203 to 8.205, 8.207 to 8.209, 8.211 to 8.213 and 8.215 to 8.217;

(5) the tests and verifications that are provided, as the case may be, in the standards referred to in subparagraphs 1 to 3 or the sections listed in subparagraph 4, for such work, have been performed and the results are satisfactory;

(6) the equipment covered by the certificate is free of leaks and does not represent a danger to the public.

Should the recognized person refuse to file the required certificate of conformity, the recognized person informs the contractor or owner-builder and the Board, within 30 days, of the irregularities observe and of the reasons for refusal.

The certificate must also contain a description of the petroleum equipment inspected, its type, make, the petroleum product it is to contain, its model, capacity, serial number, the standard under which it has been approved or manufactured, the address of the site where the construction work on the petroleum equipment was carried out, the nature of the work carried out, the licence number of the contractor or owner-builder who carried out the work, the date of signature, the name, address, telephone number and professional order membership number or the temporary permit issued under the Engineers Act (chapter I-9), of the recognized person who produced the certificate and the date of the beginning and end of the construction work. The certificate may be produced on the form provided for that purpose by the Board.

If high-risk petroleum equipment has already been installed, altered or demolished, the contractor or owner-builder must take the necessary measures so that the recognized person may produce the certificate.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 13.

8.13. The following persons whose professional activities are related to the inspection, surveillance or design of petroleum equipment installations may be recognized by the Board to produce and sign the certificate of conformity required under section 8.12:

(1) an engineer who is a member of the Ordre des ingénieurs du Québec;

(2) a holder of a temporary licence issued under the Engineers Act (chapter I-9) and

(3) a professional technologist holding a licence issued by the Ordre des technologues professionnels du Québec.

Those persons must not be in a situation of conflict of interest, such as

(1) performing work on petroleum equipment or decontamination work on sites polluted by petroleum products, or supervising such work, in the capacity of a contractor or employee; or

(2) having a direct or indirect interest in an enterprise that performs work on petroleum equipment, designs or manufactures petroleum equipment or engages in activities in the field of petroleum product sales, storage or transportation.

O.C. 220-2007, s. 1; O.C. 838-2011, s. 1; O.C. 87-2018, s. 14.

8.14. The person referred to in section 8.13 who applies for recognition must

(1) file an application with the Board that contains the following:

(a) the person's name, home address, telephone number and membership number of the person's professional order or the person's temporary licence number; and

(b) the number of years of experience acquired in activities related to the fields referred to in section 8.13;

(2) pay the fees of $682.82, unless the application concerns the third paragraph of section 8.13; and

(3) certify the accuracy of the information contained in the application.

O.C. 220-2007, s. 1; O.C. 838-2011, s. 2.

8.15. The recognition of a person may be revoked by the Board for the following reasons:

(1) the person no longer meets the conditions set out in section 8.13; or

(2) the person has been convicted of an offence under section 194 of the Building Act (chapter B-1.1).

O.C. 220-2007, s. 1.

DIVISION VI

GENERAL

O.C. 220-2007, s. 1.

8.16. Construction work carried out on a petroleum equipment installation must be carried out so as to ensure that the equipment provides, in normal conditions of use and when used as intended, satisfactory levels of performance while minimizing danger to the public.

O.C. 220-2007, s. 1.

8.17. A contractor or owner-builder must, during construction work,

(1) use construction procedures suitable for the work;

(2) use the materials, appliances, equipment or devices designed for that purpose; and

(3) take the necessary precautions to prevent a risk of explosion, fire, spillage or other accidents of that nature.

O.C. 220-2007, s. 1.

DIVISION VII

SPECIAL PROVISIONS APPLICABLE TO PETROLEUM EQUIPMENT

O.C. 220-2007, s. 1.

8.18. Petroleum equipment must

(1) be installed in such a way as to safely contain the petroleum products to be handled and to resist wear, normal handling, fire and shocks;

(2) be sufficiently leakproof to prevent the risk of explosion, fire, spillage or any other accident of that nature when used during construction work;

(3) be installed in such a way as to prevent anyone not authorized by the person responsible for the equipment from gaining access to the equipment and be protected from coming into contact with any object that could cause an accident;

(4) be installed and have the necessary protection devices to ensure the safety of the persons who have access to the equipment or who are supplied from it;

(5) be designed, erected, installed or placed so that maintenance, repair or demolition work may be carried out; and

(6) be designed for the use for which it is intended and to resist to the conditions of use to which it is submitted.

O.C. 220-2007, s. 1.

8.19. Petroleum equipment used to store a Class 1 petroleum product may not be installed in a heated room unless the room is heated by means of an appliance that has no ignition source.

O.C. 220-2007, s. 1.

8.20. In the presence of petroleum equipment, electrical service equipment, a pump or any other electrical equipment must meet the requirements regarding hazardous locations in Chapter V Electricity of the Construction Code.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 15.

8.21. *(Revoked).*

O.C. 220-2007, s. 1; O.C. 92-2014, s. 3; O.C. 87-2018, s. 16.

8.22. The erection or installation of an underground or aboveground tank, a petroleum products distributor and a pump or piping containing such products is prohibited less than 3 m from a vertical plane touching the closest outside wall of a subway works.

O.C. 220-2007, s. 1.

8.23. A contractor or owner-builder may not install an underground tank unless it has been approved in accordance with one of the following standards:

(1) CAN/ULC-S603, Standard for Steel Underground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(2) CAN/ULC-S603.1, External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(3) CAN/ULC-S615, Standard for Fibre Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

The installation must also be carried out in compliance with the standard under which the tank has been approved.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 17.

8.24. A contractor or owner-builder may not install an aboveground tank unless it has been approved in accordance with one of the following standards:

(1) CAN/ULC-S601, Standard for Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(2) CAN/ULC-S653, Standard for Aboveground Horizontal Steel Contained Tank Assemblies for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(3) CAN/ULC-S655, Standard for Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(4) CAN/ULC-S677, Standard for Fire Tested Aboveground Tank Assemblies for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(5) API 650, Welded Tanks for Oil Storage, published by the American Petroleum Institute.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 18.

8.25. A contractor or owner-builder may install steel piping only if it meets the manufacturing requirements of one of the following standards:

(1) API 5L, Specification for Line Pipe, published by the American Petroleum Institute;

(2) ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, published by the American Society for Testing and Materials International;

(3) CSA Z245.1, Steel Pipe, published by the CSA Group.

In addition, if service pressure exceeds 875 kPa, piping and fittings must meet the requirements of ASME Standard B31.3, Process Piping, published by the American Society of Mechanical Engineers.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 19.

8.26. A contractor or owner-builder may not install copper piping.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 20.

8.27. A contractor or owner-builder may install nonmetallic piping only if it meets the requirements of CAN/ULCS660, Standard for Nonmetallic Underground Piping for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada. The piping must be installed so that there are no joints in the ground.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 21.

8.28. A contractor or owner-builder may install double-walled piping only if the piping meets the requirements of

(1) section 8.25, if it is steel; or

(2) section 8.27, if it is nonmetallic.

Such piping must be installed inside other piping that meets the requirements of section 8.25 or 8.27, as the case may be.

It must also have an automatic leak detection system with a visual and audible alarm that meets the requirements of ULC/ORD Standard C107.12, Line Leak Detection Devices for Flammable Liquid Piping, or CAN/ ULC-S675.2, Standard for Nonvolumetric Precision Leak Detection Devices for Underground and Aboveground Storage Tanks and Piping for Flammable and Combustible Liquids, published by the Underwriters' Laboratories of Canada.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 22.

DIVISION VIII

SPECIAL PROVISIONS APPLYING TO HIGH-RISK PETROLEUM EQUIPMENT

O.C. 220-2007, s. 1.

§ 1. — *Underground tanks*

O.C. 220-2007, s. 1.

8.29. An underground tank must, to be installed,

(1) have a double wall and a capacity of more than 110,000 litres;

(2) have, in its interstitial space, an automatic leak detection system with a visual and audible alarm manufactured under the requirements of CAN/ULCS675.1, Standard for Volumetric Leak Detection Devices for Underground and Aboveground Storage Tanks for Flammable and Combustible Liquids or CAN/ ULCS675.2, Standard for Nonvolumetric Precision Leak Detection Devices for Underground and Aboveground Storage Tanks and Piping for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada;

(3) contain, in its interstitial space, where applicable, brine composed exclusively of calcium chloride with or without potassium chloride or sodium chloride where the respective concentration does not exceed 42%, 3% and 2%; and

(4) have any damage repaired, before the tank is backfilled, according to the manufacturer's specifications.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 23.

8.30. An underground tank must be installed

(1) at least 1 m from the foundations of any building;

(2) at least 1 m from any other tank;

(3) at least 1 m from the property line;

(4) at least 750 mm from the inner wall of the excavation; and

(5) in such manner that the loads carried by the foundations or the supports of a building cannot be transmitted to the tank; in addition, the soil must not be removed from the footing down to the bed of the excavation, in a 45 ° slope.

O.C. 220-2007, s. 1.

8.31. An underground tank likely to be subjected to overhead vehicular traffic must be sited

(1) at a depth not less than 1 m below ground level, be covered with not less than 900 mm of a backfill material referred to in section 8.33 and be covered with not less than 100 mm of bituminous concrete; or

(2) at a depth of not less than 450 mm, be covered with at least 300 mm of a backfill material referred to in section 8.33 and be covered with a reinforced concrete slab not less than 150 mm thick; the slab must also extend at least 300 mm horizontally beyond the perimeter of the tank.

O.C. 220-2007, s. 1.

8.32. An underground tank not to be subjected to overhead vehicular traffic must be sited

(1) at a depth of not less than 600 mm below ground level and be covered with a backfill material referred to in section 8.33; or

(2) at a depth of not less than 400 mm, be covered with a backfill material referred to in section 8.33 and be covered with a reinforced concrete slab at least 100 mm thick.

O.C. 220-2007, s. 1.

8.33. An underground tank must be installed on a backfill foundation at least 300 mm thick, that exceeds the tank's perimeter by at least 300 mm and is composed of one of the following materials:

(1) in the case of a fibreglass tank, pea gravel, rounded pea gravel between 3 and 20 mm or crushed stone at least 3 mm and not more than 13 mm; in addition, each material used must be clean and without dust, sand, debris, organic material, ice or snow so that not more than 3% of its weight passes through a 2.5 mm sieve;

(2) in the case of a steel tank, clean or natural sand free of stones compacted to at least 90% of the optimal density of the modified proctor determined according to CAN/BNQ Standard 2501-255, Soils - Determination of the Water Content-Dry Density Relation - Modified Effort Compaction Test (2,700 kN.m/m^3), published by the Bureau de normalisation du Québec, and be without stone, debris, organic material, ice or snow; or

(3) in the case of a jacketed steel underground tank, clean or natural sand free of stones compacted to at least 90% of the optimal density of the modified proctor determined according to CAN/BNQ Standard 2501-255, Soils - Determination of the Water Content-Dry Density Relation - Modified Effort Compaction Test (2,700 kN.m/m^3), published by the Bureau de normalisation du Québec, and be without stone, debris, organic material, ice or snow, or pea gravel or rounded pea gravel between 3 and 20 mm.

The tank must be backfilled, as applicable, with the materials described in subparagraphs 1 to 3 of the first paragraph and be covered with a finishing grade layer not more than 300 mm thick.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 24.

8.34. An underground tank must be lowered into an excavation by the use of lifting lugs and hooks designed for that purpose or spreader bars, if required by the manufacturer's instructions; the use of chains or slings around the tank is prohibited.

O.C. 220-2007, s. 1.

8.35. After an underground tank has been set in the excavation, it must undergo the leak tests listed below that are to be conducted in compliance with the following requirements:

(1) for the inner wall of a tank,

(a) all the tank's caps must be removed and steel caps must be installed, after a joint compound or tape has been applied that meets the requirements of section 8.69;

(b) a safety valve set to a pressure of not more than 40 kPa capable of discharging the flow from the pressure source must be installed on a tank opening and its operation inspected before each test;

(c) the pressure inside the tank and in its interstitial space must be measured simultaneously using a pressure gauge calibrated in units of not more than 1 kPa;

(d) a pressure of at least 30 kPa and not more than 35 kPa must be created inside the tank; and

(e) the pressure in the interstitial space must remain stable;

(2) for the outer wall of a tank,

(a) the pressure inside the tank and in its interstitial space must be measured simultaneously using a pressure gauge calibrated in units of not more than 1 kPa;

(b) the pressure source must come from the inside part of the tank and be transferred into the interstitial space until it reaches a pressure of at least 30 kPa and not more than 35 kPa; a tank manufactured under CAN/ULC Standard S603.1, External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada, may be pressurized according to the manufacturer's instructions;

(c) it must be tested using leak detection fluid; and

(d) the interstitial space of a fibreglass tank must be inspected according to the manufacturer's recommendations.

During the tests, once the temperature has been stabilized and the pressure source removed, the pressure created must be maintained for at least one hour.

The pressure created in the interstitial space of the tank must be released before the pressure of the inner wall.

During each test period, the necessary inspections must be made to ensure the tests are properly conducted and to prevent accidents.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 25.

8.36. In the case of a tank with compartments, each compartment must be tested separately in accordance with section 8.35, not simultaneously and only if the adjacent compartment is not under pressure.

O.C. 220-2007, s. 1.

8.37. If the tank has already contained a petroleum product or other flammable product, the leak tests required by section 8.35 must be conducted using nitrogen.

O.C. 220-2007, s. 1.

8.38. The tests required by section 8.35 need not be conducted if the contractor or owner-builder

(1) ascertains that depressurization of at least 42 kPa created by the manufacturer in the interstitial space of the tank is maintained after it has been placed in the excavation; or

(2) has conducted a vacuum test on the interstitial space at a pressure of at least 42 kPa for at least one hour, if such a test is authorized by the manufacturer.

O.C. 220-2007, s. 1.

8.39. When leakage is detected during the leak tests, the tank must be repaired and subjected to a new test or be replaced.

O.C. 220-2007, s. 1.

8.40. A contractor or owner-builder may not use a petroleum product to ballast a tank unless the tank has a fill pipe and a vent line and all other openings have been plugged.

O.C. 220-2007, s. 1.

8.41. If the water table is reached during excavation work to install an underground tank, the contractor or owner-builder must comply with the following requirements:

(1) the up-lift stress of the tank must be calculated and a copy of the calculation must accompany the analysis documents and be sent to the owner to be filed in the petroleum equipment installation register that the owner must make available to the Board in accordance with Chapter VI of the Safety Code (chapter B-1.1, r. 3) made under the Building Act (chapter B-1.1);

(2) the calculation must be based on the highest estimated water-level elevation;

(3) if the calculation indicates that the up-lift stress is such that an empty tank could be displaced, the tank must be anchored by anchor straps attached to a reinforced concrete slab or to anchor weights under the tank, by ground anchors or by use of a reinforced concrete slab above the tank;

(4) the size of the slab or anchors must be designed on the basis of the up-lift stress to which the empty tank will be submitted and in a manner to prevent it from lifting;

(5) the tank must be separated from a concrete slab or anchor weight by a layer at least 300 mm thick of a backfill material referred to in section 8.33;

(6) every anchor strap or ground anchor must be electrically insulated from the tank, be installed in such a manner that it does not damage the tank's protective coating, and be tightened by hand in the case of a strap; and

(7) the strength of the anchor straps and ground anchors must be determined on the basis of the factors mentioned in paragraph 4.

O.C. 220-2007, s. 1.

8.42. A contractor or owner-builder may not carry out construction work on a steel underground tank unless it is protected against corrosion in accordance with one of the methods in the following standards:

(1) CAN/ULC S603.1, External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada; or

(2) NACE SP0169, Control of External Corrosion on Underground or Submerged Metallic Piping Systems, or NACE SP0285, Corrosion Control of Underground Storage Tank Systems by Cathodic

Protection, published by NACE International, if the petroleum equipment installation is protected by an induced current system.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 26.

8.43. Every excavation in which a tank is installed must have at least one observation well.

The observation well must consist of a perforated pipe at least 150 mm in diameter installed vertically, extending down 900 mm below the bottom of the tank, and be accessible from the ground. The pipe must also be enclosed inside a permeable lining if it is buried in sand.

O.C. 220-2007, s. 1.

8.44. A contractor or owner-builder may neither install an underground tank that has been removed from the ground, nor refurbish, repair or alter it, unless it meets the requirement of CAN/ULC-S676, Standard for Refurbishing of Storage Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 27.

8.45. If construction work consists in removing petroleum equipment from the ground, the contractor or owner-builder must, as the case may be,

(1) empty all petroleum product from the tank, piping and motor fuel dispensers, before their removal;

(2) remove the tank and piping from the ground and from the site along with the motor fuel dispenser connected to it, after purging the tank of all vapours until the flammable vapour concentration is less than 20% of the lower explosive limit; or

(3) destroy the tank as provided by section 8.68 or have it approved as provided by section 8.44, in which case it must be purged of any vapour and its openings must be hermetically sealed other than a ventilation opening of at least 60 mm in diameter.

8.46. A contractor or owner-builder may not carry out alteration work to an underground tank that may be abandoned on site, unless the contractor or owner-builder has obtained the certificate of a person recognized under section 8.13, stating that

(1) removing the tank would jeopardize the integrity of the building's structure or of a part that is essential for the intended use of the building; or

(2) the machinery required for the removal of the tank cannot be taken onto the site.

The contractor or owner-builder must then

(1) remove all sludge from the tank so as to prevent any explosion and dispose of it in a tank or other closed container compatible with petroleum products;

(2) remove the piping from the ground;

(3) purge the tank of all vapours until the concentration is less than 10% of the lower explosive limit; and

(4) fill the tank with inert material such as sand, gravel or concrete and plug the openings.

O.C. 220-2007, s. 1.

§ 2. — *Aboveground tanks*

O.C. 220-2007, s. 1.

8.47. An aboveground tank, a loading or unloading facility and metal piping installed on a tank must be protected against external corrosion by the use of paint, wrapping or coating.

O.C. 220-2007, s. 1.

8.48. Siting of an aboveground tank must conform to the requirements of the following Tables 2 and 3:

TABLE 2
SITING OF ABOVEGROUND TANKS

Tank capacity (litres)	Product	Minimum distance, in metres, measured horizontally, between any point on outside tank shell and		
		Dike centre line when required by sections 8.60 and 8.61	Closest building	Property line
2,000 to 5,000	Class 1	D	D	D
	Classes 2 and 3	0.5	0.5	1.5
5,001 to 47,000	Class 1	D	D	D
	Classes 2 and 3*	1.5	1.5	1.5
	Class 3 ─ flash point above 93.3 °C	0.5	0.5	1.5
47,001 to 200,000	Class 1	D	D	D
	Classes 2 and 3*	D	D	D
	Class 3 ─ flash point above 93.3 °C	1	1	D
200,001 to 400,000	All	D	5	5
400,001 to 2,000,000	All	D	9	9
2,000,001 to 4,000,000	All	D	12	12
More than 4,000,000	All	D	15	15

D: The greater distance between 3 m and one-half tank height. Tank height is measured from the bottom of the diked areas.

* Class 3 products are products with a fl ash point not above 93.3 °C.

TABLE 3

DISTANCES BETWEEN TWO ABOVEGROUND TANKS

Tank capacity	Minimum free distance
Tanks where none exceeds 230,000 L	1 m
Tanks of various capacities, one only exceeding 230,000 L	One-half of smallest tank diameter, but never less than 1 m
Tanks of equal capacity, each exceeding 230,000 L	One-half diameter of one tank
Tanks of various capacities, each exceeding 230,000 L	One-half diameter of smallest tank

D. 220-2007, a. 1; O.C. 87-2018, s. 28.

8.49. Despite section 8.48, an aboveground tank used to store motor fuel in a motor fuel dispensing outlet situated in a designated location must be installed so that the tank and the end of the motor fuel dispensing hose are at all times at least 12 m from any building or property line.

O.C. 220-2007, s. 1.

8.50. An aboveground tank used to store and sell motor fuel that is installed in a designated location within the limits of a municipality must be protected by a fence that meets the requirements of section 8.217.

O.C. 220-2007, s. 1.

8.51. A contractor or owner-builder may not install

(1) an aboveground vertical tank, unless it rests on concrete or masonry foundations or on a bed of crushed stone, gravel, sand or a combination of those materials; or

(2) an aboveground horizontal tank, unless it sits above ground level on a support of concrete, masonry or steel coated with an anti-corrosive material.

O.C. 220-2007, s. 1.

8.52. A steel support on which an aboveground tank is installed must have a fire-resistance rating longer than 2 hours within the meaning of Chapter I, except for a steel stand if the lowest point of the tank supported by it is not more than 300 mm above ground.

O.C. 220-2007, s. 1.

8.53. A contractor or owner-builder may not install a vertical tank directly on the ground, unless the slope allows water to flow away from the base of the tank.

O.C. 220-2007, s. 1.

8.54. In areas subject to earthquake forces, a tank used to store petroleum products, its supports and connections must be designed to resist such forces in compliance with

(1) Part 4 of the Code referred to in Chapter I, as amended by Division III of that Chapter; and

(2) Appendix A of CAN/ULC-S601, Standard for Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 29.

8.55. A contractor or owner-builder may not install an aboveground tank on a flood zone referred to in the Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains (chapter Q-2, r. 35), unless it is anchored to prevent floating.

O.C. 220-2007, s. 1.

8.56. A contractor or owner-builder may not install an aboveground tank, unless it is protected from vehicle impact.

O.C. 220-2007, s. 1.

8.57. A contractor or owner-builder may not install an aboveground tank that has piping or a fitting connected to it at a point below the highest level to which the petroleum product it contains may rise, unless the piping or fitting has a shut-off valve that meets the requirements of one of the standards referred to in section 8.115 and is located as near as is practicable to the shell of the tank.

O.C. 220-2007, s. 1.

8.58. A contractor or owner-builder may not install an aboveground tank used to store petroleum products, unless openings for gauging tanks have a vapour tight and lockable cover.

O.C. 220-2007, s. 1.

8.59. A contractor or owner-builder may not install an aboveground tank with a heating appliance, except if it has thermometers and thermostats so that the temperature of the product it contains is maintained at least 10 °C below the product's flash point.

O.C. 220-2007, s. 1.

8.60. A contractor or owner-builder may not install an aboveground tank used to store petroleum products, unless it has a dike to form a diked area around the aboveground tank or tank farm holding 5,000 litres or more.

To that end, the diked area that protects

(1) one tank only must have a capacity sufficient to contain a volume of liquid at least 10% greater than the volume of the tank;

(2) several tanks must have a capacity sufficient to contain a volume of liquid at least equal to the volume of the greater of

(a) the capacity of the largest tank plus 10% of the aggregate capacity of all the other tanks; and

(b) the capacity of the largest tank plus 10%.

In calculating the capacity of the diked area, the volume of the part of the tanks situated below the top of the dike must be included.

O.C. 220-2007, s. 1.

8.61. The dike referred to in section 8.60 is not required for

(1) a tank with a capacity of 50,000 litres or less that meets the following requirements:

(a) it has an overfill protection device that meets the requirements of CAN/ULC-S661, Standard for Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks, published by Underwriters' Laboratories of Canada, and a containment device with a capacity of at least 15 litres that meets the requirements of CAN/ ULC-S663, Standard for Spill Containment Devices for Flammable and Combustible Liquid Aboveground Storage Tank, published by Underwriters' Laboratories of Canada;

(b) it meets one of the standards referred to in paragraphs 2 to 4 of section 8.24 or, in the case of a double-walled tank, the standard referred to in paragraph 1 of that section;

(2) a tank used to store Type No. 4, No. 5 or No. 6 heating fuel oil if it has a system capable, in the event of leakage, of containing or directing the product to a safe location.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 30.

8.62. A contractor or owner-builder may not construct a dike around an aboveground tank, unless it meets the following requirements:

(1) the dike must be of earthwork, steel, concrete or bonded masonry, be liquid-tight and be capable of withstanding a full hydrostatic head;

(2) the slope of the walls of the dike must be consistent with the angle of repose of the material used;

(3) the dike must not be higher than 1.8 m from the bottom of the diked area;

(4) the minimum distance between the dike centre line and the outer tank shell must meet the requirements of Table 2 of section 8.48; and

(5) the inner wall and the bottom of a diked area must be impermeable to petroleum products and, to that end, the impermeability must be ensured by

(a) a liner protected against loads and fire complying with CAN/ULC-S668, Standard for Liners Used for Secondary Containment of Aboveground Flammable and Combustible Liquid Tanks, published by Underwriters' Laboratories of Canada;

(b) a compacted layer of homogeneous soil at least 3 m thick where the water permeability coefficient of the soil is equal to or less than 10^{-6} cm/s; and

(c) a construction consisting of concrete or other incombustible material, provided that the diked area is approved by an engineer who is a member of the Ordre des ingénieurs du Québec.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 31.

8.63. In the case of subparagraph *b* of paragraph 5 of section 8.62, the contractor or owner-builder must obtain a laboratory report attesting to the required permeability and thickness of the soil. A copy of the report must be sent to the owner of the tank to be filed in the register referred to in paragraph 1 of section 8.41.

O.C. 220-2007, s. 1.

8.64. A contractor or owner-builder may not install a tank used to store a Class 1 petroleum product, except if access to the roof of the tank and to the shut-off valve controls is situated higher than the height of the dike if

(1) the height of the dike exceeds 3.5 m; or

(2) the distance between the tank and the top inside edge of the dike wall is lower than the height of the dike.

O.C. 220-2007, s. 1.

8.65. A contractor or owner-builder may not construct a diked area for an aboveground tank, unless

(1) the diked area has a drainage system such as a sump or a channel located at its lowest point and has a closed valve to drain the water;

(2) the control for the drainage system valve is accessible at all times;

(3) the bottom of the diked area has a uniform slope of at least 1% between any tank and the lowest point; and

(4) the diked area complies with section 22.11.2.6 of NFPA Standard 30 Flammable and Combustible Liquids Code, published by the National Fire Protection Association, if it contains more than 1 tank.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 32.

8.66. If construction work consists in removing aboveground petroleum equipment, the contractor or owner-builder must

(1) drain petroleum products from tanks, piping, motor fuel dispensers and loading and unloading equipment before they are removed; and

(2) remove all tanks, piping, motor fuel dispensers, loading and unloading equipment and any leakage and spillage protection work from the site.

O.C. 220-2007, s. 1.

8.67. A contractor or owner-builder may not install an aboveground tank or aboveground piping that has already been used, unless the following requirements are met:

(1) the tank must be approved in accordance with CAN/ULC-S676, Standard for Refurbishing of Storage Tanks for Flammable and Combustible Liquids, published by Underwriters’ Laboratories of Canada;

(2) *(paragraph revoked);*

(3) the piping must be cleaned, inspected and protected against external corrosion.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 33.

§ 3. — *Demolition work*

O.C. 220-2007, s. 1.

8.68. A contractor or owner-builder may not demolish a tank unless the tank has been

(1) cleaned of any petroleum product residue; and

(2) purged of any vapour while ensuring that, during the demolition operation, the concentration of vapours is less than 10% of the lower explosive limit at all times.

The work must be carried out in such a manner as to render the tank unusable and to prevent any accumulation of flammable vapours. The work must in addition be carried out in a safe location where the public has no access, using the equipment necessary to recover all petroleum product residue; that location must also comply with the planning by-laws in force in the territory of the municipality where the work is carried out.

A contractor or owner-builder must in addition place petroleum product residue in a tank or other closed container compatible with petroleum products. The residue and materials from the dismantling must be shipped to a site authorized under the Environment Quality Act (chapter Q-2).

O.C. 220-2007, s. 1.

§ 4. — *Piping*

O.C. 220-2007, s. 1.

8.69. The threaded joint in piping used to contain petroleum products must be made using a joint compound or polytetrafluoroethylene tape that meets the requirements of CAN/ULC Standard S642 Standard for Compounds and Tapes for Threaded Pipe Joints, published by Underwriters' Laboratories of Canada.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 34.

8.70. Piping used to contain petroleum products must be welded in compliance with API Standard 1104 Welding of Pipelines and Related Facilities, published by the American Petroleum Institute.

O.C. 220-2007, s. 1.

8.71. Except in the case of piping supplying a marina bulk plant, a contractor or owner-builder may install a petroleum equipment installation only if it has separate pipe lines for

(1) unleaded regular or premium automotive gasoline included in Class 1 petroleum products;

(2) Class 1 petroleum products other than automotive gasoline;

(3) Class 2 petroleum products; and

(4) Class 3 petroleum products.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 35.

8.72. A contractor or owner-builder may not install metallic piping on a petroleum equipment installation, including its couplings, flanges and bolts, unless it is protected against external corrosion.

O.C. 220-2007, s. 1.

8.73. A contractor or owner-builder may not install the transfer pump of a petroleum equipment installation able to create a pressure greater than that which the downstream piping components can withstand, unless the pump has a safety valve and a bypass.

O.C. 220-2007, s. 1.

8.74. A contractor or owner-builder may not use in construction work aboveground piping, valves, connections or any other material, unless they are suitable for the maximum pressure and temperature for proper operation and for the chemical properties of the liquid the piping is to contain.

The contractor or owner-builder also may not use material that cannot withstand internal stress or mechanical damage related to its use or a combustible or low-melting material subject to failure even in a light fire.

O.C. 220-2007, s. 1.

8.75. The underground piping of a petroleum equipment installation that is to pass through concrete must be installed in a sleeve to allow for expansion.

O.C. 220-2007, s. 1.

8.76. Aboveground piping that is to contain petroleum products must, to be used, have been designed to make provision for thermal expansion and contraction related to its use.

O.C. 220-2007, s. 1.

8.77. Piping that is to contain petroleum products must be installed to be accessible where it enters a building, and have inside and outside control valves.

O.C. 220-2007, s. 1.

8.78. Every underground part of piping that is to contain petroleum products must, to be used, have a double wall that meets the requirements of section 8.28 and be connected at its lowest point with a liquid-tight collector well.

The collector well must, in addition, have an automatic leak detection system with a visual and audible alarm that meets the requirements of section 8.28.

O.C. 220-2007, s. 1.

8.79. Construction work carried out on underground piping must, in addition to meeting the requirements of this Chapter, be carried out according to the manufacturer's instructions.

O.C. 220-2007, s. 1.

8.80. A joint at the point of connection of underground piping with a tank must be a swing joint or have an underground flexible connection, unless the piping is vertical at its point of connection to the tank over its entire length.

In addition, a swing joint or flexible connection must be connected at the base of each dispenser, at the connection of a submersible pump and the vertical portion of the vent.

Despite the foregoing, a swing joint is not required if the piping is flexible.

O.C. 220-2007, s. 1.

8.81. Piping connected to an underground tank that is to supply it must be connected at the top of the tank. The piping must also be free of pockets or traps allowing liquid to accumulate, and have a minimum 1% slope towards the tank.

O.C. 220-2007, s. 1.

8.82. Piping must be backfilled

(1) with clean or natural sand free of stones compacted mechanically on site in the case of steel piping;

(2) with crushed stone or pea gravel in the case of fibreglass piping; or

(3) according to the manufacturer's instructions in the case of flexible piping.

O.C. 220-2007, s. 1.

8.83. Underground piping must be backfilled with one of the materials referred to in section 8.82 in such manner that

(1) the piping is bedded on at least 150 mm of backfill;

(2) there is at least 150 mm of backfill measured horizontally between the piping and the excavation wall;

(3) the backfill between each pipe is at least twice as thick as the nominal diameter of the largest pipe; and

(4) the backfill above the piping is at least 450 mm deep including the finishing grade layer.

O.C. 220-2007, s. 1.

8.84. Underground piping must, before being connected to a tank, be subjected to a leak test conducted in compliance with the following requirements:

(1) for the inner wall,

(a) the ends of the pipes must be hermetically plugged;

(b) the pressure created inside the piping must be measured using a pressure gauge calibrated in units of not more than 10 kPa;

(c) air or nitrogen hydrostatic pressure of not less than 350 kPa and not more than 700 kPa must be applied;

(d) each connection or accessible part of the piping must be tested before being backfilled, using leak detection fluid;

(e) once the temperature has been stabilized and the pressure source removed, the pressure created must be maintained for at least one hour; and

(f) if the piping is designed to be exclusively used as suction piping, it must be leak tested according to the manufacturer's instructions; and

(2) for the outer wall of double-walled piping, the leak test must be conducted according to the manufacturer's instructions.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 36.

8.85. Every connection to underground piping that has not been leak tested under section 8.84 must, after being connected to the tank, be subjected to an air leak test or nitrogen leak test conducted in compliance with the following requirements:

(1) a safety valve of not more than 40 kPa capable of discharging the flow from the pressure source must be installed and inspected before each test;

(2) the pressure created inside the tank and the piping must be measured using a pressure gauge calibrated in units of not more than 1 kPa;

(3) a pressure of not less than 30 kPa and not more than 35 kPa must be applied over the entire petroleum equipment installation being tested;

(4) all the connections between the tank and the piping must be leak tested with leak detection fluid while the entire installation is under pressure; and

(5) once the temperature has been stabilized and the pressure source removed, the pressure must be maintained for at least 1 hour.

O.C. 220-2007, s. 1.

8.86. Despite sections 8.84 and 8.85, air may not be used in a leak test for petroleum equipment that has already contained a petroleum product or that has not been purged of all petroleum product vapour.

O.C. 220-2007, s. 1.

8.87. If a leak test reveals leakage, all connections between the tank and the piping must be repaired or replaced and subjected to the tests referred to in sections 8.84 and 8.85.

O.C. 220-2007, s. 1.

8.88. Metal material that is to contain petroleum products and that is used during the installation, repair or alteration of underground piping, including galvanized steel piping, valves, vents and underground metallic connections, must be new and protected against corrosion in compliance with Appendix A of CAN/ULC Standard S603.1 External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

Corrosion protection in compliance with that method is not required if the piping is used in a designated location for a period of less than 2 years.

O.C. 220-2007, s. 1.

8.89. Underground metallic piping installed during construction work must be installed with at least 2,000 kPa resistance screwed fittings or Schedule 40 welded fittings.

The use of tightened end joints or fully threaded joints for that purpose is prohibited.

O.C. 220-2007, s. 1.

8.90. A coupler used on underground piping must be a 2,000 kPa coupler designed for petroleum products.

O.C. 220-2007, s. 1.

8.91. A swing joint connected during construction work on threaded steel underground piping must be connected with two 90 ° elbows and a nipple.

For that purpose, the use of the following is prohibited:

(1) a male-female elbow,

(2) a close fully-threaded nipple, and

(3) a 45 ° elbow.

O.C. 220-2007, s. 1.

8.92. Underground galvanized steel piping may not be welded during construction work.

O.C. 220-2007, s. 1.

8.93. Non-metallic piping used during construction work must be underground.

O.C. 220-2007, s. 1.

8.94. A swing joint connected during construction work on rigid non-metallic underground piping must have a 90 ° elbow that can be connected to the petroleum product extraction system, a 1.5 metre-long non-metallic nipple connected to another 90 ° elbow in turn connected to non-metallic piping at least 1.5 m in length, installed respecting that sequence.

That type of swing joint may not be connected at the base of a dispenser.

O.C. 220-2007, s. 1.

8.95. The tank of a petroleum equipment installation installed during construction work must have a vent.

The vent may not be connected to more than one tank unless it is of a diameter that allows the vapours from the various tanks to be purged without causing the allowable stress for each tank to be exceeded.

The vent on a tank that is to contain a Class 1 petroleum product may not be connected to the vent of a tank that is to contain a Class 2 or Class 3 petroleum product.

O.C. 220-2007, s. 1.

8.96. The vent referred to in section 8.95 must, in the case of a tank that is to contain a Class 1 or Class 2 petroleum product, have a weather-proof hood, and a flame arrester device in the case of a tank that is to contain a Class 1 petroleum product.

Such a device must not create additional resistance to the flow of gases.

The vent must also be connected to the top of the tank by means of piping with a minimum 1% slope towards the tank and the aboveground portion of the vent must be protected from vehicle impact.

O.C. 220-2007, s. 1.

8.97. The vent referred to in section 8.95 must be located outside a building and positioned in such a manner that flammable vapours cannot be drawn into the building.

The end must be

(1) higher than the end of the fill pipe;

(2) at a distance of not less than 3.5 m, in the case of a tank containing a Class 1 petroleum product, or 2 m in the case of a tank containing other petroleum products;

(3) at a distance of not less than 1.5 m from any building opening in the case of a tank containing a Class 1 petroleum product, or not less than 600 mm in the case of a tank containing other petroleum products; and

(4) at a distance of not less than 7.5 m from any dispenser, in the case of an underground tank containing gasoline.

O.C. 220-2007, s. 1.

8.98. Vent piping for an underground tank must have a cross-sectional area sufficient to allow filling or withdrawal at the maximum rate without causing the allowable stress for the tank to be exceeded.

O.C. 220-2007, s. 1.

8.99. Vent piping for an underground tank must be installed so that it is free from any device likely to cause back pressure exceeding the allowable stress for the tank.

In the case of an underground tank to be used to store a Class 2 or Class 3 petroleum product, vent piping may be fitted with return bends, coarse screens or other devices designed to minimize the entry of material.

O.C. 220-2007, s. 1.

8.100. The minimum diameter of the vent referred to in section 8.99 must respect the values in the following Table 4 if the vent piping does not have more than 7 elbows; in other cases, the diameter must exceed the values so that the allowable stress for the tank is not exceeded.

TABLE 4

VENT DIAMETERS (mm)

Maximum flow Rate (L/min)	Pipe length		
	15 m	30 m	60 m
380	32	32	32
760	32	32	32
1,140	32	32	38
1,520	32	38	50
1,900	32	38	50
2,280	38	50	50
2,660	50	50	50
3,040	50	50	75
3,420	50	50	75
3,800	50	50	75

N.B.: Vent size is based on the highest filling or emptying flow rate.

O.C. 220-2007, s. 1.

8.101. The vent referred to in section 8.99 may not extend more than 25 mm inside an underground tank, unless it has an alarm.

O.C. 220-2007, s. 1.

8.102. A contractor or owner-builder may not install an aboveground tank unless it has safety venting that meets API Standard 2000, Venting Atmospheric and Low-Pressure Storage Tanks, published by the American Petroleum Institute or one of the construction standards referred to in section 8.24.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 37.

8.103. A contractor or owner-builder may not install, in a petroleum equipment installation, aboveground piping that crosses a road, public road or public service installation, unless the piping meets the requirements of CAN/CSA Standard Z662, Oil and Gas Pipeline Systems, published by the CSA Group.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 38.

8.104. An aboveground piping system installed on a petroleum equipment installation must have bypasses or safety valves capable of preventing over-pressurization.

O.C. 220-2007, s. 1.

8.105. Aboveground piping used during construction work must have been designed and installed so that petroleum product velocity in the piping does not exceed 2.5 m/s, unless the piping is directly connected to a marine wharf.

In addition, insulation wrapping on aboveground piping must be non-combustible and, if inside a building, must meet the requirements of Chapter I.

O.C. 220-2007, s. 1.

8.106. Aboveground piping that is to contain petroleum products, the piping valves and fill pipe of a petroleum equipment installation installed during construction work must display permanent identification of contents in compliance with the document entitled “Colour-Symbol System to Mark Equipment and Vehicles for Product Identification”, published by the Canadian Fuels Association.

In addition, the piping may not be red in colour.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 39.

8.107. Flanged joints for aboveground piping must be provided in welded systems at intervals that will facilitate dismantling and avoid subsequent in-place cutting and welding operations.

Flanged joints must be made with forged or cast steel flanges designed, manufactured and installed in compliance with ASME Standard B16.5 Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24 Metric/Inch Standard, published by the American Society of Mechanical Engineers; bronze flanges may be used on copper or brass piping not exceeding 50 mm in diameter.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 40.

8.108. Only welded, screwed or flanged connections may be installed on piping inside a tank dike.

O.C. 220-2007, s. 1.

8.109. Bolting materials for flanged connections installed on aboveground piping that is to contain petroleum products must be of alloy steel corresponding to Grade B-7 in ASTM A193/A193M, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications, published by the American Society for Testing and Materials International.

Gaskets in flanged connections must be of a material resistant to the liquid contained in the piping and capable of withstanding temperatures of at least 650 °C without damage.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 41.

8.110. At the time of installation, aboveground piping must be subjected to a leak detection test conducted in compliance with the following requirements:

(1) a test pressure of not less than 350 kPa, or 1 1/2 times the maximum operating pressure that may be produced within the piping, whichever is greater, must be created within the piping;

(2) the piping system and its joints must be inspected with leak detection fluid;

(3) the pressure created in the piping must be measured using a pressure gauge calibrated in units of not more than 4 kPa for gauge pressure equal to or less than 700 kPa and in units not greater than 1% of the test pressure, if it exceeds 700 kPa and the piping system is designed for such pressures.

If test pressures exceed the design pressures for pumps or similar components in the piping system, the pumps or components need not be pressure tested.

O.C. 220-2007, s. 1.

8.111. *(Revoked).*

O.C. 220-2007, s. 1; O.C. 87-2018, s. 42.

8.112. Aboveground piping must be installed in such manner as to reduce vibrations and stress to a minimum and not come directly into contact with the ground.

The use of expansion shields to suspend aboveground piping is prohibited in lightweight concrete or gypsum assemblies.

Aboveground piping must also be protected by barriers in areas subject to vehicle impact.

O.C. 220-2007, s. 1.

8.113. The installation of the following is prohibited:

(1) aboveground outdoor piping on walls unless the walls are of non-combustible construction;

(2) outdoor piping above windows;

(3) outdoor piping above roofs, except roofs that are non-combustible and impermeable to petroleum products with provision for the collection of spillage to prevent a fire; and

(4) piping containing petroleum products in service tunnels used for pedestrian traffic other than tunnels reserved for maintenance personnel.

O.C. 220-2007, s. 1.

8.114. *(Revoked).*

O.C. 220-2007, s. 1; O.C. 87-2018, s. 43.

8.115. A contractor or owner-builder may not install valves or safety valves in aboveground piping that is to carry petroleum products, unless they meet the manufacturing specifications in either of the following standards: ULC/ORD-C842 Guide for the Investigation of Valves for Flammable and Combustible Liquids or CAN/ULC-S651, Standard for Emergency Valves for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 44.

8.116. A shut-off valve must be installed on the aboveground piping of a petroleum equipment installation at the following locations:

(1) at connections of the piping to aboveground tanks;

(2) on supply piping where it enters buildings or any other works or place immediately accessible from the outside of the buildings or works;

(3) on branch lines from the main supply line;

(4) on supply lines at petroleum products dispensing locations;

(5) at connections of meters or air bleeder valves; and

(6) at connections of pumps.

O.C. 220-2007, s. 1.

8.117. Diaphragm valves must have no direct connections to aboveground piping between the liquid and air section.

O.C. 220-2007, s. 1.

8.118. Globe valves installed on aboveground piping must be arranged so that the packing is on the low pressure side.

O.C. 220-2007, s. 1.

8.119. Rising stem or other indicating-type valves must be used to determine whether the valves are open or shut.

O.C. 220-2007, s. 1.

8.120. Cast-iron meters installed on aboveground piping must have steel valves on each side.

O.C. 220-2007, s. 1.

8.121. Valves installed on aboveground piping must be identified in compliance with section 8.106.

O.C. 220-2007, s. 1.

8.122. Water bleed valves installed on aboveground tanks must be made of steel and protected from impact if the valves are outside the aboveground tanks.

O.C. 220-2007, s. 1.

8.123. Heating equipment for aboveground piping containing petroleum products that is installed on a petroleum equipment installation must be designed not to overheat or create an ignition source for the liquids being heated.

For that purpose, the heating equipment may consist of

(1) steam lines if

(a) the minimum steam temperature and pressure to make the liquid fluid are used;

(b) a pressure regulator is provided on the steam line with a relief valve on the downstream side of the regulator; and

(c) the steam lines and piping are insulated in compliance with the requirements of Chapter I;

(2) a set of electrical heating cables; and

(3) low-voltage alternating current passing through the piping provided that

(a) the heated sections of piping are isolated from the unheated sections by non-conductive material; and

(b) all piping and fittings are enclosed by insulating coverings that prevent accidental grounding of the heating equipment.

O.C. 220-2007, s. 1.

8.124. The intake end of a fill pipe or gauge pipe of an underground tank must be

(1) located outside a building, more than 1.5 m from any building opening and in a place free of any ignition source;

(2) *(paragraph revoked);*

(3) capable of filling a tank containing motor fuel on land not forming part of a public road within the meaning of the second paragraph of section 66 of the Municipal Powers Act (chapter C-47.1).

O.C. 220-2007, s. 1; O.C. 87-2018, s. 45.

8.125. A remote intake end of a fill pipe referred to in section 8.124 from an underground tank must be located lower than other outlets from the tank, unless the tank

(1) is a tank with an overfill protection device that meets CAN/ULC-S661, Standard for Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks, published by Underwriters' Laboratories of Canada, adapted so as to include in the tank the volume of petroleum product that could be contained in the fill pipe without exceeding the maximum filling level of the tank as specified in the Standard; or

(2) is a tank with a backflow device inside the piping connected to other openings.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 46.

8.126. A fill pipe installed on an underground tank must be connected to the top part of the tank.

O.C. 220-2007, s. 1.

8.127. A contractor or owner-builder may not install an underground tank that is to contain motor fuel, unless the tank has an overfill protection device that meets the requirements of CAN/ULC-S661, Standard for Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks and a spill containment device that meets the requirements of CAN/ULC-S664, Standard for Containment Sumps, Sump Fittings, and Accessories for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 47.

8.128. The intake end of a fill pipe or gauge pipe installed on an underground tank must have a tight-fitting cap.

It must also be protected against vehicle impact by at least one barrier if the pipe extends above ground level.

If the intake end of a fill pipe or gauge pipe is below or at ground level, it must be protected by a box with a cover made of metal or concrete that prevents any transmission of surface loads to the tank.

O.C. 220-2007, s. 1.

8.129. A fill pipe installed on a tank that is to store motor fuel must extend to not more than 200 mm from the bottom of the tank and be fixed in such a way as to minimize vibration.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 48.

8.130. If a petroleum equipment installation is altered to replace an underground tank, steel piping that is not protected against corrosion and connected to the tank must be removed from the ground, unless it is subjected to a leak detection test that meets the requirements of the second paragraph indicating that it is liquid-tight and protected against corrosion in compliance with NACE SP0169 Control of External Corrosion on Underground or Submerged Metallic Piping Systems or NACE SP0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection, published by NACE International.

The leak detection test must be conducted using a hydrostatic or vacuum method capable of detecting leaks of 1.2 L/h with a 95% probable success rate and a margin of error of no more than 5%, or using any other method capable of detecting leaks of 0.76 L/h, with the same probabilities, with the exception of pneumatic tests using gas, in the case of tanks except observation well surveillance systems. The methods must in addition meet the requirements of one of the following standards: EPA 530/UST-90/004 Standard Test Procedures for Evaluating Leak Detection Methods: Volumetric Tank Tightness Testing Methods, EPA 530/UST-90/007 Standard Test Procedures for Evaluating Leak Detection Methods: Statistical Inventory Reconciliation Methods, published by the Environmental Protection Agency.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 49.

§ 5. — *Maintenance work*

O.C. 220-2007, s. 1.

8.131. Construction work carried out on piping for a petroleum equipment installation must be carried out only when it is not under pressure.

O.C. 220-2007, s. 1.

8.132. The piping for a petroleum equipment installation must be drained before being dismantled.

O.C. 220-2007, s. 1.

8.133. The ambient air must be tested with a flammable vapour indicator before cutting or welding work on a petroleum equipment installation to ensure that no explosive concentration is present.

Two portable extinguishers having a minimum rating of 20-B: C must also be available on the work site while the work is being carried out.

O.C. 220-2007, s. 1.

DIVISION IX

PROVISIONS APPLICABLE TO MOTOR FUEL DISPENSING OUTLETS AND SERVICE CENTRES

O.C. 220-2007, s. 1.

§ 1. — *General*

O.C. 220-2007, s. 1.

8.134. A sign must be posted indicating the operating instructions of a self-serve facility.

In the case of an unattended self-serve facility, a service station or a motor fuel dispensing outlet where an attendant dispenses motor fuel to a vehicle, a sign must be posted indicating the operating instructions of every pump island if the dispensing outlet has more than one pump island.

Every pump island must also have a sign at least 100 mm in height by 180 mm in width visible from the fuelling area and displaying

(1) the words: “DÉFENSE DE FUMER” and “ARRÊTEZ LE MOTEUR AVANT LE REMPLISSAGE” in letters at least 25 mm in height; or

(2) the pictograms as illustrated in Schedule I.

O.C. 220-2007, s. 1.

8.135. Dispensing outlets in an installation dispensing a petroleum product must be clearly legible and indicate the type of motor fuel dispensed.

O.C. 220-2007, s. 1.

8.136. The intake end of a fill pipe installed on a tank storing motor fuel must have a tight-fitting device that prevents opening by a person who is not authorized by the person responsible for the equipment.

O.C. 220-2007, s. 1.

8.137. The fuelling area of an installation dispensing motor fuel must be lighted to the intensity of at least 50 lx or 5 W/m^2 for incandescent lighting.

O.C. 220-2007, s. 1.

8.138. The total capacity of all underground tanks in a motor fuel dispensing outlet may not exceed 250,000 litres.

O.C. 220-2007, s. 1.

8.139. Aboveground tanks that are to store motor fuel may be installed only for the supply of

(1) a vehicle in a designated location that is not within the limits of a municipality;

(2) an all-terrain vehicle, a snowmobile or any other vehicle of the same kind;

(3) a vehicle in a user outlet;

(4) an aircraft or a water craft; or

(5) a vehicle in a territory north of the 50th parallel of north latitude and east of the 63rd meridian, or north of the 53rd parallel of north latitude.

An outside aboveground tank in a motor fuel dispensing outlet must have a capacity of not more than 50,000 litres and the aggregate capacity of all tanks in the outlet may not exceed 150,000 litres.

O.C. 220-2007, s. 1.

8.140. A booth erected in a motor fuel dispensing outlet must be made of materials that do not sustain a flame and provide an unobstructed view from inside the booth at all times of the interior surroundings and of the fuelling areas in their entirety.

No combustion heating appliance may be located in a booth.

O.C. 220-2007, s. 1.

8.141. A contractor or owner-builder may not install a Class 1 or Class 2 petroleum product motor fuel dispenser unless it meets the requirements of CSA Standard B346, Power-Operated Dispensing Devices for Flammable Liquids, published by the CSA Group.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 50.

8.142. A motor fuel dispenser in a motor fuel dispensing outlet must be situated on an island at least 100 mm high, made of concrete or other non-combustible material or be protected from vehicle impact by barriers; that requirement does not apply to a dispenser fixed on an aboveground tank.

O.C. 220-2007, s. 1.

8.143. A contractor or owner-builder may not install a pump island, unless it has, for each dispenser, a dispenser sump that meets the requirements of CAN/ULC-S664, Standard for Containment Sumps, Sump Fittings, and Accessories for Flammable and Combustible Liquids, or CAN/ULC-S653, Standard for Aboveground Horizontal Steel Contained Tank Assemblies for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada; that requirement does not apply to a pump island on a floating wharf.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 51.

8.144. The fuelling area in a motor fuel dispensing outlet must be impermeable to petroleum products over a surface extending at least 3 m in front and 1.5 m to the sides of each motor fuel dispenser measured from the centre of the dispenser. Despite the foregoing, that requirement does not apply to a fuelling area

(1) for off-highway vehicles or farm equipment;

(2) to be used for a single period of less than one year;

(3) situated in a designated location; or

(4) the tanks of which have a capacity lower than 2,500 litres.

The impermeability referred to in the first paragraph may be obtained using a reinforced concrete apron or an asphalt layer treated to make it resistant and impermeable to petroleum products.

O.C. 220-2007, s. 1.

8.145. A dispenser installed or altered in a motor fuel dispensing outlet must comply with the clearances in the following Table 5:

TABLE 5

MOTOR FUEL DISPENSER CLEARANCES (M)

	Dispenser outlet	Unattended self-serve facility	Marina outlet	User outlet	Airport outlet
From a building, except a booth	4.5 (1)	6 (1)	5	1 (3)	15
From property lines	4.5 (1)	6 (1)	4.5 (1)	4.5 (3)	15
From a stationary ignition source	6 (2)	6 (2)	8	7.5 (3)	6 (2)
From a building opening other than a booth opening	__	__	__	4.5 (3)	__
From a dock, wharf, pier or pontoon or approach thereto	__	__	5	__	5

(1) If a petroleum product installation is altered, a dispenser installed before 1973 need not be relocated or may be replaced by another dispenser at the same place if it has the same number of dispensing hoses and dispenses the same number of products. In the case of a marina outlet, the shore is not to be considered a property line.

(2) Applies only to a fuel dispenser dispensing a Class 1 petroleum product.

(3) If a petroleum product installation is altered, a dispenser installed before 11 July 1991 need not be relocated or may be replaced by another dispenser at the same place if it has the same number of dispensing hoses and dispenses the same number of products.

In addition, the clearances must be increased, if necessary, so that any vehicle to be fuelled from that dispenser is completely within the property lines of the place where the dispenser is located.

O.C. 220-2007, s. 1.

8.146. A clearly identified and accessible emergency shut-off switch must be located away from any motor fuel dispenser at a distance not exceeding 25 m.

O.C. 220-2007, s. 1.

8.147. A motor fuel dispenser may be installed inside a building if it dispenses a Class 2 or Class 3 petroleum product provided that

(1) the building is not accessible to the public;

(2) the dispenser is on the first storey;

(3) the ventilation of the building meets the requirements of Part 6 of Chapter I; and

(4) a drainage system is installed for petroleum products that may be spilled.

O.C. 220-2007, s. 1.

8.148. The pumps of a motor fuel dispenser installed or altered in a motor fuel dispensing outlet must have a mechanism that will prevent the dispenser pump from operating until a dispensing nozzle has been removed from its housing if the pump has been hand-activated, and that will shut off the pump when all nozzles have been reinserted in their housing; if the pump is connected to a satellite dispenser, it must also have a mechanism that prevents simultaneous dispensing of motor fuel.

The first paragraph does not apply to a dispenser that has a coiling mechanism.

O.C. 220-2007, s. 1.

8.149. If a submersible pump is installed in a motor fuel dispensing outlet, the dispenser must have a fusible safety valve set not higher than 70 °C, firmly attached to the pump island and meeting the requirements of CAN/ ULC-S651, Standard for Emergency Valves for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada.

That requirement also applies to a tank installed or altered at a level higher than the base of a motor fuel dispenser. If it is an aboveground tank, it must have a mechanical or electrical anti-siphon valve installed where the piping connects to the tank. The safety valve must also be installed so that the shear point is situated in the zone extending 25 mm below the base of a motor fuel dispenser to 13 mm above the base.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 52.

8.150. The pump referred to in section 8.149 must have a leak detector device that, if the circumstances require, prevents the pump from operating.

O.C. 220-2007, s. 1.

8.151. The pumps of a motor fuel dispenser installed in a motor fuel dispensing outlet must have a control device to prevent the pressure created from exceeding the allowable stress limit.

O.C. 220-2007, s. 1.

8.152. The pit for a submersible pump or the piping of a submersible pump in a motor fuel dispensing outlet must be enclosed in a liquid-tight casing resistant to petroleum products. The casing must also be covered and installed in such a manner as to prevent external loads being transmitted to the tank or piping.

The pit must be large enough to enable the pump to be inspected and serviced.

O.C. 220-2007, s. 1.

8.153. The dispensing nozzle on a dispenser hose in a motor fuel dispensing outlet must have

(1) an automatic shut-off device if it dispenses a Class 1 or Class 2 petroleum product motor fuel, except in the case of an airport outlet; and

(2) a rubber anti-splash collar.

The installation of a dispensing nozzle with a latch-open device at a self-serve facility, an airport outlet or a marina outlet is prohibited.

O.C. 220-2007, s. 1.

8.154. A contractor or owner-builder may not install a dispensing nozzle on a motor fuel dispenser hose unless the nozzle meets the requirements of CAN/ULC Standard S620 Hose Nozzle Valves for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada, or is of a type used for aviation fuel, at an airport outlet.

O.C. 220-2007, s. 1.

8.155. A contractor or owner-builder may not install on a motor fuel dispenser a hose that dispenses a Class 1 or Class 2 petroleum product unless the hose meets the requirements of CAN/ULC-S612, Standard for Hose and Hose Assemblies for Flammable and Combustible Liquids, published by Underwriters' Laboratories of Canada, or is a type used for aviation fuel, at an airport outlet. The dispenser must also be designed so that a person fuelling a vehicle activates the dispensing nozzle manually.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 53.

8.156. A hose on a motor fuel dispenser must be no longer than

(1) 5 m; it may however be 6 m long if it has a retracting mechanism;

(2) 6 m for an unattended self-serve facility; it may however be 7.5 m long if it has a retracting or coiling mechanism; or

(3) 7.5 m for an airport outlet, a user outlet or a marina outlet if it has a retracting mechanism; that requirement does not apply to a hose with a coiling mechanism.

O.C. 220-2007, s. 1.

§ 2. — *Service stations and service centres*

O.C. 220-2007, s. 1.

8.157. Petroleum equipment may be installed in or near a building housing a service station or service centre if

(1) the hazardous areas listed in Schedule II are separated from any room housing a solid or liquid fuel or gas heating appliance by walls having a fire-resistance rating of at least one hour within the meaning of Chapter I;

(2) the room containing such heating appliance

(a) does not have an opening less than 2.5 m from the floor; or

(b) is not used to store a Class 1 or Class 2 petroleum product or as a service area where work on the fuel supply system of internal combustion engines or any dispensing, transferring or handling of Class 1 petroleum products is being performed; the bottom of the combustion chamber must be at least 500 mm above the floor and the heating appliance must be protected from impact;

(3) the combustion air necessary for the appliance comes from outside the building;

(4) the return air intake of a forced-air heating appliance is at least 1.25 m from the floor if it is located in a room listed as a hazardous area in Schedule II; and

(5) the burner and combustion chamber of the equipment are at least 2.5 m from the floor, in an area used for dispensing, transferring or handling Class 1 petroleum products.

O.C. 220-2007, s. 1.

§ 3. — *Self-serve facilities*

O.C. 220-2007, s. 1.

8.158. Every motor fuel dispenser in a self-serve facility must have a remote on and off control of a console type located within a building.

O.C. 220-2007, s. 1.

8.159. The console referred to in section 8.158 must

(1) house the on and off controls of not more than 12 motor fuel dispensers;

(2) allow not more than 8 dispenser nozzles to be used simultaneously; and

(3) have an emergency master control that shuts off the dispensing of motor fuel to all dispensers simultaneously.

O.C. 220-2007, s. 1.

8.160. The console referred to in section 8.158 must be located at a distance that is

(1) not more than 25 m from the motor fuel dispenser; or

(2) not more than 35 m from the motor fuel dispenser if the attendant is able to monitor from the work station the use of the dispenser using a camera and screen electrically interlocked with the dispenser.

O.C. 220-2007, s. 1.

8.161. A pump island in a self-serve facility must have a two-way communication system between the attendant and the consumer.

O.C. 220-2007, s. 1.

8.162. The location of motor fuel dispensers referred to in section 8.158 must be within a 160 ° visual field from the console.

A dispenser not intended to be operated as a self-serve facility must not be located between the console and a self-serve dispenser.

An unattended motor fuel dispenser in a self-serve facility must be located on the island farthest from the console.

O.C. 220-2007, s. 1.

8.163. Signs posted in a self-serve facility must direct all heavy vehicles likely to block the line of vision of an attendant to refuel at the island farthest from the console.

O.C. 220-2007, s. 1.

8.164. The siting of a pump island in a self-serve facility must allow an attendant to monitor, from the work station, the use of the dispensing nozzles, unless the island has mirrors or cameras and a screen for that purpose.

O.C. 220-2007, s. 1.

§ 4. — *Unattended self-serve facilities*

O.C. 220-2007, s. 1.

8.165. A sign at least 5 mm high stating the procedure to follow in the event of fire or a fuel spill must be conspicuously posted in the fuelling area in an unattended self-serve facility.

O.C. 220-2007, s. 1.

8.166. The fuelling area referred to in section 8.165 must have a drainage system able to collect motor fuel in that area in the event of a leak or spill.

The drainage system must consist of a concrete apron having a minimum 1% slope away from the pump island, an oil separator and a drain connecting the apron and the separator.

The oil separator must be of a capacity sufficient to accept rainwater flow from the apron and flow from the motor fuel dispenser having the greatest flow.

O.C. 220-2007, s. 1.

8.167. A coin, card or key-activated motor fuel dispenser that enables fuelling without the intervention of an attendant may be installed only in an unattended self-serve facility.

The flow of the unattended motor fuel dispenser must not exceed 70 L/min for motor fuel that is a Class 1 petroleum product or 180 L/min for motor fuel that is a Class 2 petroleum product.

The pump for such a dispenser must shut off automatically after 5 minutes of operation for motor fuel that is a Class 1 petroleum product and after 10 minutes for motor fuel that is a Class 2 petroleum product.

O.C. 220-2007, s. 1.

8.168. An unattended motor fuel dispenser situated near a bulk plant must be located at a distance that is

(1) not less than 6 m from the fenced area of the bulk plant;

(2) not less than 30 m from an aboveground tank; and

(3) not less than 15 m from the loading and unloading facilities of the bulk plant.

O.C. 220-2007, s. 1.

§ 5. — *Marina outlets*

O.C. 220-2007, s. 1.

8.169. A motor fuel dispenser in a marina outlet and the piping installed on a dock, wharf, pier or pontoon must be protected, where applicable, from impact such as impact from a water craft or seaplane.

O.C. 220-2007, s. 1.

8.170. The piping of a tank installed at an elevation above the base of the motor fuel dispenser must have a solenoid check valve at the tank outlet that is designed to open only when the dispenser is being operated.

If the piping is connected to a submersible pump with a leak detection system, the solenoid check valve must be installed between the tank and the leak detection system.

O.C. 220-2007, s. 1.

8.171. Every motor fuel dispenser in a marina outlet must have a safety valve that meets the requirements of section 8.149.

O.C. 220-2007, s. 1.

8.172. A tank that is to store motor fuel must be situated not less than 10 m from the boundary of the littoral zone within the meaning of the Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains (chapter Q-2, r. 35).

O.C. 220-2007, s. 1; O.C. 87-2018, s. 54.

8.173. An underground tank installed at a marina outlet must have an observation well situated between the outlet and the shore and extend 900 mm below the low water line.

O.C. 220-2007, s. 1.

8.174. A tank that is to store motor fuel for trade purposes may not be installed aboveground unless it is surrounded by a dike and a fence that meet, where applicable, the requirements of sections 8.61 to 8.63, paragraphs 1 and 3 of section 8.65 and paragraphs 1 and 2 of section 8.217.

O.C. 220-2007, s. 1.

8.175. Piping installed on a dock, wharf, pier or pontoon must have 2 accessible valves designed to stop the supply of motor fuel from the shore. One of the valves must be located less than 350 mm from the edge of the dock, wharf, pier or pontoon, and the second valve must be located less than 350 mm from the connection with the dispenser.

O.C. 220-2007, s. 1.

8.176. Piping installed between the shore and piers or wharves must be provided with swing joints or flexible connections to enable the pier or wharf and shore piping to move independently without strain on the piping.

O.C. 220-2007, s. 1.

8.177. A motor fuel dispenser installation for a marina outlet must be installed

(1) on the shore; or

(2) on a dock, wharf, pier or pontoon.

A motor fuel dispenser must, if installed on a floating pontoon, be as close as practicable to the shore so that the piping installed above the water is as short as practicable.

O.C. 220-2007, s. 1.

§ 6. — *Airport outlets*

O.C. 220-2007, s. 1.

8.178. An airport outlet tank that is to store aviation fuel must be installed in compliance with the following requirements:

(1) it must have a manhole;

(2) all its metallic components must be bonded and grounded in accordance with Chapter V it the tank is fibreglass;

(3) it must have a 1% slope if it is a horizontal tank;

(4) it must have a water draw-off device located at the lowest point on the tank; and

(5) it must have a floating suction system, if it is to store aviation turbine fuel.

O.C. 220-2007, s. 1.

8.179. The use of galvanized steel piping that is to contain aviation fuel during construction work is prohibited.

O.C. 220-2007, s. 1.

8.180. Piping installed downstream of the filter must be of a non-corrosive material that is

(1) aluminum alloy;

(2) reinforced glass fibre;

(3) stainless steel; or

(4) flexible hosing.

O.C. 220-2007, s. 1.

8.181. A contractor or owner-builder may not install tanks to store aviation fuel included in petroleum products of various classes, unless the dispensers have grade selective nozzle spouts that meet the requirements of SAE AS Standard 1852 Nozzles and Ports-Gravity Fueling Interface Standard for Civil Aircraft, published by the Society of Automotive Engineers.

O.C. 220-2007, s. 1.

8.182. An aboveground tank must be sited so that the distance between the dike centre line and the airport complex is not less than 45 m.

In the case of double-walled tanks or contained tank assemblies, that distance must be measured between the outer tank shell or secondary containment and airport complex.

O.C. 220-2007, s. 1.

8.183. A fill pipe installed on a tank that is to store aviation fuel must have a line strainer fitted with No. 40 or the equivalent of a No. 40 mesh basket; a line strainer with a No. 60 mesh basket must also be installed on the upstream side of each meter, pump and piece of equipment requiring a line strainer.

O.C. 220-2007, s. 1.

8.184. A petroleum equipment installation dispensing aviation fuel in an airport outlet must have a filtering system comprising at least one of the following:

(1) a 5 µm filter;

(2) a 15 P.P.M. water separator filter; or

(3) a filter monitor.

O.C. 220-2007, s. 1.

8.185. An installation dispensing aviation fuel that is at a height exceeding 1.6 m must have an obstacle light.

O.C. 220-2007, s. 1.

8.186. An installation dispensing aviation fuel in an airport outlet must have a ground conforming to the requirements of Chapter V.

O.C. 220-2007, s. 1.

8.187. A sign that indicates, for fuelling personnel, the operating procedure for petroleum equipment dispensing aviation fuel and the testing procedures that must be conducted for that purpose must be posted in the airport outlet.

O.C. 220-2007, s. 1.

8.188. Piping containing petroleum products installed in an airport outlet must be marked in compliance with API Standard 1542 Identification Markings for Dedicated Aviation Fuel Manufacturing and Distribution Facilities, Airport Storage and Mobile Fuelling Equipment, published by the American Petroleum Institute.

O.C. 220-2007, s. 1.

8.189. An aviation fuel dispenser installed in an airport outlet must be marked in compliance with the standard referred to in section 8.188. The lettering must be at least 80 mm in height.

O.C. 220-2007, s. 1.

8.190. The requirements of section 8.145 as regards the distance between a fuel dispenser and a dock, wharf, pier or pontoon or approach thereto, sections 8.169 to 8.172 and those of sections 8.174, 8.175 and 8.177 also apply to an airport outlet from which an aircraft is fuelled on a body of water.

O.C. 220-2007, s. 1.

§ 7. — *User outlets*

O.C. 220-2007, s. 1.

8.191. The flow of a motor fuel dispenser in a user outlet must be not more than 70 L/min for motor fuel that is a Class 1 petroleum product and not more than 180 L/min for motor fuel that is a Class 2 petroleum product.

O.C. 220-2007, s. 1.

DIVISION X

PROVISIONS APPLICABLE TO BULK PLANTS

O.C. 220-2007, s. 1.

§ 1. — *General*

O.C. 220-2007, s. 1.

8.192. A bulk plant on an area subject to a high-velocity flood zone as determined in the land use planning and development plans or in an interim control by-law, adopted under the Act respecting land use planning and development (chapter A-19.1), must meet the following requirements:

(1) each aboveground tank in the bulk plant must be installed in such a manner that the bottom is above the boundary of the littoral zone; and

(2) a source of water must be available for tank ballast.

O.C. 220-2007, s. 1.

8.193. A gate and a loading and unloading ramp installed in a bulk plant and any place where petroleum equipment may cause the presence of flammable vapours must have a sign reading “DÉFENSE DE FUMER” or a pictogram similar to that appearing in Schedule I.

O.C. 220-2007, s. 1.

8.194. A valve of an aboveground line connected to a tank, the end of a petroleum product line and a fill pipe must be identified in compliance with the document entitled “Colour-Symbol System to Mark Equipment and Vehicles for Product Identification”, published by the Canadian Fuels Association.

O.C. 220-2007, s. 1; O.C. 87-2018, s. 55.

§ 2. — *Loading and unloading facilities*

O.C. 220-2007, s. 1.

8.195. A facility for loading and unloading petroleum products in a bulk plant must be sited

(1) in the case of a Class 1 petroleum product, at a distance of more than 8 m from any aboveground tank, building or property line where the facility is located; or

(2) in the case of a Class 2 or Class 3 petroleum product, at a distance of more than 5 m from any aboveground tank, building or property line where the facility is located.

The distance must be calculated from the down tube of a loading arm extending into the tank truck or from the connection of the tank truck when it is filled by bottom loading and the shelter for personnel and pumps must be considered integral parts of the facility.

O.C. 220-2007, s. 1.

8.196. At a loading or unloading facility for tank cars, the minimum distance from any railway line must be in conformance with Flammable Liquids Bulk Storage Regulations (C.R.C., c. 1148).

O.C. 220-2007, s. 1.

8.197. Combustible material must be at a distance of not less than 5 m from the loading and unloading facilities and from the fill and gauge pipes erected or installed in a bulk plant.

O.C. 220-2007, s. 1.

8.198. The vent of a tank storing a Class 1 petroleum product in a bulk plant must be installed at a distance of not less than 8 m from the loading and unloading facility and from a parking area.

O.C. 220-2007, s. 1.

8.199. The loading or unloading ramp and every tank in a bulk plant must be situated at a distance of not less than 40 m from the fire station of the bulk plant.

The ramp must be of metal or concrete.

O.C. 220-2007, s. 1.

8.200. The loading arm on a facility for unloading a tank truck or a tank car through the manhole must be long enough to extend down not less than 200 mm from the bottom of the cargo tank and have a valve that must be held open manually.

O.C. 220-2007, s. 1.

8.201. Piping on a facility for unloading a tank truck or a tank car by means of a pump must have a soft-seat check valve.

O.C. 220-2007, s. 1.

8.202. The fill pipe on the tank of a facility used to store petroleum products must have a tight-fill connection using a hose.

O.C. 220-2007, s. 1.

8.203. The hose on a facility dispensing petroleum products in a container of not more than 225 litres designed to be moved must have a delivery nozzle of non-magnetic material provided with a manual trigger and an automatic shut-off device.

O.C. 220-2007, s. 1.

8.204. A loading and unloading facility in a bulk plant must have barriers that protect it from vehicle impact.

O.C. 220-2007, s. 1.

8.205. A loading and unloading facility must have a ground that meets the requirements of Chapter V, an electrical conductor and a clip making it possible to ground the cargo tank.

In the case of a key-operated bulk plant, the petroleum product can flow only if the grounding is effected.

O.C. 220-2007, s. 1.

8.206. A facility for filling a tank truck or tank car by bottom loading must

(1) have been designed to limit the loading rate to not more than 3,000 L/min; and

(2) have a preset meter.

O.C. 220-2007, s. 1.

8.207. A key-operated facility for loading a tank truck or tank car that is supplied by an aboveground tank in a bulk plant must have a remote control shut-off valve that opens only when the motor of the loading pump is operating.

The valve must be located at the outlet of the tank if the bulk plant is to be left unattended.

O.C. 220-2007, s. 1.

8.208. The portion of the loading and unloading area of a bulk plant used to park a cargo tank during loading or unloading must,

(1) in the case of Class 1 or Class 2 petroleum products, have a collection system for the products; the system must consist of a concrete apron having a minimum 1% slope away from the pump island in a direction opposite the loading or unloading ramp, an oil separator and a drain connecting the apron and the separator; or

(2) in the case of Class 3 petroleum products or Class 1, Class 2 and Class 3 petroleum products in bulk plants located north of the 53rd parallel of north latitude and bulk plants in a designated location, be liquid-tight and designed in such manner that a spilled product remains confined.

O.C. 220-2007, s. 1.

§ 3. — *Pumping*

O.C. 220-2007, s. 1.

8.209. A positive displacement pump in a bulk plant must have a safety valve and a return bypass to the pump supply.

O.C. 220-2007, s. 1.

8.210. A centrifugal pump in a bulk plant must have a check valve on the pump outlet, if it is without a built-in safety valve.

O.C. 220-2007, s. 1.

8.211. A pump in a bulk plant that is subject to vehicle impact must be protected by a barrier or by a concrete or metal curb.

O.C. 220-2007, s. 1.

8.212. A pump or motor may not be installed below a tank or in a building in which a petroleum product is handled.

O.C. 220-2007, s. 1.

8.213. A pump in a bulk plant must,

(1) if it is above ground level and outside buildings,

(a) be located not less than 3 m from the property lines where the pump is situated; and

(b) be located not less than 1.5 m from any opening in the main building of the bulk plant; and

(2) be located not less than 8 m from any ignition source.

O.C. 220-2007, s. 1.

8.214. A pump in a bulk plant must be installed so that vibration is not transmitted to the petroleum product installations connected to it.

O.C. 220-2007, s. 1.

8.215. An electric motor for a pump in a bulk plant must have at least 2 controls, one of which must be in the control box at a distance of not less than 15 m from each loading or unloading ramp and from each tank.

O.C. 220-2007, s. 1.

8.216. In a bulk plant, the pit housing an underground pump and the multiple connection pipes of a submerged pump must be enclosed within a casing made of metal or concrete and be installed in such manner that it does not transmit external loads to the pump, tank or piping.

O.C. 220-2007, s. 1.

§ 4. — *Fencing*

O.C. 220-2007, s. 1.

8.217. A fence must be erected around a bulk plant and

(1) be not less than 1.8 m high;

(2) be of firmly meshed metal wire of a gauge not smaller than USSMSG No. 9, if it is made of steel with mesh openings not greater than 150 mm on the side;

(3) be not less than 150 mm from the ground, including its gates;

(4) be fixed to metal poles driven solidly into the ground; and

(5) have at least two gates to enable traffic of road vehicles that meet the requirements of paragraphs 1, 2 and 4, as remote from each other as practicable and that have locking devices.

O.C. 220-2007, s. 1.

DIVISION XI

OFFENCES

O.C. 220-2007, s. 1.

8.218. Every contravention of any of the provisions of this Chapter constitutes an offence, except section 8.14.

O.C. 220-2007, s. 1.

CHAPTER IX

AMUSEMENT RIDES AND DEVICES

O.C. 364-2012, s. 1.

DIVISION I

INTERPRETATION

O.C. 364-2012, s. 1.

9.01. In this Chapter, unless the context indicates otherwise, “Code” means CSA Standard CAN/CSA Z267-00, Code de sécurité concernant les jeux et les manèges, including Appendix C concerning tests, and CSA Standard CAN/CSA Z267-00, Safety Code for Amusement Rides and Devices, including Appendix C concerning tests, prepared and published by the Canadian Standards Association.

O.C. 364-2012, s. 1.

DIVISION II

APPLICATION

O.C. 364-2012, s. 1.

9.02. Subject to the exemptions and amendments set out in this Chapter, the Code and provisions of this Chapter apply to the design, construction procedure and all construction work carried out on an amusement ride or device referred to in the Code and designed as facilities intended for use by the public in section 9.03, including their vicinity.

The following are exempted from the application of this Chapter:

(1) amusement rides and devices on a base that are designed to be used as coin-operated rides or devices;

(2) children's playspaces and equipment complying with CSA Standard CSA Z614, Children's Playspaces and Equipment, published by the Canadian Standards Association, in public areas, play spaces and other similar areas;

(3) air-supported amusement devices and structures;

(4) soft contained play systems complying with ASTM Standard ASTM F 1918, Standard Safety Performance Specification for Soft Contained Play Equipment, published by the American Society for Testing and Materials;

(5) recoil tethered rides (bungee);

(6) water slides;

(7) sliding playground and equipment that depend on snow or ice;

(8) dry slides;

(9) aerial courses, track rides and zip-lines;

(10) go-kart tracks, karts and race tracks;

(11) mechanical bulls;

(12) hot-air balloons;

(13) live animal rides; and

(14) haunted houses, labyrinths and rides in darkness with no mechanical devices to move users.

O.C. 364-2012, s. 1.

9.03. For the purposes of section 10 of the Act, the amusement rides and devices referred to in CSA Standard CAN/CSA Z267-00, Safety Code for Amusement Rides and Devices, are facilities intended for use by the public.

O.C. 364-2012, s. 1.

DIVISION III

REFERENCES

O.C. 364-2012, s. 1.

9.04. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 364-2012, s. 1; O.C. 1419-2021, s. 2.

DIVISION IV

GENERAL

O.C. 364-2012, s. 1.

9.05. The design, construction procedure and construction work carried out on an amusement ride or device must be carried out so that the amusement ride or device provides, in normal conditions of use and when used as intended, satisfactory levels of performance while minimizing danger to the public.

O.C. 364-2012, s. 1.

9.06. A contractor or owner-builder must, during construction work carried out on an amusement ride or device,

(1) use construction procedures suitable for the work;

(2) use the materials, appliances, equipment or devices designed for that purpose;

(3) take the necessary precautions to prevent risk of accidents; and

(4) comply with the manufacturer's requirements regarding installation and assembly.

O.C. 364-2012, s. 1.

DIVISION V

DECLARATION OF WORK

O.C. 364-2012, s. 1.

9.07. A contractor or owner-builder must, at least 45 days before the date of the beginning of construction work, except maintenance or repair work, on an amusement ride or device referred to in section 9.02, declare the work to the Board with the following information and documents:

(1) the name, address, telephone number and licence number of the contractor or owner-builder who will carry out the work;

(2) the name, address and telephone number of the person for whom the work is carried out;

(3) the name, address and telephone number of the person who prepared the plans and specifications related to the construction work;

(4) the address of the site and nature of the work;

(5) the type, trademark and model of the amusement ride or device, the name of the manufacturer and the technical specifications of the amusement ride or device;

(6) the date on which, the place where and the list of the tests and inspections were conducted together with the name of the person recognized under section 9.13 who will sign the certificate of conformity required under section 9.12; and

(7) the expected date on which the amusement ride or device will be put into service for the public.

The declaration may be made on the form provided by the Board or on any other document clearly and legibly written for that purpose and updated if any changes are made to the information provided.

Despite the first paragraph of this section, a contractor or owner-builder who carries out demolition work on an amusement ride or device must declare the work to the Board with the information and documents required under subparagraphs 1 to 5.

O.C. 364-2012, s. 1.

9.08. Despite the first paragraph of section 9.07, a contractor or owner-builder who carries out alteration work recommended by the manufacturer on an amusement ride or device following an incident or an accident involving a similar amusement ride or device must, within 2 working days after the end of the alteration work, declare the work to the Board with the information required under subparagraphs 1 to 5 of that paragraph, and the nature of the work carried out.

O.C. 364-2012, s. 1.

DIVISION VI

PLANS AND SPECIFICATIONS

O.C. 364-2012, s. 1.

9.09. A contractor or owner-builder may not begin construction work, except maintenance, repair or demolition work, on an amusement ride or device, referred to in section 9.02, unless plans and specifications have been prepared for the work.

The plans must be drawn to scale and must, with the specifications, indicate the nature and scope of the work. The plans and specifications must include the manufacturer’s information and instructions on the erection and assembly of the amusement ride or device.

The plans and specifications must be signed and sealed by an engineer within the meaning of the Professional Code (chapter C-26), authorized to do so.

O.C. 364-2012, s. 1.

9.10. Despite section 9.09, a contractor or owner-builder may begin alteration work required following the issue of a bulletin by the manufacturer on an amusement ride or device if the contractor or owner-builder has in his or her possession the manufacturer’s instructions, drawings and testing procedures concerning the work.

O.C. 364-2012, s. 1.

9.11. A contractor or owner-builder must, at the end of the construction work provided for in section 9.09, give the final plans of the amusement ride or device to the owner.

O.C. 364-2012, s. 1.

DIVISION VII

CERTIFICATE OF CONFORMITY

O.C. 364-2012, s. 1.

9.12. A contractor or owner-builder must, at the end of the construction work on an amusement ride or device, except maintenance, repair, demolition or alteration work recommended by the manufacturer, provide the Board with a certificate of conformity with this Chapter produced and signed by a person recognized under section 9.13, stating that

(1) the design, construction procedure and construction work on the amusement ride or device were carried out in accordance with the Code and this Chapter, and the amusement ride or device may be safely put into service for the public;

(2) the installations related to the amusement ride or device, in particular, fences, ramps, stairs, guardrails, operator and supervisor stations, signals and signs, comply with the Code and this Chapter;

(3) equipment, wiring and electrical connectors are certified as complying with Chapter V of the Construction Code (chapter B-1.1, r. 2);

(4) the manufacturer's instructions concerning the assembly have been followed;

(5) the tests and inspections provided for in the Code for the amusement ride or device, by the designer and manufacturer, have been performed and their results are satisfactory;

(6) the information on the maintenance, operation and periodic testing required from the designer and manufacturer by the Code have been provided to the owner; and

(7) the pressure vessels are identified by their registration number.

The certificate must contain a declaration from the manufacturer certifying that the amusement device or its prototype has been designed and manufactured so as to withstand loads and constraints under all loading and operating conditions.

The certificate must also specify the information on the information plate required under Clause 4.1.3 of the Code, the components inspected, the means used and the data used as the basis for drawing up the certificate, the address of the site where the amusement ride or device was installed, the nature of the work, the date of the tests and inspections and the name and title of the person who performed them, the date of signature, name, address and telephone number of the recognized person that produced the certificate and the date of the end of the construction work.

The recognized person must provide the Board with information from the designer and manufacturer on the maintenance, operation and periodic testing of the amusement ride or device to which the certificate applies.

The certificate of conformity may be made on the form provided for that purpose by the Board or on any other document containing the same information clearly and visibly written for that purpose.

O.C. 364-2012, s. 1.

9.13. The following persons whose professional activities are related to amusement rides and devices may be recognized by the Board to produce and sign the certificate of conformity required under section 9.12:

(1) an engineer who is a member of the Ordre des ingénieurs du Québec; and

(2) the holder of a temporary licence issued under the Engineers Act (chapter I-9).

O.C. 364-2012, s. 1.

9.14. A person who applies for recognition must

(1) file an application with the Board that contains

(a) the person's name, home address, telephone number and membership number of the person's professional order or the person's temporary licence number; and

(b) the description of the experience acquired in activities related to the field of design, construction or inspection of amusement rides or devices; and

(2) pay the fees of $682.82.

O.C. 364-2012, s. 1.

9.15. The recognition of a person may be revoked by the Board for the following reasons:

(1) the person no longer meets the conditions set out in section 9.13; or

(2) the person has been convicted of an offence under paragraph 2, 3, 4 or 7 of section 194 of the Building Act (chapter B-1.1).

O.C. 364-2012, s. 1.

DIVISION VIII

AMENDMENTS TO THE CODE

O.C. 364-2012, s. 1.

9.16. The CAN/CSA Z267-00 Code, published by the Canadian Standards Association, is amended

(1) by replacing the words "inspection", "inspect" and "inspected" wherever they appear by the words "verification", "verify" and "verified" with the necessary modifications;

(2) by revoking Clause 1.4;

(3) by revoking Clause 1.5;

(4) by adding the following at the end of Clause 5.3.2: "The amusement ride or device must be equipped with a device to restrain passengers under all loading and operating conditions planned for the amusement ride or device, in compliance with ASTM Standard ASTM F2291-04, Standard Practice for Design of Amusement Rides and Devices, published by the American Society for Testing and Materials. The restraining device must be of a type that cannot be inadvertently released when the amusement ride or device is in operation and be inaccessible to passengers.";

(5) by adding the following at the end of Clause 5.3.3: "The following clearances are considered to comply with the requirements of Clause 5.3.3:

(1) 600 mm between a structural element and any point of the vehicle in contact with the passenger;

(2) 1,200 mm of vertical clearance between the seat and any fixed structural member located above such seat; and

(3) 2,000 mm of vertical clearance between the floor in front of the seat and any fixed structural member located above such floor, where the passenger is not restrained in the vehicle seat.

This section does not apply to a vehicle which is enclosed or has an openwork wire mesh preventing a 38-mm diameter spherical object from going through or 50-mm in the case of an amusement device to be used solely by adults.";

(6) by replacing Clause 5.4.3 by the following:

"**5.4.3** Welding and welding procedures must comply with CSA Standard CSA W59, Welded Steel Construction, or CSA Standard CSA W59.2, Welded Aluminum Construction, published by the Canadian Standards Association.

Welding must be performed by a qualified welder from a company that is certified according to CSA Standard CSA W47.1, Certification of Companies for Fusion Welding of Steel, or CSA Standard CSA W47.2, Certification of Companies for Fusion Welding of Aluminum, published by the Canadian Standards Association.";

(7) by adding the following paragraph at the end of Clause 5.4.5: "A rope tensioning device must be designed so that it will not release itself during the operation of an amusement ride or device and be equipped with a positive action manual reset slack rope device.";

(8) by revoking Clause 5.4.6;

(9) by adding the following paragraph at the end of Clause 5.5.4: "Lighting of a minimum of 100 lx at floor level must be installed at the loading and unloading areas and entrances and egresses.";

(10) by adding the following at the end of Clause 5.5.5: "No part of an amusement ride or device is to come nearer to an electrical conductor of more than 750 V than the distance specified in the following table:

Voltage (in volts)	**Distance (in metres)**
Less than 125,000	5
125,000 or more	30

.";

(11) by adding the following after Clause 5.7.2:

"**5.7.3** A signal system must be provided during the starting or stopping of an amusement ride or device where the loading or unloading areas cannot be seen from the operating controls.

5.7.4 An amusement ride or device must be equipped with an emergency stop device that causes the stoppage of the amusement ride or device and the application of the brakes that complies with CSA Standard CAN/CSA Z431-M89, Colours of Indicator Lights and Push Buttons, published by the Canadian Standards Association and marked "Arrêt de secours". The device must be of the push-pull type and be provided with contacts which open by positive mechanical separation.";

(12) by adding the following after Clause 5.8.3:

“**5.8.4** An amusement ride or device must be equipped with devices to prevent the vehicles from making translatory or rotary movements when they are at a standstill in the loading or unloading area or be equipped, to that effect, with a parking brake, except in the case of a vehicle composed of a suspended seat.

5.8.5 A vehicle designed to be towed and each drive mechanism of such a vehicle must be equipped with backstop devices preventing any vehicle in the towing zone from moving back more than 150 mm.

5.8.6 An amusement ride or device must be installed so that it does not exceed the operating limits specified by the designer or manufacturer or be equipped, to that effect, with a speed limiting device.”;

(13) by adding the following after Clause 5.10:

“”**5.11** Where a suspension or coupling device for a vehicle or any other moving part of an amusement ride or device is used as a single retainer, a safety retainer must be installed on the vehicle or the moving part to ensure the safety of passengers, unless the single coupling device has a safety factor of at least 10.

5.12 Glazing used in a vehicle must be certified as complying with CGSB Standard CAN/CGSB B-12.1-M90, Tempered or Laminated Safety Glass, or CGSB Standard CAN/CGSB B-12.12-M90, Plastic Safety Glazing Sheets, published by the Canadian General Standards Board (CGSB).

5.13 Every amusement ride or device equipped with a sloping channel and a receptacle basin, which uses water to generate or reduce the speed of a vehicle must be provided with devices allowing for the control of the water level of the basin and the water flow of the flume’s feed pump.

In addition, the devices must automatically stop the operation of the amusement ride or device if the water level or flow does not comply with that required for the operation of the amusement ride or device.

5.14 Every amusement ride or device of the “roller coaster ride” type must comply with the following requirements:

(1) be installed so as to allow for the presence of only one vehicle or only one train of vehicles, at the same time, in the space between each braking system along its path;

(2) the nuts used to lock the wheels of a vehicle must be of the castle type and be locked with cotter pins;

(3) every coupling device for vehicles must be locked, and any bolts, nuts or locks which are used must be equipped with a wire to prevent loosening or disengaging; and

(4) operating controls must be located so as to allow the operator to monitor the entire loading and unloading area.

5.15 Where users are moved in darkness inside an enclosure or in the case of an amusement ride or device completely enclosed, the enclosure must be equipped with

(1) a smoke alarm bearing a seal of approval from Underwriters’ Laboratories of Canada (ULC) and installed in compliance with the manufacturer’s instructions. The proper working order of the smoke alarm must be checked at every assembly of a portable amusement ride or device and every month in other cases;

(2) signs, visible from the vehicle, indicating egresses;

(3) an emergency lighting system of not less than 10 lx at floor level and egress signs, activated automatically when the main source of electrical supply is interrupted.

In addition, each egress must bear the inscription “SORTIE” in lettering at least 25 mm high and, if locked, it must be possible to open it from the inside without a key.”.

O.C. 364-2012, s. 1.

DIVISION IX

OFFENCE

O.C. 364-2012, s. 1.

9.17. Every contravention of any of the provisions of this Chapter, except section 9.14, constitutes an offence.

O.C. 364-2012, s. 1.

CHAPTER X

BATHING PLACES

O.C. 115-2013, s. 1.

DIVISION I

INTERPRETATION

O.C. 115-2013, s. 1.

10.01. In this Chapter, unless the context indicates otherwise,

(a) “accessory” means a water slide, a dry slide or any structure in or projecting into a bathing place; (*accessoire*)

(b) “wading pool” means an indoor or outdoor artificial pool with a water depth not exceeding 600 mm; (*pataugeoire*)

(c) “swimming pool” means an indoor or outdoor artificial pool having a water depth exceeding 600 mm; (*piscine*)

(d) “diving platform” means a horizontal rigid and non-flexible, stationary diving structure; (*plate-forme*)

(e) “deck” means the surface immediately surrounding a swimming pool, to which bathers have direct access when leaving the water. (*promenade*)

O.C. 115-2013, s. 1.

DIVISION II

APPLICATION

O.C. 115-2013, s. 1.

10.02. The provisions of this Chapter apply to all construction work on a swimming pool or wading pool constructed in a building to which Chapter I of the Construction Code (chapter B-1.1, r. 2) applies, or constituting a facility intended for use by the public designated by section 10.03.

O.C. 115-2013, s. 1.

10.03. For the purposes of section 10 of the Building Act (chapter B-1.1), the following are facilities intended for use by the public:

— swimming pools and wading pools constructed and operated as bathing places, offered to the general public or a restricted group of persons;

— outdoor swimming pools of an immovable used as a dwelling unit that has more than 8 dwelling units, a rooming house that has more than 9 rooms or a supervised residence used to shelter or accommodate more than 9 persons

(a) the area of which exceeds 100 m^2; or

(b) that have a diving board.

O.C. 115-2013, s. 1.

DIVISION II.1

REFERENCES

O.C. 1419-2021, s. 4.

10.03.01. A reference in this Chapter to a standard or a code is a reference to that standard or code as adopted by the chapter of the Construction Code or Safety Code (chapter B-1.1, r. 3) or other regulation made under the Building Act (chapter B-1.1) that refers to it.

O.C. 1419-2021, s. 4.

DIVISION III

SWIMMING POOLS

O.C. 115-2013, s. 1.

§ 1. — *Construction*

O.C. 115-2013, s. 1.

10.04. The basin, deck, pipe-work and accessories of a swimming pool must be constructed with materials that are inert, non-toxic for humans, impermeable, durable and non-corrosive, with smooth surfaces that may easily be cleaned, unless otherwise indicated in this Chapter.

O.C. 115-2013, s. 1.

10.05. The basin of the swimming pool, taking its useful life into account, must

(a) be constructed in such a way as to have sufficient structural resistance and integrity to safely withstand all the loads, effects and other forces that may be reasonably expected;

(b) be designed to avoid resonance; and

(c) be waterproof, durable and smooth, without cracks, corners or sharp edges.

O.C. 115-2013, s. 1.

10.06. The walls of a pool must be vertical down to 150 mm from the bottom for the section that is between 750 mm and 1,400 mm deep, and vertical down to 75 mm from the bottom for the section that is less than 750 mm deep, except for the section occupied by stairs or a ladder.

O.C. 115-2013, s. 1.

10.07. The walls of a pool must be equipped with recessed fittings in the shallow end, at a minimum distance of 300 mm before the change in slope of the pool bottom from gentle to steep, to which a safety line supported by buoys can be attached to warn bathers of the change in slope.

O.C. 115-2013, s. 1.

10.08. The maximum slope of the pool bottom must be

(a) 300 mm vertically in 3.6 m horizontally for a water depth less than 1,400 mm; and

(b) 300 mm vertically in 900 mm horizontally for a water depth between 1,400 mm and 2,000 mm.

O.C. 115-2013, s. 1.

10.09. A ladder or stairs must be installed

(a) in the shallow end of the pool if the difference in elevation between the bottom of the pool and the deck is greater than 600 mm; and

(b) on both sides of the deep end of the pool.

O.C. 115-2013, s. 1.

10.10. Swimming pool stairs have steps

(a) with a uniform rise between 125 and 200 mm;

(b) with a uniform tread of at least 250 mm;

(c) with nosing in a contrasting colour; and

(d) with a non-slip surface.

The stairs may not project into the pool.

O.C. 115-2013, s. 1.

10.11. A swimming pool ladder must have rungs

(a) with a minimum length of 300 mm between the rails; and

(b) with a non-slip surface.

O.C. 115-2013, s. 1.

10.12. Swimming pools must be surrounded by a deck adjacent to the top of the walls. The deck must

(a) have a non-slip surface;

(b) have a minimum clear width of 1.5 m;

(c) provide a clear passage of at least 900 mm behind a springboard, diving platform or accessory and its supporting structure;

(d) provide a clear passage of at least 900 mm in front of or behind a structural column; and

(e) be equipped with a guardrail having a height of 1,070 mm if a drop greater than 600 mm exists between the level of the deck and the level of the adjacent surface.

Despite the first paragraph, in the section of the pool where the water is 1,400 mm or less in depth, there may be a deck along one side of the pool only, provided that no point in the pool is further than 3.6 m from the edge of the deck.

O.C. 115-2013, s. 1.

10.13. The submerged surfaces of the pool must be white or a pastel colour, except for the markings indicating swimming corridors.

Basins used exclusively for underwater diving may be another colour.

O.C. 115-2013, s. 1.

10.14. The markings for swimming corridors must be a contrasting colour, no more than 250 mm wide and placed in a single direction.

O.C. 115-2013, s. 1.

10.15. The water depth must be clearly marked on the deck in letters at least 100 mm high, in a contrasting colour, on each side of the basin and opposite

(a) the deepest point;

(b) the change in slope between the gentle and steep bottom slopes; and

(c) the shallow end.

O.C. 115-2013, s. 1.

10.16. A black circle 150 mm in diameter must be placed at the deepest point of the swimming pool.

O.C. 115-2013, s. 1.

10.17. A “no diving” sign must be placed on the deck, using a pictogram or letters at least 100 mm high, in the section where the water depth is 1,400 mm or less.

O.C. 115-2013, s. 1.

10.18. A swimming pool may be constructed with a slope towards the centre from the deck and such pool is not subject to sections 10.06 to 10.13, 10.15 and 10.16, provided that

(a) the bottom is covered with a rigid white or pastel finish;

(b) the maximum slope of the bottom is 300 mm vertically in 3.6 m horizontally;

(c) the water depth does not exceed 1.8 m;

(d) the entire pool is surrounded by a deck that is at least 3 m wide;

(e) the bottom of the pool is marked, along its length, with a broken black line 250 mm wide; and

(f) there is no diving platform, springboard or accessory.

O.C. 115-2013, s. 1.

§ 2. — *Water treatment*

O.C. 115-2013, s. 1.

10.19. The water supply and recirculation system for a swimming pool must be separated from the drinking water system by a shut-off valve and backflow preventer, in accordance with the provisions of Chapter III "Plumbing" of this Code.

O.C. 115-2013, s. 1.

10.20. The devices in the filtration system, overflows and floor drains in the deck must be connected indirectly to the drainage system in accordance with the provisions of Chapter III "Plumbing" of this Code.

O.C. 115-2013, s. 1.

10.21. Pipes, fittings, joints and filtration equipment in the water recirculation system of a swimming pool must be designed to resist at least 1 1/2 times the maximum rated operating pressure.

O.C. 115-2013, s. 1.

10.22. The water recirculation system of a swimming pool must be designed to avoid trapping any swimmer who comes into contact with a drain or suction outlet. The system must be equipped, for each pump, with

(a) at least 2 drain or suction outlets at least 1 m apart;

(b) a device to limit the water flow through the openings in each outlet to the maximum prescribed by the drain cover manufacturer;

(c) an emergency shut-off easily accessible to swimmers at a clearly indicated location; and

(d) drain or suction outlets covered by drain covers that comply with the standard "Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Bathtub Appliances", ASME 112.19.8 M, and designed so that bathers cannot remove them without tools.

O.C. 115-2013, s. 1.

§ 3. — *Lighting and access*

O.C. 115-2013, s. 1.

10.23. An outdoor pool used after sunset or an indoor pool must have

(a) a lighting system which illuminates the underwater areas of the pool and also illuminates all parts of the deck and water surface with an illumination level of at least

i. 30 decalux, for an indoor swimming pool; and

ii. 10 decalux, for an outdoor swimming pool; and

(b) an emergency lighting system supplied by a generator or a recharging battery with an automatic relay to illuminate the bottom of the pool, the deck and the changing room for an average illumination of at least 1 decalux at floor level, the steps and water surface in case of a failure of the electric lighting power supply. Any self-contained emergency lighting units must comply with CSA Standard CSA C22.2 No. 141-M, "Unit Equipment for Emergency Lighting".

O.C. 115-2013, s. 1.

10.24. A swimming pool must be designed in such a way as not to be accessible to the public outside opening hours. The enclosure used for that purpose must have a minimum height of 1.20 m and have no fixture, projection or opening enabling it to be climbed. It may, however, have openings provided that a spherical object of 100 mm in diameter cannot pass through them or, in the case of a chain link fence, that each link measures no more than 38 mm.

O.C. 115-2013, s. 1.

10.25. When the deck of the swimming pool is adjacent to an area used for purposes other than bathing, an enclosure with a minimum height of 900 mm must separate the deck from that area. The enclosure used for that purpose must have no fixture, projection or opening enabling it to be climbed. It may, however, have openings provided that a spherical object of 100 mm in diameter cannot pass through them or, in the case of a chain link fence, that each link measures no more than 38 mm. The enclosure must be equipped at each entrance with a lockable barrier.

O.C. 115-2013, s. 1.

§ 4. — *Springboards, platforms and accessories*

O.C. 115-2013, s. 1.

10.26. The installation of a springboard or diving platform must comply with the minimum dimensions indicated in the table in Schedule III. The reference point when measuring is the plummet or vertical line passing through the centre of the end of the springboard or diving platform.

O.C. 115-2013, s. 1.

10.27. A springboard, diving platform or accessory

(a) must be accessible only by stairs or a ladder; and

(b) must have a walking surface designed with a non-slip finish, and the nosing of the springboard or diving platform must be in a contrasting colour.

O.C. 115-2013, s. 1.

10.28. A springboard, diving platform or accessory that is 3 m high or more may only be accessible by stairs equipped with a lockable barrier to control access at the deck level.

O.C. 115-2013, s. 1.

10.29. The part of a springboard, diving platform or accessory that is not over water and that is 1 m high or more must be equipped, on both sides, with a guardrail that prevents bathers from passing through but allows them to be seen by the safety supervisors.

O.C. 115-2013, s. 1.

10.30. The ladder of a springboard, diving platform or accessory must

(a) have rungs of a minimum length of 300 mm between the rails; and

(b) have rungs with a non-slip surface.

The part of the ladder above a height of 1 m must be equipped with handrails that comply with paragraphs *a* and *b* of section 10.33.

O.C. 115-2013, s. 1.

10.31. The stairs of a springboard, diving platform or accessory must have steps

(a) with a uniform rise between 125 and 200 mm;

(b) with a tread between 210 and 355 mm;

(c) with a uniform depth between 235 and 355 mm;

(d) with nosing in a contrasting colour; and

(e) with a non-slip surface.

Each flight of stairs must have a vertical height of not more than 3.7 m and be equipped, between each flight, with a landing of a length and width at least equal to the width of the stairs.

The stairs of a springboard, diving platform or accessory that is 1 m high or more must be equipped with a guardrail and a handrail.

O.C. 115-2013, s. 1.

10.32. The guardrails must

(a) not have any opening allowing a spherical object of over 100 mm in diameter to pass through;

(b) have a height of at least

i. 1,070 mm in the part of a springboard, diving platform or accessory that is not over water and that is 1 m high or more;

ii. 920 mm measured vertically to the top of the guardrail from a line drawn through the outside edges of the stair nosings;

iii. 1,070 mm around the landings.

O.C. 115-2013, s. 1.

10.33. The handrails must

(a) be not more than 40 mm in diameter;

(b) be continuous with the handrail around all horizontal areas; and

(c) have a minimum height between 865 and 965 mm on stairs.

O.C. 115-2013, s. 1.

10.34. A swimming pool equipped with a diving platform exceeding 3 m in height must be designed exclusively for diving or, to delimit the diving area, be equipped with a rigid barrier or recessed fittings to which a double safety line supported by buoys can be attached, the two lines being at least 300 mm apart. The minimum distance between the pool wall under the diving platform and the double safety line or rigid barrier must be as indicated in the following table:

Height of the diving platform m	Distance from the pool wall m
5	11.5
7.5	12.5
10	15

O.C. 115-2013, s. 1.

10.35. A device to agitate the surface water must be installed in order to allow divers to distinguish the water surface under diving installations of 3 m or more.

O.C. 115-2013, s. 1.

10.36. The surface of a submersible platform must be free of cracks and corners, have a non-slip finish and be of a contrasting colour.

O.C. 115-2013, s. 1.

DIVISION IV

WADING POOLS

O.C. 115-2013, s. 1.

10.37. The submerged area of a wading pool must be white or of a pastel colour. The bottom of the wading pool must have a non-slip surface.

O.C. 115-2013, s. 1.

10.38. Sections 10.04, 10.05 and 10.19 to 10.25 apply to wading pools, with the necessary modifications.

Despite the first paragraph, section 10.24 does not apply to a wading pool that is emptied before the supervisor leaves.

O.C. 115-2013, s. 1.

DIVISION V

OFFENCES

O.C. 115-2013, s. 1.

10.39. Every contravention of any of the provisions of this Chapter constitutes an offence.

O.C. 115-2013, s. 1.

SCHEDULE I

(ss. 8.134 and 8.193)

PICTOGRAMS

PICTOGRAMS

(1) To indicate “No smoking”

(2) To indicate «Turn off engine before filling»

O.C. 220-2007, s. 1.

SCHEDULE II

(s. 8.157)

HAZARDOUS AREAS IN WHICH A HEATING APPLIANCE MAY NOT BE INSTALLED

(1) The area around the end of the fill pipe of an underground tank, up to 0.5 m from ground level and within a horizontal radius of 3 m;

(2) The area around the vent outlet of an underground tank, up to a radius of 5 m in all directions;

(3) A dispensing area, up to 0.5 m from ground level;

(4) The area around a motor fuel dispenser, up to 1.5 m in all directions;

(5) A service area, up to 0.5 m above ground or floor level over the entire surface area;

(6) A zone for transferring Class 1 petroleum products, up to 1.5 m in all directions;

(7) A salesroom, storeroom or washroom, if an opening connects to any area described above; and

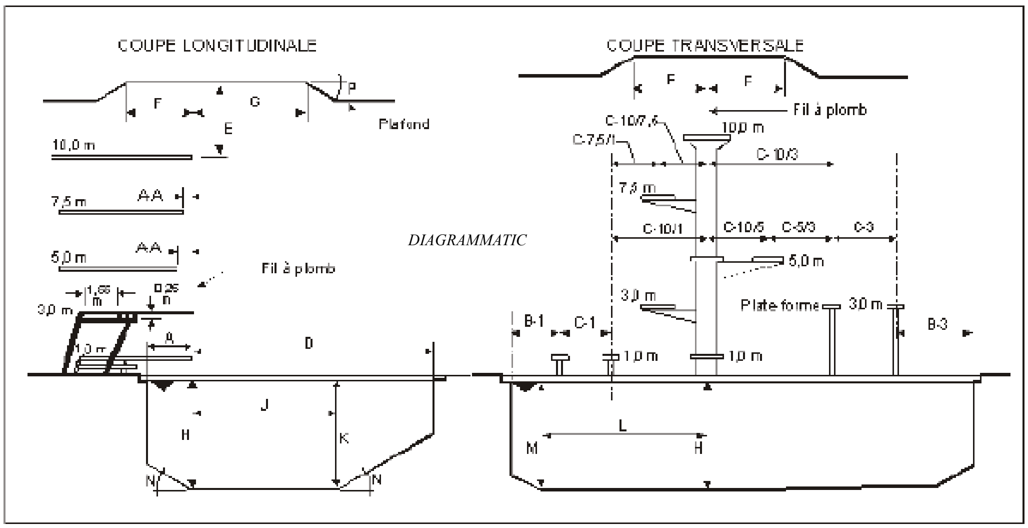
(8) Any space, pit or box below ground level and located wholly or partly in any area described above.

O.C. 220-2007, s. 1.

SCHEDULE III

(s. 10.26)

MINIMUM DIMENSIONS OF SPRINGBOARD AND DIVING PLATFORM INSTALLATIONS



	Springboard			Diving platform				
	≤ 0.5 m	0.5 m < h ≤ 1 m	3 m	1 m 0.6 m in width	3 m 0.6 m in width	5 m 1.5 m in width	7.5 m 1.5 m in width	10 m 2.5 m in width
A. From plummer to pool wall behind	1.50	1.50	1.50	1.25	1.25	1.50	1.50	1.50
AA. From plummet back to plummet for platform below						0.75	0.75	0.75
B. From plummet to side pool wall	2.50	2.50	3.50	2.30	2.90	4.25	4.50	5.25
C. From plummet to adjacent plummet	2.40	2.40	2.60	1.95	2.10	5/3 2.50 m 5/1 2.50 m	7. 5/5 2.50 m 7.5/3/1 2.50 m	10/7. 5/5 2.75 m 10/3 or 1 2.75 m

D. From plummet to pool wall ahead	9.00	9.00	10.25	8.00	9.50	10.25	11.00	13.50
E. From plummet to ceiling above	5.00	5.00	5.00	3.50	3.50	3.50	3.50	5.50
F. Clearance above, behind and to each side of plummet	2.50	2.50	2.50	2.75	2.75	2.75	2.75	2.75
G. Clearance above and ahead of plummet	5.00	5.00	5.00	5.00	5.00	5.00	5.00	6.00
H. Depth of water at plummet	3.05	3.50	3.80	3.40	3.60	3.80	4.50	5.00
J/K. Distance and depth ahead of plummet	at a distance of 4.60 minimum depth of 2.90	at a distance of 6.00 minimum depth of 3.40	at a distance of 6.00 minimum depth of 3.70	5.0 dist. 3.30 depth	6.00 3.50	6.00 3.70	8.00 4.40	12.00 4.75
L/M. Distance and depth to each side of plummet	at a distance of 2.50 minimum depth of 3.40	at a distance of 2.50 minimum depth of 3.40	at a distance of 3.25 minimum depth of 3.70	2.05 3.30	2.65 3.50	4.25 3.70	4.50 4.40	5.25 4.75
N. Maximum angle of slope to reduce pool depth beyond area of required depth	30 degrees	30 degrees	30 degrees		30 degrees			

P. Maximum angle of slope to reduce ceiling height beyond area of required clearance	30 degrees	30 degrees	30 degrees		30 degrees			

The dimensions indicated in rows B and C of the table in Schedule III apply to diving platforms having the width indicated in the table. For diving platforms of greater width, the dimensions must be increased by one-half of the extra width.

Springboard Diving platform
? 0.5 m 0.5 m < h
? 1 m 3 m 1 m
0.6 m in width 3 m
0.6 m in width 5 m
1.5 m in width 7.5 m
1.5 m in width 10 m
2.5 m in width
A. From plummer to pool wall behind 1.50 1.50 1.50 1.25 1.25 1.50
1.50 1.50
AA. From plummet back to plummet for platform below 0.75
0.75 0.75
B. From plummet to side pool wall 2.50 2.50 3.50 2.30 2.90 4.25
4.50 5.25
C. From plummet to adjacent plummet 2.40 2.40 2.60 1.95 2.10 5/3
2.50 m
5/1
2.50 m 7. 5/5
2.50 m
7.5/3/1
2.50 m 10/7. 5/5
2.75 m
10/3 or 1
2.75 m
D. From plummet to pool wall ahead 9.00 9.00 10.25 8.00 9.50 10.25
11.00 13.50
E. From plummet to ceiling above 5.00 5.00 5.00 3.50 3.50 3.50
3.50 5.50
F. Clearance above, behind and to each side of plummet 2.50 2.50 2.50
2.75 2.75 2.75 2.75 2.75
G. Clearance above and ahead of plummet 5.00 5.00 5.00 5.00 5.00
5.00 5.00 6.00
H. Depth of water at plummet 3.05 3.50 3.80 3.40 3.60 3.80 4.50
5.00
J/K. Distance and depth ahead of plummet at a distance of 4.60
minimum depth of 2.90 at a distance of 6.00
minimum depth of 3.40 at a distance of 6.00
minimum depth of 3.70 5.0 dist.
3.30 depth 6.00
3.50 6.00
3.70 8.00
4.40 12.00
4.75
L/M. Distance and depth to each side of plummet at a distance of 2.50
minimum depth of 3.40 at a distance of 2.50
minimum depth of 3.40 at a distance of 3.25
minimum depth of 3.70 2.05
3.30 2.65
3.50 4.25
3.70 4.50
4.40 5.25
4.75
N. Maximum angle of slope to reduce pool depth beyond area of required depth 30
degrees 30 degrees 30 degrees 30 degrees
P. Maximum angle of slope to reduce ceiling height beyond area of required clearance

```
30 degrees    30 degrees    30 degrees        30 degrees

The dimensions indicated in rows B and C of the table in Schedule III apply to diving
platforms having the width indicated in the table. For diving platforms of greater
width, the dimensions must be increased by one-half of the extra width.
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O.C. 115-2013, s. 1.

TRANSITIONAL

2024

(O.C. 850-2024) **SECTION 3**. The provisions of Chapter I.1 of the Construction Code, as they read before 13 July 2024, may be applied to construction work referred to in sections 1.1.2 and 1.1.3 of the Construction Code, provided that the work begins before 13 January 2025.

(O.C. 848-2024) **SECTION 3**. Chapter IV of the Construction Code, as it read before 13 July 2024, may be applied to construction work on an elevator or lift other than maintenance, repair or demolition work, provided the work began before 13 July 2025.

(O.C. 983-2024) **SECTION 6 and** ***(O.C. 1071-2024)***. The provisions of Chapter III of the Code, as they read before 11 July 2024, may be applied to construction work on a plumbing system, provided that the work began before 11 January 2025.

2021

(O.C. 1419-2021) **SECTION 5**. Despite section 1.02, introduced by section 1 of this Regulation, Chapter I of the Construction Code as it read on 7 January 2022 may apply to the construction or alteration of a building, as defined in that Chapter, provided that the work begins before 8 July 2023.

(O.C. 65-2021) **SECTION 2**. The former provisions of Chapter III, Plumbing, of the Construction Code, as they read on 26 March 2021, may apply to construction work on a plumbing system that begins before 27 September 2021.

2018

(O.C. 722-2018) **SECTION 3**. Despite the foregoing, the provisions of Chapter V Electricity of the Construction Code, as they read on 30 September 2018, may apply to construction work to an electrical installation that begins before 1 April 2019.

(O.C. 990-2018) **SECTION 2**. Despite section 1, the provisions of Chapter I of the Construction Code as amended by Order in Council 347-2015 dated 15 April 2015 may be applied to the construction of a building or its alteration, as defined in that Chapter, provided that the work started before 1 September 2020.

2015

(O.C. 347-2015) **SECTION 3**. Despite section 1.02, it is permitted to apply the provisions of Chapter I of the Construction Code approved by O.C. 293-2008 of 19 March 2008 to the construction of a building or its alteration, as defined in this Chapter, provided that the work began before 13 December 2016.

SECTION 4. Despite sections 1.07 and 2, a prefabricated building whose manufacturing is completed before 13 December 2016 may be sold, rented, exchanged or acquired without approval or certification if the construction work to the electrical installation was carried out by an electrical contractor.

2013

(O.C. 115-2013) **SECTION 2**. Despite section 1, the Regulation respecting safety in public baths (chapter B-1.1, r. 11) may be applied to the construction of a bathing place or its transformation, as defined in the Chapter provided that the work has begun before the 18th month of the date of coming into force of this Regulation (before 14 September 2014).

2012

(O.C. 858-2012) **SECTION 9**. Despite the foregoing, the provisions of the Regulation respecting energy conservation in new buildings (chapter E-1.1, r. 1) may be applied to the construction and enlargement of a building having a building area not more than 600 m^2, a building height not more than 3 storeys and whose major occupancy is Group C and housing only dwellings, on the following conditions:

(a) the plans and specifications are filed with a municipality for the purpose of obtaining a construction permit before 30 August 2012; and

(b) work begins before 28 November 2012.

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