

Proposed Change 2256

Code Reference(s):	NBC25 Div.B 6.3.1.3. (first printing)
Subject:	Fire Alarm and Detection Systems
Title:	Acceptable Monitoring Devices for the Ventilation of Storage Garages
Description:	This proposed change requires the carbon monoxide monitoring devices and nitrogen dioxide or other acceptable monitoring devices required by Sentence 6.3.1.3.(2) to conform to CAN/ULC 588:2024A, "Gas and Vapour Detectors and Sensors, Including Accessories."
Related Code Change Request(s):	CCR 1287

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

Article 6.3.1.3. of the National Building Code of Canada (NBC) currently requires storage garages to have a mechanical ventilation system designed to limit the concentration of carbon monoxide or nitrogen dioxide by using monitoring devices when a continuous supply of outdoor air is not provided at an acceptable rate. However, the NBC does not contain a provision requiring these monitoring devices to meet minimum performance requirements by conforming to a National Standard of Canada.

Justification

This proposed change introduces a requirement in Article 6.3.1.3. for acceptable monitoring devices for carbon monoxide or nitrogen dioxide in storage garages to comply with CAN/ULC 588:2024A, "Gas and Vapour Detectors and Sensors, Including Accessories." Previous Canadian standards have applied to carbon monoxide alarms rather than carbon monoxide detectors.

CAN/ULC 588 requires toxic combustible gas and vapour detectors to be able to connect to a power source, signaling circuits and optional remote control circuits. Additional features, such as a heat detector, heat sensor, smoke detector, smoke sensor, or audible signaling appliance/device, are permitted to be incorporated into the toxic combustible gas and vapour detector assembly. However, these features must be evaluated in accordance with their respective applicable standards.

This proposed change requires monitoring devices used in storage garages to conform to CAN/ULC 588. This proposed change would create uniformity in the minimum performance requirements, which is critical for ensuring that such monitoring devices function reliably, especially in industrial and commercial applications like storage garages.

PROPOSED CHANGE

NBC25 Div.B 6.3.1.3. (first printing)

[6.3.1.3.] 6.3.1.3. Ventilation of Storage Garages

- [1] 1)** Except as provided in Sentences ~~-(4)(5)~~ and ~~-(6)(7)~~, an enclosed *storage garage* for five or more motor vehicles shall have a mechanical ventilation system designed to
- [a] a) limit the concentration of carbon monoxide to not more than 100 parts per million parts of air,
 - [b] b) limit the concentration of nitrogen dioxide to not more than 3 parts per million parts of air, where the majority of the vehicles stored are powered by diesel-fuelled engines, or
 - [c] c) provide, during operating hours, a continuous supply of outdoor air at a rate of not less than 3.9 L/s for each square metre of *floor area* (see Article 3.3.1.21.).

(See Note A-6.3.1.3.(1).) (See also Sentence 3.3.5.4.(4).)

- [2] 2)** Mechanical ventilation systems provided in accordance with Clause (1)(a) shall be controlled by carbon monoxide monitoring devices, and systems provided in accordance with Clause (1)(b) shall be controlled by nitrogen dioxide or other acceptable monitoring devices. (See Note A-6.3.1.3.(2).)

- [3] --)** The carbon monoxide monitoring devices and nitrogen dioxide or other acceptable monitoring devices required by Sentence (2) shall conform to CAN/ULC 588:2024A, "Gas and Vapour Detectors and Sensors, Including

Accessories.”

- [4] 3) Mechanical ventilation systems provided in accordance with Sentence (1) shall be designed such that the pressure in the *storage garage* is less than the pressure in adjoining *buildings* of other *occupancy*, or in adjacent portions of the same *building* having a different *occupancy*.
- [5] 4) In *storage garages* subject to the requirements of Sentences (1) and (2), where motor vehicles are parked by mechanical means, the ventilation requirements may be reduced by one half.
- [6] 5) Except as provided in Sentence ~~-(6)(7)~~, ticket and attendant booths of *storage garages* shall be pressurized with a supply of uncontaminated air.
- [7] 6) The requirements of Sentences (1) to ~~-(5)(6)~~ shall not apply to *open-air storeys* in a *storage garage*.

Impact analysis

This proposed change enhances existing provisions in the NBC by requiring certain monitoring devices, which are used to control the ventilation of storage garages, to conform to CAN/ULC 588. This proposed change would improve the reliability, accuracy and system integration of these monitoring devices while protecting occupants from hazardous levels of exposure.

This proposed change should improve the safety and performance of monitoring devices, may improve the reliability of monitoring devices, and would better integrate monitoring devices conforming to CAN/ULC 588 into building systems while maintaining compliance with the NBC.

There are already combustible gas and vapour monitoring devices on the market that are tested in conformance with other standards, such as ANSI/UL 2075, “Gas and Vapor Detectors and Sensors.” Assuming there are no differences in the product technology or the listing process, this proposed change is not expected to increase the cost of the required monitoring devices in Canada.

Requiring carbon monoxide monitoring devices and nitrogen dioxide or other acceptable monitoring devices to conform to a National Standard of Canada would provide certainty for building officials, designers, specification writers, contractors and manufacturers regarding the minimum performance requirements of the NBC.

Enforcement implications

The proposed change could be enforced without requiring additional resources. However, since CAN/ULC 588 is a standard that has not been previously referenced in the NBC, regulators may need to become familiar with this standard to facilitate enforcement of the requirement.

Who is affected

Stakeholders such as designers, specifiers, manufacturers, building owners, building officials and contractors may need additional training to become familiar with, understand and apply the requirements of CAN/ULC 588 in order to design or install acceptable monitoring devices.

Manufacturers may need to adapt their products to meet the new regulatory requirements.

Building owners may need training to better understand the operating mechanisms of all the monitoring devices installed in their buildings.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

NBC25 Div.B 6.3.1.3. (first printing)

[6.3.1.3.] 6.3.1.3. ([1] 1) [F50,F44-OS3.4]

[6.3.1.3.] 6.3.1.3. ([2] 2) [F44-OS3.4]

[6.3.1.3.] -- ([3] --) [F44-OS3.4]

[6.3.1.3.] 6.3.1.3. ([4] 3) [F44-OS3.4]

[6.3.1.3.] 6.3.1.3. ([5] 4) [F50,F44-OS3.4]

[6.3.1.3.] 6.3.1.3. ([6] 5) [F50,F44-OH1.1]

[6.3.1.3.] 6.3.1.3. ([6] 5) [F50,F44-OS3.4]

[6.3.1.3.] 6.3.1.3. ([7] 6) no attributions