Submit a comment

Proposed Change 2157

Code Reference(s):	**NBC25 Div.A 1.1.1.1. (first printing)** **NBC25 Div.C 2.2.7.5. (first printing)**
Subject:	Other
Title:	Moving the Reference to CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels," from a Division A Note to a Division C Provision
Description:	This proposed change permits a certificate to CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels," to be considered as third-party Code compliance approval to facilitate the approval of factory-constructed buildings, modules and panels.

This change could potentially affect the following topic areas:

- ☐ Division A
- ☑ Division C
- ☐ Building operations
- ☐ Small Buildings
- ☐ Fire Protection
- ☐ Accessibility
- ☐ Building Envelope
- ☐ Heating, Ventilating and Air Conditioning
- ☐ Division B
- ☐ Design and Construction
- ☐ Housing
- ☐ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☐ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

It may often be difficult for authorities having jurisdiction (AHJs) to determine whether a factory-constructed building, module or panel complies with the National Building Code of Canada without a full inspection of the building, module or panel once it has been delivered to the construction site. AHJs may prefer to fully inspect these factory-constructed items as they do on-site construction. Because many of the wall, roof and floor assemblies are closed in, their components cannot be inspected without reopening the assemblies.

Note A-1.1.1.1.(2) currently identifies CSA A277, “Procedure for certification of prefabricated buildings, modules, and panels,” as a potential compliance option for

factory-constructed buildings, modules and panels. However, to be enforceable the reference should appear in a provision instead of an explanatory Note, which means some AHJs may not accept CSA A277 as a compliance option.

Justification

This proposed change revises the Administrative Provisions in Division C by introducing a new sentence to Article 2.2.7.5. Proposed Sentence 2.2.7.5.(2) would allow authorities having jurisdiction (AHJs) to consider certifications to CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels," as administrative confirmation that buildings, modules and panels that are constructed off site are Code compliant.

The AHJ would remain responsible for determining whether or not a building's plans are Code compliant, and an accredited agency would be responsible for ensuring that the processes used by the off-site manufacturer to construct the components off site follow the Code-compliant plans that were approved by the AHJ.

This proposed change could facilitate the acceptance of factory-constructed buildings, panels and modules by AHJs since it offers an enforceable pathway for Code compliance to be determined in a factory (off-site) by an accredited agency before the assemblies are closed in.

PROPOSED CHANGE

[1.1.1.1.] 1.1.1.1. Application of this Code

Note A-1.1.1.1.(2) Factory-Constructed Buildings.

The NBC applies the same requirements to site-built and factory-constructed buildings; ~~. However, it can often be difficult to determine whether a factory-constructed building complies with the Code once it has been delivered to the construction site because many of the wall, roof and floor assemblies are closed in and so their components cannot be inspected. CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels", was developed to address this problem with regard to residential, commercial and industrial buildings. This standard describes a procedure whereby an independent certification agency can review the quality control procedures of a factory and make periodic unannounced inspections of its products. The standard is not a building code, only a procedure for certifying compliance of factory-constructed components with a building code or other standard. If a factory-constructed building bears the label of an accredited certification agency indicating that compliance with the National Building Code has been certified using the CSA A277 procedure, the accepting authority will have some assurance that the concealed components do not require re-inspection on site.~~ and while the ~~On the other hand,~~ standards in the CSA Z240 MH Series, "Manufactured homes", ~~do~~ resemble a building code, compliance with the series

should not be taken as an indication that the house necessarily complies with the building code in effect for the intended location of the house. ~~Most of the individual standards in t~~The series contains requirements regarding many issues ~~also~~ covered in the NBC; however, ~~. S~~some of the~~se~~ provisions in the Z240 MH Series ~~provisions~~ are performance requirements with no quantitative criteria, some simply reference the applicable NBC requirements, while others contain requirements that differ from those in the NBC. Because it would be illogical to have two different sets of requirements for buildings—one set that applies to site-built buildings and one set that applies to factory-constructed buildings—the NBC does not reference these Z240 MH Series standards.

One of the individual standards in the Z240 MH Series deals with special requirements for manufactured ho~~m~~uses related to the fact that they~~se houses~~ must be moved over roads, which is an issue the NBC does not address. ~~Therefore, labeling that indicates that a factory-constructed house complies with the Z240 MH Series, standards can NOT be taken as an indication that the house necessarily complies with the building code in effect for the location where the house will be sited.~~

The NBC does reference CSA Z240.10.1, "Site preparation, foundation, and installation of buildings", which is not actually part of the CSA Z240 MH Series. This standard contains requirements for surface foundations where buildings—not just houses—comply with the deformation resistance test provided in CSA Z240.2.1, "Structural requirements for manufactured homes".

[2.2.7.5.] 2.2.7.5. Off-Site Review

[1] 1) Where a *building* or component of a *building* is assembled off the *building* site in such a manner that it cannot be reviewed on site, off-site reviews shall be provided to determine compliance with this Code.

[2] --) Prefabricated *buildings*, modules or panels certified in accordance with CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels", by an organization accredited for this purpose by the Standards Council of Canada shall be deemed to comply with the off-site review required by Sentence (1). (See Note A-2.2.7.5.(2).)

Note A-2.2.7.5.(2) Deemed to Comply with Required Off-Site Review.

Sentence 2.2.7.5.(2) is intended to leave to the authority having jurisdiction the determination of the Code compliance of submitted drawings or designs for the proposed building, including any components intended to be assembled off the building site. The provision also leaves to the authority having jurisdiction the performance of on-site reviews for the on-site assembly (e.g., connections) of buildings, modules or panels that are certified in accordance with CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels".

Impact analysis

The proposed change does not introduce any increase in costs for compliance with the requirements for the construction of prefabricated buildings, modules and panels.

Some authorities having jurisdiction (AHJs) have not previously permitted a certificate to CSA A277, "Procedure for certification of prefabricated buildings, modules, and panels," to be used as a means of confirming that what was constructed off site is Code compliant because it conforms with the AHJ-approved designs. In the cases where an AHJ now accepts the off-site review where they may not have before, this could result in a decrease in time and resources required for construction review or approval processes depending on the availability of accredited certification bodies to complete the certifications.

Enforcement implications

Authorities having jurisdiction could spend less time approving prefabricated buildings, modules and panels, depending on the availability of accredited certification bodies that are capable of completing the certifications.

Submit a comment

Proposed Change 1781

Code Reference(s):	**NBC25 Div.B 3.1.8.3.(2) (first printing)** **NBC25 Div.B 3.1.8.3.(4) (first printing)** **NBC25 Div.B 9.10.9.2.(4) (first printing)**
Subject:	Fire Protection Systems
Title:	Fire Test Method for Firestops at Perimeter Joints
Description:	This proposed change replaces the referenced standard for fire test method, ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus," with CAN/ULC-S115:2023, "Standard Method of Fire Tests of Firestop Systems."

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☑ Fire Protection
- ☐ Accessibility
- ☐ Building Envelope
- ☐ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☐ Design and Construction
- ☐ Housing
- ☑ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☐ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

The reference to ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus" in Sentences 3.1.8.3.(2) and (4) and 9.10.9.2.(4) and Note A-3.1.8.3.(2) of Division B of the NBC was required because the fire test method in CAN/ULC-S115-11, "Standard Method of Fire Tests of Firestop Systems," used different criteria to measure the performance of firestops at perimeter joints.

CAN/ULC-S115-11 standard was written in a way that made the pressure differential requirement stricter than the requirement in ASTM E2307, which was perceived to be beyond the minimum level of performance that such testing should achieve. For this reason, a reference to CAN/ULC-S115-11 would have led to increased installation costs

for builders due to the installation of stronger firestop systems than originally intended. The requirement could have added undue costs to a building, reducing the potential for innovative building design and construction.

Justification

Now that both standards have been harmonized, by referencing the 2023 edition of CAN/ULC-S115 in the NBC, referencing ASTM E2307 is no longer necessary. The fire test method in CAN/ULC-S115:2023 achieves similar performance for firestops installed at perimeter joints as ASTM E2307.

Additionally, replacing the ASTM standard with the CAN/ULC one would simplify industry compliance; the required fire-resistance rating of firestops could be achieved by referencing only one standard. The fire test in CAN/ULC-S115 is already referenced in the NBC for assessing the fire-resistance rating of firestops used to maintain the continuity of a fire separation abutting a fire separation, a floor, a ceiling or a roof (Sentences 3.1.8.3.(2) and (3)).

The fire test method in CAN/ULC-S115 is also referenced for maintaining the fire-resistance rating of a fire separation with penetrations by firestops (Articles 3.1.9.1., 3.1.9.3. and 3.1.9.4.).

Using a fire test method with which the industry is familiar and that is already used to test firestops would reduce testing costs and likely further harmonize the installation of firestops. This proposed change would also facilitate compliance enforcement by building inspectors. As a result, the likelihood of defective firestops would be reduced, lowering the risk that fire could spread to upper floors through defective perimeter joints and lead to an uncontrolled fire that could harm people and significantly damage a building.

PROPOSED CHANGE

[3.1.8.3.] 3.1.8.3. Continuity of Fire Separations

[1] 2) Except as provided in Sentence (5), the continuity of a *fire separation* having a *fire-resistance rating* that abuts another *fire separation*, a floor, a ceiling, or a roof shall be maintained by a *firestop* conforming to Sentence (3). (See Note A-3.1.8.3.(2).)

Note A-3.1.8.3.(2) Fire Separation Continuity.

The continuity of a fire separation with a fire-resistance rating is maintained by installing a firestop system at the juncture where it abuts against another fire separation, a floor, a ceiling or a roof assembly. The continuity of a fire separation without a fire-resistance rating that abuts another fire separation is maintained by filling all openings at the juncture of the

assemblies with a fire-resistance-rated joint firestop system that will ensure the integrity of the fire separation at that location.

Test methods for the evaluation of joint systems are described in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems", which covers joint systems between adjacent fire-resistance-rated assemblies and between a fire-resistance-rated floor and a non-fire-resistance-rated exterior wall. ~~ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus," is a test method applicable to joint systems between a fire-resistance-rated floor and a non-fire-resistance-rated exterior wall.~~

Fire-resistance-rated joint firestop systems can be tested and listed as either static or dynamic. Dynamic joint firestop systems are subjected to movement cycling prior to undergoing fire testing at maximum joint extension. This approach ensures that the fire-resistance rating of the joint firestop system will be maintained even after the joint has cycled through its anticipated range of movement over the service life of the building. Most joints between fire-resistance-rated assemblies, other than those between loadbearing elements, experience some movement over the service life of the building.

[3.1.8.3.] 3.1.8.3. Continuity of Fire Separations

[1] 4) Except as provided in Sentence (5), joints located in a horizontal plane between a floor and an exterior wall shall be sealed by a *firestop* that, when subjected to the fire test method in ~~ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus,"~~CAN/ULC-S115:2023, "Standard Method of Fire Tests of Firestop Systems," has an F rating not less than the *fire-resistance rating* of the horizontal *fire separation*.

[9.10.9.2.] 9.10.9.2. Continuous Barrier

[1] 4) Except as provided in Sentence (6), joints located in a horizontal plane between a floor and an exterior wall shall be sealed by a *firestop* that, when subjected to the fire test method in ~~ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus,"~~CAN/ULC-S115:2023, "Standard Method of Fire Tests of Firestop Systems," has an F rating not less than the *fire-resistance rating* for the horizontal *fire separation*.

Impact analysis

The industry is already familiar with the fire test method in CAN/ULC-S115. Testing firestops at perimeter joints should not introduce additional costs as the firestops would all be tested to the same standard (instead of requiring a different standard to test a

specific application of firestops). As such, the potential impact would benefit the industry by decreasing costs for the testing of firestops in accordance with one standard instead of two different ones.

Enforcement implications

The proposed change is expected to facilitate the enforcement of requirements for firestops at perimeter joints as there is no need to comply with the fire test methods in two different standards.

Building officials, the industry and contractors would benefit from referring to a single standard with which they are already familiar for firestopping penetrations of fire separations required to have a fire-resistance rating.

Who is affected

Building officials, manufacturers, contractors and building owners.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.1.8.3.] 3.1.8.3. ([1] 2) [F03-OS1.2]

[3.1.8.3.] 3.1.8.3. ([1] 2) [F03-OP1.2]

[3.1.8.3.] 3.1.8.3. ([1] 4) [F03-OS1.2]

[3.1.8.3.] 3.1.8.3. ([1] 4) [F03-OP1.2]

[9.10.9.2.] 9.10.9.2. ([1] 4) [F03-OS1.2]

[9.10.9.2.] 9.10.9.2. ([1] 4) [F04-OP1.2]

Submit a comment

Proposed Change 1684

Code Reference(s):	**NBC25 Div.B 3.2.3.7.(3) (first printing)** **NBC25 Div.B 3.2.3.7.(4) (first printing)**
Subject:	Other — Fire Protection
Title:	Revision of Intent Statements and Attributions for NBC Sentences 3.2.3.7.(3) and (4)
Description:	This proposed change deletes the attributions and revises the intent statements for Sentences 3.2.3.7.(3) and (4) of Division B of the NBC.

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division B
- ☐ Division C
- ☐ Design and Construction
- ☐ Building operations
- ☐ Housing
- ☐ Small Buildings
- ☐ Large Buildings
- ☐ Fire Protection
- ☐ Occupant safety in use
- ☐ Accessibility
- ☐ Structural Requirements
- ☐ Building Envelope
- ☐ Energy Efficiency
- ☐ Heating, Ventilating and Air Conditioning
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

Sentences 3.2.3.7.(1) and (2) of Division B of the National Building Code of Canada (NBC) both stipulate the use of noncombustible cladding for exposing building faces of buildings where the maximum permitted area of unprotected openings is not more than 50% of the exposing building face.

Sentences 3.2.3.7.(3) and (4) both waive the requirement for noncombustible cladding if certain conditions are met.

- Sentence (3) – the requirement for noncombustible cladding is waived where the maximum permitted area of unprotected openings is more than 10% of the exposing building face and the exterior wall assembly complies with Article 3.1.5.5. or 3.1.5.6.
- Sentence (4) – the requirement for noncombustible cladding is waived where maximum permitted area of unprotected openings is between 25% and 50% of the exposing building face and the building meets one of the five conditions in Clauses (a) to (e), relating to limiting distance, sprinklering, cladding materials

and their installation, and compliance of the exterior wall assembly with Article 3.1.5.5. or 3.1.5.6.

The objective-based analysis of Sentences 3.2.3.7.(3) and (4) indicates that it is not strictly accurate to assign attributions to these exemption provisions, since the exemption does not itself impose requirements on design or construction. Rather, the exemption in Sentences (3) and (4) is meant to acknowledge that if certain conditions are met, the risk of fire spread is acceptably low.

In addition, the intent statements for Sentences 3.2.3.7.(3) and (4) both refer to a limitation on the probability of ignition. It has been suggested that the reference to a reduced probability of ignition should be deleted, since the purpose of both Sentences is to allow for combustible cladding, which is more likely to contribute to the spread of fire than to limit it, as compared to noncombustible cladding. Therefore, the intent statements for Sentences (3) and (4) need to be revised.

Justification

Objective-based analysis of Sentence 3.2.3.7.(3)

In the case of Sentence 3.2.3.7.(3), all three bullets of the current intent statement are associated with the condition that must be met for the exemption to apply (i.e., the exterior wall assembly must comply with Article 3.1.5.5. or 3.1.5.6.).[1] The third bullet, in particular, refers to the limited probability that the cladding will be ignited, while the first and second bullets refer to the limited risk of fire spread from the subject building to an adjacent building. With respect to the third bullet, since combustible cladding can be ignited, the premise that the condition set out in Sentence 3.2.3.7.(3) will limit the probability that the cladding will be ignited is not necessarily valid.

The guidelines for writing intent statements, which are laid out in the document "General Rules for the Development of Bottom-Up Analysis of National Codes," state that the intent statements for exception provisions must explain the nature of and the reason for the exception. It also notes that attributions are not linked to exceptions.

The relevant intent statement for Sentence 3.2.3.7.(1), associated with limiting the probability of ignition of the exposing building face, is as follows:

3.2.3.7.(1) Intent 2: "To limit the probability that an exposing building face will be ignited and contribute to a fire, which could lead to the spread of fire from the building to an adjacent building during the time required for emergency responders to perform their duties, which could lead to damage to adjacent buildings."

However, Sentence 3.2.3.7.(1) specifically permits combustible cladding under some circumstances, and combustible cladding can be ignited and contribute to a fire, which could damage an adjacent building.

The intent statements for Sentences 3.2.3.7.(1) and (2) can be compared to those for Sentence 3.1.5.5.(2), which invokes the requirements of Table 3.2.3.7. for limiting distances permitting unprotected openings of not more than 10% of the exposing building face. Intent 2 for Sentence 3.1.5.5.(2) uses the same wording as the intent statements for Sentences 3.2.3.7.(1) and (2):

3.1.5.5. Intent 2: "To limit the probability that an exposing building face will be ignited and contribute to a fire, which could lead to the spread of fire from the building to an adjacent building during the time required for emergency responders to perform their duties, which could lead to damage to adjacent buildings."

However, unlike Sentences 3.2.3.7.(1) and (2), which permit combustible cladding in some cases, Sentence 3.1.5.5.(2) specifically precludes combustible cladding and requires noncombustible cladding where the permitted area of unprotected openings is not more than 10% of the exposing building face.

The intent statements for Sentences 3.2.3.7.(1) and (2) and Sentence 3.1.5.5.(2) include reference to "the time required for emergency responders to perform their duties." It is appropriate to include this phrase in the intent statement for Sentence 3.2.3.7.(3) as well, in order to capture that the limitation on the probability of ignition is only during the period before firefighters arrive on scene and are actively fighting the fire.

Intent statements for exception provisions in the NBC are not written in a consistent manner but most commonly take the following form: "To exempt [specific element] from the requirements of [Code reference], if certain conditions are met, on the basis that [reason]."

With respect to this exception provision, it is noted that functional statements and objectives are not attributed to exception provisions.

Therefore, the intent statement and attributions for Sentence 3.2.3.7.(3) should be revised to (a) clarify that the Sentence is intended for limiting fire spread to an adjacent building, (b) incorporate the reference to emergency response time found in the intents for the related Sentences, and (c) remove the attributions (F02, F03-OP3.1) for this exception provision.

Objective-based analysis of Sentence 3.2.3.7.(4)

Since Sentence 3.2.3.7.(4) specifies multiple application conditions that would permit the noncombustible cladding requirement in Sentence 3.2.3.7.(1) to be waived, its intent statement or statements should reflect all these compliance options or be specific as to which options apply to each bullet. Some of the options (e.g., the limiting distance requirement in Clause (a)) do not reduce the risk of a fire being ignited. In this case, then, the premise of the third bullet is not valid.

The third bullet is relevant to Clause (b), which requires the provision of sprinklers in the building to reduce the risk of flash-over conditions, which reduces the risk of fire spread through window openings and thereby reduces the risk that the exterior wall will be ignited.

Clauses (c) and (d) provide requirements that the combustible cladding and its installation must meet, which do not preclude the cladding from being ignited.

Clause (e) specifies the same application condition as that for the exemption in Sentence 3.2.3.7.(3). See the above discussion of the intent statement for Sentence 3.2.3.7.(3).

It is appropriate to incorporate the reference to emergency responders from the intent statements for Sentences 3.2.3.7.(1) and (2) into the intent statement for Sentence 3.2.3.7.(4) in order to capture that the limitation on probability of ignition is only during the time before firefighters arrive on scene and are actively fighting the fire.

Therefore, the intent statement for Sentence 3.2.3.7.(4) should be revised to (a) clarify that it is intended for limiting fire spread to an adjacent building, (b) incorporate the wording of emergency responders found in the intents for the related Sentences, (c) list the conditions on which cladding requirements in Sentences (1) and (2) are exempted, and (d) remove the attributions (F02, F03-OP3.1) for this exception provision.

Summary

The recommended modifications to the intent statements for Sentences 3.2.3.7.(3) and (4) reflect the fact that combustible cladding, which is permitted by these provisions, may result in ignition and that the intent of the provisions is more accurately linked to the reduced probability of fire spread from one building to another than it is the probability of ignition.

The revised intent statement for Sentence 3.2.3.7.(3) is as follows:

Intent 1: To exempt cladding from the requirements of Sentences 3.2.3.7.(1) and 3.2.3.7.(2) [specifically “Type of Cladding Required” in Table 3.2.3.7.], if certain conditions are met, on the basis that conformance with Article 3.1.5.5. or 3.1.5.6. will limit the probability of the spread of fire from the subject building to an adjacent building during the time required for emergency responders to perform their duties, which could lead to damage to adjacent buildings.

The revised intent statement for Sentence 3.2.3.7.(4) is as follows:

Intent 1: To exempt cladding from the requirements of Sentences 3.2.3.7.(1) and 3.2.3.7.(2) [specifically “Type of Cladding Required” in Table 3.2.3.7.], if certain conditions are met, on the basis that limiting distance, sprinklers, cladding materials and their installation, or conformance with Article 3.1.5.5. or 3.1.5.6. will limit the probability of spread of fire from the subject building to an adjacent building during the time required for emergency responders to perform their duties, which could lead to damage to adjacent buildings.

The recommendation to remove the attributions to these exception provisions is based on the application of the attributions from the root requirements (i.e., Sentences 3.2.3.7.(1) and (2)), i.e., exception provisions do not have their own functional statement and objective pairs attributed to them.

1. For the current intent statements for Sentences 3.2.3.7.(3) and (4), see the Supplement to the NBC 2020: Intent Statements.

PROPOSED CHANGE

[3.2.3.7.] 3.2.3.7. Construction of Exposing Building Face

[1] 3) Except as provided in Articles 3.1.4.8. and 3.1.6.9., the requirement in Table 3.2.3.7. for *noncombustible* cladding for *buildings* or *fire compartments* where the maximum permitted area of *unprotected openings* is more than 10% of the *exposing building face* is permitted to be waived for exterior wall assemblies that comply with Article 3.1.5.5. or 3.1.5.6.

[3.2.3.7.] 3.2.3.7. Construction of Exposing Building Face

[1] 4) Except as provided in Articles 3.1.4.8. and 3.1.6.9., the requirement in Table 3.2.3.7. for *noncombustible* cladding for *buildings* or *fire compartments* where the maximum permitted area of *unprotected openings* is more than 25% but not more than 50% of the *exposing building face* is permitted to be waived where

[a] a) the *limiting distance* is greater than 5 m,

[b] b) the *building* or *fire compartment* and all *combustible* attic and roof spaces are *sprinklered* (see Sentence 3.2.5.12.(8)),

[c] c) the cladding

[i] i) conforms to Subsections 9.27.6., 9.27.7., 9.27.8., 9.27.9. or 9.27.10.,

[ii] ii) is installed without furring members, or on furring not more than 25 mm thick, over gypsum sheathing at least 12.7 mm thick or over masonry, and

[iii] iii) after conditioning in conformance with ASTM D2898, "Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing", has a *flame-spread rating* not greater than 25 on the exterior face when tested in accordance with Sentence 3.1.12.1.(1),

[d] d) the cladding

[i] i) conforms to Subsection 9.27.12.,

[ii] ii) is installed with or without furring members over gypsum sheathing at least 12.7 mm thick or over masonry,

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

[iv] iv) does not exceed 2 mm in thickness, exclusive of fasteners, joints and local reinforcements (see Note A-3.2.3.7.(4)(d)(iv)), or

[e] e) the exterior wall assembly complies with Article 3.1.5.5. or 3.1.5.6.

Impact analysis

The deletion of the attributions and revision of the intent statements for Sentences 3.2.3.7.(3) and (4) clarifies the intent of these two Sentences and improves the clarity of the provisions. The more accurate intent statements will help Code users correctly interpret the Code provisions and provide the appropriate level of protection for buildings. No negative impact or additional cost is anticipated.

Enforcement implications

It is expected that the revision will facilitate the correct interpretation and enforcement of the Code requirements. No enforcement implication is anticipated.

Who is affected

Regulators, consultants, building owners, contractors, testing and certification organizations, and manufacturers.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.2.3.7.] 3.2.3.7. ([1] 3) ~~[F02,F03-OP3.1]~~

[3.2.3.7.] 3.2.3.7. ([1] 4) ~~[F03,F02-OP3.1]~~

Submit a comment

Proposed Change 1778

Code Reference(s):	**NBC25 Div.B 3.2.4.19. (first printing)** **NBC25 Div.B 3.8. (first printing)**
Subject:	Accessibility — Low-Cost and No-Cost Items
Title:	Replace the Term "Hearing Impairment" with "People with Low or No Hearing"
Description:	This proposed change replaces the term "hearing impaired" with "people with low or no hearing" in Part 3.
Related Code Change Request(s):	CCR 1528
Related Proposed Change(s):	PCF 1342, PCF 1644

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☑ Accessibility
- ☐ Building Envelope
- ☐ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☑ Design and Construction
- ☑ Housing
- ☑ Large Buildings
- ☑ Occupant safety in use
- ☐ Structural Requirements
- ☐ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

The terminology used in the National Building Code of Canada (NBC) to refer to people who are “hearing impaired” is outdated and should be updated to “people with low or no hearing.” This change would harmonize the terminology used in the building code requirements and explanatory Notes that relate to hearing levels.

This proposed change would facilitate a consistent interpretation of the Code requirements and reflect currently accepted terminology.

Justification

Replacing “people with a hearing impairment” with “people with low or no hearing” in the NBC is editorial in nature and will affect the clarity and understanding of the Code’s provisions but not their meaning, intent or application.

Using a consistent terminology supports consistent interpretation of the applicable requirements.

The Canadian Association of the Deaf and the Canadian Hard of Hearing Association list terms like “people who are deaf” (medical), “Deaf” (sociological), “hard of hearing” (covers a range of hearing levels) and “people with hearing loss” and qualify them based on levels of hearing and the types of communication styles that people use, and other factors. Terms referencing “impairment” are considered unacceptable. While some sources note that referencing “hearing loss” is acceptable, others suggest that it may have negative connotations.

For comparison, CSA/ASC B651, “Accessible design for the built environment,” refers to “people who are deaf, deafened or hard of hearing” and “people who are hard of hearing,” whereas CSA/ASC B652, “Accessible dwellings,” uses the term “low or no hearing.”

This proposed change would use the terminology “people with low or no hearing” in the NBC to focus on the functional aspects of hearing and the related need for building code requirements (e.g., the need for visible signals) without associating the terminology with a person’s identity or hearing level, or with the reason for or permanence of a person’s condition (e.g., disability, temporary injury or illness).

Although the National Model Codes aim to promote the use of consistent language, people’s experiences and terminology preferences related to hearing are subjective and varied.

PROPOSED CHANGE

[3.2.4.19.] 3.2.4.19. Visible Signals

[1] 1) Where a fire alarm system is installed, visible signal devices shall be provided in addition to *alarm signal* devices

[a] a) in *buildings* or portions thereof intended for use primarily by ~~persons~~people with ~~a~~low or no hearing ~~impairment~~,

[b] b) in *assembly occupancies* in which music and other sounds associated with performances could exceed 100 dBA,

[c] c) in any *floor area* in which the ambient noise level is more than 87 dBA,

[d] d) in any *floor area* in which the occupants

[i] i) use ear protection devices,

[ii] ii) are located in an audiometric booth, or

[iii] iii) are located in sound-insulating enclosures,

[e] e) in *public corridors* serving a Group B, C, D or E *major occupancy*,

[f] f) in corridors used by the public serving a Group A *major occupancy*,

[g] g) in not less than 10% of the *suites* of *residential occupancy* in a hotel or motel (see Note A-3.2.4.19.(1)(g)), and

[h] h) in washrooms, except those located within

[i] i) *suites* of *residential occupancy*,

[ii] ii) *suites* of *care occupancy*, or

[iii] iii) patients' sleeping rooms.

[2] 2) Visible signal devices are permitted to be installed in lieu of audible signal devices in the compartments referred to in Article 3.3.3.6.

[3] 3) Visible signal devices required by Sentence (1) shall be installed so that the signal from at least one device is visible throughout the *floor area* or portion thereof in which they are installed. (See Note A-3.2.4.19.(3).)

Note A-3.2.4.19.(1)(g) Visible Alarm Signals in Hotels and Motels.

Visible signal devices should be installed in a combination of regular suites and designated accessible suites in hotels and motels so that people ~~who are deaf~~with low or no~~hard of~~ hearing can safely occupy either type of suite.

Visible signal devices are not required to be installed in all the rooms of the suite. The signal should be visible from any room in the suite, which can be accomplished by installing glazing panels between the rooms or additional visible signal devices.

In addition, CAN/ULC-S524, "Standard for Installation of Fire Alarm Systems", requires that high-intensity strobes be used in sleeping rooms.

[3.8.] 3.8. Accessibility

(See Note A-3.8.)

[3.8.1.] 3.8.1. Scope

[3.8.1.1.] 3.8.1.1. Scope

[3.8.2.] 3.8.2. Application

[3.8.2.1.] 3.8.2.1. Exceptions

[3.8.2.2.] 3.8.2.2. Entrances

[3.8.2.3.] 3.8.2.3. Areas Requiring a Barrier-Free Path of Travel

[3.8.2.4.] 3.8.2.4. Access to Storeys Served by Escalators and Moving Walks

[3.8.2.5.] 3.8.2.5. Exterior Barrier-Free Paths of Travel to Building Entrances and Exterior Passenger-Loading Zones

[3.8.2.6.] 3.8.2.6. Controls

[3.8.2.7.] 3.8.2.7. Power Door Operators

[3.8.2.8.] 3.8.2.8. Plumbing Facilities

[3.8.2.9.] 3.8.2.9. Assistive Listening Systems

[3.8.2.10.] 3.8.2.10. Signs and Indicators

[3.8.2.11.] 3.8.2.11. Counters

[3.8.2.12.] 3.8.2.12. Telephones

[3.8.3.] 3.8.3. Design

[3.8.3.1.] 3.8.3.1. Design Standards

[3.8.3.2.] 3.8.3.2. Barrier-Free Path of Travel

[3.8.3.3.] 3.8.3.3. Exterior Walks

[3.8.3.4.] 3.8.3.4. Exterior Passenger-Loading Zones

[3.8.3.5.] 3.8.3.5. Ramps

[3.8.3.6.] 3.8.3.6. Doorways and Doors

[3.8.3.7.] 3.8.3.7. Passenger-Elevating Devices

[3.8.3.8.] 3.8.3.8. Controls

[3.8.3.9.] 3.8.3.9. Accessible Signs

[3.8.3.10.] 3.8.3.10. Drinking Fountains

[3.8.3.11.] 3.8.3.11. Water-Bottle Filling Stations

[3.8.3.12.] 3.8.3.12. Accessible Water-Closet Stalls

[3.8.3.13.] 3.8.3.13. Universal Washrooms

[3.8.3.14.] 3.8.3.14. Water Closets

[3.8.3.15.] 3.8.3.15. Water-Closet Stalls and Urinals for Persons with Limited Mobility

[3.8.3.16.] 3.8.3.16. Lavatories and Mirrors

[3.8.3.17.] 3.8.3.17. Showers

[3.8.3.18.] 3.8.3.18. Accessible Bathtubs

[3.8.3.19.] 3.8.3.19. Assistive Listening Systems

[3.8.3.20.] 3.8.3.20. Counters

[3.8.3.21.] 3.8.3.21. Telephones

[3.8.3.22.] 3.8.3.22. Spaces in Seating Area

Note A-3.8. Barrier-Free Design Principles.

This Section contains minimum requirements for the design of buildings that accommodate people with diverse abilities, across their lifespan, including, but not limited to, people who use wheelchairs or other assistive mobility devices (e.g., walking aids, canes, crutches, braces, prosthetics), people with personal care providers, people with ~~hearing~~low or no vision ~~loss~~(see PCF 1644), people with low or no hearing, and people with service animals, so they can access and use buildings.

Examples of basic accessibility requirements of the Code are as follows:

- a clear floor space of at least 800 mm by 1 350 mm,
- a 1 000 mm clear width allowing a 90° turn,
- a 2 100 mm diameter clear floor space allowing a 180° turn in one motion, and
- a 1 700 mm diameter clear floor space allowing a 180° turn in multiple motions.

Note A-3.8.2.3. Access to Rooms and Facilities.

If barrier-free access is required into suites or rooms in Subsection 3.8.2., it is intended that access be provided, with some exceptions identified in Sentence 3.8.2.3.(2), throughout each room or suite. Some examples of where barrier-free access is required

are as follows:

- within each suite (subject to Clauses 3.8.2.3.(2)(k) and (l)),
- within rooms or areas that serve the public or are designated for use by visitors, including areas in assembly occupancies with fixed seats, display areas and merchandising departments,
- within rooms or areas for student use in assembly occupancies,
- within general work areas, including office areas,
- within general use or general service areas, including shared laundry areas in residential occupancies, recreational areas, cafeterias, lounge rooms, lunch rooms and infirmaries,
- within sleeping rooms in hospitals and nursing homes with treatment,
- (if installed), into at least one passenger elevator or elevating device conforming to Articles 3.5.2.1. and 3.8.3.7.,
- into washrooms described in Sentences 3.8.2.8.(1) to (4),
- to any facility required by this Section to be designed to accommodate persons with physical disabilities,
- onto every balcony provided in conformance with Clause 3.3.1.7.(1)(c), and
- to service counters used by the general public (examples include ticket counters, refreshment stands, drinking fountains, cafeteria counters, checkout counters and bank service counters).

The permission to waive a barrier-free path of travel for wheelchair access to certain specified areas of a building is not intended to waive accessibility requirements for ~~persons~~people who~~se physical disabilities~~ do not require special provision for access to raised or sunken levels. ~~Persons~~People with ~~visual~~low or no vision (see PCF 1644) and people with low or no hearing ~~disabilities that~~ who do not require the use of a wheelchair can be expected to move throughout a building.

Seating booths and banquettes in restaurants and bars are considered furniture, which is beyond the scope of the Code. However, various types of seating should be considered to ensure the availability of barrier-free options.

The concept of wheelchair accessibility does not extend to building service facilities, nor to all floor levels within a storey, e.g., mezzanines not served by an elevator. Mezzanines that are accessible by an elevator are therefore not excluded.

Note A-3.8.3.9.(3) Accessibility Signs.

The International Symbol of Access shown in Figure A-3.8.3.9.(3)-A indicates to people~~persons~~ with physical disabilities that they will have reasonable freedom of movement within a building so signed. The symbol is usually white on a blue background; where these colours do not stand out, the sign can be set on a white background. An arrow can be added to indicate direction or the location of an accessible space or facility.

Figure [A-3.8.3.9.(3)-A] A-3.8.3.9.(3)-A
Signs indicating accessible facilities

The International Symbol of Access for Hearing Loss shown in Figure A-3.8.3.9.(3)-B, which indicates accessibility for ~~persons~~people with low or no hearing ~~loss~~, should be used to indicate the availability of variable volume controls on telephones, assistive listening systems, and text telephones (TT). These latter devices may also be referred to as teletypewriters (TTY) or telecommunications devices for the deaf (TDD).

Figure [A-3.8.3.9.(3)-B] A-3.8.3.9.(3)-B
Signs for assistive listening facilities

Note A-3.8.3.19. Assistive Listening Systems.

Examples of assistive listening systems include FM, infrared and induction loop systems. However, the technology in this field is advancing rapidly; as such, other types of assistive listening systems could be considered in the design of a space. In choosing the most appropriate system, a number of factors must be taken into account including cost, installation and maintenance requirements, suitability for the intended user or audience, ease of operation, and the need for privacy. Information on designers and suppliers of such systems can be obtained from the Canadian Hearing Society. The

intent of Article 3.8.3.19. is to provide clear communication where information, goods or services are provided to the public.

Wireless sound transmission systems, including FM, infrared and magnetic induction loop systems, improve sound reception for ~~persons who are hard of~~people with low or no hearing by providing amplification that can be adjusted by each user while blocking out unwanted background noise. Some of these systems transmit a signal that is picked up by a special receiver (FM, infrared) available for use by ~~a person who is hard of~~people with low or no hearing, whether or not a hearing aid is used. None of the systems interfere with the listening enjoyment of others.

The transmitter can be connected into an existing public address (P.A.) system amplifier or used independently with microphones. The induction loop system (see Figure A-3.8.3.19.-C) requires people who use~~rs with a~~ hearing aids or cochlear implants to be in the area circumscribed by the loop; though installation of the loop is relatively simple, the installer should be knowledgeable about these systems if proper functioning is to be achieved. FM and infrared systems can be designed to broadcast signals that cover the entire room and thus do not restrict seating to any one area. Figures A-3.8.3.19.-A and A-3.8.3.19.-B show the general configuration of FM and infrared systems. Although portable systems (FM systems, in particular) are available, these are best suited to small audiences. Generally, the systems installed in church halls, auditoria, theatres and similar places of assembly are not easily portable, as they are installed in a fixed location by a sound technician and form an integral part of the P.A. system of the room or building.

Hard-wired systems (where a connection is provided at a particular seat in an auditorium, for example) might meet this requirement when adequate provisions are made to accommodate ~~persons with~~people who use hearing aids.

Figure [A-3.8.3.19.-A] A-3.8.3.19.-A
FM sound transmission system

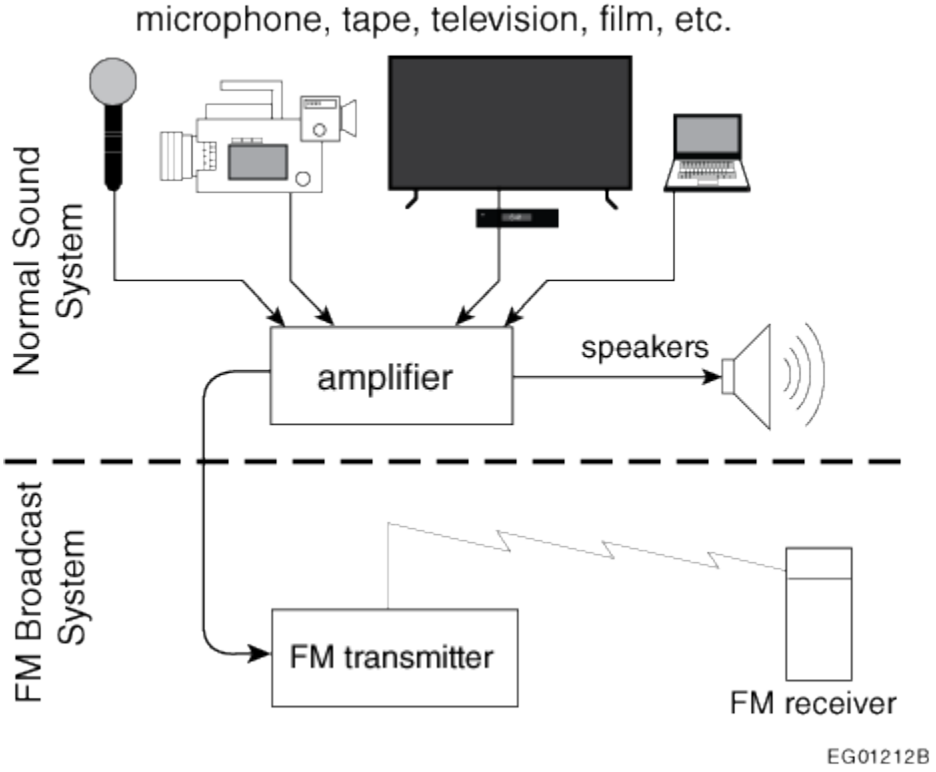


Figure [A-3.8.3.19.-B] A-3.8.3.19.-B
Infrared sound transmission system

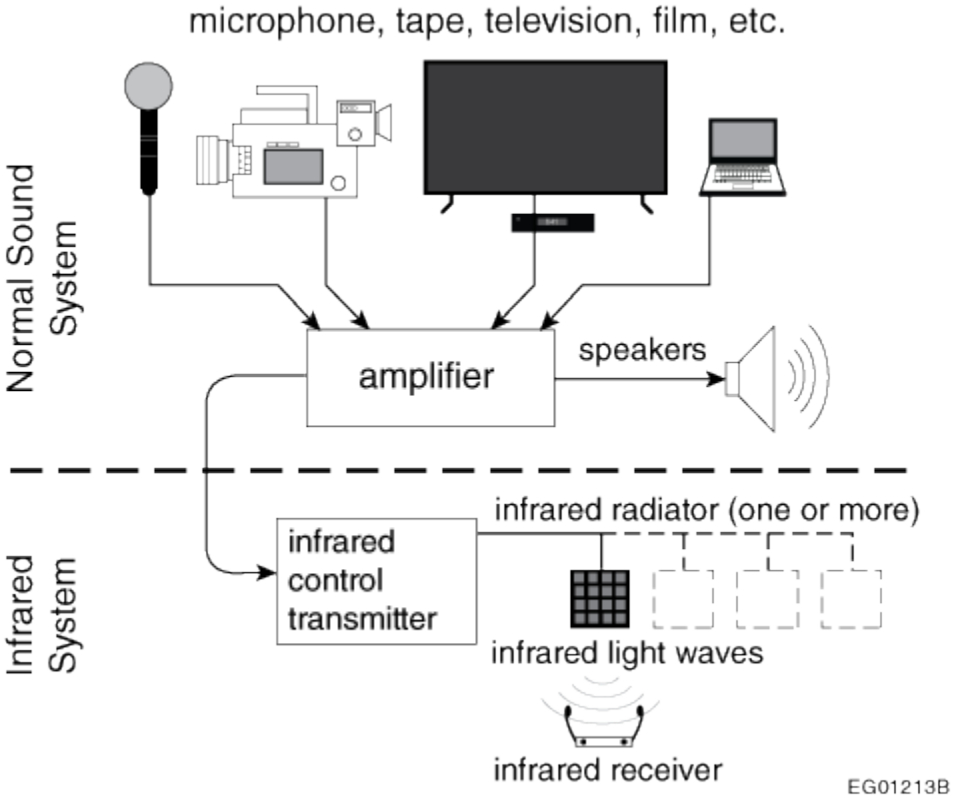
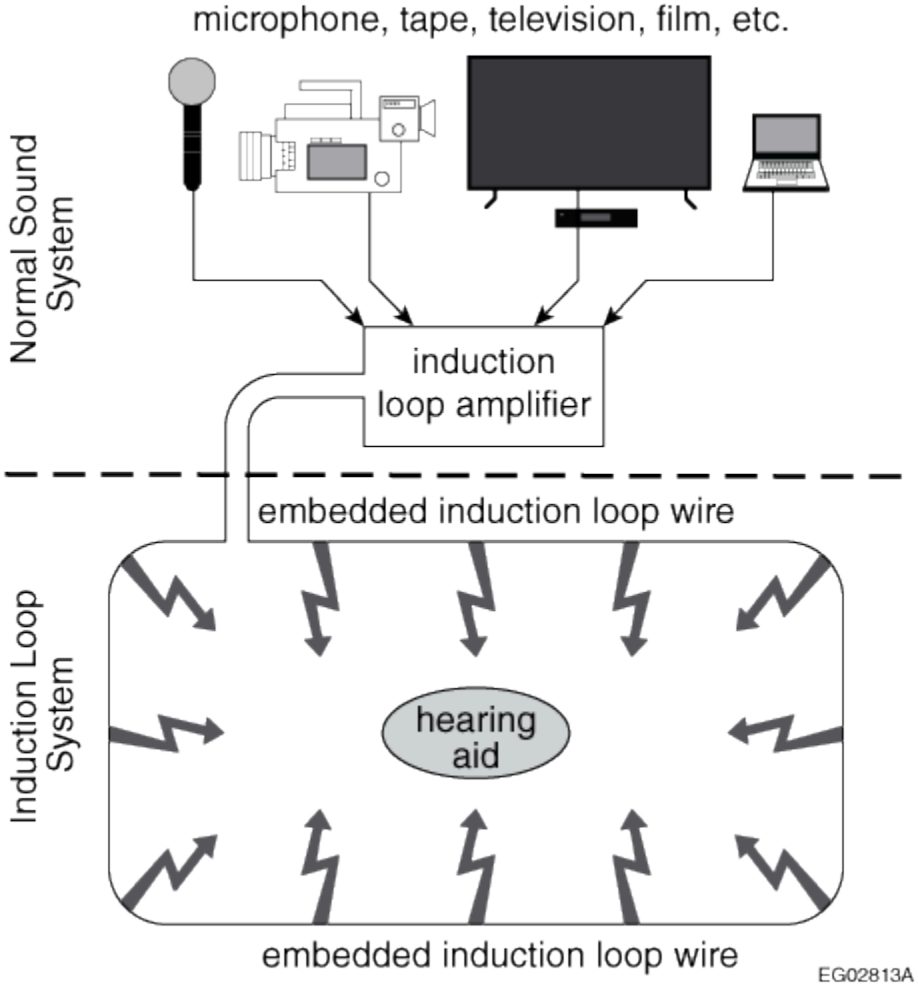


Figure [A-3.8.3.19.-C] A-3.8.3.19.-C
Induction loop sound transmission system



Impact analysis

The proposed change is editorial and does not affect building costs. The proposed change will support the consistent application of the Code requirements, facilitate understanding and interpretation of the Code provisions, and update the terminology to what is commonly used in the industry.

Enforcement implications

The revision of terminology is an editorial change that supports the consistent application of the Code requirements by building officials and designers.

Who is affected

Building officials, owners and designers will use a common terminology that would support consistent application of accessibility requirements and reflect more modern and accepted terminology.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.2.4.19.] 3.2.4.19. ([1] 1) [F11-OS1.5]

[3.2.4.19.] 3.2.4.19. ([2] 2) no attributions

[3.2.4.19.] 3.2.4.19. ([3] 3) [F11-OS1.5]

[3.8.1.1.] 3.8.1.1. ([1] 1) no attributions

[3.8.1.1.] 3.8.1.1. ([2] 2) no attributions

[3.8.2.1.] 3.8.2.1. ([1] 1) no attributions

[3.8.2.2.] 3.8.2.2. ([1] 1) [F73-OA1]

[3.8.2.2.] 3.8.2.2. ([2] 2) no attributions

[3.8.2.2.] 3.8.2.2. ([3] 3) no attributions

[3.8.2.2.] 3.8.2.2. ([4] 4) [F73-OA1]

[3.8.2.3.] 3.8.2.3. ([1] 1) [F73-OA1]

[3.8.2.3.] 3.8.2.3. ([2] 2) no attributions

[3.8.2.3.] 3.8.2.3. ([3] 3) [F74-OA2]

[3.8.2.3.] 3.8.2.3. ([4] 4) [F74-OA2]

[3.8.2.3.] 3.8.2.3. ([5] 5) [F74-OA2]

[3.8.2.3.] 3.8.2.3. ([5] 5) [F10-OS3.7] Applies to portion of Code text: "... each row of seats served by two aisles shall have one adaptable seat conforming to Subsection 3.8.3. located adjacent to one of the aisles."

[3.8.2.3.] 3.8.2.3. ([6] 6) [F74-OA2]

[3.8.2.4.] 3.8.2.4. ([1] 1) [F73-OA1]

[3.8.2.4.] 3.8.2.4. ([2] 2) [F73-OA1]

[3.8.2.5.] 3.8.2.5. ([1] 1) [F73-OA1]

[3.8.2.5.] 3.8.2.5. ([2] 2) [F73-OA1]

[3.8.2.5.] 3.8.2.5. ([3] 3) no attributions

[3.8.2.6.] 3.8.2.6. ([1] 1) no attributions

[3.8.2.7.] 3.8.2.7. ([1] 1) [F73-OA1]

[3.8.2.7.] 3.8.2.7. ([2] 2) no attributions

[3.8.2.7.] 3.8.2.7. ([3] 3) no attributions

[3.8.2.8.] 3.8.2.8. ([1] 1) [F74-OA2]

[3.8.2.8.] 3.8.2.8. ([1] 1) [F72-OH2.1] [F71-OH2.3]

[3.8.2.8.] 3.8.2.8. ([2] 2) [F74-OA2]

[3.8.2.8.] 3.8.2.8. ([2] 2) [F72-OH2.1] [F71-OH2.3]

[3.8.2.8.] 3.8.2.8. ([2] 2) no attributions

[3.8.2.8.] 3.8.2.8. ([3] 3) no attributions

[3.8.2.8.] 3.8.2.8. ([4] 4) [F72-OH2.1]

[3.8.2.8.] 3.8.2.8. ([4] 4) [F73-OA1]

[3.8.2.8.] 3.8.2.8. ([5] 5) no attributions

[3.8.2.8.] 3.8.2.8. ([6] 6) no attributions

[3.8.2.8.] 3.8.2.8. ([7] 7) no attributions

[3.8.2.8.] 3.8.2.8. ([8] 8) no attributions

[3.8.2.8.] 3.8.2.8. ([9] 9) no attributions

[3.8.2.8.] 3.8.2.8. ([10] 10) no attributions

[3.8.2.8.] 3.8.2.8. ([11] 11) no attributions

[3.8.2.8.] 3.8.2.8. ([12] 12) no attributions

[3.8.2.8.] 3.8.2.8. ([13] 13) [F74-OA2]

[3.8.2.8.] 3.8.2.8. ([13] 13) no attributions

[3.8.2.8.] 3.8.2.8. ([14] 14) no attributions

[3.8.2.8.] 3.8.2.8. ([15] 15) no attributions

[3.8.2.8.] 3.8.2.8. ([15] 15) [F74-OA2]

[3.8.2.9.] 3.8.2.9. ([1] 1) no attributions

[3.8.2.9.] 3.8.2.9. ([2] 2) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([1] 1) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([1] 1) no attributions

[3.8.2.10.] 3.8.2.10. ([2] 2) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([3] 3) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([3] 3) no attributions

[3.8.2.10.] 3.8.2.10. ([4] 4) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([4] 4) no attributions

[3.8.2.11.] 3.8.2.11. ([1] 1) [F74-OA2]

[3.8.2.11.] 3.8.2.11. ([1] 1) no attributions

[3.8.2.12.] 3.8.2.12. ([1] 1) [F74-OA2]

[3.8.2.12.] 3.8.2.12. ([1] 1) no attributions

[3.8.3.1.] 3.8.3.1. ([1] 1) no attributions

[3.8.3.2.] 3.8.3.2. ([1] 1) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([2] 2) no attributions

[3.8.3.2.] 3.8.3.2. ([3] 3) ([a] a),([b] b) [F30-OS3.1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([a] a),([b] b) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([c] c),([d] d) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([e] e),([f] f) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([e] e),([f] f) [F30-OS3.1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([c] c),([d] d) [F30-OS3.1]

[3.8.3.2.] 3.8.3.2. ([4] 4) no attributions

[3.8.3.2.] 3.8.3.2. ([5] 5) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([6] 6) [F73-OA1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([a] a) [F73-OA1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([a] a) [F30-OS3.1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([b] b) [F73-OA1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([c] c)

[3.8.3.3.] 3.8.3.3. ([1] 1) ([d] d) [F30-OS3.1]

[3.8.3.4.] 3.8.3.4. ([1] 1) ([a] a) [F74-OA2]

[3.8.3.4.] 3.8.3.4. ([1] 1) ([b] b) [F73-OA1]

[3.8.3.4.] 3.8.3.4. ([1] 1) ([c] c) [F74-OA2]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([b] b),([e] e) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([d] d) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([c] c) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([d] d) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([e] e),([f] f)

[3.8.3.5.] 3.8.3.5. ([1] 1) ([b] b),([e] e) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([a] a)

[3.8.3.5.] 3.8.3.5. ([1] 1) ([c] c) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([2] 2) no attributions

[3.8.3.5.] 3.8.3.5. ([3] 3) no attributions

[3.8.3.5.] 3.8.3.5. ([4] 4) ([a] a) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([4] 4) ([b] b),([c] c) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([5] 5) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([1] 1) no attributions

[3.8.3.6.] 3.8.3.6. ([2] 2) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([3] 3) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([3] 3) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([4] 4) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([4] 4) [F10-OS3.7]

[3.8.3.6.] 3.8.3.6. ([5] 5) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([5] 5) [F10-OS3.7]

[3.8.3.6.] 3.8.3.6. ([6] 6) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([7] 7) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([8] 8) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([9] 9) no attributions

[3.8.3.6.] 3.8.3.6. ([10] 10) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([10] 10) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([10] 10) no attributions

[3.8.3.6.] 3.8.3.6. ([11] 11) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([12] 12) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([12] 12) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([13] 13) no attributions

[3.8.3.6.] 3.8.3.6. ([14] 14) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([15] 15) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([16] 16) no attributions

[3.8.3.6.] **3.8.3.6. ([17] 17) [F74-OA2]**

[3.8.3.6.] **3.8.3.6. ([17] 17) [F10-OS3.7]**

[3.8.3.7.] **3.8.3.7. ([1] 1) [F73-OA1]**

[3.8.3.7.] **3.8.3.7. ([1] 1) [F74-OA2]**

[3.8.3.7.] **3.8.3.7. ([1] 1) [F30-OS3.1] [F10-OS3.7]**

[3.8.3.8.] **3.8.3.8. ([1] 1) [F74-OA2]**

[3.8.3.8.] **3.8.3.8. ([1] 1) [F10-OS3.7]**

[3.8.3.9.] **3.8.3.9. ([1] 1) no attributions**

[3.8.3.9.] **3.8.3.9. ([1] 1) [F74-OA2]**

[3.8.3.9.] **3.8.3.9. ([1] 1) [F73-OA1]**

[3.8.3.9.] **3.8.3.9. ([2] 2) [F74-OA2]**

[3.8.3.9.] **3.8.3.9. ([2] 2) [F73-OA1]**

[3.8.3.9.] **3.8.3.9. ([3] 3) [F74-OA2]**

[3.8.3.9.] **3.8.3.9. ([3] 3) [F73-OA1]**

[3.8.3.10.] **3.8.3.10. ([1] 1) [F74-OA2]**

[3.8.3.10.] **3.8.3.10. ([2] 2) [F74-OA2]**

[3.8.3.11.] **3.8.3.11. ([1] 1) [F74-OA2]**

[3.8.3.11.] **3.8.3.11. ([2] 2) [F74-OA2]**

[3.8.3.12.] **3.8.3.12. ([1] 1) [F74-OA2]**

[3.8.3.12.] **3.8.3.12. ([1] 1) [F72-OH2.1]**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([d] d)([i] i) [F74-OA2]**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([f] f),([g] g) [F30,F20-OS3.1]**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([f] f) and ([g] g)**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([h] h) [F30-OS3.1]** Applies to portion of Code text: "… be equipped with a coat hook … projecting not more than 50 mm from the wall …"

[3.8.3.12.] **3.8.3.12. ([1] 1) no attributions**

[3.8.3.13.] **3.8.3.13. ([1] 1) [F74-OA2]**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([b] b) [F10-OS3.7]**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([c] c)**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([d] d)**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([f] f)**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([g] g) [F30-OS3.1]** Applies to the requirement for a coat hook.

[3.8.3.13.] **3.8.3.13. ([1] 1) ([i] i) [F74-OA2]** Applies to the requirement for a shelf.

[3.8.3.13.] **3.8.3.13. ([1] 1) [F72-OH2.1] [F71-OH2.3]**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([b] b) [F74-OA2]** Applies to portion of Code text: "… a door … capable of being locked from the inside …"

[3.8.3.13.] **3.8.3.13. ([2] 2) [F72-OH2.1] [F71-OH2.3]**

[3.8.3.14.] **3.8.3.14. ([1] 1) [F74-OA2]**

[3.8.3.14.] **3.8.3.14. ([1] 1) [F72-OH2.1]**

[3.8.3.15.] **3.8.3.15. ([1] 1) [F74-OA2]**

[3.8.3.15.] **3.8.3.15. ([1] 1) ([d] d) [F30-OS3.1]**

[3.8.3.15.] **3.8.3.15. ([1] 1) ([a] a)**

[3.8.3.15.] **3.8.3.15. ([2] 2) [F74-OA2]**

[3.8.3.15.] **3.8.3.15. ([2] 2) ([f] f) [F30-OS3.1]**

[3.8.3.15.] **3.8.3.15. ([2] 2) ([c] c)**

[3.8.3.16.] **3.8.3.16. ([1] 1) [F74-OA2]**

[3.8.3.16.] **3.8.3.16. ([1] 1) [F71-OH2.3]**

[3.8.3.16.] **3.8.3.16. ([1] 1) ([f] f) [F31-OS3.2]**

[3.8.3.16.] **3.8.3.16. ([2] 2) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([1] 1) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([1] 1) ([d] d),([e] e) [F30-OS3.1]**

[3.8.3.17.] **3.8.3.17. ([1] 1) ([f] f) [F30-OS3.1]**

[3.8.3.17.] **3.8.3.17. ([1] 1) ([h] h) [F31-OS3.2]**

[3.8.3.17.] **3.8.3.17. ([2] 2) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([2] 2) [F71-OH2.3]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([a] a) [F73-OA1]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([b] b) [F10-OS3.7]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([b] b) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([g] g) [F74-OA2]**

[3.8.3.18.] **3.8.3.18. ([1] 1) [F74-OA2]**

[3.8.3.19.] 3.8.3.19. ([1] 1) [F74-OA2]

[3.8.3.19.] 3.8.3.19. ([1] 1) [F11-OS3.7]

[3.8.3.19.] 3.8.3.19. ([2] 2) [F74-OA2]

[3.8.3.20.] 3.8.3.20. ([1] 1) [F74-OA2]

[3.8.3.21.] 3.8.3.21. ([1] 1) [F74-OA2]

[3.8.3.21.] 3.8.3.21. ([2] 2) [F74-OA2]

[3.8.3.22.] 3.8.3.22. ([1] 1) [F74-OA2]

[3.8.3.22.] 3.8.3.22. ([1] 1) [F30-OS3.1] Applies to portion of Code text: "… level … level and have removable seats, …"

[3.8.3.22.] 3.8.3.22. ([1] 1) ([d] d) [F10-OS3.7] Applies to portion of Code text: "… without infringing on egress from any row of seating or any aisle requirements …"

[3.8.3.22.] 3.8.3.22. ([2] 2) [F74-OA2]

[3.8.3.22.] 3.8.3.22. ([2] 2) [F30-OS3.1] Applies to portion of Code text: "… level, ..."

[3.8.3.22.] 3.8.3.22. ([3] 3) ([a] a) [F10-OS3.7] Applies to portion of Code text: "… without infringing on egress from any row of seating or any aisle requirements …"

[3.8.3.22.] 3.8.3.22. ([3] 3) [F74-OA2]

[3.8.3.22.] 3.8.3.22. ([4] 4) [F10-OS3.7]

Submit a comment

Proposed Change 2038

Code Reference(s):	**NBC25 Div.B 3.2.5.12. (first printing)**
Subject:	Automatic Sprinkler System
Title:	Application of Automatic Sprinkler Systems and NFPA 13R
Description:	This proposed change clarifies the application of NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies," for mixed occupancies.
Related Code Change Request(s):	CCR 892

This change could potentially affect the following topic areas:

- [ ] Division A
- [ ] Division C
- [ ] Building operations
- [x] Small Buildings
- [x] Fire Protection
- [ ] Accessibility
- [ ] Building Envelope
- [ ] Heating, Ventilating and Air Conditioning
- [x] Division B
- [x] Design and Construction
- [x] Housing
- [x] Large Buildings
- [ ] Occupant safety in use
- [ ] Structural Requirements
- [ ] Energy Efficiency
- [ ] Plumbing
- [ ] Construction and Demolition Sites

Problem

The current requirements of the National Building Code of Canada (NBC) for sprinkler system design, construction and installation may result in increased costs and difficulties in sprinklering combustible concealed spaces, depending on the standard applied. Clause 3.2.5.12.(2)(a) permits all storeys of a building of residential occupancy throughout that is not more than 4 storeys in building height to be sprinklered in accordance with NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies." NFPA 13R does not require combustible concealed spaces, including roof spaces, to be protected by sprinklers.

It is understood that the use of the word "throughout" within the context referred to in Clause 3.2.5.12.(2)(a) implies a building of Group C major occupancy containing no other major occupancies.

From the explicit use of "*residential occupancy* throughout," it could be inferred that where such a residential building also contains another major occupancy, the entire building would be required to be sprinklered in accordance with NFPA 13, "Standard for the Installation of Sprinkler Systems," including any combustible concealed spaces, unless otherwise exempted.

The term "throughout" is used in other Code provisions but in different contexts and with different related exemptions. For example, with respect to the installation of an automatic sprinkler system, Sentence 3.2.2.18.(1) clearly requires a building to be sprinklered "throughout," but exemptions are permitted in mixed-use cases, and some upper floors may not have to be sprinklered. In such cases, the need to sprinkler the upper floor(s) is typically based on the general construction requirements stated in Subsection 3.2.2. for each major occupancy.

Under Subsection 3.2.2., the upper floor of a 2-storey building containing a residential occupancy may not need to be sprinklered, while a mercantile (e.g., retail) occupancy present only on the ground floor might be required to be sprinklered in accordance with NFPA 13. But once the upper residential storey is sprinklered, either voluntarily or in accordance with a local bylaw or the construction requirements of NBC Subsection 3.2.2., then it also must be sprinklered in accordance with NFPA 13.

Using the term "throughout" in Clause 3.2.5.12.(2)(a) is unnecessarily restrictive, because it means that the requirement to install a sprinkler system applies throughout the entire building, instead of only applying to a particular storey in a building containing a residential occupancy.

Justification

The Standing Committee on Fire Protection reviewed provisions in the NBC on sprinklers and two standards: NFPA 13 and NFPA 13R. Justifications for the proposed change are presented as follows:

- Justifications 1–3: Justification for the use of NFPA 13 and NFPA 13R sprinkler systems in mixed-use buildings; and
- Justification 4: Justification for the proposed changes to the wording in Clause 3.2.5.12.(2)(a) and Note A-3.2.5.12.(2) based on discussions in Justifications 1–3.

Justification 1: Allowing Sprinkler Systems to be Used in Mixed Occupancy Buildings in Accordance with NFPA 13R

The 2019 edition of NFPA 13R incorporated changes to clarify the intent of the standard and to indicate that the standard is permitted to be used in mixed occupancy buildings. Annex Note A.1.1 of NFPA 13R states the following (emphasis added in **bold**):

> Buildings that contain multiple occupancies (either separated or nonseparated), accessory occupancies, or incidental uses are often subject to special rules that might restrict the use of NFPA 13R. **In buildings containing a residential occupancy properly separated from other**

> **occupancies, the use of NFPA 13R in the residential occupancy and NFPA 13 in the nonresidential occupancy(s) is appropriate.** Refer to the adopted building code to determine whether such restrictions are applicable.

In the 2019 edition of the NFPA 13R Handbook, the notes to Subsection 1.1.1 further reinforce this point (emphasis added in **bold**):

> For a building containing multiple occupancies utilizing the "separated" occupancy provisions in accordance with the applicable building code, residential occupancies are within the scope of NFPA 13R provided the building is not more than four stories in height, does not exceed 60 ft (18 m) in height above grade plane, and the residential occupancy is separated from the other occupancies in accordance with the "separated" occupancy requirements of the applicable building code. (For example, see 2018 NFPA 5000, Sections 6.2.2.3 and 6.2.4, and 2018 IBC [International Building Code] Section 508.4). **In such cases, NFPA 13R can be used in the residential occupancies and NFPA 13 is to be used in the other nonresidential occupancies in the building.**

Furthermore, the "Closer Look" feature in the "Enhanced Content" [1] of Subsection 1.1.1 of the 2022 edition of NFPA 13R (NFPA 13R-2022) also notes the following:

> NFPA 13R and Residential Mixed Occupancy Buildings
>
> Section A.1.1 clarifies that NFPA 13R systems can be used in residential mixed occupancy buildings.
>
> […] For a building containing multiple occupancies utilizing the "separated" occupancy provisions in accordance with the applicable building code, residential occupancies are within the scope of NFPA 13R provided the building is not more than four stories in height, does not exceed 60 ft (18 m) in height above grade plane, and the residential occupancy is separated from the other occupancies in accordance with the "separated" occupancy requirements of the applicable building code. In such cases, NFPA 13R can be used in the residential occupancies and NFPA 13 is to be used in the other nonresidential occupancies in the building.
>
> A building containing multiple occupancies utilizing the "nonseparated" occupancy provisions of the applicable building code is not within the scope of NFPA 13R. For such a building, the applicable building code typically requires the use of an NFPA 13 system throughout the building […].

The "separated" occupancy provisions in Section 508.4 of the 2018 edition of the International Building Code (which is the "model" code for the United States) are analogous to the separation of major occupancies provisions in Article 3.1.3.1. of the NBC. Therefore, provided a residential occupancy is "separated" from other major occupancies in accordance with Article 3.1.3.1., it is understood that NFPA 13R would be permitted to apply to the residential portions of a building that is not more than 4 storeys in building height.

Justification 2: Allowing Residential Storeys Having an NFPA 13R System to be Located above or below the Non-Residential Storeys Sprinklered in Accordance with NFPA 13

Where one major occupancy is located above another major occupancy, Sentence 3.2.2.7.(2) allows the fire-resistance rating of the floor assembly between the major occupancies to be determined based on the requirements of Subsection 3.2.2. for the major occupancy located below. Therefore, Article 3.2.2.7. allows for the mixed application of Subsection 3.2.2., which can result in structural elements on the lower storeys of the building having lower fire-resistance ratings than the structural elements on the upper storeys.

A similar (storey-by-storey) approach should be considered for the requirements for sprinkler system design that allow storeys having an NFPA 13R system (i.e., storeys of residential major occupancy that are fire separated from all other adjoining major occupancies in accordance with Article 3.1.3.1.) to be located above or below the storeys sprinklered in accordance with NFPA 13, as illustrated schematically in Figure 1 for a hypothetical 4-storey building containing superimposed major occupancies.

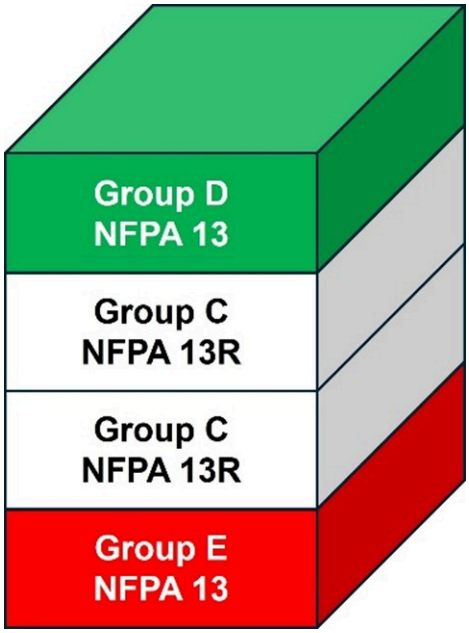


Figure 1. Four-storey building showing storeys in which NFPA 13R systems are installed and located above or below the storeys that are sprinklered in accordance with NFPA 13.

Justification 3: Allowing the Mixed Application of NFPA 13 and NFPA 13R Systems within the Same Storey

The 2025 NBC currently references the 2019 edition of NFPA 13R, which speaks to the intent of permitting the NFPA 13R sprinkler system design to be used in a mixed occupancy building. However, neither Annex Note A.1.1 of NFPA 13R nor the NFPA 13R-2019 Handbook specifically addresses the mixed application of NFPA 13 and NFPA 13R systems in the same storey, even when a portion of the storey that is of residential occupancy is fire separated from all other adjoining non-residential occupancies on the storey.

However, the "Closer Look" feature in the "Enhanced Content" [1] of Subsection 1.1.1 of NFPA 13R-2022 provides an example of how NFPA 13 and NFPA 13R systems would work in the same mixed-occupancy storey (note that the following text has been abbreviated):

> Low-Rise Residential Applications and the Appropriate Sprinkler Standards
>
> The types of buildings with low-rise residential occupancies can be essentially broken down to the following […] configurations in regard to NFPA 13R:
>
> […]
>
> - Mixed or Multiple Occupancy Buildings. […] For a building containing multiple occupancies utilizing the separated occupancy provisions in accordance with the applicable building code, residential occupancies are within the scope of NFPA 13R, provided the building is not more than four stories in height, does not exceed 60 ft (18 m) in height above grade plane, and are separated from the other occupancies in accordance with the separated occupancy requirements of the applicable building code.
>
> […]
>
> Consider the following examples:
>
> […]
>
> A wood three-story apartment building [9000 ft^2 (836 m^2) per floor] has a 6000 ft^2 (557 m^2) clubhouse (A2 occupancy) located on the first floor. An NFPA 13R system is not appropriate for the assembly occupancy, so an NFPA 13 system is required. Assuming that the clubhouse is separated from the residential occupancy with the appropriate rating, the residential occupancy can be protected with an NFPA 13R system. The building will then have both an NFPA 13 and an NFPA 13R system installed. The assembly occupancy will follow the rules from NFPA 13, including sprinklers in combustible concealed spaces in that occupancy up to the required separation point. NFPA 13R, Section 7.5, does give guidance as to adjacent unprotected combustible concealed spaces.

Regardless of whether a building constructed in accordance with Clause 3.2.5.12.(2)(a) contains a single occupancy or multiple major occupancies, Paragraph 6.6.9.4 of NFPA 13R-2022 requires all interior stairways located outside the dwelling unit to be protected in accordance with NFPA 13.

As for buildings with mixed occupancies that are fire separated and contain both NFPA 13 and NFPA 13R systems, NFPA 13R-2022 provides clear guidance on the application of each standard to some common building elements shared by both residential and non-residential occupancies. For example, in the case of combustible concealed spaces without sprinkler protection, Section 7.5 of NFPA

13R-2022 does not require an increase in the design area, whereas NFPA 13 does require an increase in the design area in certain situations. However, the "Enhanced Content" [1] of Section 7.5 of NFPA 13R-2022 states the following:

> […] In buildings with separated mixed occupancies that contain both NFPA 13 and NFPA 13R systems, this [combustible concealed space] exception would apply only to the NFPA 13R occupancy. The separated occupancy protected in accordance with NFPA 13 would follow all the rules found in NFPA 13, which could include design area increases for nonsprinklered combustible concealed spaces.

Annex Note A.7.5 of NFPA 13R-2022 provides further insight by stating the following:

> Where areas are protected in accordance with NFPA 13, NFPA 13 requirements for combustible concealed spaces are applicable.

Based on the foregoing, this proposed change would allow the application of NFPA 13R to extend not only to fully residential storeys but also to the portions of a storey that contain a residential occupancy, provided that the portions are fire separated from all other adjoining major occupancies and common areas, as described in other provisions of the NBC. Where a storey contains multiple major occupancies, the non-residential major occupancy portion of the storey would need to be sprinklered in accordance with NFPA 13.

In line with the approach discussed above in Justification 2, a mixed-occupancy storey may be located above or below any storey that is sprinklered in accordance with NFPA 13R and is either fully or partially residential. A mixed-occupancy storey may also be located above or below any storey sprinklered in accordance with NFPA 13. Figure 2 shows a schematic illustration of a hypothetical 4-storey building containing superimposed major occupancies with storeys containing mixed major occupancies.

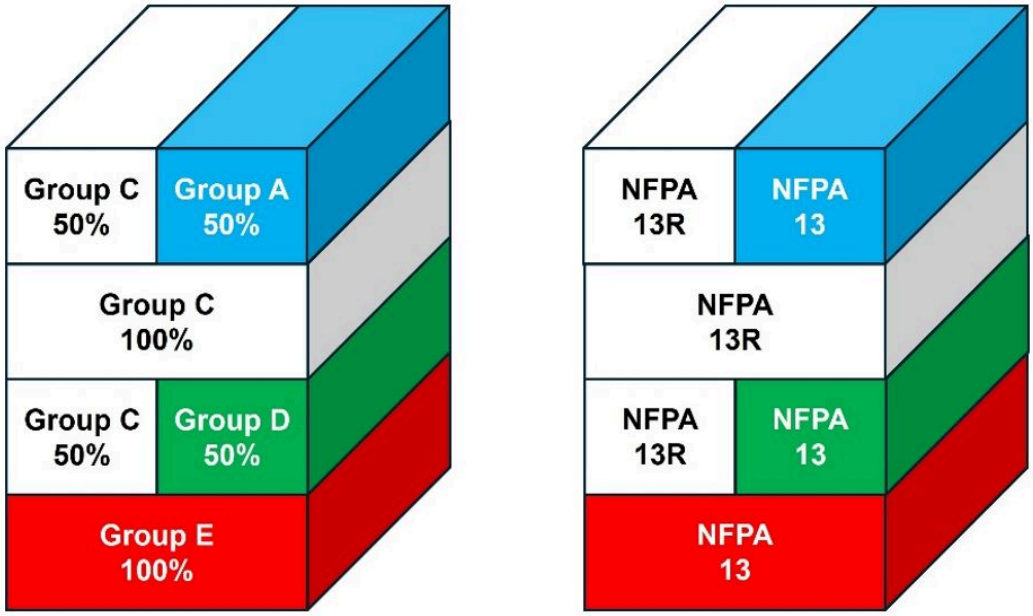


Figure 2. The use of NFPA 13 and NFPA 13R sprinkler systems in a 4-storey building containing non-residential, mixed-use and residential occupancies showing (a) the distribution of major occupancies in the building, and (b) the proposed application of sprinkler systems.

Justification 4: Amendments to Clause 3.2.5.12.(2)(a) and Appendix Note A-3.2.5.12.(2)

In line with the approach discussed in Justifications 1–3, it is no longer necessary to refer to Articles found in Subsection 3.2.2. in Subclause 3.2.5.12.(2)(a)(i) because this proposed change would allow NFPA 13R to be applied to fire-separated residential occupancies located in any building not more than 4 storeys in building height.

Furthermore, Subclause 3.2.5.12.(2)(a)(ii) references Article 9.10.1.3., which does not contain any provisions that are specific to building construction (unlike Subclause 3.2.5.12.(2)(a)(i), which does reference such Articles). Part 9 buildings are limited to a maximum building height of 3 storeys. Since this maximum height is within the subset of "buildings not more than 4 storeys in building height," there is no longer a need for Subclause 3.2.5.12.(2)(a)(ii) and its reference to Part 9.

Consistent with the points raised in Justifications 1–4, this proposed change shortens Clause 3.2.5.12.(2)(a) by removing the Subclauses and aligns the wording used in Appendix Note A-3.2.5.12.(2) with the proposed wording in Clause 3.2.5.12.(2)(a).

Notes

[1] "Enhanced Content," including its accessories "Closer Look" and "FAQ," inter alia, is an interactive digital feature created specifically for NFPA LiNK® subscribers. It reflects expert commentary from NFPA handbooks for select publications that can be viewed inline with the standard's text. For more information, please visit: https://www.nfpa.org/customer-support/will-nfpa-handbooks-be-in-nfpa-link.

PROPOSED CHANGE

[3.2.5.12.] 3.2.5.12. Automatic Sprinkler Systems

[1] 1) Except as permitted by Sentences (2) to (4) and (9), an automatic sprinkler system shall be designed, constructed, installed and tested in conformance with NFPA 13, "Standard for the Installation of Sprinkler Systems". (See Note A-3.2.5.12.(1).)

[2] 2) Instead of the requirements of Sentence (1), NFPA 13R, "Standard for the 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

[a] a) in a *building* of *residential occupancy* ~~throughout that~~, provided the

building is not more than 4 *storeys* in *building height*, or

[i] i) ~~is not more than 4 *storeys* in *building height* and conforms to Article 3.2.2.47., 3.2.2.49., 3.2.2.51., 3.2.2.52. or or 3.2.2.55., or~~

[ii] ii) ~~is not more than 3 *storeys* in *building height* and conforms to Article 9.10.1.3., or~~

[b] b) in a *building* of *care occupancy* with not more than 10 occupants that is not more than 3 *storeys* in *building height* and conforms to one of Articles 3.2.2.42. to 3.2.2.46.

(See Note A-3.2.5.12.(2).)

[3] 3) Instead of the requirements of Sentence (1), NFPA 13D, "Standard for the 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

[a] a) in a *building* of *residential occupancy* throughout that contains not more than two *dwelling units*,

[b] b) in a *building* of *care occupancy*, provided

[i] i) it contains not more than two *suites* of *care occupancy*,

[ii] ii) it has not more than five residents throughout, and

[iii] iii) a 30-minute water supply demand can be met, and

[c] c) in a *building* of *residential occupancy* throughout that contains more than two *dwelling units*, provided

[i] i) except for a *secondary suite*, no *dwelling unit* is located above another *dwelling unit*,

[ii] ii) all *suites* are separated by a vertical *fire separation* having a *fire-resistance rating* of not less than 1 h that provides continuous protection from the top of the footing to the underside of the roof deck, with any space between the top of the wall and the roof deck tightly filled with mineral wool or *noncombustible* material,

[iii] iii) each *dwelling unit* has its own sprinkler water supply provided in accordance with NFPA 13D, "Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes",

[iv] iv) a passive purge sprinkler system design is used as described in NFPA 13D, "Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes", and

[v] v) where the sprinkler system is taken into consideration for the reduction of *limiting distance*, all rooms, including closets, bathrooms and attached garages, that adjoin an *exposing building face* are sprinklered, notwithstanding any exemption stated in NFPA 13D, "Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes".

(See Note A-3.2.5.12.(2).)

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

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

[6] 6) Notwithstanding the requirements of the standards referenced in Sentences (1) and (2) regarding the installation of automatic sprinkler systems, any room or closet in the *storey* immediately below a roof assembly shall be *sprinklered*. (See Note A-3.2.5.12.(6).)

[7] 7) Notwithstanding the requirements of the standards referenced in Sentences (1) and (2) regarding the installation of automatic sprinkler systems, in *buildings* conforming to Article 3.2.2.48., 3.2.2.51., 3.2.2.57. or 3.2.2.60., balconies and decks exceeding 610 mm in depth measured perpendicular to the exterior wall shall be *sprinklered*. (See Note A-3.2.5.12.(7).)

[8] --) Notwithstanding the requirements of the standards referenced in Sentences (1) and (2) regarding the installation of automatic sprinkler systems, in *buildings* conforming to Clause 3.2.3.7.(4)(b), sprinklers shall be installed in *combustible attic or roof spaces*. (See Note A-3.2.5.12.(8).)

[9] 8) Sprinklers in elevator machine rooms shall have a temperature rating not less than that required for an intermediate temperature classification and shall be protected against physical damage. (See Note A-3.2.5.12.(9).)

[10] 9) Except as provided in Subsection 3.2.8., closely spaced sprinklers and associated draft stops need not be installed around floor openings in conformance with NFPA 13, "Standard for the Installation of Sprinkler Systems".

Note A-3.2.5.12.(2) ~~Sprinklering of Residential Buildings above a Storage Garage Considered as a Separate~~Application of NFPA 13R to Certain Building~~s~~.

Sprinklering of Residential Occupancies in Mixed-Use Buildings

In a building that contains multiple major occupancies, the installation of an automatic sprinkler system within the portions of the building that are of residential occupancy is within the scope of NFPA 13R, “Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies,” provided the building is not more than 4 storeys in building height and the residential occupancy is separated from the other major occupancies in accordance with Article 3.1.3.1. In such cases, NFPA 13, “Standard for the Installation of Sprinkler Systems,” applies to the installation of an automatic sprinkler system in any non-residential major occupancy in the building that is otherwise required to be sprinklered.

Sprinklering of Storage Garages as Separate Buildings

For the purpose of determining whether ~~NFPA 13R, "Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies",~~NFPA 13R applies to a ~~residential~~ building constructed over a storage garage, it is not intended that a storage garage constructed as a separate building in accordance with Article 3.2.1.2. be considered as a storey when determining the building height of the ~~residential~~subject building. Similarly, this would not preclude the use of NFPA 13D, "Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes", for any one- or two-family home constructed above such a storage garage.

Impact analysis

In a November 2020 article, the National Fire Sprinkler Association (NFSA) notes that unlike NFPA 13, NFPA 13R makes the installation of sprinkler systems more affordable and accessible for residential occupancies:

> NFPA 13R further lowers costs by permitting a potentially lower level of water discharge than NFPA 13, which may result in smaller pipe sizes. NFPA 13 also calls for a greater density and spacing for sprinklers, as well as attic requirements that can significantly drive cost. Attic protection not only adds more sprinklers and piping, but the additional expenses associated with freeze protection, increased hydraulic demand, and water supply. [1]

According to the National Multifamily Housing Council in the United States, as reported in [1], the installation of NFPA 13R systems costs an average of CAD 15 to 30 less per square metre than NFPA 13 systems.

Adopting this proposed change would greatly reduce the capital costs associated with the design and installation of the sprinkler system, while continuing to maintain an acceptable level of fire safety.

Reference

[1] National Fire Sprinkler Association, “NFPA 13 vs. NFPA 13R in Podium and Mixed-Use Construction” (November 2020). https://nfsa.org/2020/11/17/nfpa-13-vs-nfpa-13r-in-podium-and-mixed-use-construction/

Enforcement implications

The enforcement implications are minimal, but fewer inspections would be needed for areas that are not sprinklered.

Who is affected

Designers, contractors and building inspectors would need to assess whether more restrictive requirements for the design of an automatic sprinkler system apply where buildings having mixed occupancies include residential occupancies.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.2.5.12.] 3.2.5.12. ([1] 1) [F02,F81,F82-OS1.2]

[3.2.5.12.] 3.2.5.12. ([1] 1) [F02,F81,F82-OP1.2]

[3.2.5.12.] 3.2.5.12. ([2] 2) [F02,F81-OS1.2]

[3.2.5.12.] 3.2.5.12. ([2] 2) [F02,F81-OP1.2]

[3.2.5.12.] 3.2.5.12. ([3] 3) [F02,F81-OS1.2]

[3.2.5.12.] 3.2.5.12. ([3] 3) [F02,F81-OP1.2]

[3.2.5.12.] 3.2.5.12. ([4] 4) [F02-OS1.2]

[3.2.5.12.] 3.2.5.12. ([4] 4) [F02-OP1.2]

[3.2.5.12.] 3.2.5.12. ([5] 5) [F81-OS1.2]

[3.2.5.12.] 3.2.5.12. ([5] 5) [F81-OP1.2]

[3.2.5.12.] 3.2.5.12. ([6] 6) no attributions

[3.2.5.12.] 3.2.5.12. ([6] 6) [F02-OS1.2]

[3.2.5.12.] 3.2.5.12. ([6] 6) [F02-OP1.2]

[3.2.5.12.] 3.2.5.12. ([7] 7) no attributions

[3.2.5.12.] 3.2.5.12. ([7] 7) [F03-OP1.2]

[3.2.5.12.] 3.2.5.12. ([7] 7) [F03-OP3.1]

[3.2.5.12.] 3.2.5.12. ([9] 8) no attributions

[3.2.5.12.] 3.2.5.12. ([9] 8) [F03-OP1.2]

[3.2.5.12.] 3.2.5.12. ([9] 8) [F81-OS3.3,OS3.6]

[3.2.5.12.] 3.2.5.12. ([10] 9) no attributions

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Proposed Change 1644

Code Reference(s):	**NBC25 Div.B 3.3.1.8.(2) (first printing)** **NBC25 Div.B 3.8. (first printing)** **NBC25 Div.B 9.8.7.3.(1) (first printing)** **NBC25 Div.B 9.8.7.3.(2) (first printing)** **NBC25 Div.B 9.9.5.3.(1) (first printing)**
Subject:	Accessibility — Low-Cost and No-Cost Items
Title:	Replace the Term "Visually Impaired Persons" with "People with Low or No Vision"
Description:	This proposed change replaces the terms "visually impaired persons" and "people with vision loss" with "people with low or no vision" in Parts 3 and 9.
Related Code Change Request(s):	CCR 1528
Related Proposed Change(s):	PCF 1342, PCF 1778

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☑ Accessibility
- ☐ Building Envelope
- ☐ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☑ Design and Construction
- ☑ Housing
- ☑ Large Buildings
- ☑ Occupant safety in use
- ☐ Structural Requirements
- ☐ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

The terminology used in the National Building Code of Canada (NBC) to refer to “visually impaired persons” and “people with vision loss” is outdated and should be replaced with “people with low or no vision” (note that the other National Model Codes do not use this terminology).

A common terminology should be used to update the language in the requirements and explanatory Notes in the NBC that refer to people who are blind or have low vision to reflect the currently accepted wording. This would facilitate a consistent interpretation of the Code requirements.

Justification

Replacing "visually impaired persons" and "people with vision loss" with "people with low or no vision" in the NBC is editorial in nature and will affect the clarity and understanding of the Code's provisions but not their meaning, intent or application.

This proposed change also harmonizes the terminology about vision that is used in the NBC with the terminology used in other standards and guidelines. Using a single terminology simplifies the interpretation of the applicable requirements and thus improves the safety of people travelling in corridors, ramps or stairs, and in other building areas. The intent of the proposed change is to focus on the functional aspects of vision and the related need for building code requirements (e.g., the need for tactile information and increased lighting) without using terminology that is associated with a person's identity or vision level, or with the reason for or permanence of a person's condition (e.g., disability, temporary injury or misplaced eyewear).

Although the National Model Codes aim to promote the use of consistent language, people's experiences and terminology preferences around vision are subjective and varied.

PROPOSED CHANGE

[3.3.1.8.] 3.3.1.8. Headroom and Protruding Objects

[1] 2) Except as permitted by Sentence (3) and except for paths of travel in *service rooms* and *dwelling units*, protruding *building* elements located within 1 980 mm of the floor shall not project more than 100 mm horizontally into paths of travel in a manner that would create a hazard. (See Note A-3.3.1.8.(2) and (3).)

Note A-3.3.1.8.(2) and (3) Protruding Building Elements in Paths of Travel.

The term "protruding building elements" refers to elements regulated by this Code that are permanently affixed to the building and protrude into the path of travel.

The sweep of a cane used by people with low or no vision ~~with vision loss~~ normally detects protruding building elements that are within 680 mm of the floor. Any protruding element above this height would not normally be detected and can, therefore, create a hazard if it projects more than 100 mm into the path of travel.

[3.8.] 3.8. Accessibility

(See Note A-3.8.)

[3.8.1.] 3.8.1. Scope

[3.8.1.1.] 3.8.1.1. Scope

[3.8.2.] 3.8.2. Application

[3.8.2.1.] 3.8.2.1. Exceptions

[3.8.2.2.] 3.8.2.2. Entrances

[3.8.2.3.] 3.8.2.3. Areas Requiring a Barrier-Free Path of Travel

[3.8.2.4.] 3.8.2.4. Access to Storeys Served by Escalators and Moving Walks

[3.8.2.5.] 3.8.2.5. Exterior Barrier-Free Paths of Travel to Building Entrances and Exterior Passenger-Loading Zones

[3.8.2.6.] 3.8.2.6. Controls

[3.8.2.7.] 3.8.2.7. Power Door Operators

[3.8.2.8.] 3.8.2.8. Plumbing Facilities

[3.8.2.9.] 3.8.2.9. Assistive Listening Systems

[3.8.2.10.] 3.8.2.10. Signs and Indicators

[3.8.2.11.] 3.8.2.11. Counters

[3.8.2.12.] 3.8.2.12. Telephones

[3.8.3.] 3.8.3. Design

[3.8.3.1.] 3.8.3.1. Design Standards

[3.8.3.2.] 3.8.3.2. Barrier-Free Path of Travel

[3.8.3.3.] 3.8.3.3. Exterior Walks

[3.8.3.4.] 3.8.3.4. Exterior Passenger-Loading Zones

[3.8.3.5.] 3.8.3.5. Ramps

[3.8.3.6.] 3.8.3.6. Doorways and Doors

[3.8.3.7.] 3.8.3.7. Passenger-Elevating Devices

[3.8.3.8.] 3.8.3.8. Controls

[3.8.3.9.] 3.8.3.9. Accessible Signs

[3.8.3.10.] 3.8.3.10. Drinking Fountains

[3.8.3.11.] 3.8.3.11. Water-Bottle Filling Stations

[3.8.3.12.] 3.8.3.12. Accessible Water-Closet Stalls

[3.8.3.13.] 3.8.3.13. Universal Washrooms

[3.8.3.14.] 3.8.3.14. Water Closets

[3.8.3.15.] 3.8.3.15. Water-Closet Stalls and Urinals for Persons with Limited Mobility

[3.8.3.16.] 3.8.3.16. Lavatories and Mirrors

[3.8.3.17.] 3.8.3.17. Showers

[3.8.3.18.] 3.8.3.18. Accessible Bathtubs

[3.8.3.19.] 3.8.3.19. Assistive Listening Systems

[3.8.3.20.] 3.8.3.20. Counters

[3.8.3.21.] 3.8.3.21. Telephones

[3.8.3.22.] 3.8.3.22. Spaces in Seating Area

Note A-3.8. Barrier-Free Design Principles.

This Section contains minimum requirements for the design of buildings that accommodate people with diverse abilities, across their lifespan, including, but not limited to, people who use wheelchairs or other assistive mobility devices (e.g., walking aids, canes, crutches, braces, prosthetics), people with personal care providers, people with low or no vision, people with low or no hearing (see PCF 1778) ~~with hearing or vision loss~~, and people with service animals, so they can access and use buildings.

Examples of basic accessibility requirements of the Code are as follows:

- a clear floor space of at least 800 mm by 1 350 mm,
- a 1 000 mm clear width allowing a 90° turn,
- a 2 100 mm diameter clear floor space allowing a 180° turn in one motion, and
- a 1 700 mm diameter clear floor space allowing a 180° turn in multiple motions.

Note A-3.8.2.3. Access to Rooms and Facilities.

If barrier-free access is required into suites or rooms in Subsection 3.8.2., it is intended that access be provided, with some exceptions identified in Sentence 3.8.2.3.(2), throughout each room or suite. Some examples of where barrier-free access is required

are as follows:

- within each suite (subject to Clauses 3.8.2.3.(2)(k) and (l)),
- within rooms or areas that serve the public or are designated for use by visitors, including areas in assembly occupancies with fixed seats, display areas and merchandising departments,
- within rooms or areas for student use in assembly occupancies,
- within general work areas, including office areas,
- within general use or general service areas, including shared laundry areas in residential occupancies, recreational areas, cafeterias, lounge rooms, lunch rooms and infirmaries,
- within sleeping rooms in hospitals and nursing homes with treatment,
- (if installed), into at least one passenger elevator or elevating device conforming to Articles 3.5.2.1. and 3.8.3.7.,
- into washrooms described in Sentences 3.8.2.8.(1) to (4),
- to any facility required by this Section to be designed to accommodate persons with physical disabilities,
- onto every balcony provided in conformance with Clause 3.3.1.7.(1)(c), and
- to service counters used by the general public (examples include ticket counters, refreshment stands, drinking fountains, cafeteria counters, checkout counters and bank service counters).

The permission to waive a barrier-free path of travel for wheelchair access to certain specified areas of a building is not intended to waive accessibility requirements for persons whose physical disabilities do not require special provision for access to raised or sunken levels. ~~Persons~~People with ~~visual~~low or no vision and people with low or no hearing (see PCF 1778) ~~disabilities that~~who do not require the use of a wheelchair can be expected to move throughout a building.

Seating booths and banquettes in restaurants and bars are considered furniture, which is beyond the scope of the Code. However, various types of seating should be considered to ensure the availability of barrier-free options.

The concept of wheelchair accessibility does not extend to building service facilities, nor to all floor levels within a storey, e.g., mezzanines not served by an elevator. Mezzanines that are accessible by an elevator are therefore not excluded.

Note A-3.8.2.10.(4) Directional Signage.

The NBC requires that directional signs be provided in a number of situations. Although they are only required to provide visual information, tactile directional signs should also be provided where practicable.

In some buildings, it may be necessary to supplement signs that provide visual and tactile information with visual displays, such as information displays and electronic interactive displays (e.g., wayfinding, exhibits and self-serve points-of-sale). Visual displays are common in motion picture theatres, law courts, exhibition halls, passenger stations/depots, museums, conference facilities, shops, stores and markets.

Wherever practicable, visual displays should be designed so that they are accessible to all people. In order to be accessible to people with low or no vision, visually displayed information should also be audibly communicated, either electronically or orally. Where

touch screens are installed, an alternative means of accessing the information should be provided, for example by providing tactile buttons on an interactive display or by ensuring an attendant is always available to assist customers or visitors. Visual displays should also be accessible to people who use mobility devices. The degree of operability should accommodate people using a wide range of mobility devices (e.g., wheelchairs, scooters, walkers, canes) and people with a wide range of arm and hand mobility. Approach side, mounting height above the finished floor, amount of knee space, types of controls and the ability to reach them are particularly important considerations.

Note A-3.8.3.2.(3) Surfaces in a Barrier-free Path of Travel.

Floor finishes, including walk-off mats and carpet, should be selected, installed and securely fixed to provide a firm and stable surface so that people, including those who use mobility aids, can easily travel over them without tripping or expending undue energy. Other than very high-density, short-pile carpeting, most carpeting does not meet these criteria.

Furthermore, where the path of travel is exposed to intense light conditions, such as daylight or directional lighting, a low-glare or matte floor surface should be selected, as glare from floor surfaces can influence the perception of all users~~' perception~~, particularly those with low or no vision ~~loss~~. For the same reasons, heavily patterned flooring should also be avoided.

Note A-3.8.3.5.(1)(b) Ramp Slopes.

Ramps with a slope of more than 1 in 16 can be very difficult for persons with physical disabilities with upper body mobility to manage. Even though they pose less of a problem for persons in motorized wheelchairs, these ramps can be unsafe to descend, especially in cold climates. Although Article 3.8.3.5. permits slopes on ramps as great as 1 in 12 for distances of up to 9 m, slopes of 1 in 20 are safer and less strenuous. When limited space is available, as may be the case during renovations, ramps with a slope of up to 1 in 12 should be restricted to lengths not exceeding 3 m whenever possible. A strip contrasting in colour and texture should be used at the top and bottom of ramps to warn ~~persons~~people with low or no vision.

The phrase “uniform slope along its length” is intended to mean that the slope remains constant along the length of individual ramp segments.

Note 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 of Access 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 which are actuated automatically and open into passing pedestrian traffic should be provided with a guard or other device designed to prevent pedestrians from stepping in the swing area of the door. These guards or devices should be detectable by people with low or no vision ~~blind persons~~. For example, inverted U-shaped guards should have an additional rail at a height not more than 680 mm so that it is detectable by the long cane. These doors should also have a device (mat or other

sensor) on the swing side to prevent the door from opening if someone is standing in the swing area.

[9.8.7.3.] 9.8.7.3. Termination of Handrails

[1] 1) Handrails shall be terminated in a manner that will not obstruct pedestrian travel or create a hazard. (See Note A-9.8.7.3.(1).)

Note A-9.8.7.3.(1) Termination of Handrails.

Handrails are required to be installed so as not to obstruct pedestrian travel. To achieve this end, the rail should not extend so far into a hallway as to reduce the clear width of the hallway to less than the required width. Where the stair terminates in a room or other space, likely paths of travel through that room or space should be assessed to ensure that any projection of the handrail beyond the end of the stair will not interfere with pedestrian travel. As extensions of handrails beyond the first and last riser are not required in dwelling units (see Sentence 9.8.7.3.(2)) and as occupants of dwellings are generally familiar with their surroundings, the design of dwellings would not generally be affected by this requirement.

Handrails are also required to terminate in a manner that will not create a safety hazard to people with low or no vision ~~blind or visually impaired persons~~, children whose head may be at the same height as the end of the rail, or ~~persons~~people wearing loose clothing or carrying items that might catch on the end of the rail. One approach to reducing potential hazards is returning the handrail to a wall, floor or post. Again, within dwelling units, where occupants are generally familiar with their surroundings, returning the handrail to a wall, floor or post may not be necessary. For example, where the handrail is fastened to a wall and does not project past the wall into a hallway or other space, a reasonable degree of safety is assumed to be provided; other alternatives may provide an equivalent level of protection.

[9.8.7.3.] 9.8.7.3. Termination of Handrails

[1] 2) Except for stairs and *ramps* serving only one *dwelling unit* or a house with a *secondary suite* including their common spaces, at least one handrail at the sides of a stair or *ramp* shall extend horizontally not less than 300 mm beyond the top and bottom of each *flight* or *ramp*. (See Note A-9.8.7.3.(2).)

Note A-9.8.7.3.(2) Handrail Extensions.

As noted in Note A-9.8.7.2., the guidance and support provided by handrails is particularly important at the beginning and end of ramps and flights of stairs and at changes in direction. The extended handrail provides guidance and allows users to steady themselves upon entering or leaving a ramp or flight of stairs. Such extensions are particularly useful to ~~visually impaired persons~~people with low or no vision~~,~~ and ~~persons~~people

with physical disabilities or who are encumbered in their use of the stairs or ramp.

[9.9.5.3.] 9.9.5.3. Obstructions in Public Corridors

[1] 1) Except as permitted in Sentence (2), obstructions located within 1 980 mm of the floor shall not project horizontally more than 100 mm into *exit* passageways, corridors used by the public or *public corridors* in a manner that would create a hazard for people~~visually impaired persons~~ travelling adjacent to walls.

Impact analysis

This proposed change is editorial and does not affect building costs. The proposed change will support the consistent application of the Code requirements, facilitate understanding and interpretation of the Code provisions, and update the terminology to what is commonly used in the industry.

Enforcement implications

The revision of terminology is an editorial change that supports the consistent application of the Code requirements by building officials and designers.

Who is affected

Building officials, owners and designers would use a common terminology that supports the consistent application of accessibility requirements and reflects more modern and accepted terminology.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.3.1.8.] 3.3.1.8. ([1] 2) [F30,F73-OS3.1]

[3.8.1.1.] 3.8.1.1. ([1] 1) no attributions

[3.8.1.1.] 3.8.1.1. ([2] 2) no attributions

[3.8.2.1.] 3.8.2.1. ([1] 1) no attributions

[3.8.2.2.] 3.8.2.2. ([1] 1) [F73-OA1]

[3.8.2.2.] 3.8.2.2. ([2] 2) no attributions

[3.8.2.2.] 3.8.2.2. ([3] 3) no attributions

[3.8.2.2.] 3.8.2.2. ([4] 4) [F73-OA1]

[3.8.2.3.] 3.8.2.3. ([1] 1) [F73-OA1]

[3.8.2.3.] 3.8.2.3. ([2] 2) no attributions

[3.8.2.3.] 3.8.2.3. ([3] 3) [F74-OA2]

[3.8.2.3.] 3.8.2.3. ([4] 4) [F74-OA2]

[3.8.2.3.] 3.8.2.3. ([5] 5) [F74-OA2]

[3.8.2.3.] 3.8.2.3. ([5] 5) [F10-OS3.7] Applies to portion of Code text: "... each row of seats served by two aisles shall have one adaptable seat conforming to Subsection 3.8.3. located adjacent to one of the aisles."

[3.8.2.3.] 3.8.2.3. ([6] 6) [F74-OA2]

[3.8.2.4.] 3.8.2.4. ([1] 1) [F73-OA1]

[3.8.2.4.] 3.8.2.4. ([2] 2) [F73-OA1]

[3.8.2.5.] 3.8.2.5. ([1] 1) [F73-OA1]

[3.8.2.5.] 3.8.2.5. ([2] 2) [F73-OA1]

[3.8.2.5.] 3.8.2.5. ([3] 3) no attributions

[3.8.2.6.] 3.8.2.6. ([1] 1) no attributions

[3.8.2.7.] 3.8.2.7. ([1] 1) [F73-OA1]

[3.8.2.7.] 3.8.2.7. ([2] 2) no attributions

[3.8.2.7.] 3.8.2.7. ([3] 3) no attributions

[3.8.2.8.] 3.8.2.8. ([1] 1) [F74-OA2]

[3.8.2.8.] 3.8.2.8. ([1] 1) [F72-OH2.1] [F71-OH2.3]

[3.8.2.8.] 3.8.2.8. ([2] 2) [F74-OA2]

[3.8.2.8.] 3.8.2.8. ([2] 2) [F72-OH2.1] [F71-OH2.3]

[3.8.2.8.] 3.8.2.8. ([2] 2) no attributions

[3.8.2.8.] 3.8.2.8. ([3] 3) no attributions

[3.8.2.8.] 3.8.2.8. ([4] 4) [F72-OH2.1]

[3.8.2.8.] 3.8.2.8. ([4] 4) [F73-OA1]

[3.8.2.8.] 3.8.2.8. ([5] 5) no attributions

[3.8.2.8.] 3.8.2.8. ([6] 6) no attributions

[3.8.2.8.] 3.8.2.8. ([7] 7) no attributions

[3.8.2.8.] 3.8.2.8. ([8] 8) no attributions

[3.8.2.8.] 3.8.2.8. ([9] 9) no attributions

[3.8.2.8.] 3.8.2.8. ([10] 10) no attributions

[3.8.2.8.] 3.8.2.8. ([11] 11) no attributions

[3.8.2.8.] 3.8.2.8. ([12] 12) no attributions

[3.8.2.8.] 3.8.2.8. ([13] 13) [F74-OA2]

[3.8.2.8.] 3.8.2.8. ([13] 13) no attributions

[3.8.2.8.] 3.8.2.8. ([14] 14) no attributions

[3.8.2.8.] 3.8.2.8. ([15] 15) no attributions

[3.8.2.8.] 3.8.2.8. ([15] 15) [F74-OA2]

[3.8.2.9.] 3.8.2.9. ([1] 1) no attributions

[3.8.2.9.] 3.8.2.9. ([2] 2) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([1] 1) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([1] 1) no attributions

[3.8.2.10.] 3.8.2.10. ([2] 2) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([3] 3) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([3] 3) no attributions

[3.8.2.10.] 3.8.2.10. ([4] 4) [F74-OA2]

[3.8.2.10.] 3.8.2.10. ([4] 4) no attributions

[3.8.2.11.] 3.8.2.11. ([1] 1) [F74-OA2]

[3.8.2.11.] 3.8.2.11. ([1] 1) no attributions

[3.8.2.12.] 3.8.2.12. ([1] 1) [F74-OA2]

[3.8.2.12.] 3.8.2.12. ([1] 1) no attributions

[3.8.3.1.] 3.8.3.1. ([1] 1) no attributions

[3.8.3.2.] 3.8.3.2. ([1] 1) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([2] 2) no attributions

[3.8.3.2.] 3.8.3.2. ([3] 3) ([a] a),([b] b) [F30-OS3.1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([a] a),([b] b) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([c] c),([d] d) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([e] e),([f] f) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([e] e),([f] f) [F30-OS3.1]

[3.8.3.2.] 3.8.3.2. ([3] 3) ([c] c),([d] d) [F30-OS3.1]

[3.8.3.2.] 3.8.3.2. ([4] 4) no attributions

[3.8.3.2.] 3.8.3.2. ([5] 5) [F73-OA1]

[3.8.3.2.] 3.8.3.2. ([6] 6) [F73-OA1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([a] a) [F73-OA1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([a] a) [F30-OS3.1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([b] b) [F73-OA1]

[3.8.3.3.] 3.8.3.3. ([1] 1) ([c] c)

[3.8.3.3.] 3.8.3.3. ([1] 1) ([d] d) [F30-OS3.1]

[3.8.3.4.] 3.8.3.4. ([1] 1) ([a] a) [F74-OA2]

[3.8.3.4.] 3.8.3.4. ([1] 1) ([b] b) [F73-OA1]

[3.8.3.4.] 3.8.3.4. ([1] 1) ([c] c) [F74-OA2]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([b] b),([e] e) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([d] d) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([c] c) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([d] d) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([e] e),([f] f)

[3.8.3.5.] 3.8.3.5. ([1] 1) ([b] b),([e] e) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([1] 1) ([a] a)

[3.8.3.5.] 3.8.3.5. ([1] 1) ([c] c) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([2] 2) no attributions

[3.8.3.5.] 3.8.3.5. ([3] 3) no attributions

[3.8.3.5.] 3.8.3.5. ([4] 4) ([a] a) [F73-OA1]

[3.8.3.5.] 3.8.3.5. ([4] 4) ([b] b),([c] c) [F30-OS3.1]

[3.8.3.5.] 3.8.3.5. ([5] 5) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([1] 1) no attributions

[3.8.3.6.] 3.8.3.6. ([2] 2) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([3] 3) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([3] 3) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([4] 4) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([4] 4) [F10-OS3.7]

[3.8.3.6.] 3.8.3.6. ([5] 5) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([5] 5) [F10-OS3.7]

[3.8.3.6.] 3.8.3.6. ([6] 6) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([7] 7) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([8] 8) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([9] 9) no attributions

[3.8.3.6.] 3.8.3.6. ([10] 10) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([10] 10) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([10] 10) no attributions

[3.8.3.6.] 3.8.3.6. ([11] 11) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([12] 12) [F30-OS3.1]

[3.8.3.6.] 3.8.3.6. ([12] 12) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([13] 13) no attributions

[3.8.3.6.] 3.8.3.6. ([14] 14) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([15] 15) [F73-OA1]

[3.8.3.6.] 3.8.3.6. ([16] 16) no attributions

[3.8.3.6.] 3.8.3.6. ([17] 17) [F74-OA2]

[3.8.3.6.] 3.8.3.6. ([17] 17) [F10-OS3.7]

[3.8.3.7.] 3.8.3.7. ([1] 1) [F73-OA1]

[3.8.3.7.] 3.8.3.7. ([1] 1) [F74-OA2]

[3.8.3.7.] 3.8.3.7. ([1] 1) [F30-OS3.1] [F10-OS3.7]

[3.8.3.8.] 3.8.3.8. ([1] 1) [F74-OA2]

[3.8.3.8.] 3.8.3.8. ([1] 1) [F10-OS3.7]

[3.8.3.9.] 3.8.3.9. ([1] 1) no attributions

[3.8.3.9.] 3.8.3.9. ([1] 1) [F74-OA2]

[3.8.3.9.] 3.8.3.9. ([1] 1) [F73-OA1]

[3.8.3.9.] 3.8.3.9. ([2] 2) [F74-OA2]

[3.8.3.9.] 3.8.3.9. ([2] 2) [F73-OA1]

[3.8.3.9.] 3.8.3.9. ([3] 3) [F74-OA2]

[3.8.3.9.] 3.8.3.9. ([3] 3) [F73-OA1]

[3.8.3.10.] 3.8.3.10. ([1] 1) [F74-OA2]

[3.8.3.10.] **3.8.3.10. ([2] 2) [F74-OA2]**

[3.8.3.11.] **3.8.3.11. ([1] 1) [F74-OA2]**

[3.8.3.11.] **3.8.3.11. ([2] 2) [F74-OA2]**

[3.8.3.12.] **3.8.3.12. ([1] 1) [F74-OA2]**

[3.8.3.12.] **3.8.3.12. ([1] 1) [F72-OH2.1]**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([d] d)([i] i) [F74-OA2]**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([f] f),([g] g) [F30,F20-OS3.1]**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([f] f) and ([g] g)**

[3.8.3.12.] **3.8.3.12. ([1] 1) ([h] h) [F30-OS3.1]** Applies to portion of Code text: "… be equipped with a coat hook … projecting not more than 50 mm from the wall …"

[3.8.3.12.] **3.8.3.12. ([1] 1) no attributions**

[3.8.3.13.] **3.8.3.13. ([1] 1) [F74-OA2]**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([b] b) [F10-OS3.7]**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([c] c)**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([d] d)**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([f] f)**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([g] g) [F30-OS3.1]** Applies to the requirement for a coat hook.

[3.8.3.13.] **3.8.3.13. ([1] 1) ([i] i) [F74-OA2]** Applies to the requirement for a shelf.

[3.8.3.13.] **3.8.3.13. ([1] 1) [F72-OH2.1] [F71-OH2.3]**

[3.8.3.13.] **3.8.3.13. ([1] 1) ([b] b) [F74-OA2]** Applies to portion of Code text: "… a door ... capable of being locked from the inside …"

[3.8.3.13.] **3.8.3.13. ([2] 2) [F72-OH2.1] [F71-OH2.3]**

[3.8.3.14.] **3.8.3.14. ([1] 1) [F74-OA2]**

[3.8.3.14.] **3.8.3.14. ([1] 1) [F72-OH2.1]**

[3.8.3.15.] **3.8.3.15. ([1] 1) [F74-OA2]**

[3.8.3.15.] **3.8.3.15. ([1] 1) ([d] d) [F30-OS3.1]**

[3.8.3.15.] **3.8.3.15. ([1] 1) ([a] a)**

[3.8.3.15.] **3.8.3.15. ([2] 2) [F74-OA2]**

[3.8.3.15.] **3.8.3.15. ([2] 2) ([f] f) [F30-OS3.1]**

[3.8.3.15.] **3.8.3.15. ([2] 2) ([c] c)**

[3.8.3.16.] **3.8.3.16. ([1] 1) [F74-OA2]**

[3.8.3.16.] **3.8.3.16. ([1] 1) [F71-OH2.3]**

[3.8.3.16.] **3.8.3.16. ([1] 1) ([f] f) [F31-OS3.2]**

[3.8.3.16.] **3.8.3.16. ([2] 2) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([1] 1) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([1] 1) ([d] d),([e] e) [F30-OS3.1]**

[3.8.3.17.] **3.8.3.17. ([1] 1) ([f] f) [F30-OS3.1]**

[3.8.3.17.] **3.8.3.17. ([1] 1) ([h] h) [F31-OS3.2]**

[3.8.3.17.] **3.8.3.17. ([2] 2) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([2] 2) [F71-OH2.3]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([a] a) [F73-OA1]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([b] b) [F10-OS3.7]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([b] b) [F74-OA2]**

[3.8.3.17.] **3.8.3.17. ([2] 2) ([g] g) [F74-OA2]**

[3.8.3.18.] **3.8.3.18. ([1] 1) [F74-OA2]**

[3.8.3.19.] **3.8.3.19. ([1] 1) [F74-OA2]**

[3.8.3.19.] **3.8.3.19. ([1] 1) [F11-OS3.7]**

[3.8.3.19.] **3.8.3.19. ([2] 2) [F74-OA2]**

[3.8.3.20.] **3.8.3.20. ([1] 1) [F74-OA2]**

[3.8.3.21.] **3.8.3.21. ([1] 1) [F74-OA2]**

[3.8.3.21.] **3.8.3.21. ([2] 2) [F74-OA2]**

[3.8.3.22.] **3.8.3.22. ([1] 1) [F74-OA2]**

[3.8.3.22.] **3.8.3.22. ([1] 1) [F30-OS3.1]** Applies to portion of Code text: "… level … level and have removable seats, …"

[3.8.3.22.] **3.8.3.22. ([1] 1) ([d] d) [F10-OS3.7]** Applies to portion of Code text: "… without infringing on egress from any row of seating or any aisle requirements …"

[3.8.3.22.] **3.8.3.22. ([2] 2) [F74-OA2]**

[3.8.3.22.] **3.8.3.22. ([2] 2) [F30-OS3.1]** Applies to portion of Code text: "… level, ..."

[3.8.3.22.] **3.8.3.22. ([3] 3) ([a] a) [F10-OS3.7]** Applies to portion of Code

text: "… without infringing on egress from any row of seating or any aisle requirements …"

[3.8.3.22.] 3.8.3.22. ([3] 3) [F74-OA2]

[3.8.3.22.] 3.8.3.22. ([4] 4) [F10-OS3.7]

[9.8.7.3.] 9.8.7.3. ([1] 1) [F30-OS3.1] [F10-OS3.7]

[9.8.7.3.] 9.8.7.3. ([1] 2) [F30-OS3.1] [F10-OS3.7]

[9.9.5.3.] 9.9.5.3. ([1] 1) [F30-OS3.1]

Submit a comment

Proposed Change 2007

Code Reference(s):	**NBC25 Div.B 3.7.2.3. (first printing)**
Subject:	Materials and Equipment
Title:	Lavatory Supply Fittings in Public Washrooms
Description:	This proposed change adds a Note to Sentence 3.7.2.3.(4) of the NBC to direct Code users to Article 2.2.10.6. of the NPC for requirements for lavatory supply fittings in public washrooms.

This change could potentially affect the following topic areas:

- [ ] Division A
- [ ] Division C
- [x] Building operations
- [x] Small Buildings
- [ ] Fire Protection
- [ ] Accessibility
- [ ] Building Envelope
- [ ] Heating, Ventilating and Air Conditioning
- [x] Division B
- [ ] Design and Construction
- [ ] Housing
- [x] Large Buildings
- [ ] Occupant safety in use
- [ ] Structural Requirements
- [ ] Energy Efficiency
- [x] Plumbing
- [ ] Construction and Demolition Sites

Problem

Sentence 3.7.2.3.(4) of Division B of the National Building Code of Canada (NBC) allows for the manual operation of lavatories as well as their automatic operation. However, Sentence 2.2.10.6.(5) of Division B of the National Plumbing Code of Canada (NPC) requires lavatories in a public washroom to be equipped with a device capable of automatically shutting off the flow of water when the lavatory is not in use.

The NBC’s permission of manual operation may lead to confusion for Code users who refer to the NPC and the NBC for applicable requirements for lavatories.

Justification

NBC Sentence 3.7.2.3.(4) is intended to limit the probability that persons will not be able to wash their hands in a lavatory by ensuring that the faucet is operable without the assistance of another person. NPC Sentence 2.2.10.6.(5) is meant to limit the probability that the faucet will be left on after handwashing is complete, leading to excessive water use.

Adding an explanatory Note to NBC Sentence 3.7.2.3.(4) to direct Code users to NPC Article 2.2.10.6. would reduce the risk of confusion for Code users who refer to both the NBC and the NPC for applicable lavatory requirements.

The addition of the Note would ensure that the requirements in both the NBC and the NPC are met, by ensuring that Code users are aware of the requirements for both the operation of the faucet and the automatic shut-off of water flow.

PROPOSED CHANGE

[3.7.2.3.] 3.7.2.3. Lavatories

[1] 1) Except as permitted by Sentence (2), at least one lavatory shall be provided in a room containing one or 2 water closets or urinals, and at least one additional lavatory shall be provided for each additional 2 water closets or urinals.

[2] 2) Wash fountains in circular form are permitted to be provided in lieu of lavatories required by Sentence (1) provided each 500 mm of circumference is considered to be the equivalent of one lavatory.

[3] 3) Any shelf or projection above a lavatory shall be located so that it will not be a hazard.

[4] 4) Lavatories required by Sentence (1) shall be equipped with faucets that

[a] a) operate automatically, or

[b] b) have a manual control that

[i] i) complies with Clause 3.8.3.8.(1)(b),

[ii] ii) does not require the application of continuous force to maintain water flow, and

[iii] iii) where metered, provides at least 10 s of water flow.

(See Note A-3.7.2.3.(4).)

Note A-3.7.2.3.(4) Lavatory Supply Fittings in Public Washrooms.

Article 2.2.10.6. of Division B of the NPC contains requirements for lavatory supply fittings in public washrooms. The designer must ensure that the plumbing installation complies with both the NPC and the NBC.

Impact analysis

There is no cost impact, as the proposed change is not a change to requirements. The new Note is meant to prevent confusion for Code users who refer to both the NBC and the NPC for lavatory supply fitting requirements.

Enforcement implications

Directing Code users to the NPC requirements for lavatory supply fittings would lead to consistency in Code compliance and guide the authorities having jurisdiction when enforcing these requirements across multiple disciplines.

Who is affected

Building and plumbing officials, owners, and designers of commercial buildings.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.7.2.3.] 3.7.2.3. ([1] 1) [F71-OH2.3]

[3.7.2.3.] 3.7.2.3. ([2] 2) no attributions

[3.7.2.3.] 3.7.2.3. ([3] 3) [F30-OS3.1]

[3.7.2.3.] 3.7.2.3. ([4] 4) [F71-OH2.3]

Submit a comment

Proposed Change 2054

Code Reference(s):	**NBC25 Div.B 3.8.3.8.(1) (first printing)**
Subject:	Accessibility
Title:	Clarification of Installation Location for Accessible Controls
Description:	This proposed change clarifies that the prescribed height range for accessible controls should be determined in relation to the finished floor and the centre line of the controls.

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☑ Accessibility
- ☐ Building Envelope
- ☐ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☑ Design and Construction
- ☐ Housing
- ☑ Large Buildings
- ☑ Occupant safety in use
- ☐ Structural Requirements
- ☐ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

Subclause 3.8.3.8.(1)(a)(ii) of Division B of the National Building Code of Canada (NBC) requires that controls (such as light switches and door opening and closing hardware) in buildings required to be barrier-free be installed 400 mm to 1 200 mm above the floor, so that the controls are accessible from a standing position or a seated position in a wheelchair or scooter.

However, the language is unclear as to which part of the accessible control (i.e. the top, centre or bottom) should be used to determine the height range. The lack of clarity could result in certain components of controls being installed in locations outside the prescribed height range. This could lead to people not being able to access and use the building's facilities. In some cases, not being able to reach the controls in buildings could also lead to delays notifying emergency responders in an emergency situation, potentially impacting the safety of the occupants who initiated the notification and others in the building.

Justification

The proposed change clarifies that the prescribed height range for accessible controls in Subclause 3.8.3.8.(1)(a)(ii) applies to the centre line of the control. This clarification should facilitate enforcement and provide more consistent guidelines for electricians, who may not know the exact device to be installed.

By providing clarity on the application of the prescribed height range for accessible controls, the proposed change is expected to forestall confusion among designers, builders, building officials and other Code users, and allow for a more consistent application of the requirements.

The proposed change also clarifies that the height is measured from the finished floor, as inspectors typically check the height of elements once the floor is finished. It is understood that at the rough-in stage the flooring may not be determined yet and is not finished. A range specified in this Subclause could minimize the impact of flooring thickness.

There are also proposed changes to the attribution and intent statements to clarify the intent of the requirement, which is to facilitate the use of the building's facilities by persons with physical or sensory limitations in order to notify emergency responders in a timely manner.

PROPOSED CHANGE

[3.8.3.8.] 3.8.3.8. Controls

[1] 1) Controls described in this Section shall

[a] a) where located in a *storey* where a *barrier-free* path of travel is required and unless otherwise stated,

[i] i) be in or adjacent to the *barrier-free* path of travel,

[ii] ii) be mounted with the centre line between ~~at~~ 400 mm and~~to~~ 1 200 mm above the finished floor, and

[iii] iii) be adjacent to and centred on either the length or the width of a clear floor space of 1 350 mm by 800 mm,

[b] b) be operable

[i] i) with one hand in a closed fist position, without requiring tight grasping, pinching with fingers, or twisting of the wrist, and

[ii] ii) unless otherwise stated, with a force not more than 22 N, and

[c] c) where controls provide a feedback signal to the user, it shall be both audible and visible (see Note A-3.8.3.8.(1)(c)).

Impact analysis

This proposed change is expected to simplify Code use and interpretation by providing clarity on the intended application of existing requirements for the installation height of accessible controls. It is not expected to have significant implications for cost or ease of installation because it is a clarification of an existing requirement.

Enforcement implications

This proposed change could be enforced using existing methods for evaluating compliance with installation height requirements. The proposed change is expected to simplify enforcement by clarifying how the prescribed accessible height range should be interpreted and applied.

Who is affected

Building officials' efforts to interpret the NBC requirements for the accessible height of controls would be simplified.

Designers and builders would need to be aware of the proposed clarification and apply the requirements to their work.

Persons with disabilities may benefit from clarity that the centre line of controls needs to be installed in an accessible range where Subclause 3.8.3.8.(1)(a)(ii) applies.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.8.3.8.] 3.8.3.8. ([1] 1) [F74-OA2]

[3.8.3.8.] 3.8.3.8. ([1] 1) [~~F10~~,F13-~~OS3.7~~,OA2]

Submit a comment

Proposed Change 2029

Code Reference(s):	**NBC25 Div.B 3.8.3.16. (first printing)**
Subject:	Accessibility
Title:	Accessible Menstrual Product Dispensers: Control Design
Description:	This proposed change requires accessible control designs for menstrual product dispensers where such dispensers are provided so that they may be accessed by persons with disabilities related to dexterity.
Related Code Change Request(s):	CCR 1441
Related Proposed Change(s):	PCF 1771

This change could potentially affect the following topic areas:

- [ ] Division A
- [ ] Division C
- [ ] Building operations
- [x] Small Buildings
- [ ] Fire Protection
- [x] Accessibility
- [ ] Building Envelope
- [ ] Heating, Ventilating and Air Conditioning
- [x] Division B
- [x] Design and Construction
- [ ] Housing
- [x] Large Buildings
- [ ] Occupant safety in use
- [ ] Structural Requirements
- [ ] Energy Efficiency
- [ ] Plumbing
- [ ] Construction and Demolition Sites

Problem

Lack of access to menstrual products can lead to persons having to miss work, school or social events, which can lead to health consequences. Several facilities make menstrual products available by installing product dispensers in washrooms alongside dispensers for soap, towels and other products.

However, unlike the design and installation of soap dispensers and other equipment, the National Building Code of Canada (NBC) does not regulate the design and installation of menstrual product dispensers, where provided, with respect to accessibility. This situation can cause a problem for persons with disabilities related to dexterity who menstruate because they may not be able to manipulate the controls on menstrual product dispensers if the operation of the controls requires high contact force, tight pinching, grasping or twisting to operate. Several types of dispensers currently on the market create barriers to access for people with disabilities related to dexterity and could limit their ability to use a building and its facilities on an equal basis with other building occupants.

Justification

This proposed change introduces new requirements for the design of menstrual product dispensers, where provided, such that their controls can be operated by persons with disabilities related to dexterity.

By introducing accessibility requirements for the design of controls on these dispensers and providing specifications for designers to consider when selecting these dispensers, this proposed change would help to limit the probability that persons with disabilities related to dexterity are unable to operate these dispensers and access menstrual products.

This proposed waives the requirement for closed fist operation with one hand that is part of the NBC requirements for accessible controls in Subclause 3.8.3.8.(1)(b)(i) of Division B, increasing the number of commercial options that comply with the proposed change and also more closely aligning the level of dexterity required to operate these dispensers with that required to independently use common disposable menstrual products.

Similar to accessibility provisions for toilet paper or soap dispensers, the proposed change addresses the location of installation of the dispensers, but does not address issues related to providing or supplying dispensers with products (i.e. loading operation). The proposed requirements for the location of installation would apply where commercial dispensers are provided.

This proposed change does not introduce a requirement for product dispensers themselves, but only applies in cases where a wall-mounted dispenser is provided (i.e. permanently fixed to the building), as opposed to cases where menstrual products may be provided in a countertop basket, for example, or not provided at all.

PROPOSED CHANGE

[3.8.3.16.] 3.8.3.16. Lavatories, Mirrors and Other Washroom Amenities

[1] 1) Lavatories required by Sentence 3.8.2.8.(8) shall

[a] a) be equipped with faucets complying with Sentence 3.7.2.3.(4),

[b] b) be located so that the distance between the centre line of the lavatory and any side wall is not less than 460 mm,

[c] c) have a clear floor space in front of the lavatory that is at least

[i] i) 800 mm wide, centred on the lavatory, and

[ii] ii) 1 350 mm long, of which no more than 430 mm is beneath the lavatory,

[d] d) have a rim height not more than 865 mm above the floor,

[e] e) have a clearance beneath the lavatory not less than (see Note A-3.8.3.16.(1)(e))

[i] i) 800 mm wide, centred on the lavatory,

[ii] ii) 735 mm high at the front edge,

[iii] iii) 685 mm high at a point 200 mm back from the front edge, and

[iv] iv) 230 mm high over the distance from a point 280 mm to a point 430 mm back from the front edge,

[f] f) have insulated water supply and drain pipes where these pipes are exposed (see Note A-3.8.3.16.(1)(f)),

[g] g) have a soap dispenser that

[i] i) is automatic, or

[ii] ii) complies with Clause 3.8.3.8.(1)(b) and is located not more than 1 100 mm above the floor, within 500 mm from the front of the lavatory (see Note A-3.8.3.16.(1)(g)), and

[h] h) have a towel dispenser or other hand-drying equipment located close to the lavatory, not more than 1 200 mm above the floor in an area that is accessible to persons in wheelchairs.

[2] 2) Mirrors required by Sentence 3.8.2.8.(9) shall be

[a] a) mounted with their bottom edge not more than 1 000 mm above the floor, or

[b] b) fixed in an inclined position so as to be usable by a person in a wheelchair.

[3] --) The menstrual product dispenser referred to in Sentence 3.8.2.8.(10) shall be mounted

such that its controls and dispensing components are located in accordance with Clause 3.8.3.8.(1)(a), except that the dispenser shall not be mounted less than 900 mm above the floor.

[4] --) The menstrual product dispenser referred to in Sentence 3.8.2.8.(10) shall be operable in accordance with Clause 3.8.3.8.(1)(b), except that it is not required to be operable with one hand in a closed fist position.

Impact analysis

Impact on financial costs

The impact of the proposed change would vary for different buildings because it does not require that menstrual product dispensers be provided; it simply specifies that if these dispensers are provided, they are installed such that they can be used on a more equal basis. Some building owners or operators may decide to provide alternatives to commercial dispensers depending on their needs (e.g. a basket of products on the lavatory counter); in this context, there are no cost implications.

In cases where commercial menstrual product dispensers are provided, they typically cost between $400 and $1000. Options that comply with the proposed dexterity requirements appear to span that price range, with common models available for under $600. It should be noted that operating force requirements are not known for many models, which may affect the range of compliant products on the market.

Impact on manufacturers

The proposed change related to dexterity would improve market access for designs that comply with the dexterity requirement and limit market access for designs that do not comply. As the proposed change would waive the requirement in Subclause 3.8.3.8.(1)(b)(i) for closed fist operation, multiple commercial models comply, with the caveat that operating force levels on commercial models are not clear.

Impact on accessibility

The proposed change is expected to improve the accessibility of menstrual product dispensers for persons with disabilities related to dexterity. Approximately 5% of Canadians over the age of 15 years have disabilities related to dexterity [1]. While data on the distribution of disability by sex are not available from the most recent Canadian Survey on Disability, earlier surveys indicate that female adults are 25% more likely than male adults to have disabilities related to dexterity [2], suggesting a larger benefit of accessibility requirements for the design of menstrual product dispensers. While disabilities are less likely in age groups where menstruation is common (12 to 56 years) [3][4] relative to persons over 65 years [1], the consequences of not being able to access menstrual products even when they are available in the building can be severe, including missing school, work or other activities—highlighting the benefit of requiring menstrual product dispensers to be accessible where they are provided.

REFERENCES

[1] Statistics Canada, "New data on disability in Canada 2017." https://www150.statcan.gc.ca/n1/en/pub/11-627-m/11-627-m2018035-eng.pdf?st=v5UqujRh

[2] Statistics Canada, "Prevalence of disability types for women and men aged 15 or older, by age group, Canada, 2012." https://www150.statcan.gc.ca/n1/pub/89-503-x/2015001/article/14695/tbl/tbl06-eng.htm

[3] Al-Sahab, B., Ardern, C. I., Hamadeh, M. J., & Tamim, H. (2010). Age at menarche in Canada: results from the National Longitudinal Survey of Children & Youth. *BMC public health*, *10*, 1-8.

[4] Costanian, C., McCague, H., & Tamim, H. (2018). Age at natural menopause and its associated factors in Canada: cross-sectional analyses from the Canadian Longitudinal Study on Aging. *Menopause*, *25*(3), 265-272.

Enforcement implications

This proposed change could be enforced using similar enforcement infrastructure used for other controls under Article 3.8.3.8.

Who is affected

Building occupants, particularly those with dexterity disabilities, who would be able to access menstrual product dispensers.

Building owners, who would need to decide if the building's washrooms should be equipped with menstrual product dispensers that comply with the proposed change.

Designers, who would need to ensure that dispensers are designed in compliance with the proposed change.

Authorities having jurisdiction, who would need to ensure that the dispensers comply with the design requirements for controls.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[3.8.3.16.] 3.8.3.16. ([1] 1) [F74-OA2]

[3.8.3.16.] 3.8.3.16. ([1] 1) [F71-OH2.3]

[3.8.3.16.] 3.8.3.16. ([1] 1) ([f] f) [F31-OS3.2]

[3.8.3.16.] 3.8.3.16. ([2] 2) [F74-OA2]

[3.8.3.16.] -- ([4] --) [F74-OA2]

Submit a comment

Proposed Change 2043

Code Reference(s):	**NBC25 Div.B 9.36.11. (first printing)**
Subject:	Energy Efficiency for Houses
Title:	Tiered Energy Compliance: Tier 2 Prescriptive Path
Description:	This proposed change provides energy-efficiency requirements for compliance with Energy Performance Tier 2 of the energy performance compliance prescriptive path.

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☐ Accessibility
- ☑ Building Envelope
- ☑ Heating, Ventilating and Air Conditioning
- ☐ Construction and Demolition Sites
- ☑ Division B
- ☐ Design and Construction
- ☑ Housing
- ☐ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☑ Energy Efficiency
- ☐ Plumbing

Problem

The 2020 edition of the National Building Code of Canada (NBC) introduced energy-efficiency performance tiers in Section 9.36. of Division B, with increasing levels of improvement for buildings and houses, to provide jurisdictions with the option to adopt the most suitable energy performance level or their needs.

Although performance modeling is a common practice, many Code users have requested that prescriptive compliance paths remain in the National Model Codes to simplify achieving energy compliance. However, there are currently only performance requirements and prescriptive trade-off requirements for Energy Performance Tier 2 in Section 9.36. of the NBC.

Failure to develop a Tier 2 prescriptive compliance path would limit Code users to having to choose between following the trade-off compliance path or relying on performance-based requirements that use energy modeling to achieve the Tier 2 energy-efficiency targets.

Justification

The proposed prescriptive requirements for Energy Performance Tier 2 would provide acceptable solutions to improve the total energy performance of the building. With the tiered energy performance path in Subsection 9.36.7. and the tiered points-based prescriptive trade-off path in Subsection 9.36.8., the prescriptive path is one of the compliance options that provide an acceptable means of achieving the performance goal of reducing energy consumption by at least 10% and reducing the percentage heat loss by at least 5% for buildings with conditioned volumes over 300 m^3. Buildings with conditioned volumes less than or equal to 300 m^3 have a performance goal of 0% improvement compared to Energy Performance Tier 1, as shown in Table 9.36.7.2. of the NBC 2025, and would therefore comply with the minimum prescriptive requirements.

In developing the acceptable solutions in the Tier 2 prescriptive path, many different possible solutions were considered and compared against the points-based prescriptive trade-off path to ensure compliance.

1. Building Envelope

A Tier 2 building envelope package was developed for each climate zone for buildings having a conditioned volume greater than 300 m^3. The 240 modeled building archetypes were separated by volume, with 219 building archetypes having a conditioned volume greater than 300 m^3 and 21 having a conditioned volume of less than or equal to 300 m^3.

Two criteria were used to define acceptable Tier 2 building envelope package solutions:

(1) At least 80% of the building archetypes had to comply with the Tier 2 requirement for percentage heat loss reduction of 5% for volumes greater than 300 m^3; and

(2) On average, the building archetypes had to have a peak heating load less than their reference building.

Numerous combinations of building envelope measures met the criteria noted above. Therefore, additional selection criteria needed to be defined to reduce the number of prescriptive building envelope package solutions to one for each climate zone and building volume.

The two additional criteria were:

(1) incremental costs had to be minimized to make a solution desirable, and

(2) component performance of the building envelope had to consistently increase across climate zones.

A fourth criterion was defined to exclude solutions having reduced thermal performance of the building envelope component (e.g., insulation) in colder climate zones. For example, a solution that uses 4.88 RSI for the effective thermal resistance of above-grade walls in climate zone 6 would not be used if the solution for climate zone 5 used 5.69 RSI for above-grade walls.

2. Airtightness

There is no mandatory airtightness level needed to achieve Tier 2.

3. Heat/Energy Recovery Ventilators (HRVs/ERVs)

The use of HRVs/ERVs was considered an easy and economical way to save energy; therefore, it was proposed that all Tier 2 houses should be equipped with HRVs/ERVs with minimum 60% sensible recovery efficiency for climate zones 4 and 5, and minimum 70% sensible recovery efficiency for climate zones 6 to 8. Since HRVs/ERVs are required for the Tier 1 building envelope package, they are maintained in the Tier 2 building envelope package.

4. Service Water Heating Systems

No upgrades above Code-minimum service water heating systems are required to achieve Tier 2.

PROPOSED CHANGE

[9.36.11.] – Tiered Energy Compliance: Tier 2 Prescriptive Path

[9.36.11.1.] --- Scope and Application

[1] --) This Subsection is concerned with achieving compliance with Energy Performance Tier 2, as specified in Table 9.36.7.2., through prescriptive requirements.

[2] --) This Subsection applies only to *buildings* that are equipped with a heat/energy recovery ventilator conforming to Article 9.36.3.9. (See Note-A-9.36.11.1.(2).)

[9.36.11.2.] --- Compliance

[1] --) Compliance with this Subsection shall be achieved by

[a] --) designing and constructing the *building* envelope in accordance with Articles 9.36.2.1. to 9.36.2.5. and 9.36.11.3. to 9.36.11.5.,

[b] --) designing and constructing systems and equipment for heating, ventilating or air-conditioning in accordance with Article 9.36.11.6., and

[c] --) designing and constructing systems and equipment for service water heating in accordance with Subsection 9.36.4.

[9.36.11.3.] --- Above-Ground Opaque Building Assemblies

[1] --) Except as provided in Article 9.36.2.5. and Sentence 9.36.2.6.(3), the effective thermal resistance of above-ground opaque *building* assemblies or portions thereof shall be not less than that shown for the applicable heating-degree day category of the *building* location in

[a] --) Table 9.36.11.3., where the total volume of *conditioned space* within the *building* is greater than 300 m^3 or not determined, or

[b] --) Article 9.36.2.6., where the total volume of *conditioned space* within the *building* is less than or equal to 300 m^3.

Table [9.36.11.3.]
Tier 2 Effective Thermal Resistance of Above-Ground Opaque Assemblies in Buildings with a Total Volume of Conditioned Space > 300 m^3
Forming Part of Clause 9.36.11.3.(1)(a)

Above-Ground Opaque *Building* Assembly	Heating Degree-Days 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
	Minimum Effective Thermal Resistance (RSI), (m^2×K)/W					
Ceilings below attics	6.91	8.67	10.43	10.43	10.43	10.43
Cathedral ceilings and flat roofs	4.67	4.67	5.02	5.02	5.02	5.02
Walls	3.08	3.08	3.08	3.08	3.85	3.85
Floors over unheated spaces	4.67	4.67	4.67	5.02	5.02	5.02

Note to Table [9.36.11.3.] :

(1) See Article 1.1.3.1.

[2] --) Where the top of a section of *foundation* wall is on average greater than or equal to 600 mm abovethe adjoining ground level, the effective thermal resistance of theabove-ground portion of that section of wall shall be not less thanthat of the above-ground walls.

[3] --) Except for tubular daylighting devices, the effective thermalresistance of skylight shafts shall be not less than that of the above-groundwalls.

[9.36.11.4.] --- Fenestration, Doors and Skylights

[1] --) Except as provided in Sentences (2) to (8), fenestration anddoors shall have an overall thermal transmittance (U-value) not greaterthan, or an Energy Rating not less than, that shown in Table 9.36.11.4.for the applicable heating degree-days of the *building* location. (See Note A-9.36.2.7.(1) and (3).)

Table [9.36.11.4.]
Tier 2 Thermal Characteristics of Fenestration and Doors
Forming Part of Sentence 9.36.11.4.(1)

Component	Thermal Characteristics (1)	Heating Degree-Days of *Building* Location, (2) 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
Windows and sliding glass doors	Max. U-value, W/(m^2×K)	1.61	1.22	1.22	1.22	1.05	1.05
	Min. Energy Rating	25	34	34	34	40	40

Notes to Table [9.36.11.4.] :

(1) See Note A-Table 9.36.2.7.-A.

(2) See Article 1.1.3.1.

[2] --) The solar heat gain coefficient of fenestration and doors shallcomply with Sentence 9.36.2.7.(2).

[3] --) Skylights shall have an overall thermal transmittance not greaterthan the values listed in Table 9.36.2.7.-C for the applicable heating-degreeday category. (See Note A-9.36.2.7.(1) and (3).)

[4] --) Glass block assemblies separating *conditionedspace* from unconditioned space or the exterior shall have

[a] -- a U-value of not more than 2.9 W/(m^2×K), and

[b] -- a total aggregate area of not more than 1.85 m^2.

[5] --) One door separating a *conditioned space* from an unconditioned space or the exterior is permitted to havea U-value up to 2.6 W/(m^2×K).

[6] --) Storm windows and doors need not comply with Sentence (1).

[7] --) Vehicular access doors separating a *conditionedspace* from an unconditioned space or the exterior shall havea nominal thermal resistance of not less than 1.1 (m^2×K)/W.

[8] --) Access hatches separating a *conditionedspace* from an unconditioned space shall be insulated to a nominalthermal resistance of not less than 2.6 (m^2×K)/W.

[9.36.11.5.] --- Opaque Building Assemblies Below-Grade or in Contact with theGround

[1] --) Opaque *building* assemblies below-*grade* or in contact with the ground shall bedesigned and constructed in accordance with Sentence 9.36.2.8.(3)and this Article.

[2] --) Except as provided in Article 9.36.2.5., the effective thermalresistance of *foundation* walls shall benot less than that shown for the applicable heating degree-days ofthe *building* location in

[a] -- Table 9.36.11.5., where the total volume of *conditioned space* within the *building* is greater than 300 m^3 or not determined,or

[b] -- Article 9.36.2.8., where the total volume of *conditioned space* within the *building* is less than or equal to 300 m^3.

Table [9.36.11.5.]
Tier 2 Effective Thermal Resistance of Assemblies Below-Grade or in Contact with the Ground in Buildings with a Total Volume of Conditioned Space > 300 m^3
Forming Part of Clause 9.36.11.5.(2)(a)

***Building* Assembly Below-*Grade* or in Contact with the Ground (1)**	**Heating Degree-Days of *Building* Location, (2) 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**
	Minimum Effective Thermal Resistance (RSI), (m^2×K)/W					
Foundation walls	2.98	2.98	3.46	3.97	3.97	3.97
Unheated floors (3) below frost line (4) (5)	uninsulated	uninsulated	uninsulated	uninsulated	uninsulated	uninsulated
Unheated floors (3) above frost line (5)	1.96	1.96	1.96	1.96	1.96	1.96
Heated and unheated floors on permafrost	–	–	–	–	4.44	4.44
Heated floors (6)	2.32	2.32	2.32	2.84	2.84	2.84
Slabs-on-grade with an integral footing (6)	1.96	1.96	2.84	2.84	2.84	3.72

Notes to Table [9.36.11.5.] :

(1) See Note A-Tables 9.36.2.8.-A and -B.

(2) See Article 1.1.3.1.

(3) Does not apply to below-*grade* floors overheated crawl spaces.

(4) Typically applies to floors-on-ground infull-height *basements*.

(5) Refers to undisturbed frost linebefore house is constructed.

(6) See Sentence 9.25.2.3.(5) for requirement on placement of insulation. Thedesign of slabs-on-grade with an integral footing is addressed inPart 4 (see Article 9.16.1.2.).

[9.36.11.6.] --- HVAC Systems

[1] --) HVAC systems, equipment and installations shall be designedand constructed in accordance with Articles 9.36.3.2. to 9.36.3.8.and 9.36.3.11. and this Article.

[2] --) Where HVAC systems, equipment or techniques other than thosedescribed in Articles 9.36.3.2. to 9.36.3.8. and 9.36.3.11. and thisArticle are used, the *building* shall bedesigned and constructed in accordance with the energy efficiencyrequirements of the NECB.

[3] --) Ventilation systems serving *buildings* to which this Subsection applies shall be equipped with a heat/energyrecovery ventilator conforming to Article 9.36.3.9.

[4] --) The sensible recovery efficiency (SRE) measured at an outsideair test temperature of 0°C of the heat/energy recovery ventilatordescribed in Sentence (3) shall be not less than

[a] -- 60% for climate zones 4 and 5, or

[b] -- 70% for climate zones 6, 7A, 7B and 8.

Note A-9.36.11.1.(2) Other Compliance Options.

Buildings that do not comply with requirements of the Tier2 prescriptive path set out in Subsection 9.36.11. are permitted tomeet the requirements of the performance path (Subsection 9.36.7.or 9.36.8.)or the points-based prescriptive trade-off path (Subsection 9.36.9.)to achieve the Tier 2 energy performance target provided in Table9.36.7.2.

Impact analysis

This proposed change would improve energy performance by following the prescriptive requirements for building envelopes and HVAC systems to achieve Energy Performance Tier 2. Detailed costing data can be found in the supporting document. The total incremental cost to achieve Tier 2 is a very small percentage of the total construction cost.

Buildings with a total volume of conditioned space of less than or equal to 300 m^3 have the following energy performance: a percent improvement of ≥ 0%, a percent energy target of ≤ 100% and a percent heat loss reduction of ≥ 0%.

Buildings with a total volume of conditioned space of greater than 300 m^3 have the following energy performance: a percent improvement of ≥ 10%, a percent energy target of ≤ 90% and a percent heat loss reduction of ≥ 5%.

Incremental Costing for Tier 2 by Archetype

Archetype A1 - Apartment/condominium unit, one bedroom

Table 1. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A1

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	13.93
Floor area	46.30
Insulated attic area	46.30
Window area	2.36
Conditioned Space	**Total Volume, m^3**
Conditioned space	105.45

There is no incremental cost compared to Tier 1 for Archetype A1 as the building volume is less than 300 m^3.

Archetype A2 - Bungalow, detached without basement or garage

Table 2. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A2

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	126.05
Ground floor area	95.00
Slabs-on-grade	101.7
Insulated attic area	95.00
Window area	10.75
Conditioned Space	**Total Volume, m^3**
Conditioned space	217.44

There is no incremental cost compared to Tier 1 for Archetype A2 as the building volume is less than 300 m^3.

Archetype A3 - Bungalow, detached with basement and garage

Table 3. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A3

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	69.49
Foundation walls	46.10
Ground floor area	90.45
Insulated attic area	90.45
Window area	19.74
Conditioned Space	**Total Volume, m^3**
Conditioned space	411.36

Table 4. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A3

Building Component	**Incremental Cost, $**					
	Climate Zone					
	4	**5**	**6**	**7A**	**7B**	**8**
Ceilings below attics	0.00	0.00	760.68	0.00	0.00	0.00
Above-grade walls	−301.59*	0.00	0.00	0.00	0.00	0.00
Foundation walls	1,141.44	0.00	23.05	24.43	24.43	0.00
Unheated floors above frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	759.79	1,765.35	1,005.56	1,005.56	911.99	911.99
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL	**1,599.64**	**1,765.35**	**1,989.29**	**1,229.99**	**1,136.42**	**1,111.99**

*See supplemental document Section 3.4.

Archetype A4 - 2-storey, detached

Table 5. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A4

Area Part of or Surrounded by Building Envelope	**Total Area, m^2**
Above-grade walls	142.78

Foundation walls	22.69
Ground floor area	57.25
Insulated attic area	70.56
Window area	15.74
Conditioned Space	**Total Volume, m^3**
Conditioned space	427.46

Table 6. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A4

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	593.41	0.00	0.00	0.00
Floors over unheated spaces	0.00	0.00	0.00	0.00	0.00	0.00
Above-grade walls	–619.67*	0.00	0.00	0.00	0.00	0.00
Foundation walls	561.80	0.00	11.35	12.03	12.03	0.00
Unheated floors below frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	605.83	1,407.63	801.80	801.80	727.19	727.19
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL	**547.97**	**1,407.63**	**1,606.55**	**1,013.82**	**939.21**	**927.19**

*See supplemental document Section 3.4.

Archetype A5 - Row house, 2-storey

Table 7. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A5 (Mid-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	38.44
Foundation walls	7.14
Ground floor area	54.50
Insulated attic area	74.05
Window area	12.12
Conditioned Space	**Total Volume, m^3**
Conditioned space	425.35

Table 8. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A5 (Mid-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	622.76	0.00	0.00	0.00
Floors over unheated spaces	0.00	0.00	0.00	0.00	0.00	0.00
Above-grade walls	–166.83*	0.00	0.00	0.00	0.00	0.00
Foundation walls	176.79	0.00	3.57	3.78	3.78	0.00
Unheated floors below frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	466.50	1,083.89	617.39	617.39	559.94	559.94
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**476.46**	**1,083.89**	**1,443.72**	**821.18**	**763.73**	**759.94**

*See supplemental document Section 3.4.

Table 9. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A5 (End-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	90.34
Foundation walls	16.14
Ground floor area	54.50
Insulated attic area	74.05
Window area	13.59
Conditioned Space	**Total Volume, m^3**
Conditioned space	425.35

Table 10. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A5 (End-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	622.76	0.00	0.00	0.00
Floors over unheated spaces	0.00	0.00	0.00	0.00	0.00	0.00
Above-grade walls	–392.08*	0.00	0.00	0.00	0.00	0.00
Foundation walls	399.63	0.00	8.07	8.55	8.55	0.00
Unheated floors below frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	523.08	1,215.35	692.27	692.27	627.86	627.86
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**530.63**	**1,215.35**	**1,523.11**	**900.83**	**836.41**	**827.86**

*See supplemental document Section 3.4.

Archetype A6 - Row house, stacked 3-storey

Table 11. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A6 (Mid-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	65.51
Foundation walls	11.28
Ground floor area	58.07
Insulated attic area	59.85
Window area	20.92
Conditioned Space	**Total Volume, m^3**
Conditioned space	563.67

Table 12. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A6 (Mid-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	503.34	0.00	0.00	0.00
Above-grade walls	–284.31*	0.00	0.00	0.00	0.00	0.00
Foundation walls	279.29	0.00	5.64	5.98	5.98	0.00
Unheated floors above frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	597.36	1,870.88	1,065.66	1,065.66	966.50	966.50
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**592.34**	**1,870.88**	**1,774.64**	**1,271.64**	**1,172.48**	**1,166.50**

*See supplemental document Section 3.4.

Table 13. Total Area of the Building Envelope Components and Total Volume of Conditioned Space of Archetype A6(End-Unit)

Area Part of or Surrounded by Building Envelope	Total Area, m^2
Above-grade walls	160.39
Foundation walls	29.43
Ground floor area	58.07
Insulated attic area	59.85
Window area	24.50
Conditioned Space	**Total Volume, m^3**
Conditioned space	563.67

Table 14. Incremental Cost to Achieve Tier 2 Compared to Tier 1 in Archetype A6(End-Unit)

Building Component	Incremental Cost, $					
	Climate Zone					
	4	5	6	7A	7B	8
Ceilings below attics	0.00	0.00	503.34	0.00	0.00	0.00
Above-grade walls	–696.09*	0.00	0.00	0.00	0.00	0.00
Foundation walls	728.69	0.00	14.72	15.60	15.60	0.00
Unheated floors above frost line	0.00	0.00	0.00	0.00	0.00	0.00
Heated and unheated floors on permafrost	n/a	n/a	n/a	n/a	0.00	0.00
Windows and sliding glass doors	943.01	2,191.04	1,248.03	1,248.03	1,131.90	1,131.90
HRV/ERV	0.00	0.00	200.00	200.00	200.00	200.00
TOTAL COST	**975.60**	**2,191.04**	**1,966.08**	**1,463.63**	**1,347.50**	**1,331.90**

*See supplemental document Section 3.4.

Incremental Costing by Archetype by Region

Table 15. Climate Zones by Region

Degree-Days Below 18°C	BC	Alberta	Saskatchewan and Manitoba	Ontario	Quebec	Atlantic Canada	Northern Canada
Zone 4: HDD < 3000	Yes	No	No	No	No	No	No
Zone 5: HDD 3000 to 3999	Yes	No	No	Yes	No	Yes	No
Zone 6: HDD 4000 to 4999	Yes	Yes	Yes	Yes	Yes	Yes	No
Zone 7A: HDD 5000 to 5999	Yes	Yes	Yes	Yes	Yes	Yes	No
Zone 7B: HDD 6000 to 6999	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zone 8: HDD ≥ 7000	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 16. Incremental Cost to Achieve Tier 2 Compared to Tier 1 for Each Archetype by Region

Archetype		Incremental Cost, $						
		BC	Alberta	Saskatchewan and Manitoba	Ontario	Quebec	Atlantic Canada	Northern Canada
Archetype A1		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Archetype A2		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Archetype A3		1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,989.29	1,111.99–1,136.42
Archetype A4		547.97–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–1,606.55	927.19–939.21
Archetype A5	Mid-unit	476.46–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–1,443.72	759.94–763.73
	End-unit	530.63–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–1,523.11	827.86–836.41
Archetype A6	Mid-unit	592.34–1,870.88	1,166.50–1,774.64	1,166.50–1,774.64	1,166.50–1,870.88	1,166.50–1,774.64	1,166.50–1,870.88	1,166.50–1,172.48
	End-unit	975.60–2,191.04	1,331.90–1,966.08	1,331.90–1,966.08	1,331.90–2,191.04	1,331.90–1,966.08	1,331.90–2,191.04	1,331.90–1,347.50

Enforcement implications

This proposed change could be enforced by the infrastructure currently available to enforce the Code.

This proposed change would facilitate the effective enforcement of high-performance energy solutions in jurisdictions where complying with the performance path presents challenges.

Who is affected

Regulators, builders, designers, engineers, architects, contractors and consultants in provinces and territories where Energy Performance Tier 2 has been adopted for housing and small buildings.

Supporting Document(s)

Supporting Costing Information for PCF 2043 (pcf_2043_supporting_document.pdf)

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[9.36.11.1.] -- ([1] --)no attributions

[9.36.11.1.] -- ([2] --)no attributions

[9.36.11.1.] -- ([2] --)[F95,F100-OE1.1]

[9.36.11.2.] -- ([1] --)no attributions

[9.36.11.3.] -- ([1] --)no attributions

[9.36.11.3.] -- ([1] --)no attributions

[9.36.11.3.] -- ([1] --)[F92-OE1.1]

[9.36.11.3.] -- ([2] --)[F92-OE1.1]

[9.36.11.3.] -- ([3] --)[F92-OE1.1]

[9.36.11.4.] -- ([1] --)[F92-OE1.1]

[9.36.11.4.] -- ([2] --)no attributions

[9.36.11.4.] -- ([3] --)[F92-OE1.1]

[9.36.11.4.] -- ([4] --)[F92-OE1.1]

[9.36.11.4.] -- ([5] --)[F92-OE1.1]

[9.36.11.4.] -- ([6] --)no attributions

[9.36.11.4.] -- ([7] --)[F92-OE1.1]

[9.36.11.4.] -- ([8] --)[F92-OE1.1]

[9.36.11.5.] -- ([1] --)no attributions

[9.36.11.5.] -- ([1] --)no attributions

[9.36.11.5.] -- ([2] --)no attributions

[9.36.11.5.] -- ([2] --)[F92-OE1.1]

[9.36.11.6.] -- ([1] --)no attributions

[9.36.11.6.] -- ([2] --)no attributions

[9.36.11.6.] -- ([3] --)no attributions

[9.36.11.6.] -- ([3] --)[F95,F100-OE1.1]

[9.36.11.6.] -- ([4] --)[F95,F98,F100-OE1.1]

Submit a comment

Proposed Change 2109

Code Reference(s):	**NECB25 Div.B 5.2.3.1. (first printing)**
Subject:	Heating, Ventilating and Air-conditioning Systems - Other
Title:	Fan Motor Power Threshold for the Application of Prescriptive Requirements
Description:	This proposed change lowers the threshold for total fan motor power for the application of prescriptive requirements.
Related Code Change Request(s):	CCR 1437

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☐ Accessibility
- ☐ Building Envelope
- ☑ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☑ Design and Construction
- ☐ Housing
- ☑ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☑ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

Currently, Subsection 5.2.3. of the National Energy Code of Canada for Buildings (NECB) applies to HVAC fan systems with a total fan motor nameplate rating of 10 kW or more. Restricting the application of the requirements to systems with higher total fan motor power ratings (i.e., 10 kW or more) misses the opportunity for energy savings that could be realized if the requirements were applied to a lower total nameplate rating.

Additionally, this results in a misalignment between the NECB and Section 6.5.3.1.1 of ANSI/ASHRAE/IES 90.1, “Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings.”

Justification

This proposed change would result in energy savings when the requirements are applied to systems with a lower total fan motor nameplate power rating.

This proposed change would also harmonize the requirements of the NECB with ANSI/ASHRAE/IES 90.1 and thus facilitate the adoption and adaption of the NECB.

PROPOSED CHANGE

[5.2.3.1.] 5.2.3.1. Application

[1] 1) Except for equipment covered by Article 5.2.12.1. and whose minimum performance includes fan energy, this Subsection applies to all fan systems

[a] a) that are used for comfort heating, ventilating or air-conditioning, or any combination thereof, and

[b] b) for which the total of all fan motor nameplate ratings is ~~10 kW~~ 3.7 kW or more (see Note A-5.2.3.1.(2)).

[2] 2) For the purposes of this Subsection, the power demand of a fan system shall be the sum of the demand of all fans required to operate at design conditions to supply air to the *conditioned space*. (See Note A-5.2.3.1.(2).)

Impact analysis

Harmonizing the NECB with ASHRAE 90.1 would help Code users and authorities having jurisdiction to apply the NECB requirements.

The energy savings would be proportional to the number of fan systems that would be otherwise excluded from the application of Subsection 5.2.3.

Applying the requirements to HVAC systems with a lower (i.e., 3.7 kW or more instead of the existing 10 kW or more) total fan motor nameplate power rating would result in energy savings for Code users choosing either the prescriptive path or the performance path.

Enforcement implications

This proposed change can be enforced by the existing infrastructure for enforcing the NECB.

Who is affected

Designers, engineers, builders, energy advisors and building officials.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[5.2.3.1.] 5.2.3.1. ([1] 1) no attributions

[5.2.3.1.] 5.2.3.1. ([2] 2) [F95,F97-OE1.1]

Submit a comment

Proposed Change 2105

Code Reference(s):	**NECB25 Div.B Table 5.2.12.1.H (first printing)**
Subject:	Heating, Ventilating and Air-conditioning Systems - Other
Title:	Change SCOP to "Net Sensible COP" in Table 5.2.12.1.-H as the Metric Used for Computer Room Air Conditioners
Description:	This proposed change replaces the minimum performance metric "sensible coefficient of performance (SCOP)" with the "net sensible COP (NSenCOP)" in Table 5.2.12.1.-H to harmonize with the metric used in AHRI 1360 (I-P), AHRI 1361 (SI) and ANSI/ASHRAE/IES 90.1-2022.
Related Code Change Request(s):	CCR 1873

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☐ Small Buildings
- ☐ Fire Protection
- ☐ Accessibility
- ☐ Building Envelope
- ☑ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☑ Design and Construction
- ☐ Housing
- ☑ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☑ Energy Efficiency
- ☐ Plumbing
- ☐ Construction and Demolition Sites

Problem

Table 5.2.12.1.-H in Part 5 of Division B of the National Energy Code of Canada for Buildings (NECB) was developed based on the minimum performance requirements for comparable cooling equipment. Since then, ANSI/ASHRAE/IES 90.1-2022, "Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings," adopted the "net sensible coefficient of performance (NSenCOP)" as the standard efficiency metric

for computer room air conditioners. The U.S. Department of Energy is also considering adopting ANSI/ASHRAE/IES 90.1, which would further solidify NSenCOP as the standard reference metric.

However, NECB 2025 Table 5.2.12.1.-H continues to use the outdated term "sensible coefficient of performance (SCOP)," despite referencing efficiency values aligned with ANSI/ASHRAE/IES 90.1. This terminology mismatch creates unnecessary confusion, especially since the Table and the standard:

- reference the same performance testing methods (AHRI 1360 (I-P) and AHRI 1361 (SI)); and
- define the metric identically as the net sensible cooling capacity divided by total power input, excluding re-heaters and humidifiers.

In essence, the NECB and ANSI/ASHRAE/IES 90.1 use the same performance metric but call it by different names. To prevent confusion and maintain alignment with ASHRAE and AHRI terminology, this proposed change would replace "SCOP" with "NSenCOP" in NECB Table 5.2.12.1.-H.

Justification

Replacing SCOP with NSenCOP in the NECB, as adopted in ANSI/ASHRAE/IES 90.1, would reduce market confusion and support consistent enforcement of Code requirements by aligning the NECB with the terminology used by major standards development organizations.

Moreover, SCOP is commonly understood to mean "seasonal coefficient of performance," which is a distinct metric widely used in the context of heat pumps. Continuing to use SCOP for computer room air conditioners risks misinterpretation by designers, regulators and manufacturers. Replacing SCOP with NSenCOP in Table 5.2.12.1.-H would clarify the intent of the NECB provisions and ensure consistency with ASHRAE and AHRI terminology.

PROPOSED CHANGE

Table [5.2.12.1.-H] 5.2.12.1.-H
Performance Requirements for Computer Room Air Conditioners
Forming Part of Sentences 5.2.12.1.(1), 6.2.2.4.(2), 6.2.2.5.(1) and 8.4.5.18.(6)

Type of Equipment	Cooling or Heating Capacity, kW	Performance Testing Standard	Rating Conditions	Minimum Performance (1)
Air-cooled, floor-mounted, with or without fluid economizer	< 23	AHRI 1361 (SI)	Downflow or upflow, ducted	NSenCOP~~SCOP~~ = 2.67
	≥ 23 and < 86			NSenCOP~~SCOP~~ = 2.55
	≥ 86			NSenCOP~~SCOP~~ = 2.33
	< 23		Upflow, non-ducted	NSenCOP~~SCOP~~ = 2.09
			Horizontal	NSenCOP~~SCOP~~ = 2.65
	≥ 23 and < 70		Upflow, non-ducted	NSenCOP~~SCOP~~ = 1.99
			Horizontal	NSenCOP~~SCOP~~ = 2.55
	≥ 70		Upflow, non-ducted	NSenCOP~~SCOP~~ = 1.81
			Horizontal	NSenCOP~~SCOP~~ = 2.47
Water-cooled, floor-mounted, with or without fluid economizer	< 23		Downflow or upflow, ducted	NSenCOP~~SCOP~~ = 2.74
	≥ 23 and < 86			NSenCOP~~SCOP~~ = 2.65
	≥ 86			NSenCOP~~SCOP~~ = 2.61

Type of Equipment	Cooling or Heating Capacity, kW	Performance Testing Standard	Rating Conditions	Minimum Performance (1)
	< 23		Upflow, non-ducted	NSenCOP~~SCOP~~ = 2.44
			Horizontal	NSenCOP~~SCOP~~ = 2.71
	≥ 23 and < 70		Upflow, non-ducted	NSenCOP~~SCOP~~ = 2.34
			Horizontal	NSenCOP~~SCOP~~ = 2.60
	≥ 70		Upflow, non-ducted	NSenCOP~~SCOP~~ = 2.24
			Horizontal	NSenCOP~~SCOP~~ = 2.54
Glycol-cooled, floor-mounted, with or without fluid economizer	< 23		Downflow or upflow, ducted	NSenCOP~~SCOP~~ = 2.48
	≥ 23 and < 86			NSenCOP~~SCOP~~ = 2.16
	≥ 86			NSenCOP~~SCOP~~ = 2.12
	< 23		Upflow, non-ducted	NSenCOP~~SCOP~~ = 2.34
			Horizontal	NSenCOP~~SCOP~~ = 2.44
	≥ 23 and < 70		Upflow, non-ducted	NSenCOP~~SCOP~~ = 1.99
			Horizontal	NSenCOP~~SCOP~~ = 2.10
	≥ 70		Upflow, non-ducted	NSenCOP~~SCOP~~ = 1.94
			Horizontal	NSenCOP~~SCOP~~ = 2.10

Type of Equipment	Cooling or Heating Capacity, kW	Performance Testing Standard	Rating Conditions	Minimum Performance (1)
Air-cooled, ceiling-mounted, free air discharge condenser, with or without fluid economizer	< 8.5		Ducted	NSenCOP~~SCOP~~ = 2.01
			Non-ducted	NSenCOP~~SCOP~~ = 2.04
	≥ 8.5 and < 19		Ducted	NSenCOP~~SCOP~~ = 1.97
			Non-ducted	NSenCOP~~SCOP~~ = 2.00
	≥ 19		Ducted	NSenCOP~~SCOP~~ = 1.87
			Non-ducted	NSenCOP~~SCOP~~ = 1.89
Air-cooled, ceiling-mounted, ducted condenser, with or without fluid economizer	< 8.5		Ducted	NSenCOP~~SCOP~~ = 1.82
			Non-ducted	NSenCOP~~SCOP~~ = 1.68
	≥ 8.5 and < 19		Ducted	NSenCOP~~SCOP~~ = 1.78
			Non-ducted	NSenCOP~~SCOP~~ = 1.81
	≥ 19		Ducted	NSenCOP~~SCOP~~ = 1.68
			Non-ducted	NSenCOP~~SCOP~~ = 1.70
Water-cooled, ceiling-mounted, with or without fluid economizer	< 8.5		Ducted	NSenCOP~~SCOP~~ = 2.33
			Non-ducted	NSenCOP~~SCOP~~ = 2.36
	≥ 8.5 and < 19		Ducted	NSenCOP~~SCOP~~ = 2.23
			Non-ducted	NSenCOP~~SCOP~~ = 2.26

Type of Equipment	Cooling or Heating Capacity, kW	Performance Testing Standard	Rating Conditions	Minimum Performance (1)
	≥ 19		Ducted	NSenCOP~~SCOP~~ = 2.13
			Non-ducted	NSenCOP~~SCOP~~ = 2.16
Glycol-cooled, ceiling-mounted, with or without fluid economizer	< 8.5		Ducted	NSenCOP~~SCOP~~ = 1.92
			Non-ducted	NSenCOP~~SCOP~~ = 1.95
	≥ 8.5 and < 19		Ducted	NSenCOP~~SCOP~~ = 1.88
			Non-ducted	NSenCOP~~SCOP~~ = 1.93
	≥ 19		Ducted	NSenCOP~~SCOP~~ = 1.73
			Non-ducted	NSenCOP~~SCOP~~ = 1.76

Note to Table [5.2.12.1.-H] 5.2.12.1.-H:

(1) The symbols and abbreviations that appearin this column have the following meanings:

NSenCOP~~SCOP~~ = net sensible *coefficient of performance*. The NSenCOP~~SCOP~~ isa ratio that is calculated by dividing the net sensible cooling capacity,in W, by the total power input, in W (excluding re-heaters and humidifiers).

Impact analysis

This proposed change is expected to be cost neutral as it would not change the intent of the provision or the performance requirements; it simply would align the NECB with ASHRAE and AHRI terminology.

Enforcement implications

This proposed change could be enforced by the existing infrastructure for enforcing the NECB, without requiring additional resources. This proposed change would help reduce market confusion and streamline enforcement efforts.

Who is affected

Designers, engineers, architects, manufacturers, builders, specification writers and building officials.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

N/A

Submit a comment

Proposed Change 1943

Code Reference(s):	**NECB25 Div.B 8.4.2.9.(2) (first printing)**
Subject:	Airtightness
Title:	Harmonizing the Standard for Whole Building Air Leakage Testing
Description:	This proposed change harmonizes the standard for whole building air leakage testing referenced in the prescriptive and modeling requirements in the NECB by only referring to ASTM E3158, the newer, more accurate and more reproducible testing procedure.
Related Code Change Request(s):	CCR 1989

This change could potentially affect the following topic areas:

- [ ] Division A
- [ ] Division C
- [ ] Building operations
- [ ] Small Buildings
- [ ] Fire Protection
- [ ] Accessibility
- [x] Building Envelope
- [ ] Heating, Ventilating and Air Conditioning
- [x] Division B
- [ ] Design and Construction
- [ ] Housing
- [x] Large Buildings
- [ ] Occupant safety in use
- [ ] Structural Requirements
- [x] Energy Efficiency
- [ ] Plumbing
- [ ] Construction and Demolition Sites

Problem

Article 3.2.4.2. and Sentence 8.4.2.9.(2) of Division B of the National Energy Code of Canada for Buildings (NECB) were introduced in the 2020 edition to provide guidance on testing procedures and to specify the target performance value for whole building airtightness (i.e., the leakage rate of the air barrier system of the building).

Sentence 3.2.4.2.(1) references ASTM E3158, “Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building,” as the test standard to determine the normalized air leakage rate for whole building air leakage.

Sentence 8.4.2.9.(2) references ASTM E779, "Standard Test Method for Determining Air Leakage Rate by Fan Pressurization," as the test standard to determine the flow rate when it is used in the calculation of the normalized air leakage rate in the whole building energy model, as well as ASTM E3158 by referring to Article 3.2.4.2. and Sentence 3.2.4.2.(1).

Both ASTM E779 and ASTM E3158 are standards for whole building air leakage testing, but ASTM E779 is much older and is considered less accurate and reproducible than ASTM E3158.

Referencing two standards for the same purpose in the same Article may cause confusion for Code users and enforcement difficulties for authorities having jurisdiction (AHJs). It is important to ensure that the Code requirements are harmonized and reference the appropriate standard.

Justification

This proposed change would update the standard referenced in Article 8.4.2.9. from ASTM E779 to ASTM E3158. Referencing one sole standard for whole building air leakage testing would

a. provide the most current, accurate and industry-accepted test standard in Article 8.4.2.9., and
b. harmonize the Code requirements on air leakage testing for whole buildings.

PROPOSED CHANGE

[8.4.2.9.] 8.4.2.9. Air Leakage

[1] 2) The air leakage rate of the *building envelope* shall be adjusted using the following equation:

$$I_{AGW} = C \times I_{75Pa} \times \frac{S}{A_{AGW}}$$

where

I_{AGW} = adjusted air leakage rate of the *building envelope* at a typical operating pressure differential of 5 Pa and relative to the area of the above-ground walls, in $L/(s \times m^2)$,

C = $(5 \text{ Pa} / 75 \text{ Pa})^n$, where n = flow exponent, which shall be 0.60, if no whole *building* test result is available, or the calculated value, if whole *building* testing is carried out in accordance with Article 3.2.4.2. and a series of tests are conducted at different differential pressures,

I_{75Pa} = assumed or measured normalized air leakage rate of the *building envelope* at a pressure differential of 75 Pa, in $L/(s \times m^2)$, where the measured air leakage rate at a pressure differential of 75 Pa is calculated as $I_{75Pa} = Q/S$, where Q = volume of air flowing through the *building envelope* when subjected to a pressure differential of 75 Pa, in L/s, determined in accordance with ~~ASTM E779, "Standard Test Method for Determining Air Leakage Rate by Fan Pressurization",~~ASTM E3158, "Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building", following the criteria ~~as per~~stated in Sentence 3.2.4.2.(1), ~~in L/s,~~ and S = total area of the *building envelope*, ~~as per~~determined in accordance with Clause 3.2.4.2.(1)(c), in m^2, and

A_{AGW} = total area of above-ground walls, in m^2.

(See Note A-8.4.2.9.(2).)

Impact analysis

This proposed change would have no cost implications, as conducting a field test in accordance with either standard has the same overall cost. In fact, this proposed change might reduce the cost, as only one field test would need to be completed to meet the requirements of both Articles 3.2.4.2. and 8.4.2.9., rather than two different tests (ASTM E3158 and E779), one for each Article.

This proposed change would also reduce the potential for confusion in the industry resulting from the reference to two different standards in the NECB.

Enforcement implications

This proposed change could be enforced using existing infrastructure.

This proposed change would also simplify the demonstration of compliance with the NECB, since the results of one field test could be used to comply with both Articles 3.2.4.2. and 8.4.2.9.

Who is affected

Designers, engineers, architects, building officials, manufacturers and suppliers.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[8.4.2.9.] 8.4.2.9. ([1] 2) [F99-OE1.1]

Submit a comment

Proposed Change 2137

Code Reference(s):	**NPC25 Div.B 2.4.6.4. (first printing)**
Subject:	Drainage Systems
Title:	Installation of a Backwater Valve for Plumbing Fixtures Located Below the Upstream Sanitary Manhole
Description:	This proposed change clarifies requirements for the installation of a backwater valve to protect plumbing fixtures from backflow.
Related Code Change Request(s):	CCR 817

This change could potentially affect the following topic areas:

- ☐ Division A
- ☐ Division C
- ☐ Building operations
- ☑ Small Buildings
- ☐ Fire Protection
- ☐ Accessibility
- ☐ Building Envelope
- ☐ Heating, Ventilating and Air Conditioning
- ☑ Division B
- ☑ Design and Construction
- ☑ Housing
- ☑ Large Buildings
- ☐ Occupant safety in use
- ☐ Structural Requirements
- ☐ Energy Efficiency
- ☑ Plumbing
- ☐ Construction and Demolition Sites

Problem

Article 2.4.6.4. in Division B of the National Plumbing Code of Canada (NPC) requires the installation of a backwater valve where a building drain or branch may be subject to backflow, especially for plumbing fixtures (including retention pits, sumps or running traps) located below the level of the adjoining street. However, the wording currently used in the Code lacks specificity regarding elevation relative to the upstream sanitary manhole, which leads to inconsistent interpretation and enforcement across jurisdictions.

Fixtures located below the upstream manhole cover are highly vulnerable to sewer surcharge events, particularly during periods of extreme rainfall or flooding. Authorities having jurisdiction may interpret the NPC narrowly, requiring backwater valves only in particular situations, which may result in insufficient protection for at-risk fixtures.

Without a clear requirement based on elevation relative to the upstream manhole cover, properties remain exposed to sewer backup risks, contributing to costly damage, insurance claims and health hazards. Clarifying this requirement would promote consistent application and improve lot-side protection against flooding and sewer surcharging.

If the requirement is not made clearer in the NPC, some new houses could continue to be built without adequate backflow prevention, which would increase exposure to sewer backup and impose burdens on homeowners and municipalities that are avoidable. By requiring backwater valves to be installed for fixtures located below the upstream sanitary manhole cover, the Code would ensure that fixtures subject to backflow are protected.

Justification

The NPC already requires a backwater valve to be installed on every fixture drain connected to the building drain or branch when it is located below the level of the adjoining street. This proposed change would extend this protection from backflow to residential buildings served by a public sanitary sewer where fixtures are located below the elevation of the upstream sanitary manhole cover in buildings served by a public sanitary sewer or a private sewage disposal system. Although the number of such properties is relatively small, they remain at significant risk of sanitary sewer backup events and would therefore benefit from this additional protective measure.

As defined in the NPC, a “private sewage disposal system” is a privately owned plant for the treatment and disposal of sewage, such as a septic tank with an absorption field. This broad term also includes private sanitary sewers serving that system. The intent of this proposed change is to minimize the risk to properties where plumbing fixtures are located below the elevation of the upstream sanitary manhole cover, for buildings served by either a public sanitary sewer or a private sewage disposal system.

As outlined in the Problem statement, the NPC lacks clear direction regarding the installation of backwater valves for fixtures located below the upstream sanitary manhole cover, leading to inconsistent application and increased risk of sewer backup. By identifying this condition as the trigger for backwater valve installation, this proposed change would provide a clear and consistent way to address a well-known vulnerability of drainage systems.

This proposed change would add a connector line in Figure A-2.4.6.4.(3) to clearly illustrate the physical point where the branch connects with the stack, ensuring unambiguous identification of the flow path and the appropriate placement of the backwater valve, as the branch and stack are always connected as part of the continuous drainage path leading to the building drain and sewer.

Explanatory Note A-2.4.6.4.(3) would be revised to improve clarity and accuracy by removing subjective wording and aligning the text with the technical criteria used in the NPC. The updated wording focuses directly on the physical condition that triggers the

requirement, i.e., fixtures located below the adjoining street or upstream manhole cover, and therefore ensures consistent interpretation and application by Code users and authorities.

This proposed change would improve protection from backflow for at-risk fixtures, reduce the likelihood of flood-related damage to residential buildings and promote enforcement of backflow prevention measures across jurisdictions.

PROPOSED CHANGE

[2.4.6.4.] 2.4.6.4. Protection from Drainage Backflow

[1] 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.(1).)~~

[2] --) Where a *building drain* or *branch* may be subject to *backflow*, a *backwater valve* shall be installed in accordance with Sentences (3) to (6).

[3] 1) Except as provided in Sentences (4) and (5), the *backwater valve* required by Sentence (2) shall be installed on every *fixture drain* connected to the *building drain* or *branch* where the *plumbing fixture* is located below the level of

[a] --) the adjoining street, or

[b] --) the upstream sanitary manhole cover where a *building* is served by a public *sanitary sewer* or a *private sewage disposal system*.

(See Note A-2.4.6.4.(3).)

[4] 2) Where two or more *plumbing fixtures* located on a *storey* are connected to the same *branch*, the *backwater valve* required by Sentence (2) is permitted to be installed on the *branch*.

[5] 5) Except as provided in Sentence (6), the *backwater valve* required by Sentence (2) is permitted to be installed in the *building drain*, provided the *backwater valve*

[a] b) does not serve more than one *dwelling unit*, and

[b] a) has a “normally open” design conforming to

[i] i) CSA B70, "Cast iron soil pipe, fittings, and means of joining",

[ii] ii) CSA B181.1, "Acrylonitrile-butadiene-styrene (ABS) drain, waste, and vent pipe and pipe fittings",

[iii] iii) CSA B181.2, "Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) drain, waste, and vent pipe and pipe fittings", or

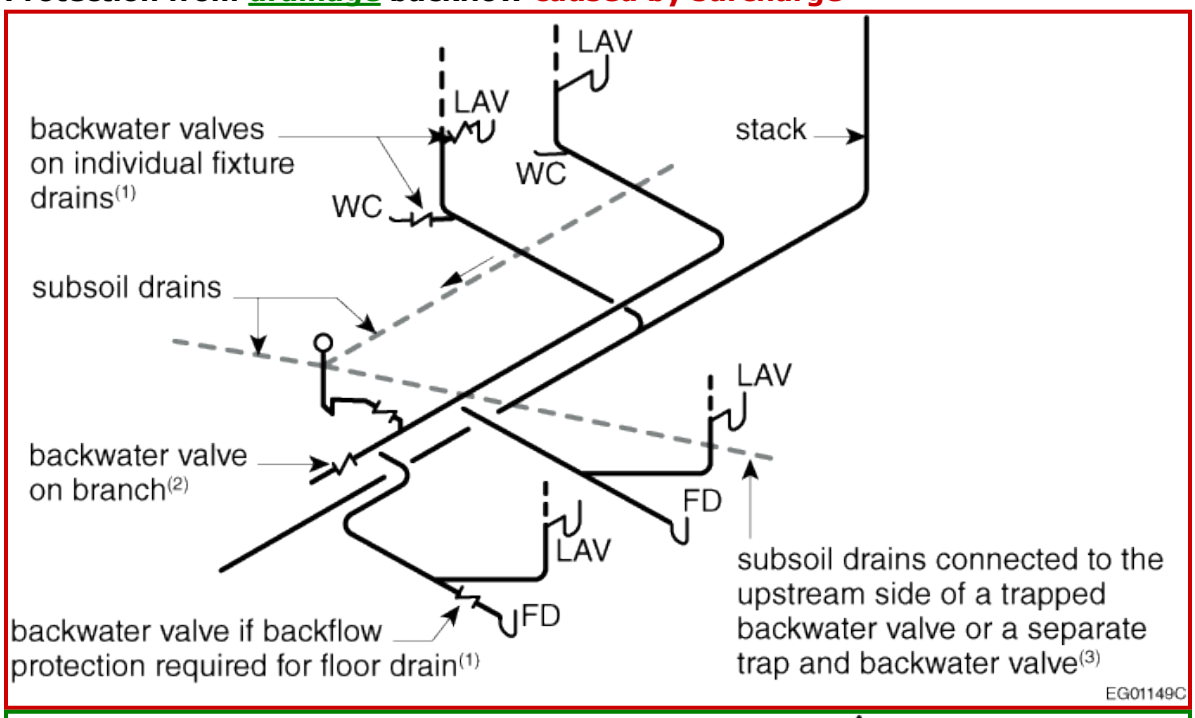
[iv] iv) CSA B182.1, "Plastic drain and sewer pipe and pipe fittings".

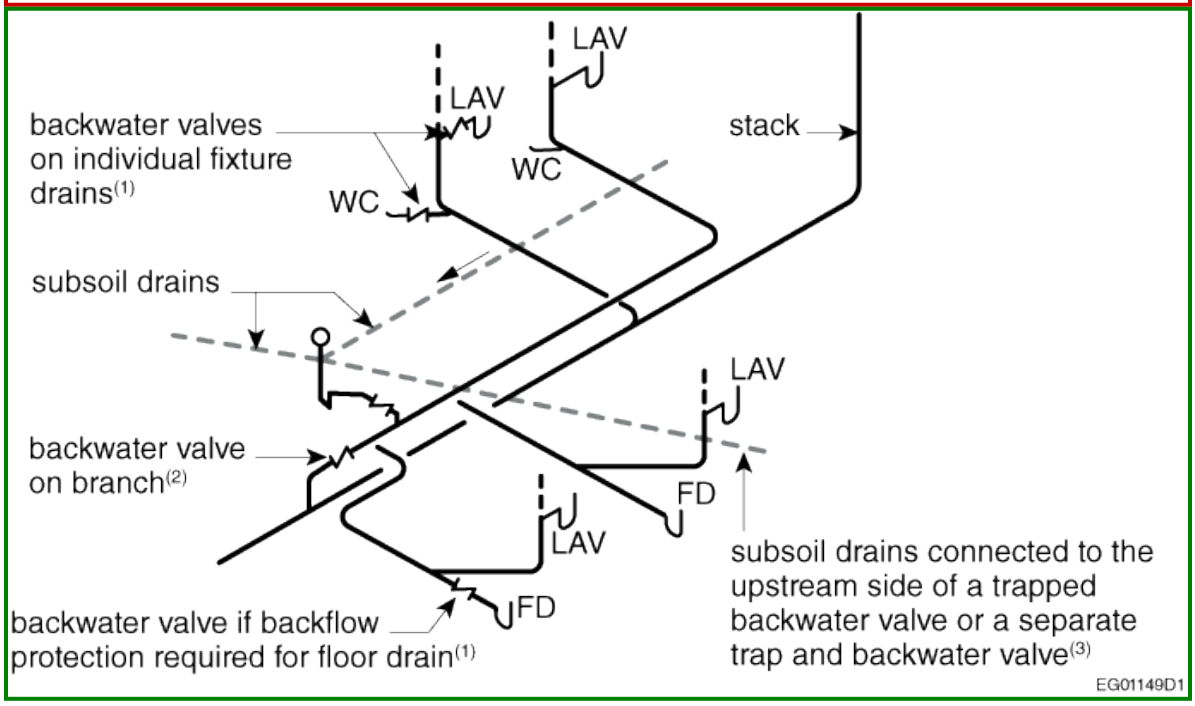
[6] 4) A *backwater valve* or a gate valve that would prevent the free circulation of air shall not be installed in a *building drain* or in a *building sewer*.

Note A-2.4.6.4.(~~1~~3) Protection from Drainage Backflow ~~Caused by Surcharge~~.

The requirement in Sentence 2.4.6.4.(~~1~~3) is intended to apply when~~, in the opinion of the authority having jurisdiction, there is danger of backup from a public sewer~~ plumbing fixtures are located below the level of the adjoining street or upstream manhole cover for a public sanitary sewer or a private sewage disposal system and are, therefore, subject to backflow.

Figure [A-2.4.6.4.(13)] A-2.4.6.4.(3)
Protection from drainage backflow ~~caused by surcharge~~





Notes to Figure A-2.4.6.4.(3):

(1) See Sentence 2.4.6.4.(3).

(2) See Sentence 2.4.6.4.(4).

(3) See Sentence 2.4.6.4.(1).

Impact analysis

The installation of backwater valves is considered a key preventative measure for avoiding sanitary sewer backflow during surcharge events, which is a growing concern in Canadian municipalities due to climate change and urban intensification. On a national scale, insurance payouts related to water damage and sewer backup average approximately $1.7 billion annually [1]. The financial impact on individual homeowners is also significant, with claim values typically ranging from $19,000 to $80,000, depending on the severity of the damage.

In response to this persistent risk, municipalities such as Toronto, Windsor and Edmonton have implemented mandatory backwater valve installation policies. These proactive measures have resulted in higher adoption rates of backflow prevention devices and have been associated with reduced damage severity during extreme storm events.

In general, the cost of the backwater valve itself is relatively consistent across regions; however, labour costs can vary depending on factors such as local labour rates, availability of qualified trades and the accessibility of the plumbing system. Additional variation may arise from whether the installation occurs in new construction or as a retrofit, the age and type of building, and other site-specific conditions. While these factors cannot be individually quantified here, general considerations including regional labour variation, system accessibility and installation conditions were assessed when evaluating the overall cost implications.

The estimated range of costs and impacts associated with the installation of backwater valves were evaluated based on labour and material costs, including those associated with backwater valve installation, and compared with recent RSMeans pricing to ensure that current labour rates and material costs are appropriately reflected. This comparison indicates that the estimated total labour and material costs are consistent with the range of values reported by the Institute for Catastrophic Loss Reduction [1].

Tables 1 and 2 represent the total estimated cost, including labour and materials, of installing a backwater valve in new and existing houses, respectively. The lower cost range reflects regions with lower labour rates, good trade availability and installations with straightforward system access (typically found in newer houses). The upper cost range reflects regions with higher labour rates, limited trade availability or installations with restricted access (as found in older buildings or more complex retrofit conditions).

Table 1. Estimated Costs for Backwater Valve Installation in a New House

Category	Cost Range (CAD)	Description
Labour cost	$150–$250	Cost of installing a backwater valve during initial plumbing work
Material cost	$100–$150	Cost of a normally open, full-port backwater valve and associated fittings
Estimated total cost	$250–$400	Total cost of labour and materials

Table 2. Estimated Costs for Retrofit Backwater Valve Installation in an Existing House

Category	Cost Range (CAD)	Description
Labour cost	$800–$1,500	Cost of retrofitting a backwater valve
Material cost	$200–$300	Cost of backwater valve and fittings plus restoration materials (e.g., concrete, piping)
Estimated total cost	$1,000–$1,800+	Total cost varies with layout of existing house and scope of modifications

Overall construction costs have increased since the reference data were published in 2013 [1], and the potential damage resulting from sanitary sewer backflow during surcharge events has also increased, leading to higher costs to remedy and restore affected building components. However, the proportional relationship between initial installation costs and costs of repairing sewer backup damage has remained relatively consistent over time as material, labour and repair cost increases tend to follow similar trends.

Table 3. Ratio of Cost of Installing a Backwater Valve to Cost of Repairing Sewer Backup Damage in New and Existing Houses

Category	Ratio of Estimated Total Initial Cost/National Average for Damage Repair (CAD)	Percentage (Ratio × 100)%
New house	$400/($19,000–$80,000)	0.5–2.1
Existing house	$1,800/($19,000–$80,000)	3.1–13.1

Table 3 shows that the cost of installing a backwater valve in new construction (~$400) represents approximately 0.5%–2.1% of the estimated cost to repair damage from a sewer backup event ($19,000–$80,000). For retrofit installations (~$1,800), the cost represents approximately 3.1%–13.1% of the expected damage repair cost. These percentages highlight that preventative installation, particularly during new construction, is a highly cost-effective mitigation measure compared to post-event restoration.

The initial cost of installing a backwater valve differs significantly between new and existing houses. Installation during new construction is relatively inexpensive (~$400), whereas retrofit installation in existing houses costs much more (~$1,800) due to additional labour, plumbing alterations and on-site access constraints. At the same time, the likelihood of experiencing a sanitary sewer backup event varies widely depending on regional conditions and individual property characteristics. Houses in low-risk areas generally face a minimal chance of experiencing a backup, whereas properties in high-risk areas may experience such events frequently.

When these factors are considered together, the substantially lower installation cost in new houses makes the inclusion of a backwater valve a practical and economic measure across all risk categories, whether the property is classified as low, medium or high risk

based on the expected frequency of backup events. In existing houses, however, the much higher retrofit cost means that installation is typically most justifiable in medium- and high-risk areas, where the likelihood of a sewer backup event is greater and the potential for recurring damage is more significant, whereas the benefit may be limited for houses classified as low risk.

Houses with fixtures located below the elevation of the upstream sanitary manhole cover are particularly vulnerable during surcharge conditions, making backwater valve installation an essential preventative measure. Including a valve during new construction greatly reduces the risk of costly property damage and associated health impacts, whereas failing to install one at that stage may lead to expensive retrofits or substantial losses during future flooding events.

Reference
[1] Sandink, D. “Urban flooding in Canada: Lot-side risk reduction through voluntary retrofit programs, code interpretation and by-laws.” Institute for Catastrophic Loss Reduction, February 2013.

Enforcement implications

This proposed change could be enforced by the existing Code enforcement infrastructure without requiring additional resources. The requirement for authorities having jurisdiction to verify compliance with backwater valve installation would not change. This proposed change would facilitate more consistent interpretation of the Code requirements without adding new enforcement responsibilities or altering existing inspection practices.

Who is affected

This proposed change might affect a broad range of stakeholders involved in the design, specification, manufacture, approval, construction and operation of drainage systems, including, but not limited to, designers, specification writers, manufacturers, building owners, contractors and building officials.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[2.4.6.4.] 2.4.6.4. ([1] 3)[F81-OH2.1]

[2.4.6.4.] -- ([2] --)[F81-OH2.1]

[2.4.6.4.] 2.4.6.4. ([3] 1)[F81-OH2.1]

[2.4.6.4.] 2.4.6.4. ([4] 2)no attributions

[2.4.6.4.] 2.4.6.4. ([5] 5)[F81-OH1.1]

[2.4.6.4.] 2.4.6.4. ([5] 5)[F81-OH2.1]

[2.4.6.4.] 2.4.6.4. ([6] 4)[F81-OH2.1]

[2.4.6.4.] 2.4.6.4. ([6] 4)[F81-OH1.1]