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Proposed Change 1776

Code Reference(s):	NFC20 Div.B 4.3.5.2. (first printing) NFC20 Div.B 4.3.11.3. (first printing)
Subject:	Storage Tanks
Title:	Addition of the OH5 Sub-Objective to Relevant Provisions in NFC Part 4
Description:	This proposed change adds the OH5 sub-objective and related intent statements to provisions in the NFC related to the location of vent pipe outlets for aboveground and underground storage tanks.
Related Code Change Request(s):	CCR 1818
Related Proposed Change(s):	PCF 1691

This change could potentially affect the following topic areas:

- | | |
|--|---|
| <input type="checkbox"/> Division A | <input checked="" type="checkbox"/> Division B |
| <input type="checkbox"/> Division C | <input checked="" type="checkbox"/> Design and Construction |
| <input type="checkbox"/> Building operations | <input type="checkbox"/> Housing |
| <input checked="" type="checkbox"/> Small Buildings | <input checked="" type="checkbox"/> Large Buildings |
| <input type="checkbox"/> Fire Protection | <input type="checkbox"/> Occupant safety in use |
| <input type="checkbox"/> Accessibility | <input type="checkbox"/> Structural Requirements |
| <input type="checkbox"/> Building Envelope | <input type="checkbox"/> Energy Efficiency |
| <input type="checkbox"/> Heating, Ventilating and Air Conditioning | <input type="checkbox"/> Plumbing |
| | <input type="checkbox"/> Construction and Demolition Sites |

Problem

Articles 4.3.5.2. and 4.3.11.3. of Division B of the National Fire Code of Canada (NFC) provide requirements for the location of vent pipe outlets for aboveground storage tanks and the installation of vents for underground storage tanks, respectively.

Currently, only the OS1 Fire Safety sub-objective is assigned to Article 4.3.5.2., while both OS1 Fire Safety and OH5 Hazardous Substances Containment sub-objectives are assigned to Sentences 4.3.11.3.(1) to (5).

In addition to the fire safety concerns, a health risk is also addressed by the two Articles as many people are sensitive to the odours released from flammable or combustible components. Therefore, both OS1 Fire Safety and OH5 Hazardous

Substances Containment sub-objectives should be assigned to the relevant Sentences in Articles 4.3.5.2. and 4.3.11.3. to clarify the sub-objectives and intent of the Code provisions.

Justification

This proposed change clarifies the sub-objectives and intent of the Code provisions.

EXISTING PROVISION

4.3.5.2. Location of Vent Pipe Outlets

- 1) Normal vent pipe outlets for *storage tanks* of Class I liquids
 - a) shall be located outside *buildings* not less than
 - i) 3.5 m above the adjacent ground level, and
 - ii) 1.5 m from any *building* opening, and
 - b) shall discharge so that flammable vapours will not enter the *building* or be trapped near any part of the *building*.
- 2) Normal vent pipe outlets for *storage tanks* of Class II or IIIA liquids shall discharge outside *buildings* not less than
 - a) 2 m above the adjacent ground level, and
 - b) 1.5 m from any *building* opening.
- 3) Emergency vent outlets for *storage tanks* shall discharge outside *buildings* not less than 1.5 m from any *building* opening and from any combustible component of any *building's* exterior wall.

4.3.11.3. Installation

- 1) Vent pipe outlets from underground *storage tanks* for Class I liquids
 - a) shall be located outside *buildings* higher than the fill pipe openings but not less than
 - i) 3.5 m above the adjacent ground level,
 - ii) 1.5 m from any *building* opening, and
 - iii) 7.5 m from any dispenser, and
 - b) shall discharge so that flammable vapours will not enter *building* openings or be trapped near any part of the *building*.
- 2) Vent pipe outlets from underground *storage tanks* for Class II or IIIA liquids shall be located outside *buildings* at a height that is above the fill pipe opening but not less than 2 m above finished ground level.
- 3) Vent pipes from underground *storage tanks* for *flammable liquids* or *combustible liquids* shall not be obstructed by any device that may cause excessive back pressure, except that vent pipes from underground *storage tanks* for Class II or IIIA liquids are permitted to be fitted with

return bends, coarse screens or other devices to minimize the entry of foreign material.

- 4) Vent piping shall enter the *storage tank* through the top of the tank and shall not extend into the tank more than 25 mm.
- 5) Vent piping shall be
 - a) installed so that any nominally horizontal run shall slope towards the *storage tank*,
 - b) constructed without traps,
 - c) adequately supported to prevent sagging, and
 - d) where necessary, protected against mechanical damage.
- 6) Vent piping shall be tested for leaks at the commissioning stage in conformance with Clause 4.4.1.2.(1)(a).

PROPOSED CHANGE

[4.3.5.2.] 4.3.5.2. Location of Vent Pipe Outlets

[4.3.11.3.] 4.3.11.3. Installation

- [1] 1) Vent pipe outlets from underground *storage tanks* for Class I liquids
 - [a] a) shall be located outside *buildings* higher than the fill pipe openings but not less than
 - [i] i) 3.5 m above the adjacent ground level,
 - [ii] ii) 1.5 m from any *building* opening, and
 - [iii] iii) 7.5 m from any dispenser, and
 - [b] b) shall discharge so that flammable vapours will not enter *building* openings or be trapped near any part of the *building*.
- [2] 2) Vent pipe outlets from underground *storage tanks* for Class II or IIIA liquids shall be located outside *buildings* ~~at a height that is above the fill pipe opening but not less than 2 m above finished ground level.~~
 - [a] --) above the fill pipe opening.
 - [b] --) not less than 2 m above finished ground level, and
 - [c] --) not less than 1.5 m from any building opening (PCF 1691-2025).
- [3] 3) Vent pipes from underground *storage tanks* for *flammable liquids* or *combustible liquids* shall not be obstructed by any device that may cause excessive back pressure, except that vent pipes from underground *storage tanks* for Class II or IIIA liquids are permitted to be fitted with return bends, coarse screens or other devices to minimize the entry of foreign material.
- [4] 4) Vent piping shall enter the *storage tank* through the top of the tank and shall not extend into the tank more than 25 mm.
- [5] 5) Vent piping shall be

- [a] a) installed so that any nominally horizontal run shall slope towards the *storage tank*,
 - [b] b) constructed without traps,
 - [c] c) adequately supported to prevent sagging, and
 - [d] d) where necessary, protected against mechanical damage.
- [6] 6)** Vent piping shall be tested for leaks at the commissioning stage in conformance with Clause 4.4.1.2.(1)(a).

Impact analysis

This proposed change clarifies the sub-objectives and intent of the Code requirements. It facilitates the interpretation and enforcement of the current Code requirements. No additional cost is associated with this proposed change.

Enforcement implications

Enforcement can be achieved by the existing means and resources used to check the compliance of the installation of vents for aboveground and underground storage tanks.

The proposed change is expected to make enforcement easier as it clarifies the sub-objectives and intent of the requirements.

Who is affected

Designers, manufacturers, contractors, building owners, building officials and fire officials would benefit from this clarification.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[4.3.5.2.] 4.3.5.2. ([1] 1) [F01-OS1.1]

[4.3.5.2.] 4.3.5.2. ([1] 1) [F44-OH5] Applies to the requirement for the vent pipe outlets to be located not less than 1.5 m from any *building* opening.

[4.3.5.2.] 4.3.5.2. ([2] 2) [F01-OS1.1]

[4.3.5.2.] 4.3.5.2. ([2] 2) [F44-OH5] Applies to the requirement for the vent pipe outlets to be located not less than 1.5 m from any *building* opening.

[4.3.5.2.] 4.3.5.2. ([3] 3) [F01-OS1.1]

[4.3.5.2.] 4.3.5.2. ([3] 3) [F44-OH5] Applies to the requirement for the vent pipe outlets to be located not less than 1.5 m from any *building* opening.

[4.3.11.3.] 4.3.11.3. ([1] 1) [F01-OS1.1]

[4.3.11.3.] 4.3.11.3. ([1] 1) ([a] a) [F43-OS1.1] Applies to the vent pipe outlets being higher than the fill pipe openings.

[4.3.11.3.] 4.3.11.3. ([1] 1) ([a] a) [F43-OH5] Applies to the vent pipe outlets being higher than the fill pipe openings.

[4.3.11.3.] 4.3.11.3. ([1] 1) ([a] a)([ii] ii),(b) b) [F44-OH5]

[4.3.11.3.] 4.3.11.3. ([2] 2) [F01-OS1.1] ~~Applies to portion of Code text: "Vent pipe outlets from underground storage tanks for Class II or IIIA liquids shall be located outside buildings ..."~~

[4.3.11.3.] 4.3.11.3. ([2] 2) ([a] --) [F43-OS1.1] ~~Applies to the requirement for vent pipe outlets to be located outside buildings at a height that is above the fill pipe opening.~~

[4.3.11.3.] 4.3.11.3. ([2] 2) ([a] --) [F43-OH5] ~~Applies to the requirement for the vent pipe outlets to be located outside buildings at a height that is above the fill pipe opening.~~

[4.3.11.3.] 4.3.11.3. ([2] 2) ([b] --) [F01-OS1.1] ~~Applies to the requirement for vent pipe outlets to be located outside buildings at not less than 2 m above finished ground level.~~

[4.3.11.3.] 4.3.11.3. ([2] 2) ([c] --) [F01,F44-OS1.1]

[4.3.11.3.] 4.3.11.3. ([2] 2) ([c] --) [F44-OH5]

[4.3.11.3.] 4.3.11.3. ([3] 3) [F20,F81-OS1.1] Applies to the requirement for vent pipes to not be obstructed by any device that may cause excessive back pressure.

[4.3.11.3.] 4.3.11.3. ([3] 3) [F20,F81-OH5] Applies to the requirement for vent pipes to not be obstructed by any device that may cause excessive back pressure.

[4.3.11.3.] 4.3.11.3. ([3] 3) no attributions

[4.3.11.3.] 4.3.11.3. ([4] 4) [F20,F81-OS1.1]

[4.3.11.3.] 4.3.11.3. ([4] 4) [F20,F81-OH5]

[4.3.11.3.] 4.3.11.3. ([5] 5) ([a] a),(b) b),(c) c) [F81,F20-OS1.1]

[4.3.11.3.] 4.3.11.3. ([5] 5) (d) d) [F81-OS1.1]

[4.3.11.3.] 4.3.11.3. ([5] 5) ([a] a),(b) b),(c) c) [F81,F20-OH5]

[4.3.11.3.] 4.3.11.3. ([5] 5) (d) d) [F81-OH5]

[4.3.11.3.] 4.3.11.3. ([6] 6) no attributions