

BOABC – 2024 BCBC Lunch and Learn Single Egress Stairs – Part 02

Oct 17, 2024

Hosted by: Ken Kunka, AScT BCQ



Information presented today does not directly represent the opinions of the Building Officials Association of BC.

This presentation is conceptual and for informal educational purposes only. The presenters and association takes no responsibility for application of any concepts or interpretations in this presentation to specific projects.

I have some questions to ask on this topic.

The slides must not be considered complete or exhaustive. Code provisions have been generally represented and may not reflect all exceptions.



Rules of the Room



- Registration will be tracked
- Presentation is not recorded but PowerPoint will be posted
- Please use raise hand icon if you have a question or comment
- PUT IT in the CHAT
- Please mute your microphone
- You may need to turn off your camera
- Please follow up by email if you have specific question or example to share with the membership.
 - kkunka@boabc.org



Sept – Single Egress Stairs 01

Recap – Sept 19

- SES Background Canada last ones to the party
- Research Report Jensen Hughes
- Risk Assessment NFPA 550.
- Technical and Economic Feasibility
- Post Occupancy Concerns Maintenance



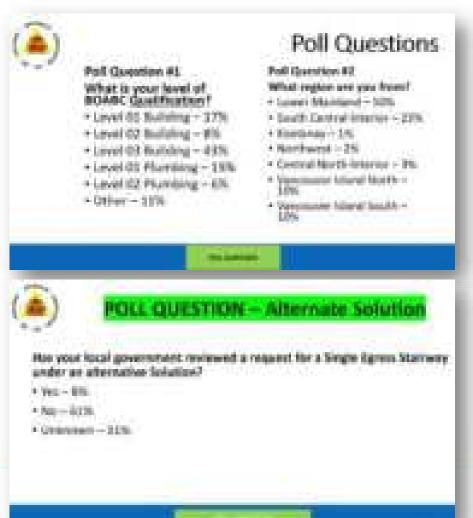
Lunch and Learns

CPD Eligibility: 1
point/presentation (Category
A4). You will need to self
report this point. Initial next to
the presentation and then save
it as a pdf to upload as proof.
Previous Lunch and Learns can
be found:

https://boabc.org/lunch-learnwebinars/



September 19th – Poll Question Results





POLL QUESTION - Presentations

What would you like to see for future Lunch and Learn sessions (Ken K)?

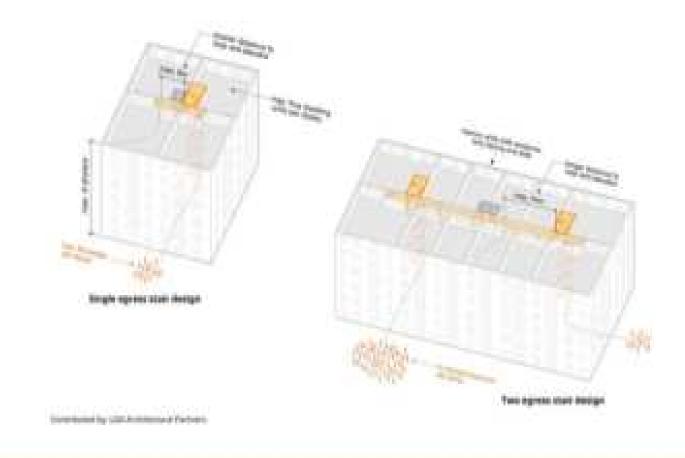
- More general information on code updates, industry and local gov trends 16%.
- Less general information and more technical on code specific items 15%.
- Good balance right now general and technical 37%
- More review of member (forum) questions 5%.
- More visuals to explain code 22%.
- More time to have member discussions during session 3%.
- Sessions related to non-code challenges facing building departments (technology, inter-department referrals, bylaws, policy) – 3%



Oct 17 — Single Egress Stairs Part 2

Today's Session

- What's New Update and Training
- Appeals and Technical Bulletins
- Single Egress Stairways
 - Background Recap
 - 3.2.10
 - Case Study example
- Next session survey





Poll Question #1 What is your level of BOABC Qualification?

- Level 01 Building = 17%
- Level 02 Building = 7%
- Level 03 Building = 41%
- Level 01 Plumbing = 25%
- Level 02 Plumbing = 4%
- Other = 6%

Poll Questions

Poll Question #2 What region are you from?

- Lower Mainland = 48%
- South Central Interior = 22%
- Kootenay = 3%
- Northwest = 0%
- Central North Interior = 3%
- Vancouver Island North = 16%
- Vancouver Island South = 7%



2024 Education Summit



WELCOME to the EDUCATION SUMMIT 2024!

Canadian Home Bulleton, Association of BC (BOADC) are pleased to present the Bulleting Officials' Association of BC (BOADC) are pleased to present the Znd writist Education Summit for Builders and building officials to BC.

- Wilself October 23 24, 2024
- Where! Sheraton Richmond Airport Hotel, Richmond, BC

This Summit is your chance to learn about building code advancements, earn centinuing professional development points, and connect with experts in the substray!



2024 BC Code Appeals - Interpretations

BC Code Appeals – binding

Interpretations – not binding

			Searth	
Contra Califfrance (s	Meantain Nation	7.00	9 Date Assessed	1
ntry and	28-3947	Adaption Water Cloud Comedwards	36/04/3024	Down
NEW 2004	24 (0048	Sorotiers on bus Fixer Residential Balconies	34/09/2024	Demolicad
HEAV SIDDH	24-0045	Installat Missoul Stocky/Fe/Cover	15/08/2024	Downland
NEW 2024	24:0043	Winting Requirements for Poor District NPS 2 and Larger	19/96/2024	Elowenia
HEYY 7334	20-0042	Corrects on a Dress Viscous	34/09/3024	Trovelled
NEW 2004	34-0000	Sourcetion of Subra in a House basing a Suite withour a Kitchen	15/06/2014	Downlad
NEW 2024	24-003)	Fire Dempers in Houses with Sesandary Suites	34/09/2024	Down
HEDE WITH	24 0035	Sensors Air Inter. oc a Renum Air John in Dwelling Street	10/06/2024	Downing
1034	24-0434	Takony Acores in Adaptable Saltes.	31/05/2024	Free
MOV 2004	24-0833	Scattial interconsistion with LD < \$ 260	13/08/2024	Downland



Interpretation 24-0037- Secondary Suites

Question: Can fire dampers be omitted in ducts penetrating the fire separations in a house with a secondary suite?

Yes (with conditions).

Sentence 9.32.3.2.(5) requires that ducts penetrating fire separations shall be equipped with fire dampers in conformance with Article 3.1.8.10. except as provided in Sentence 9.10.9.6.(14),

9.10.9.6.(14) was in the 2018 BCBC but was relocated to 9.10.9.9.(6) in the 2024 BCBC. Sentence 9.32.3.2.(5) should have referenced 9.10.9.9.(6) as the exception rather than Sentence 9.10.9.6.(14).

As per Sentence 9.10.9.9.(6), "in a house with a secondary suite including their common spaces, ducts penetrating fire separations need not be equipped with fire dampers in conformance with Article 3.1.8.10. provided they are noncombustible with all openings in the duct system serving only one fire compartment".

Building and Safety Standards Branch has been informed of this error and the revision is forthcoming.





BOABC Forum – Member Question

What is considered a hazard?

There is no definition in the Code for the term hazard although the word is used over 280 times.

'Unsafe condition' is defined - means any condition that could cause undue hazard to the life, limb or health of any person authorized or expected to be on or about the premises.

Example

1.1.1.1. Application of this Codeh) the correction of an unsafe condition in or

about any building, (existing buildings)

Recent BC Code Appeal

BCAB #1928

Last updated on May 9, 2024

Re: Applicability of the Building Code to an Accessory Building.

Applicable Code requirements (BCBC 2018) Sentence 1.1.1.1.(2), Division A, Application of this Code

- 1) This Code does not apply to the following:
- e) accessory buildings less than 10 m2 in building area that do not create a hazard. (Most Bldg. Bylaws seem to leave this out.)

<u>Link - BCAB #1928 - Province of British Columbia (gov.bc.ca)</u>



BC Code Appeal

Decision being appealed (Local Authority's position)

The Code does not define 'hazard', thus determining what constitutes a hazard falls to the Local Authority. It is determined that an accessory sauna building constitutes a hazard so the exemption for small accessory buildings does not apply.

The hazard is created because:

- the building is intended to be occupied by persons for indeterminate amounts of time,
- the building contains a heat source capable of heating the room to 70 90 Co, creating the risk of overheating and fire. When the Code applies:
- the building is located in an area of high snow loads and framing must be designed to Part 4,
- some of the building is located on top of a terraced rock stack retaining wall and requires Registered Professional review.

Appellant's position

Absent a Code definition, it is unclear what 'hazard' means. The installation is typical of small accessory buildings located in the region.

Those buildings contain various uses (office, storage, greenhouse, sauna, etc.). The Appellant asserts that Code compliance was not required by the Local Authority.



BC Code Appeal

Appeal Board Decision #1928

The **Board reverses** the decision of the local authority.

It is the determination of the Board that the Code <u>does not</u> apply to this accessory building.

Reason for decision

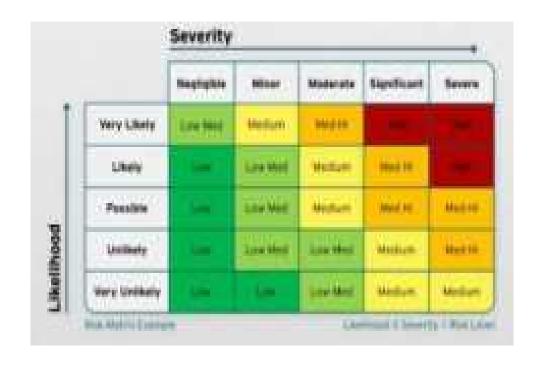
The building area of this accessory building falls within the 10 m2 exemption for accessory buildings that do not create a hazard. The analysis of what constitutes the creation of a hazard must be done on a case-by-case basis.



Risk Assessment

Does your department have a risk matrix to determine the potential severity of hazards?

- Likelihood
- Use
- Location
- Occupied



Could also rank enforcement priorities.



Risk Assessment - A.I. Response (from ICC)

An accessory building can be considered a hazard under several conditions, often related to safety, structural integrity, and compliance with local building codes. Here are some common scenarios:

Fire Hazard: If the building lacks proper fire safety measures such as fire-resistant materials, smoke detectors, or fire extinguishers, it can pose a significant risk.

Structural Issues: Poor construction, lack of maintenance, or damage from natural disasters can compromise the structural integrity of the building, making it unsafe.

Electrical Hazards: Faulty wiring or inadequate electrical systems can lead to electrical fires or shocks.

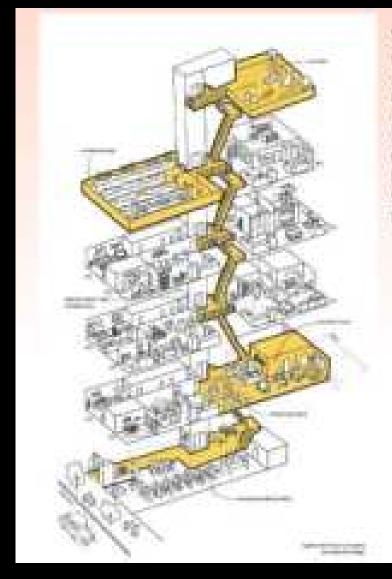
Zoning Violations: If the accessory building is used for purposes not permitted by local zoning laws, it can be considered a hazard. For example, using a shed as a living space without proper permits.

Flood Risk: Buildings located in flood-prone areas without proper flood-proofing measures can be hazardous.

Hazardous Materials: Storing flammable, toxic, or otherwise dangerous materials improperly can turn an accessory building into a hazard.

Single Egress Stairs

Single Stairs



"This sketch really tells the story of the building, a lot of cohousing is quite suborban, and stretched out across a lot of acreage, but here we have a tiny site, and trying to make the most of it, so what is arranged horizontally we're stretching vertically to socially connect the building."

This design is not permitted in the 2024 BCBC – 3.2.10.

Background

Over the last decade there has been increased debate on the pros and cons of Single Egress (SE) stairways. With the Province adopting the British Columbia Building and Fire Codes (BC Codes 2024) – it initiated harmonization with the NBC to provide people with a greater level of building safety and accessibility but also to make new buildings more cost-effective and efficient.

The research into SE stairways was part of the Province's Homes for People action plan. Announced in spring 2023, the plan builds on historic action to deliver housing since 2017 and sets out further actions to deliver the homes people need faster, while creating more vibrant communities throughout B.C.

"We're leaving no stone unturned in our work to deliver more homes faster for people," said Ravi Kahlon, Minister of Housing. "This work will focus on developing an understanding of if and how this innovation can be incorporated into building and fire codes in a way that maintains and enhances safety, supports access and egress, while providing more homes for people in B.C."



New action plan delivers more homes for people, faster | BC Gov News



Province seeks input on single egress stairway designs | BC Gov News

Above what height does an apartment require 2 staircases?



Background

The journey back single egress exits.

Recommend to go
through this report
with your
Development
Services Team and
Fire Department!





New Code - Technical Solutions

Technical Solutions for Single Exit Stair Building Designs
British Columbia Building Code 2024 Revision 3 – CONVENIENCE COPY and Discussion

N/3 Group F, Divisions 2 and 3, medium- and low-hazard industrial accupancies.

2) Faits 1, 4, 5 and 6 of Dissymi R apply to hardway designed and constructed at accommune with Editorium 1,116 of Distroy 1. Code changes

1.3.3.3. Application of Part 9

1) Except as provided in Semicrop (2). Part 9 of Division B applies to all buildings described in Article 1.1.1.1. of 3 storiets or less in building height, having a building area not exceeding 600 m², and used for major occupancies classified as:

- a) reserved
- B) Group C, residential occupancies (see Note A-9.1.1.1.(1) of Division B),
- c) Group D, business and personal services occupancies,
- it) Group E. mercantile accupancies, or
- e) Group F, Divisions 2 and 3, medium- and low-hazard industrial occupancies.

2) Fart 9 of Diesaun B store not apply to buildings designed and constructed in econtame with Subsection 2.2.10, of Diesaun B.

Division A directs which building uses and archetypes follow which acceptable solutions as well as which acceptable solutions are not appropriate. Subsection 3.2.20, of Division 8 establishes the scope and application for single exit stair residential buildings. It is not appropriate for those buildings to follow Part 9 of Division 8.

NOT for Part 9

Technical Scientists for Double State State States Progress States Companies Building Code SDD4 Sections 5 - 1 (1997) (CDD2 CDD7 commissions)

See badering assistant for British Tylendon, Byzamig Code (Mel Mulating Sode) Research Advantage for the Berling Sode (Research Advantage) and the Sode (Research Advantage) Research (Research Advantage) Research (Research Advantage) (Research Research Advantage) (Research Research Research

timple and done required to place any for more than 1,000 another to place and conset our executed. Simple and done responsing backeting one involved in hospit, prop. Second distance and specialists placed, and include a proper softing involvem do the first refuse of dispression of specialisms and management were right and a large fixed of local free desponsions approach and representation of the contraction of the contracti

A converse to a company to be contractible to the basis operator that any most offers as to beaut offerbase.

Western	Medication	The same and cover obvious after boom congress,
Clarke)	hististen	The purpose of the convention of the factors
		The building look reasons the proceedings of 3 feet feature for
	Engineering	The process today out the state of the services.
		restrict you between the side of Laboratories is used with
	A standard or the standard or	VALUE OF THE OWNER OF THE SAME OF THE PROJECTION.
	Controls	Majority of regarders, and perfection of people completes
	13400	POSECULAR DESCRIPTIONS AND CONTROL
= 337	Personal	principle; with personal probability of property of property and personal probability of the personal probability of the personal probability of the personal persona
(Marks	Squitteness	instancial principles transport or the producted unit: per most principles requirement what parties are gifted takes

We harbition conduction in the discount can parameter consumption on a superior of a superior of a superior of a superior of the superior of t

The first plants of the first flow of the first of the first part but the server of all the flowing their server but the state of the flowing their server of the state of the first participation of the first pa

bcbc revision 3 single exit stair convenien ce copy 2024-08-28.pdf (gov.bc.ca)

New Code - Technical Solutions

Single exit stair residential buildings are far more than just a residential building with an exit stair removed. Single exit stair residential buildings are limited in height, area, travel distance and occupancy load, and include compensatory measures as well as rely on a high-level of operations and management oversight and a high-level of local fire department capability and capacity to achieve an acceptable level of risk comparable to other new buildings.

A commonly accepted risk control hierarchy lists controls that are most effective to least effective.

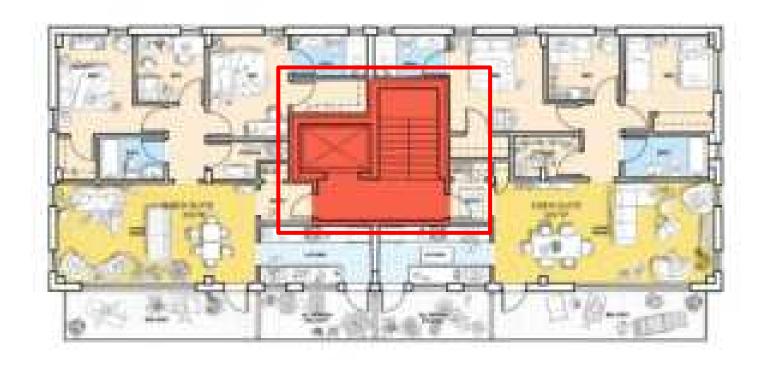
Most Elimination The <u>Building Code</u> cannot eliminate a fire hazard completely. # Placetive: The Building Code cannot substitute a fire hazard completely. The <u>dutition</u> Code reduces the probability of a fire hazard by applying engineering controls. A second and separate exit. stair provides redundancy should one exit stair be obstructed. Fire department personnel can also rely on a second and separate exit stair for intervention in a fire event. The British Culumbia Fire Code assigns administrative controls to the owner of the building for the inspection. frequency of inspection, and correction of unsafe conditions. The ring Services Act and pursuant regulations governinspections and other administrative controls. It is not reasonable that all occupants of a building be protected with personal protective equipment, although it is. reasonable to expect firefighters to be protected with personal protective equipment when performing their tasks.

As discussed in the Notes shown in this document, single exit stair residential buildings should not be located in a jurisdiction where a high level of fire prevention activities cannot be maintained, or where a high level of response and fire suppression activities by firefighting personnel cannot be maintained. In jurisdictions where there is risk to availability of a water supply for firefighting at any point during the life of the building, a secondary or back up water supply will be necessary.

bcbc revision 3 single exit stair convenien ce copy 2024-08-28.pdf (gov.bc.ca)

New Code Plan Review

No lot consolidation No Zoning changes or Variances







Drawing provided by Isaac Neufeld (Architect) - Vancouver Building Bylaw - pre BCBC code change

Mid Density – Case Study

Thinking like a Developer

Return on Investment by Developer

- 10-12 Unit project viability
 RMD Zone (Summerland)
- Lot 01 = 1,052.1 sqm
- 30m x 37.5m
- Dec 21, 2022 \$600,000





Mid Density – Case Study

Local Government Requirements and Limitations

- Existing Infrastructure
 - Required Improvements
- Fire Department Access Response time
- Water Supply Fire Flows
- Zoning Parking
 - 1 space/unit
 - 1 visitor for every 10 units
- Bicycle storage?
- Garbage and Recycling
- Amenity Space-Landscaping
- Road widening
- Development Cost Charges
- Adaptably requirements
- Additional Step and Zero Carbon Code
- Tree Canopy bylaws
- Other?
- What can the units be sold or rented for?
 - Local Rental and or sales market
- Likely 10-12 units for profit

Parking space 2.6m and a minimum clear length of 5.5m



Mid Density -Types of Projects

RMD Zone

- (a) Apartment Housing
- (b) Cluster Housing
- (c) Duplex Housing;
- (d) Multi-Unit Housing;
- (e) Townhouse Housing

10.4.4 Subdivision Regulations

- (a) Minimum Lot Area 1,100m2
- (b) (b) Minimum Lot Width 30.0m
- (c) (c) Minimum Lot Depth 30.0m

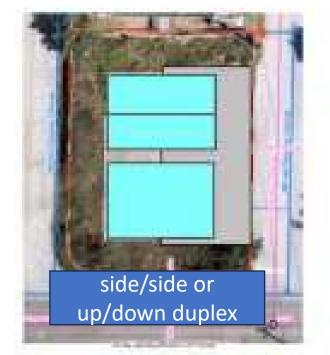
10.4.5 Development Regulations

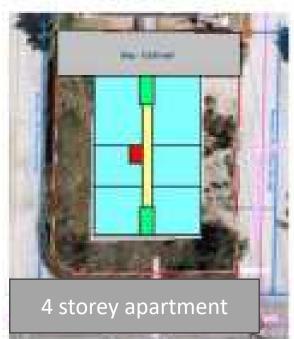
- (a) Maximum Lot Coverage 40 percent
- (b) Maximum Floor Area Ratio 1.6

10.4.7 Siting Regulations

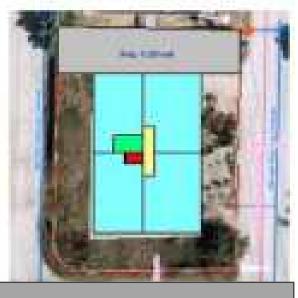
- (a) Principal Buildings and Structures
- (i) Minimum Front Setback 6.0m
- (ii) Minimum Rear Setback 7.5m
- (iii) Minimum Side Setback (Interior) 4.0m
- (iv) Minimum Side Setback (Exterior) 6.0m
- (v) Maximum Height The lesser of 15 m or 4 Storeys

Architects
Regulation
5 or more
dwelling units









4 storey apartment (SES)

Mid-density Case Study







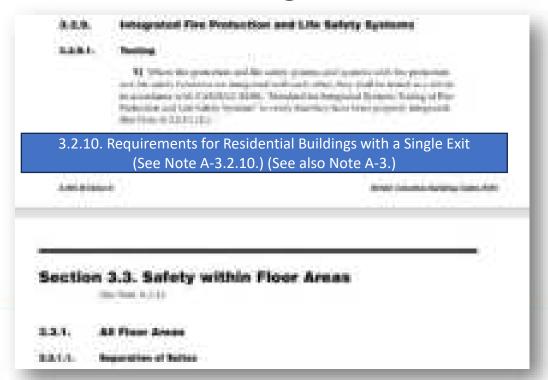
Drawing provided by Ken Kunka – preliminary plan review for 4 storey – Single Egress Stair



SES – Code Requirements

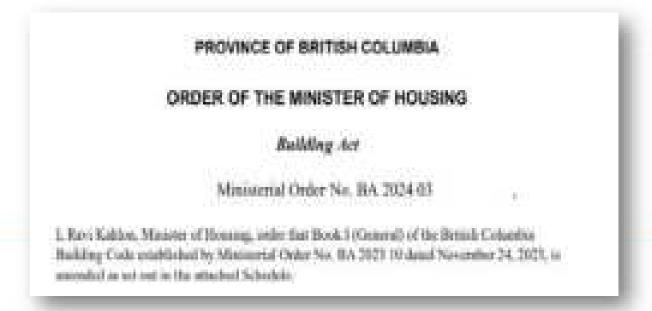
Note changes to all Divisions

Division 1 – Changes to Division A
Division 2 – Changes to Division B
Division 3 – Changes to Division C





2024 bcbc mo ba 2024 03.pdf (gov.bc.ca)





Changes to Division A

Division 1 - Changes to Division A

- 2 The following Sentence is added to Article 1.3.3.2.:
 - Parts 3, 4, 5 and 6 of Division B apply to buildings designed and constructed in accordance with Subsection 3.2.10. of Division B.
- 3 Article 1.3.3.3, is repealed and the following substituted:
 - Except as provided in Sentence (2), Part 9 of Division B applies to all buildings described in Article 1.1.1.1 of 3 storeys or less in building height, having a building area not exceeding 600 m², and used for major occupancies classified as
 - a) reserved
 - b) Group C, residential occupancies (see Note A-9.1.1.1.(1) of Division B),
 - c) Group D. business and personal services occupancies,
 - d) Group E, mercantile occupancies, or
 - e) Group F, Divisions 2 and 3, medium- and low-hazard industrial occupancies.
 - Part 9 of Division B does not apply to buildings designed and constructed in accordance with Subsection 3.2.10, of Division B.



Changes to Division B

Division 2 - Changes to Division B

4 The following Sentence is added to Article 3.2.4.1.:

3.2.4.1. Determination of Requirement for a Fire Alarm System

- A fire alarm system shall be installed in buildings designed and constructed in accordance with Subsection 3.2.10. (See Note A-3.2.10.2.(1) and (2).)
- 5 Sentence 3.2.5.7.(2) is repealed and the following substituted:

3.2.5.7. Water Supply

- 2) Except for buildings constructed of encapsulated mass timber construction in conformance with Article 3.2.2.48., 3.22.57. or 3.2.2.93., and except for buildings designed and constructed in accordance with Subsection 3.2.10., buildings that are sprinklered throughout with a sprinkler system conforming to Article 3.2.5.12. or have a standpipe system conforming to Article 3.2.5.8. to 3.2.5.10. are deemed to comply with Sentence (1).
 - 1) Every building shall be provided with an adequate water supply for firefighting. (See Note A-3.2.5.7.(1).)

3.2.5.8. Standpipe Systems 3.2.5.9. Standpipe Design 3.2.5.10. Hose Connections



Changes to Division B New – 3.2.10.

The following Subsection is added:

3.2.10. Requirements for Residential Buildings with a Single Exit

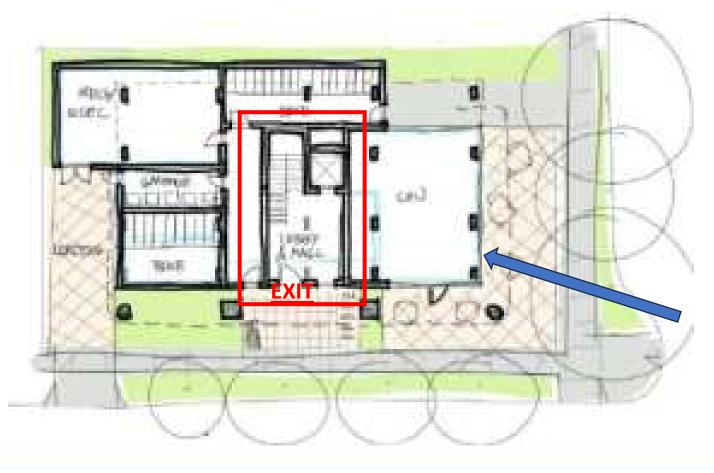
(See Note A-3.2.10.) (See also Note A-3.)

3.2.10.1. Application

- Except as provided in Sentences (2) to (4), this Subsection applies to buildings of only residential occupancy that
 - a) are not more than six storeys in building height,
 - b) have a height not more than 18 m measured between the floor of the first storey and the uppermost floor level, excluding any floor level within a rooftop enclosure that is not considered as a storey in calculating building height in accordance with Sentence 3.2.1.1.(1).
 - c) contain not more than four dwelling units on each floor,
 - d) does not exceed an occupant load of 24 persons per floor, and
 - e) have a travel distance from
 - i) any part of the floor area to an exit not more than 25 m, and
 - ii) each dwelling unit to an exit of not more than 6 m.



3.2.10. — Other Occupancies



Pre-code example 7 storeys w/ roof top occupancy?

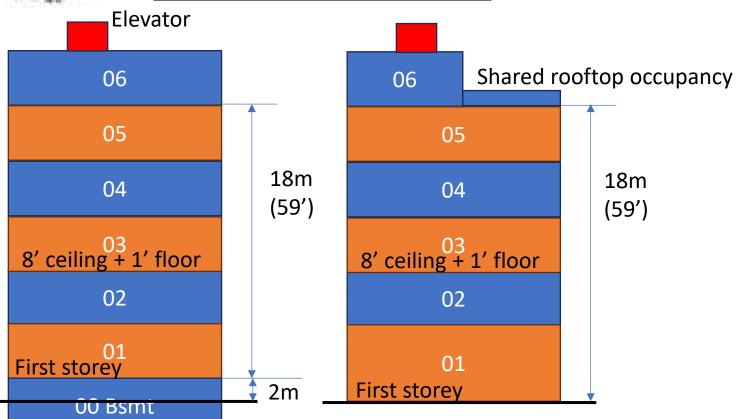
First Storey - Other Occupancies

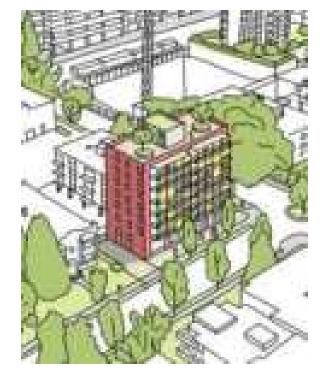
- Storage/Bikes
- Mech/Electrical
- Sprinkler
- Entrance lobby
- Garbage/Recycle
- CRUs Currently not allowed in BC Code but Ok in some other SES jurisdictions with conditions, like Seattle.
- Exiting not correct to review later in presentation.



Excluding roof top enclosures 3.2.1.1.(1) Exceptions in Determining Building Height

Changes to Division B New – 3.2.10.(1)





a) are not more than six storeys in building height,

b) have a height not more than 18 m measured between the floor of the first storey and the uppermost floor level, excluding any floor level within a rooftop enclosure that is not considered as a storey in calculating building height in accordance with Sentence 3.2.1.1.(1).

Pre-code example
7 storeys w/ roof top
occupancy – 8th storey.



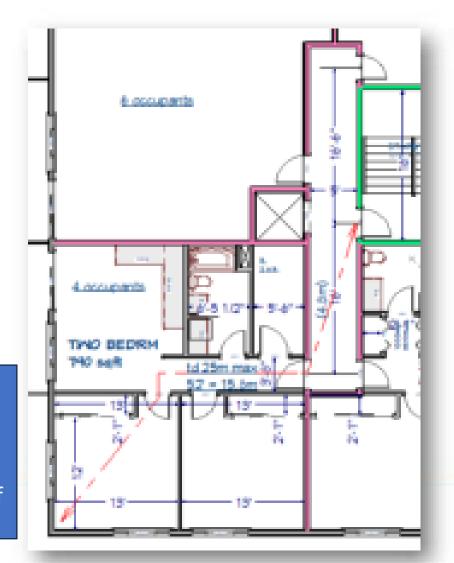
Changes to Division B New – 3.2.10.(1)



c) Only allowed 4 units max per floor

d) does not exceed an occupant load of 24 persons per floor, and

- e) have a travel distance from i) any part of the floor area to an exit not more than 25 m (82'), and
- ii) each dwelling unit to an exit of not more than 6 (19.7') m.





Changes to Division B 3.2.10.1.

2) This Subsection does not apply to *floor areas* permitted by Article 3.4.2.1. to be served by one exit.

3.2.4.1. Minimum Number of Exits

- 3) This Subsection does not apply to detached houses, semi-detached houses, houses with a secondary suite, duplexes, triplexes, townhouses or row houses.
- 4) Residential buildings with a single exit are not permitted for
 - a) hotels, motels, dormitories or lodging houses,
 - b) residential clubs, colleges or schools,
 - c) monasteries,
 - d) seniors' residences, or
- e) care facilities accepted for residential use pursuant to provincial legislation.
 (See Note A-3.2.10.1.(4).)

5) This Subsection, in accordance with the application of this Article and in conformance with the provisions of this Subsection and all other applicable provisions of this Code, may be used as an alternate to the requirements for a second exit in Subsection 3.4.2. Number and Location of Exits

from Floor Areas

3.2.10. is only an alternative for the second exit requirement in subsection 3.4.2.

Subsection 3.2.10. does not relax or waive any other requirements.

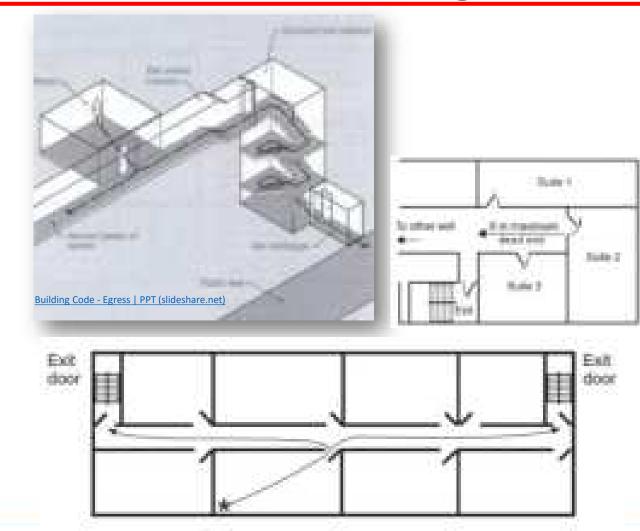
Higher risks of maintenance issues and exit coordination



PART 9 – Egress from Dwelling Units

3.4.2.1. Minimum number of Exits

- 1) Except as permitted by Sentences (2) to (4), every floor area intended for occupancy shall be served by at least 2 exits.
- 2) A floor area in a building not more than 2 storeys in building height, is permitted to be served by one exit provided the total occupant load served by the exit is not more than 60, and
 - a) in a floor area that is not sprinklered throughout, the floor area and the travel distance are not more than the values in Table 3.4.2.1.-A, or
 - b) in a floor area that is sprinklered throughout
 - i) the travel distance is not more than 25 m, and
 - ii) the floor area is not more than the value in Table 3.4.2.1.-B. (150 sqm Group C)
- 3) Except as permitted by Sentence (4), if Sentence (2) permits a single exit from a floor area classified as Group B or Group C occupancy, the exit shall be an exterior doorway not more than 1.5 m above adjacent ground level.
- 4) The requirements of Sentences (1) and (2) are permitted to be waived for dwelling units that have an access to exit conforming to Sentences 3.3.4.4.(1) to (4) Egress from Dwelling Units



Typical Exit requirements – two exits



3.2.10.2. Building Construction

- 1) Notwithstanding the permissions in Sentences 3.2.5.12.(2) to (4), a building to which this Subsection applies shall be sprinklered throughout with an automatic sprinkler system designed, constructed, installed and tested in conformance with NFPA 13, "Standard for the Installation of Sprinkler Systems." (See Note A-3.2.10.2.(1) and (2).) (See Sentence 3.2.4.1.(7).)
- All balconies and decks shall be sprinklered in accordance with Sentence (1). (See Note A-3.2.10.2.(1) and (2).)

The requirement for automatic fire sprinklers in accordance with NFPA 13 triggers the requirement for a fire alarm system. A fire alarm system is required and Sentence 3.2.4.1.(7) is added for clarity. This Note also alerts the designer of the requirement.

 A fire alarm system shall be installed in buildings designed and constructed in accordance with Subsection 3.2.10. (See Note A-3.2.10.2.(1) and (2).)



This requirement is needing clarification.

Division B - 3.2.10.2.

Concrete or concrete masonry units (CMU) – no rating?

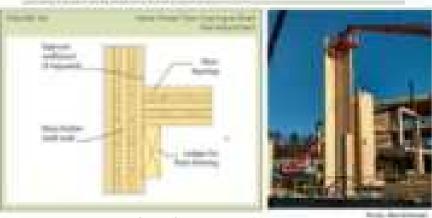
- 3) The exit facility shall be constructed either of noncombustible construction or, potwithstanding the application of Article 3.1.13.7., with finishes that do not exceed the maximum flame-spread rating and maximum smoke developed classification for exit stairways in Table 3.1.13.7., and shall
 3.1.13.7. High Buildings
 - a) be separated from all other spaces in the building by a fire separation having a fireresistance rating not less than 2 h.
 - b) be not less than 1 500 mm wide,
 - c) discharge directly to the exterior of the building without passing through a lobby,
 - d) be designed to limit the probability of storage or the accumulation of material, and
 - e) have signs posted in conspicuous locations near each landing to indicate that storage is

not permitted.

(See Note A-3.2.10.1.(3).)

CAREFUL WITH CONTINUITY OF FIRE SEP! Note sound ratings 50STC & 55STC (elevators)

Floor to Shaft Wall Detailing



CLT Mass Timber?



Conventional framing

SHAFTS AND ELEV - https://www.youtube.com/watch?v=3TfMfbR53bE



3.1.13.7. High Buildings

4) Except as permitted by Sentences (2) to (4), the interior wall, criling and floor finishes in a building regulated by the provisions of Subsection 3.2.6. shall conform to the flame-spond rating requirements in Articles 3.1,13.2. and 3.3.13.11. and to the flame-spond rating and smoke developed classification values in Table 3.1.13.7.

Table 3.1.13.7.

Flame-Spread Rating and Smoke Developed Classification in High Buildings
Forming Part of Sentance 3.1.13.7(1)

	Maximum Flame-Spread Rating			Maximum Smoke Developed Classification		
Location or Element	Walf Surface	Calling Surface (1)	Floor Surface	West Surface	Calling Surface (1)	Floor
Exit stairways, ventitivies to exit stairs and lottres steacribed in Sentence 3.4.4.2.(2)	25	26	26	50	50	50
Cooldon not within polites	40	(8)	300	100	-60	500
Elevator cars	75	76	300	450	450	450
Elevator vestibules	25	26	300	100	100	300
Service spaces and service rooms	25	25	26	- 60	50	50
Other locations and elements	(8)	(0)	No Limit	300	-50	No Umit

Notes to Table 3.1.13.7:

- (1) See Article 3.1.13.4. for lighting elements.
- (2) Other requirements of this Part apply.



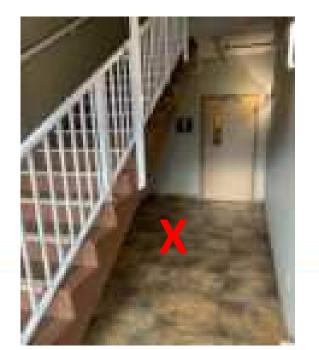
c) discharge directly to the exterior of the building without passing through a lobby,

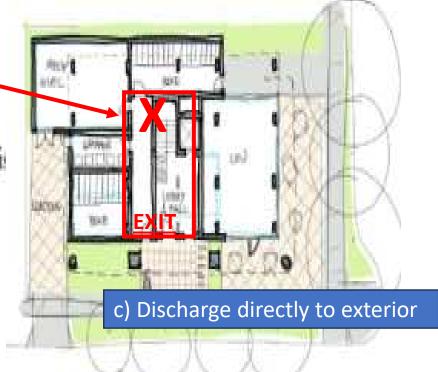
d) be designed to limit the probability of storage or the accumulation of material, and

e) have signs posted in conspicuous locations near each landing to indicate that storage is

e) Post Occupancy Maintenance issue!

(See Note A-3.2.10.1.(3).)





d) Avoid designing voids

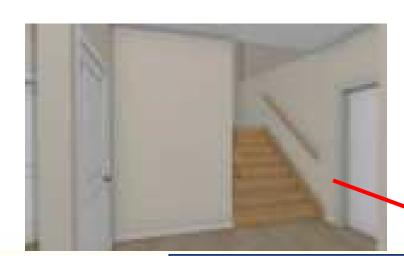


- c) discharge directly to the exterior of the building without passing through a lobby,
- d) be designed to limit the probability of storage or the accumulation of material, and
- e) have signs posted in conspicuous locations near each landing to indicate that storage is

not permitted.

e) Post Occupancy Maintenance issue!

(See Note A-3.2.10.1.(3).)



d) Avoid designing voids





c) Discharge directly to exterior





4) The discharge from the exit stair described in Clause (3)(c) shall be located not less than 3 m and not more than 15 m from the closest portion of the access route required for fire department use, measured horizontally from the face of the building. (See Note A-3.2.10.2.(4).)

A-3.2.10.2.(4) Exit Facility Discharge. Fire department access to buildings to which Subsection 3.2.10, applies must be provided to the principal entrance as well as to the access point most directly connected to the exit facility. As such, the exit facility discharge must be located to coordinate with the fire department access roote described in Subsection 3.2.5.

Designers should consider locating the exit facility discharge in close proximity to the principal entrance for the benefit of coordinating multiple access points with the fire department access route but also to avoid unintended use of the exit facility for package delivery or other material drop-off. There should be clear distinction between the principal building entrance (likely connecting to a lobby and elevator) and the exit facility discharge so that activities such as deliveries can be intuitively completed in the safe and intended manner. Locating the exit facility discharge in close proximity to the principal building entrance also reduces the potential that an access point is located in an isolated location of the building which could increase building and acceptant security concerns.





3.2.10.3. Limits to Smoke Movement

3.2.6. Additional Requirements for High Buildings

- Except as permitted by Sentence (3) and notwithstanding the scope of Subsection 3.2.6., a huilding to which this Subsection applies that is greater than four storeys in huilding height shall be designed in accordance with Article 3.2.6.2.
- 2) Fans required to limit smoke movement by Sentence (1) shall be provided with an emergency power supply capable of operating under full load for not less than 2 h provided by an emergency generator. (See also Article 3.2.7.9.)

3.2.6.2 Limits to Smoke Movement

1) A building to which this Subsection applies shall be designed in accordance with Sentences (2) to (6) and Article 3.2.6.3. to limit the danger to occupants and firefighters from exposure to smoke in a building fire.

3.2.6.3. Connected Buildings

3.2.7.9 Emergency Power for Building Services

- 1) An emergency power supply capable of operating under a full load for not less than 2 h shall be provided by an emergency generator for
- c) fans and other electrical equipment that are installed to maintain the air quality specified in **Articles 3.2.6.2**. and **3.3.3.6**.,
- d) fans required for venting by Article 3.2.6.6., and
- e) fans required by Clause 3.2.8.4.(1)(c) and Article
- **3.2.8.7.** in buildings within the scope of Subsection
- 3.2.6. (Additional Requirements for High Buildings)

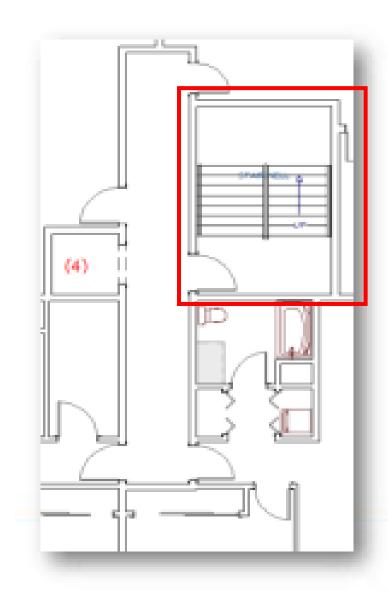
3.2.6.2. Limits of Smoke Movement

- 3.3.3.6. Areas of Refuge
- 3.2.6.6. Venting to Aid Firefighting
- **3.2.8.4.** Vestibules
- 3.2.8.7. Mechanical Exhaust Systems



Division B -3.2.10.3.??

- 3) Pressurization of the stair shaft described in Sentence (1) is not required if each doorway from the public corridor serving the exit facility is protected with a vestibule on the public corridor side of the doorway.
 - a) consisting of a closure in the public corridor
 - i) equipped with electromagnetic hold-open devices that release upon activation of the fire alarm system, and
 - ii) that has a fire-protection rating not less than a 45 min, and
 - b) that forms a space that is separated from the remainder of the building by a fire separation with a fire-resistance rating not less than 45 min
 - i) that contains no suite entry doors, and
 - with the distance from doorway to the exit facility and the closure not less than 1 800 mm long and a width of the puth between doorways not less than 1 500 mm.
- Elevator hoistways shall not be designed as a means of venting.
- The systems for control of smoke movement required by Sentence (1) shall be tested to ensure satisfactory operation. (See Sentence 3.2.6.9.(1) and Note A-3.2.6.9.(1).)



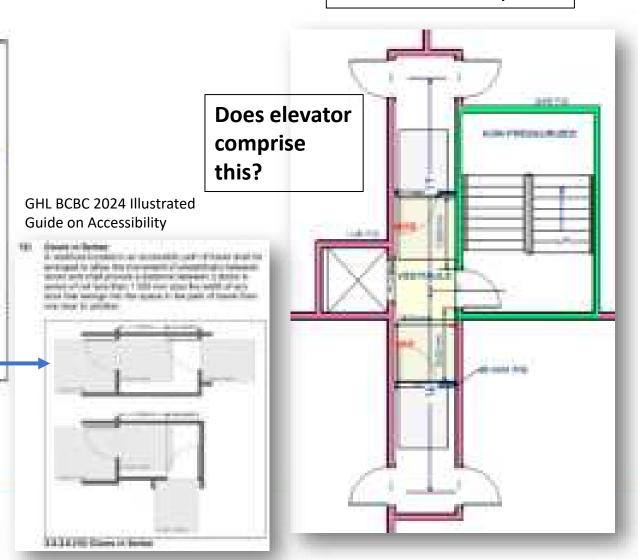


Division B -3.2.10.3.(3)??

If over four storeys

Specific smoke control performance requirements in Article 3.2.6.2, are applied to five and six storey single exit stair residential buildings. Fans will not always be required, but when they are, there are existing requirements for emergency power. Smoke vestibules are offered as an alternative to pressurization. An example of a smoke vestibule would be a portion of the public comidor adjacent the decrivory to the exit facility becomes portioned off upon release of closures should the fire alarm system be activated. This smoke vestibule acts as a sacrificial buffer should smoke compromise the remainder of the public corridor or the exit facility itself.

The minimum dimensions of the smoke vestibule align with the established minimum distance between doors in series and the minimum width for an accessible path of travel to facilitate turning and passing and the operation of doors.



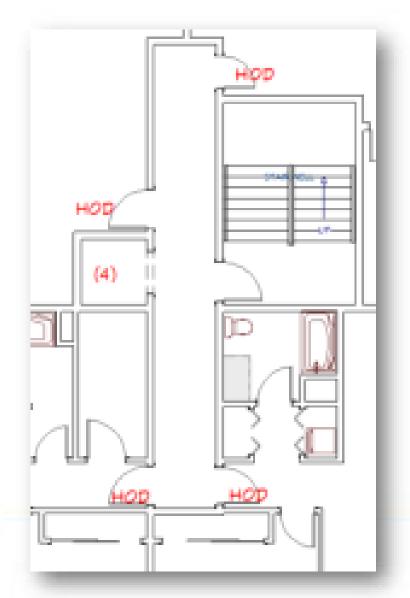


3.2.10.4. Doors in Public Corridors and Suite Entry Doors

- All doors along public corridors and all suite entry doors shall be equipped with electromagnetic hold-open devices designed to release upon activation of the fire alarm system in accordance with Article 3.1.8.14.
- 2) Hold-open devices on *suite* entry doors shall not require a force applied to the door or release device of more than 22 N to allow the occupant to manually release the door from the hold-open position to allow it to close.

 How do you measure 22 N?
- 3) State entry doors shall have a fire-protection rating of not less than 45 min. (See Note A-3.2.10.4.(3)). A-3.2.10.4.(3) State Entry Doors. September 3.2.10.4.(3) and construction that

A-3.2.10.4.(3) Suite Entry Doors. Sentence 3.2.10.4.(3) supersades the permission in Article 3.1.8.12, to reduce the fire-protection rating of closures. Suite entry doors with less than a 45 min fire-protection rating are not permitted in buildings to which Subsection 3.2.10, applies, nor would these doors be permitted any undercuts such as described in Article 9.32.3.10.



Jensen Hughes Report

Member Question - Hold Opens for Rated Suite Doors with closers?

Single Egress Stair Building Designs: Policy and Technical Options Report, British Columbia

482401790

6.2.2.4 Require Magnetic Hold-Open Devices for Suite Doors

Based on the studies referenced in Section 6.1.1 of this report, it was found that where fire or smoke spread from the suite of fire origin to a public corridor or exit stair, it was frequently due to the suite door being left open. The BC Building Code already requires doors in fire separations to be equipped with a self-closing device and latch. Therefore, it can be expected that suite entry doors would always remain closed unless physically wedged open or otherwise blocked open. This condition may occur for a variety of reasons such as during an occupant's move-in or move-out process, or if occupants wedge open their door for communal purposes (for example, in student residences or single room occupancies). To mitigate this risk, a requirement may be added to install magnetic hold-open devices on suite entry doors that release upon activation of the fire alarm system.

Hold opens have been incorporated into the Code amendments. 3.2.10.3. (3) Limits to Smoke Movement



Division B -3.3.1.3.(12)

Sentence 3.3.1.3.(12) is repealed and the following substituted:

12) Except for buildings designed and constructed in accordance with Subsection 3.2.10, and except as permitted by this Section and by Sentence 3.4.2.1.(2), at the point where a doorway referred to in Sentence (11) opens onto a public corridor or exterior passageway, it shall be possible to go in opposite directions to each of 2 separate exits.

3.4.2.1. Minimum Number of Exits

- 2) A floor area in a building not more than 2 storeys in building height, is permitted to be served by one exit provided the total occupant load served by the exit is not more than 60, and
- a) in a floor area that is not sprinklered throughout, the floor area and the travel distance are not more than the values in Table 3.4.2.1.-A, or b) in a floor area that is sprinklered throughout i) the travel distance is not more than 25 m, and ii) the floor area is not more than the value in Table 3.4.2.1.-B.

3.3.1.3. Means of Egress

- (11) Except as permitted by Sentences
 3.3.4.4.(5) and (6), each suite in a floor area that contains more than one suite shall have a) an exterior exit doorway, or b) a doorway
 - i) into a public corridor, or
 - ii) to an exterior passageway.

3.3.4.4. Egress from Dwelling Units

- **5)** In a building of residential occupancy **not more than 3 storeys** in building height, a doorway from a dwelling unit is permitted to open directly into an exit stairway provided the dwelling unit has a second and separate means of egress.
- **6)** If a dwelling unit has a second and separate means of egress, one means of egress from a dwelling unit is permitted to pass through
- an interior corridor served by a single exit,
- b) an exterior balcony served by a single exit stairway, or
- an exterior passageway served by a single exit stairway.



Division B - 3.4.2.1.(1).

Sentence 3.4.2.1.(1) is repealed and the following substituted:

 Except for buildings designed and constructed in accordance with <u>Subsection 3.2.10</u>. and except as permitted by Sentences (2) to (4), every floor area intended for occupancy shall be served by at least 2 exits.

3.4.2.1. Minimum Number of Exits

- 2) A floor area in a building not more than 2 storeys in building height, is permitted to be served by one exit provided the total occupant load served by the exit is not more than 60, and a) in a floor area that is not sprinklered throughout, the floor area and the travel distance are not more than the values in Table 3.4.2.1.-A, or
- b) in a floor area that is sprinklered throughout i) the travel distance is not more than 25 m, and ii) the floor area is not more than the value in Table 3.4.2.1.-B.

- **3)** Except as permitted by Sentence (4), if Sentence (2) permits a single exit from a floor area classified as Group B or Group C occupancy, the exit shall be an exterior doorway not more than 1.5 m above adjacent ground level.
- **4)** The requirements of Sentences (1) and (2) are permitted to be waived for dwelling units that have an access to exit conforming to Sentences 3.3.4.4.(1) to (4).

3.3.4.4. Egress from Dwelling Units



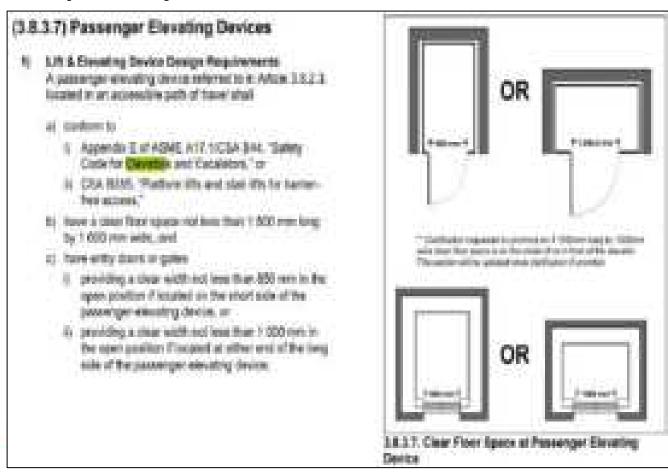
Division B – 3.2.6.5. Fire Fighting Elevator

Elevator for Use by Firefighters

- 1) At least one elevator shall be provided for use by firefighters in conformance with Sentences (2) to (6).
- 2) The elevator referred to in Sentence (1) shall have a useable platform area not less **than 2.2 m2** and shall be capable of carrying a load of 900 kg to the top floor that it serves from a landing on the storey containing the entrance for firefighter access referred to in Articles 3.2.5.4. and 3.2.5.5. within 1 min.

Construction – 1 hr fire resistance and sound 55 STC rating - considerations

Adaptability



Further consideration of Accessibility and Adaptability requirements should also be reviewed!

Division B – Accessibility & Adaptability

BCBC 2024 ILLUSTRATED GUIDE ON ACCESSIBILITY



An Illustrated Commentary on Accessibility Requirements in British Columbia Building Code 2524



Division B – Table 3.10.1.1.

9 Table 3.10.1.1. is amended by adding the following:

3.243. Dr	termination of Regularment for a Fire Alactu Section	
17)	[FD-081.7][FD-081.2.081.5]	
Trans-	[10]4262]	
3.2.19.1, A	pplication	
9(1)	(m)F19-083.73	
3.210.2 B	adding Contraction	
de	DROPH-ON: LOST II	
	[FEDF0+OFS.LOPU]	
(2)	TERO-COLUT	
	(FIS-OPCE)	
	[F83-OF5.1]	
4.89	FIG-061.2 FIG-0FI.2	
	[190-0PC2]	
	(B)(F09-0813)(F09-0812.0913)(F03-0812)	
	INDRUMEOUS:	
	(0) JF16-063-71	
	[16]F013163F03F12-0513]	
	40 B90,003-081 L0812;	
	HB 390 JRG-091 LOP1 2	
14).	[F08-C81.1] [F12-C81.2 (081.3)	
	[FI2-OPI2]	

3.2.10.3.	Limits to Senake Mayerount
(0)	[HIZF03,F06,F12-O61-2,O63-5[]F05-O61.3]
	[P03,F03,F06,F13-OP1.2]:
(2)	[F02.F03.F12-4981-2.081.5]
	[F02,F03,F12-0P1.2]
(2)	[F65,F63,F66,F13-O61,7,O61.5] [F65-O61.5]
	TF01,F01,F06,F13-OP1.21
(4)	TREE (1981-2011) 1061-2061-2061-31
(20)	[F92-061.2,081.5]
	[FR2-OP1.2]
STATE OF THE REAL PROPERTY.	Sourch Fability Corridors and Suite Entry Doors
TIT:	[F62.F63.R05.F66-OS1.2.OS1.5]
	[F02,F03,F05,F06-OP1.2]
	[FEI-OSL4]
	[PRI-OPER]
(2)	[F81-051.4]
	[FEI-OPLA]
429	[F03-051.2]
	[F83-081.2]



Division B — Table 3.10.1.1.

- F01 To minimize the risk of accidental ignition.
- F02 To limit the severity and effects of fire or explosions.
- F03 To retard the effects of fire on areas beyond its point of origin.
- F04 To retard failure or collapse due to the effects of fire.
- F05 To retard the effects of fire on emergency egress facilities.
- F06 To retard the effects of fire on facilities for notification, suppression and emergency response.
- F10 To facilitate timely movement of persons to a safe place in an emergency.
- F11 To notify persons, in a timely manner, of the need to take action in an emergency.
- F12 To facilitate an emergency response.
- F13 To notify emergency responders, in a timely manner, of the need to take action in an emergency.
- F81 To minimize the risk of malfunction, interference, damage, tampering, lack of use or misuse.
- F82 To minimize the risk of inadequate performance due to improper maintenance or lack of maintenance

Post Occupancy concerns!



OBJECTIVE Statements.

OS1 Fire Safety

An objective of this Code is to limit the probability that, as a result of the design or construction of the building, a person in or adjacent to the building will be exposed to an unacceptable risk of injury due to fire. The risks of injury due to fire addressed in this Code are those caused by

- OS1.1 fire or explosion occurring
- OS1.2 fire or explosion impacting areas beyond its point of origin
- OS1.3 collapse of physical elements due to a fire or explosion
- OS1.4 fire safety systems failing to function as expected
- OS1.5 persons being delayed in or impeded from moving to a safe place during an emergency

OS3 Safety in Use

An objective of this Code is to limit the probability that, as a result of the design or construction of the building, a person in or adjacent to the building will be exposed to an unacceptable risk of injury due to hazards. The risks of injury due to hazards addressed in this Code are those caused by-

OS3.7 – persons being delayed in or impeded from moving to a safe place during an emergency (see Note A-2.2.1.1.(1))



OBJECTIVE Statements.

OP1 Fire Protection of the Building

An objective of this Code is to limit the probability that, as a result of its design or construction, the building will be exposed to an unacceptable risk of damage due to fire. The risks of damage due to fire addressed in this Code are those caused by

- OP1.1 fire or explosion occurring
- OP1.2 fire pr explosion impacting areas beyond its point of origin
- OP1.3 collapse of physical elements due to a fire or explosion
- OP1.4 fire safety systems failing to function as expected

OP3 Protection of Adjacent Buildings from Fire

An objective of this Code is to limit the probability that, as a result of the design or construction of the building, adjacent buildings will be exposed to an unacceptable risk of damage due to fire. The risks of damage to adjacent buildings due to fire addressed in this Code are those caused by

OP3.1 – fire or explosion impacting areas beyond the building of origin



Division B – Part 09

9.1.1. Application

9.1.1.1. Application

 Part 9 does not apply to buildings designed and constructed in accordance with Subsection 3.2.10. (See Sentence 1.3.3.3.(2) of Division A.)

9.10.1.3. Items under Part 3 Jurisdiction

12) Fart 9 does not apply to builtings designed and constructed in accordance with Subsection 3.2.10. (See Sentence 1.3.3.3.(2) of Division A and Sentence 9.1.1.1.(3) of Division B.)

It is not appropriate for single exit stair residential buildings to follow Part 9. To minimize confusion, that message is inserted in the locations where Part 9 discusses application.



Division C

2.2.7. Professional Design and Review

(See Note A-2.2.7.)

2.2.7.1. Application

- The requirements of this Subsection apply to
 - a) buildings within the scope of Part 3 of Division B which include buildings designed and constructed in accordance with Subsection 3.2.10, of Division B,
 - b) buildings within the scope of Part 9 of Division B that are designed with common egress systems for the occupants and require the use of firewalls according to Article 1.3.3.4. of Division A, and
 - c) the following, in respect of buildings within the scope of Part 9 of Division B other than buildings described in Clause (b),
 - i) structural components that are not within the scope of Part 9 of Division B (See Note A-2.2.7.1.(1)(c)(i).).
 - ii) geotechnical conditions at building sites that are not within the scope of Part 9 of Division 8.
 - iii) sprinkler systems designed to NFPA 13, "Installation of Sprinkler Systems", and iv) standpipe and hose systems designed to NFPA 14, "Installation of Standpipe and Hose Systems".



POLL QUESTION – SES Uptake

Do you foresee an uptake of SES designs in the next 6-12 months in your jurisdiction?

1.Larger Communities (+30,000)

- Yes = 37%
- No = 20%
- To early to tell = 43%

2. Smaller Communities (less than 30,000)

- Yes = 13%
- No = 17%
- No –F/D limitations = 31%
- To early to tell = 40%

3. Regional Districts

- Yes = 4%
- No = 33%
- No no organized FD = 27%
- To early to tell = 35%



POLL QUESTION – Presentations

What would you like to see for future Lunch and Learn sessions (Ken K)?

- Level 01 Decks foundation to final = 21%
- Level 02 Interconnected floor space = 51%
- Level 03 Roof top occupancies = 23%
- Other put in the chat or email kkunka@boabc.org 3%

Next Lunch and Learn - November 21, 2024

Please forward any questions or suggestions for the presentation to kkunka@boabc.org.



Next Lunch and Learn – November

November 21, 2024 Interconnected floor space

December wrap up and review of MHABC permit application and inspection checklists.

Please forward any questions or suggestions for the presentation to kkunka@boabc.org.



Questions - Contact Us





Webinar survey to follow.