

**PROPOSED CHANGE:** Roof-top Enclosures and Occupancies

**CHANGE NUMBER:** BCBC2018-R204-RT

**CODE REFERENCE:** British Columbia Building Code 2018 - Part 3 and Part 9 of Division B

**DESCRIPTION OF THE PROPOSED AMENDMENT:**

To exempt specific roof-top enclosures from being counted as a storey in a building's height and to increase safety for persons occupying and leaving roof-top areas.

**PROBLEM/BACKGROUND/RATIONALE FOR CHANGE:**

The BC Building Code (BCBC) requirements for roof-top enclosures and roof-top occupancies are based on the model National Building Code of Canada (NBC). The construction industry in BC has identified a need to update these requirements to reflect industry changes in the use of roof-top areas of buildings. Roof-top areas are often used as amenity areas and as additional floor space for building occupants. These amenity areas, such as roof-top patios or gardens, may be used by the occupants of a single suite or may be shared spaces for building occupants or the public.

Increased safety requirements are proposed to ensure the occupants of roof-top areas are able to exit safely in the event of a fire or other emergency.

**JUSTIFICATION/EXPLANATION:**

Roof-top occupancies present some unique challenges in the BCBC, as the BCBC defined term "floor area" does not apply to the area of an occupied roof. Because of this, the code's definition of "exit" also does not apply, as "exits" are defined as leading from "floor areas". Concepts such as travel distance and audibility of fire alarms also relate to floor areas and to exits, leading to inconsistent code application for roof-top occupancies.

The current requirements related to roof-top enclosures and roof-top occupancies generally permit a lesser level of safety than in other areas of the building, as there is no baseline requirement for two fire protected exits directly from the roof area, as is required in other parts of the building. The proposed changes will require two fire protected means of egress at the roof level if the roof-top occupancy serves more than 60 persons. Further, the current requirements do not address audibility of fire alarm systems at the roof level; changes have been proposed to apply these requirements. Clarity is also provided that the requirements for exit signs apply to these rooftop areas. An existing requirement in the BCBC – to provide a manual fire alarm pull station – has been maintained so that these manual stations are required near roof-top means of egress that are constructed as exits.

The current BCBC exempts a roof-top enclosure for a stairway to the roof-top from being counted as a storey in building height if the enclosure is used for service access only. The intent of this exemption is to recognize that the risk to the building and its occupants is minimized because the roof-top enclosure is infrequently occupied, and thus does not constitute a significant fire safety risk. It is acknowledged in the proposed changes that despite being used to access a roof-top amenity area, enclosures for stairways and elevators to roof-tops will still be infrequently occupied. New language restricting the use of stairways and elevators to roof-top enclosures or occupancies has been added to reinforce the intent that these spaces are only intended for transient use.

A specific reference to the use of a roof-top enclosure as an elevator lobby means that such lobbies will also be exempted from counting as a storey in building height, assuming they are infrequently occupied.

Changes are also proposed to distinguish roof-top occupancies that are at the highest elevation of a building from other roof-top occupancies and from podiums, terraces, platforms, and contained open spaces that are currently referenced in the code. A distinction has been made that the latter may have access and egress from other spaces in the building, whereas a roof-top occupancy at the highest elevation of a building does not have this access and egress, so is subject to more stringent requirements.

For podiums, terraces, platforms, and contained open spaces, clarification has been added that these spaces must also be accounted for in the design of exits for buildings. Similar to roof-top occupancies, these spaces do not typically meet the definition of “floor area”. This has led to inconsistent code application for these areas, in particular for the design of required exits from the building.

## 2018 PROPOSED BRITISH COLUMBIA BUILDING CODE LANGUAGE:

(changes shown in green text, deletions in red text with strikethrough)

### Changes to Part 3

#### 3.2.1.1. Exceptions in Determining Building Height

1) A roof-top enclosure shall not be considered as a *storey* in calculating the *building height* if it is provided for

- a) elevator machinery,
- b) a *service room*,
- c) a stairway used for no purpose other than for access or egress,
- d) an elevator lobby used for no purpose other than for access or egress, or
- e) a combination thereof.

#### 3.2.2.14. Roof-Top Enclosures

1) A roof-top enclosure for elevator machinery, an elevator lobby or for a *service room* shall be constructed in accordance with the type of construction required by Articles 3.2.2.20. to 3.2.2.90.

2) A roof-top enclosure for elevator machinery, an elevator lobby or for a *service room*, not more than one *storey* high, and that does not serve as part of a *means of egress* for an *occupancy* on a roof in accordance with Sentences 3.3.1.3.(4) to (6), is not required to have a *fire-resistance rating*.

3) A roof-top enclosure for a stairway shall be constructed in accordance with the type of construction required by Articles 3.2.2.20. to 3.2.2.90.

4) A roof-top enclosure for a stairway or an elevator lobby serving an *occupancy* on a roof that serves only one *dwelling unit* need not have a *fire-resistance rating* nor be constructed as a *fire separation*.

#### 3.2.4.18. Audibility of Alarm Systems

(See Note A-3.2.4.18.)

1) Audible signal devices forming part of a fire alarm system shall be installed in a *building* so that

- a) *alarm signals* are clearly audible throughout the *floor area* and throughout any *occupancy* on a roof, and
- b) *alert signals* are clearly audible in continuously staffed locations, and where there are no continuously staffed

locations, throughout the *floor area* and throughout any *occupancy* on a roof.  
(See Note A-3.2.4.18.(1).)

Note: no changes to the rest of this article

### 3.3.1.3. Means of Egress

(See Note A-3.3.1.3.)

- 1) *Access to exit* within *floor areas* shall conform to Subsections 3.3.2. to 3.3.5., in addition to the requirements of this Subsection.
- 2) If a podium, terrace, platform or contained open space is provided, egress requirements shall conform to the appropriate requirements of Sentence 3.3.1.5.(1) for rooms and *suites*.
- 3) *Means of egress* shall be provided from ~~every roof which is intended for occupancy, and~~ every podium, terrace, platform or contained open space, used or intended for occupancy, *to exits* in conformance with the requirements of Section 3.4.
- ~~34)~~ *Means of egress* from an *occupancy* on a roof serving only a single *dwelling unit* shall be provided in conformance with Article 3.3.4.4.
- 5) Except as permitted by Sentence (4) and except as required by Sentence (6), a *means of egress* at the roof level, designed in conformance with the requirements ~~regarding for exits stairs-stated~~ in Section 3.4., shall be provided from an *occupancy* on a roof.
- 6) At least two separate *means of egress* at the roof level, designed in conformance with the requirements ~~regarding for exits stairs stated~~ in Section 3.4., shall be provided from a roof, used or intended for an *occupant load* more than 60, ~~to stairs at the roof level~~.
- 7) For the purposes of Sentences (4) and (5), the occupied area of the *occupancy* on a roof shall be used in place of *floor area*.
- 8) A roof-top enclosure ~~that does not serve as part of a means of egress for an occupancy on a roof in accordance with Sentence (5) or (6)~~ shall be provided with an *access to exit* that leads to an *exit*
  - a) at the roof level, or
  - b) on the *storey* immediately below the roof.
- 9) A roof-top enclosure which is more than 200 m<sup>2</sup> in area shall be provided with at least 2 *means of egress*.

### 3.4.2. Number and Location of Exits from Floor Areas

#### 3.4.2.1. Minimum Number of Exits

- 5) *Exits* are not required directly from roof-top enclosures that ~~are provided with access to exits in conformance~~ comply with Sentences 3.3.1.3.(8) and (9) *or where they are served by means of egress* in conformance with Sentences 3.3.1.3.(4) to (5).

Note: no changes to the rest of this article

#### Changes to Notes:

Note A-3.3.1.3. The requirements for podiums and terraces in Sentence 3.3.1.3.(2) and (3) are intended for areas situated on a level that is not at the highest elevation in a building, and where the area can be accessed by a storey of the building. The requirements of Sentence 3.3.1.3.(4) to (9) are intended for roof-top areas, including “terraces” where the area is at the highest elevation of the building, and there is no access to a storey of the building at that level.

### Changes to Part 9

#### 9.9.7. Access to Exits

##### 9.9.7.1. Egress from Roof Area, Podiums, Terraces, Platforms and Contained Open Spaces

- 1) Except as required by Sentences (2) and (3), ~~A~~ an access to exit shall be provided from every roof intended for occupancy and from every podium, terrace, platform or contained open space.
- 2) Except as required by Sentence (3), means of egress at the roof level, designed in conformance with the requirements for exits shall be provided from an occupancy on a roof serving more than a single dwelling unit.
- 23) Where a roof is intended for an occupant load of more than 60 persons, at least 2 separate means of egress at the roof level, ~~shall be provided from the roof to stairs~~ designed in conformance with the requirements for exits ~~stairs~~ and located remote from each other, shall be provided.
- 34) Where a podium, terrace, platform or contained open space is provided, egress requirements shall conform to the appropriate requirements for rooms or suites in Article 9.9.7.4.

#### 9.10.4.4. Roof-Top Enclosures

- 1) A roof-top enclosure shall not be considered as a storey in calculating the building height if it is provided for
  - a) elevator machinery,
  - b) a service room,
  - c) a stairway used for no purpose other than for access or egress,
  - d) an elevator lobby used for no purpose other than for access or egress, or
  - e) a combination thereof.