



Public Review

Vancouver Building By-law (VBBL)

Proposed change to Exit Exposure for Sprinklered Houses

Topic: Exit Exposure for Sprinklered Houses

Code change number: 24-0003

Code reference: 9.9.4.4.; 9.9.4.5.; 9.9.4.6.

Description of the proposed change

Exit Exposure for Sprinklered Houses

Justification

There are significant divergence of opinion with respect on the appropriateness of exit exposure protection for housing constructed to Part 9. The provision of Subsection 9.9.4. from the national and provincial codes clearly indicate that exit exposure protection is intended. However, there is evidence from plan and field review, that many home designers are either unaware or do not coordinate such protection with the relevant trades.

Industry has also raised many concerns about the provision of exit exposure. It has been broadly expressed that the level of protection may be overly onerous given that the city requires sprinkler protection of all houses. It is also recognized that not all municipalities enforce such requirements, which is further contributing to the confusion.

This proposed revision, proposes to delete explicit requirements for protection of exit exposure for stair, ramps, and doors in detached houses and duplexes where the building is fully sprinklered, and has at least two means of egress that can be used to reach a street, lane, or public throughfare.

Exit exposure protection for dwelling units in Part 9 for dwelling units under the NBCC and BCBC are applicable only in limited circumstances to a detached house. This limited protection presumes that the detached house is not sprinkler protected and does not contain multiple independent dwelling units, and limited occupant load.

The proposed change is intended to recognize the significant fire safety benefits offered by fully sprinklered detached house or duplex, and the relatively low level of risk that occupant would become exposed to a fire within an adjacent dwelling unit.

Other fire safety standards such as NFPA 80A-2022 have recognized significant fire safety benefits from sprinkler generally stating (ref. Article 5.6.3. and A.5.6.3.) fires in a sprinklered building can be assumed to be controlled and no exposure hazard considered to exist.

NFPA's fire statistics from an analysis of US fires have shown that where the sprinkler system has operated, this was effective at controlling the fire 97% of cases, of which in 77% of cases one sprinkler was sufficient to extinguish or control the fire (<https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/us-experience-with-sprinklers>).

VFRS has generally confirmed similarly the substantial benefits from sprinklers.

Proposed VBBL content

Legend

Black Text – 2019 Vancouver Building By-law content

Underlined Black Text – Proposed modification to Vancouver Building By-law content

9.9.4.4. Openings Near Unenclosed Exterior Exit Stairs and Ramps

1) *Unprotected openings* in exterior walls of the *building* shall be protected with wired glass in fixed steel frames, ~~or~~ glass block conforming to Articles 9.10.13.5. and 9.10.13.7., or protection complying with the requirements of Sentence 3.2.3.13.(5)., where

a) an unenclosed exterior *exit* stair or *ramp* provides the only *means of egress* from a *suite* and is exposed to fire from *unprotected openings* in the exterior walls of

i) another *fire compartment*, or

ii) another *dwelling unit*, ancillary space or common space in ~~a house with a secondary suite~~ an ancillary residential unit, and

b) *unprotected openings* in the exterior walls of the *building* are within 3 m horizontally and less than 10 m below or less than 5 m above the *exit* stair or *ramp*.

2) A sprinklered detached house or duplex with not more than 2 dwelling units and provided with more than one path of travel from each dwelling unit conforming to the dimensional requirements of Article 9.10.20.3., need not be provided with the opening protection referred to in Sentence (1).

9.9.4.5. Openings in Exterior Walls of Exits

1) Either openings in exterior walls of an *exit* or openings in adjacent exterior walls of the *building* the *exit* serves shall be protected with wired glass in fixed steel frames or glass block installed in accordance with Articles 9.10.13.5. and 9.10.13.7., where

a) the *exit* enclosure has exterior walls that intersect the exterior walls of the *building* at an angle of less than 135° measured on the outside of the *building*, and

b) the openings in the exterior walls of the *building* are within 3 m horizontally and less than 2 m above the openings in the exterior walls of the *exit*.

(See Note A-9.9.4.5.(1).)

2) The opening protection referred to in Sentence (1) may conform to Sentence 3.2.3.13.(4).

9.9.4.6. Openings Near Exit Doors

1) Where an exterior *exit* door in one *fire compartment* is within 3 m horizontally of an *unprotected opening* in another *fire compartment* and the exterior walls of these *fire compartments* intersect at an exterior angle of less than 135°, the opening shall be protected with

a) wired glass in fixed steel frames conforming to Article 9.10.13.5., ~~or~~

b) glass block conforming to Article 9.10.13.7., or

c) protection complying with the requirements of Sentence 3.2.3.13.(5).

~~2) The opening protection referred to in Sentence (1) may conform to Sentence 3.2.3.13.(4)~~

2) A sprinklered detached house or duplex with not more than 2 dwelling units and provided with more than one path of travel from each dwelling unit conforming to the dimensional requirements of Article 9.10.20.3., need not be provided with the opening protection referred to in Sentence (1).