



2019 Vancouver Building By-law

April 10, 2019 – Upcoming Change Proposals

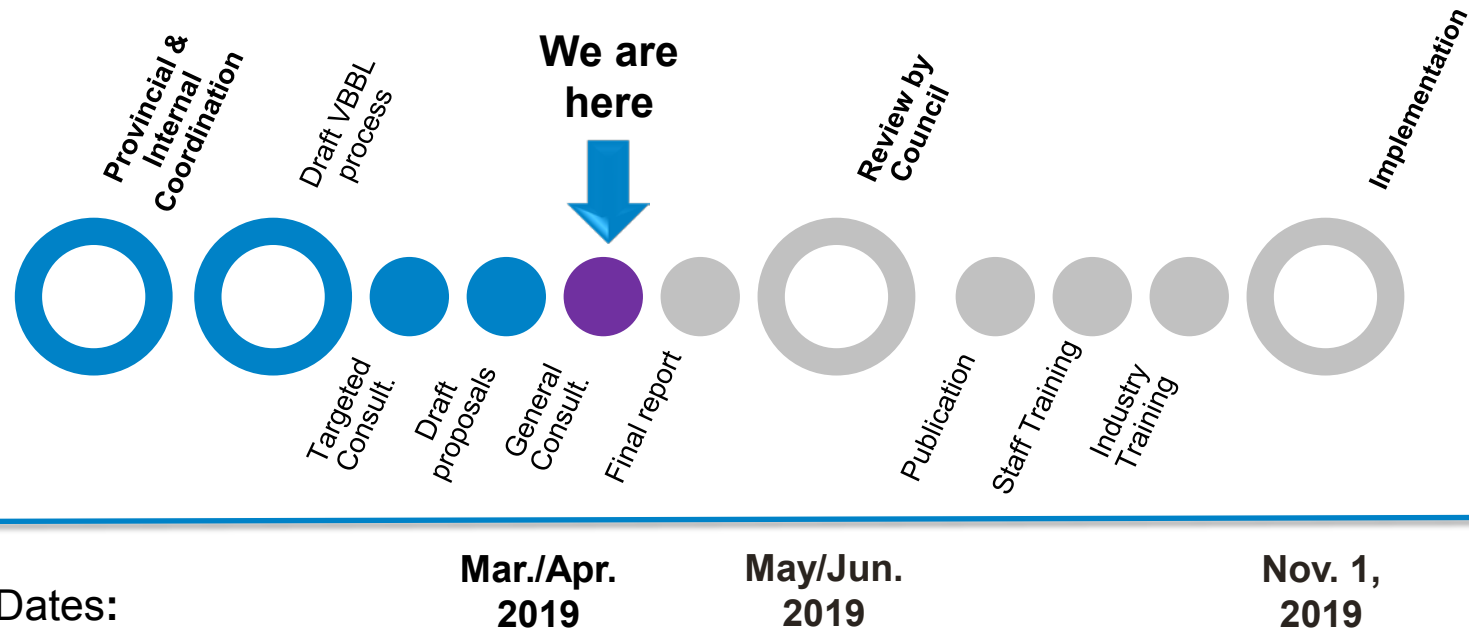


About this Presentation

- Objective:
 - This presentation intends to identify the proposed changes to the Building By-law on a conceptual basis
 - Nonetheless, due to the nature of the material it is still somewhat heavy on the technical content
 - It is our intention to seek your feedback on these proposals

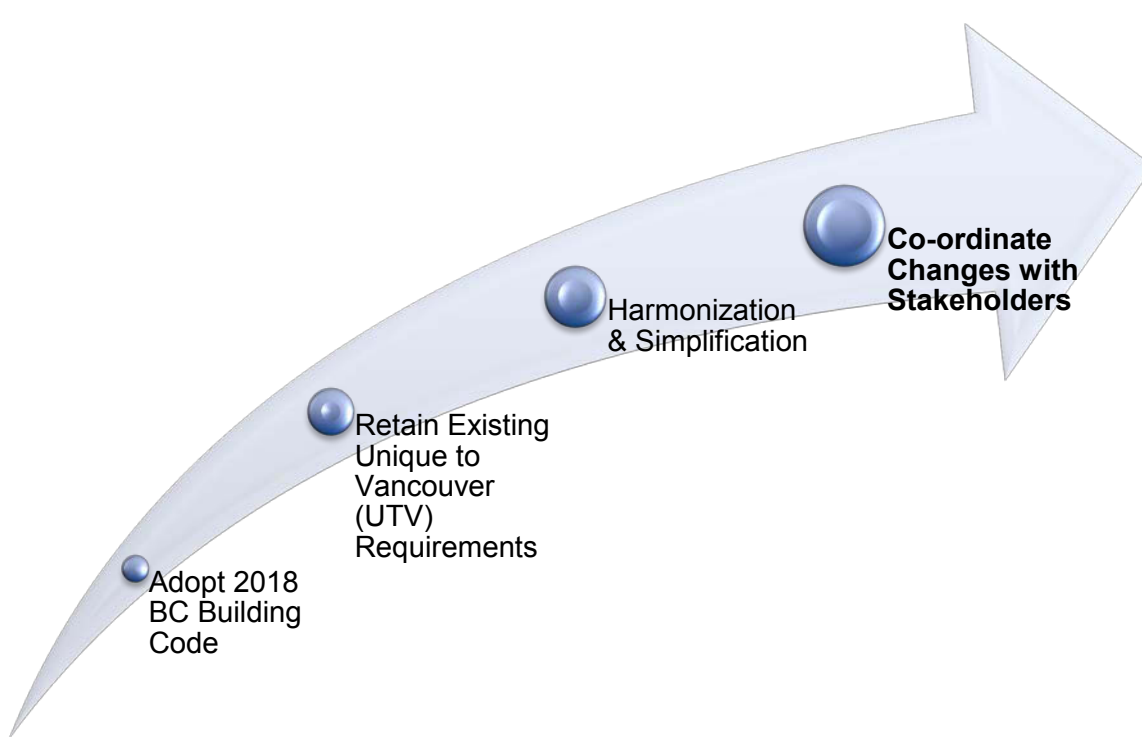
- Questions:
 - If you have a brief clarifying question regarding the content, please ask.
 - However, detailed questions are best addressed after the presentation to ensure that we are able to fully cover the material

Timeline – Current Estimate



Note: Estimated timeline subject to change.

Update Overview



2019 VBBL:
Book I (Building)
Book II (Plumbing)

Current phase:

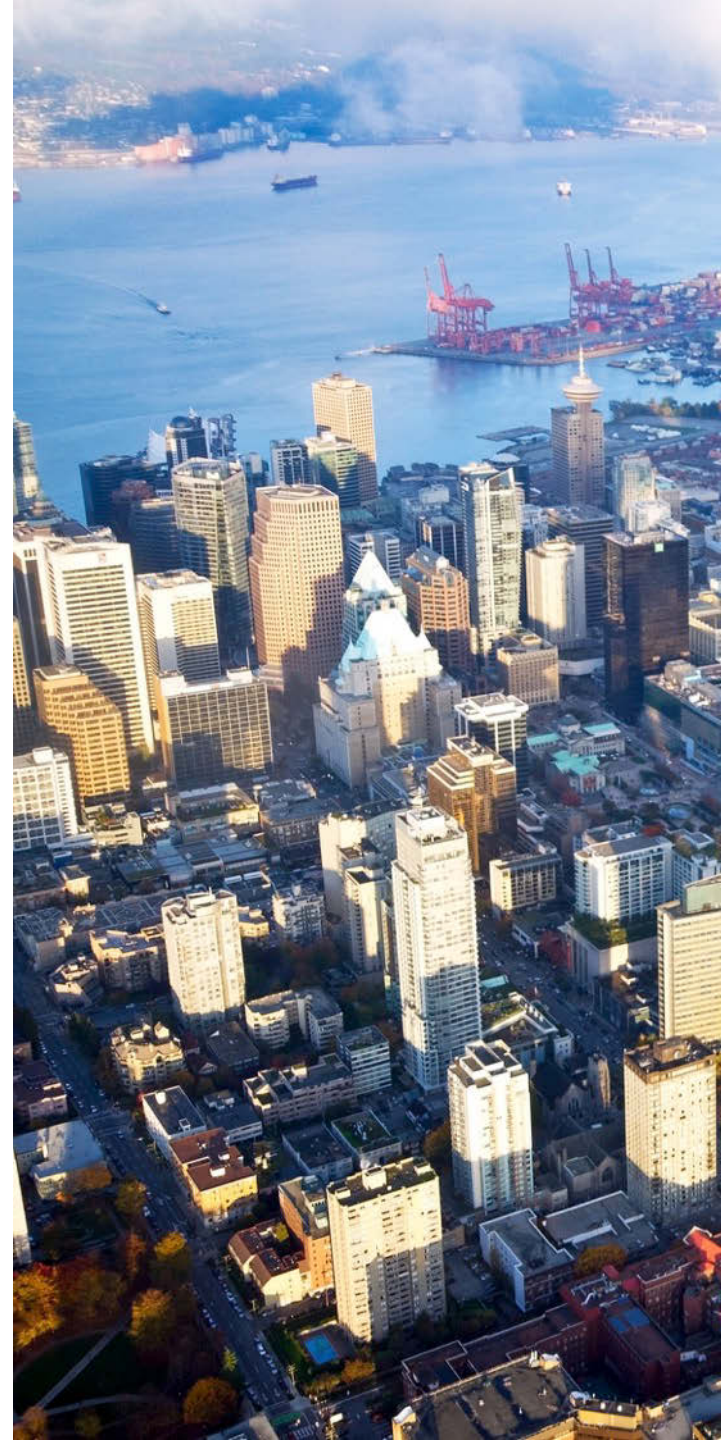
- Seeking feedback on overlooked or missing items
- Looking for your support on these proposals

2019 Building By-law Development Guidelines:

- Adopt the 2018 BC Building Code
- Carry forwards the existing Unique to Vancouver requirements
 - Look for opportunities for harmonization (provincial and internal)
- Identify and evaluate key proposals for improvement based on industry and staff feedback
 - Address known problem areas
 - Seek to minimize changes

2019 VBBL

Change Proposals



Updates Areas

- Changes as presented herein are proposals subject to City Council's acceptance
- Changes are focused in these areas:



**Harmonization &
Simplification**



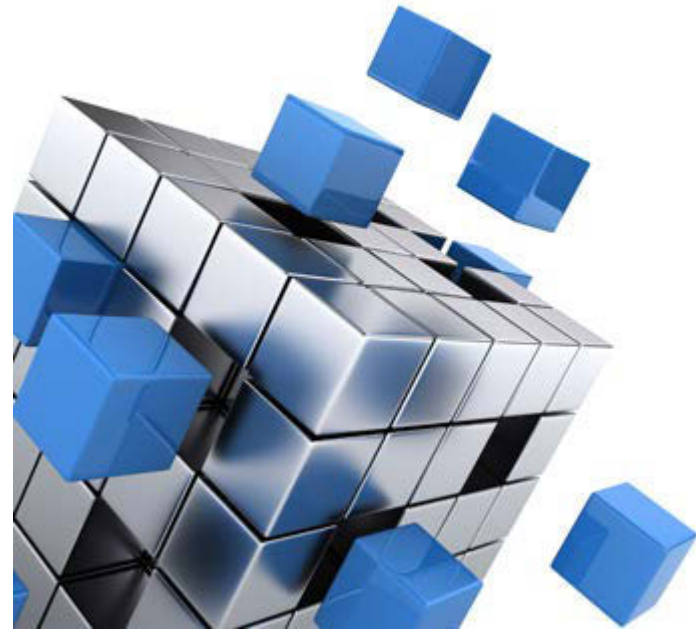
Fire & Life Safety




**Resiliency & Climate
Change Adaption**

Harmonization and Simplification

- Harmonization with BCBC
 - Reduce variation
 - Build to one standard
- Simplification of Language
 - Easier to build
 - Easier to verify
- Codify Standard Policy
 - Reduce need for Alternative Solutions
 - Coordinate with other groups - reduce surprises



Existing 1 & 2 Family Dwellings

- 
- Administrative changes to Existing Building Requirements (Part 11)
 - Consolidate requirements applicable to existing houses
 - Clarify and simplify language
 - Directly identify upgrade requirements (reduce references to upgrade trigger mechanism)
 - Reduce references to other Sections of the By-law with respect to common alternatives for Existing Buildings
 - No increase in requirements or outcomes intended
 - But, we will review trigger points tied to dollar value (to reduce the impact)

- Update the Alternatives for Existing Building construction
 - Carry across construction requirements from the spatial separation requirements, to reduce confusion in intention.
 - Add new options for
 - Retention and minor alteration of existing windows with minor alteration to the spatial separation conditions
 - Retention of existing stairs
 - Add limitations on application of certain solutions
 - Size of certain buildings
 - Add cautionary note on use of intumescent paint products as a solution

*Alternate Acceptable Solutions

Adding more pathways for acceptance of existing conditions (ex.: 11.3.6.9. Alternatives for Exits)

4) Existing egress stairs with rectangular treads in straight flights, other than those serving seating areas, may be retained provided that

- a) existing tread and riser dimensions within a flight comply with Table 11.3.6.9.(4),
- b) existing treads and landings shall
 - i) be dimensionally uniform,
 - ii) have a finish that is slip resistant,
 - iii) have nosings with distinct colour contrast for the full width of the leading edge of each tread visible in both direction of travel, and
 - iv) have no projecting stair nosing, rakeback, or combination thereof, exceeding 38 mm or angle of more than 30 degrees from the vertical,

Table 11.3.6.9. Dimensions of Existing Stairs

	Maximum (mm)	Minimum (mm)
Rise	205	125
Run	355	205

*Alternate Acceptable Solutions

Adding more pathways for acceptance of existing conditions (ex.: 11.3.6.9. Alternatives for Exits) (cont'd)

- c) lighting is provided to
 - i) an average level of not less than 100 lx at floor or tread level, and
 - ii) the minimum value of the illumination required by (i) shall be not less than 20 lx,
- d) emergency lighting is provided to
 - i) an average level of illumination of not less than 20 lx at floor or tread level,
 - ii) a minimum value of the illumination required by (i) shall be not less than 2 lx, and
 - iii) provided with emergency power in accordance with Article 3.2.7.4.,
- e) handrails are provided conforming to the requirements of Article 3.4.6.5., and
- f) tread and landings of exterior egress stairs are designed to be free of ice and snow accumulations.

- Proposed update to the description of some categories of work on existing buildings
 - Simple relocation of a demising wall is no longer necessarily a major renovation
 - Improve clarity (no change of outcome)

MINOR RENOVATION – Minor renovation means a project whose scope of work includes construction limited to the improvement, renovation, reconfiguration, or refurbishment of a single suite contained within a single tenant space and those demising walls shared with the adjoining suites, but not including the public or common floor areas of the building.

Minor renovations may include the following:

- Reconfiguration of the interior space of the suite which may occupy multiple levels in a building,
- Retention of existing interconnected floor spaces that do not create new connections to previously unconnected floor areas,
- Retention of existing mezzanines that do not add floor area,
- Limited renovation in adjacent suites to the extent necessary to support the relocation of shared demising walls, and
- Exterior renovations pertaining to the subject suite.

Where the renovation includes a new interconnected floor space, this work would not be considered to be a minor renovation. New mezzanines are considered to be additions.

Construction Safety

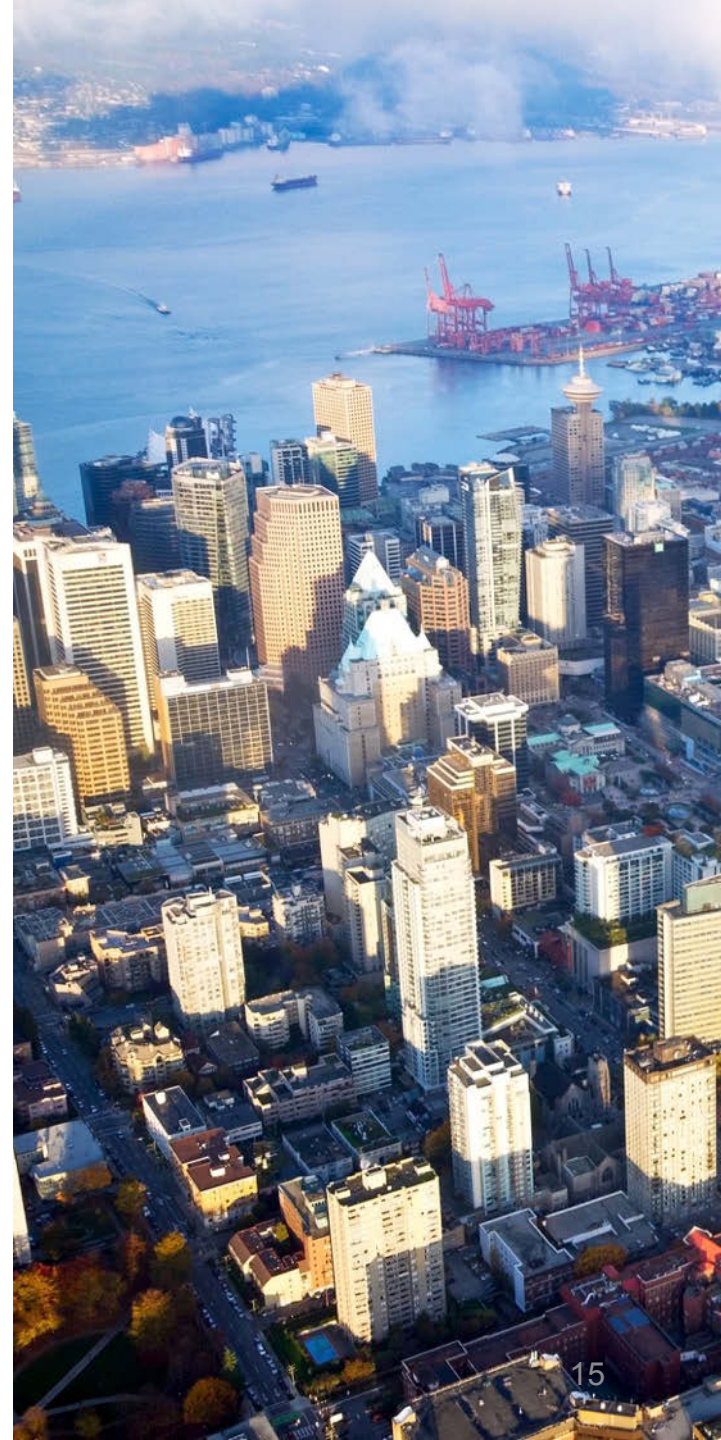
- Maintaining existing unique to Vancouver provisions.
 - Mostly clarity changes
- Unlinking the requirement for a Construction Safety Officer when a Coordinating Registered Professional is involved on a house.
 - Not being required in practice



Book I (General)

Key Proposals

2019 VBBL Change Proposals



Key Adoptions from 2018 BCBC

- Major items:
 - Expanded 5 & 6 storey wood construction (3.2.2.50. & 58.)
 - New sound transmission options (ASTC)
 - New option to meet CSA-B651 for accessibility
- Many other smaller changes



Roof Decks

- Adopting amendment to 2012 BC Building Code for rooftop enclosures
- Adding clarifying appendix text
 - Private residential deck area served by a enclosure with no occupied floor area can be seen to be the vertical extension of the floor area below.
 - Designs should consider occupant situational awareness
 - Audible/visual signaling device in the vicinity of the egress door (could be just inside)
 - Direct line of sight to the egress door from any location.



Key area of concern:
Large common and private rooftop areas where occupant situational awareness may be poor.

*Private Residential Roof Deck

- Added new appendix note A-3.2.1.1.
 - Intended to clarify Vancouver's interpretation with respect to the BCBC change in language
 - This is specific to stair enclosures provided for no other purpose than access to a small private residential roof deck.

A-3.2.1.1.(1) Roof-top Enclosures for Private Residential Decks Roof-top enclosures containing stairs for the exclusive purpose of providing access to private residential decks may be considered as part of the storey below. Such enclosures may not include spaces that could be otherwise used or occupied. Likewise, the roof deck associated with private residential suite may not include any enclosed occupiable floor area or the requirements applicable to a storey would apply.

Regardless of whether an enclosure is considered a storey or not, designers must remain aware that the roof-top location of the deck is inherently remote from the remainder of the suite, and consider the ability of the deck occupants to remain aware of conditions within the suite and building below. Measures to promote situational awareness are appropriate and could include the installation of an audible and visual fire alarm signaling device in the vicinity of the egress door, and direct line of sight to the egress door from any location on the deck.

Alarm Audibility on Occupied Roofs

- Adding a requirement for designers to address the audibility of alarms on occupied roof decks and balconies.
 - A fire alarm signal device is to be located in the vicinity of the private deck access
 - A fire alarm signal devices is to be located on all public and common use decks intended for occupancy



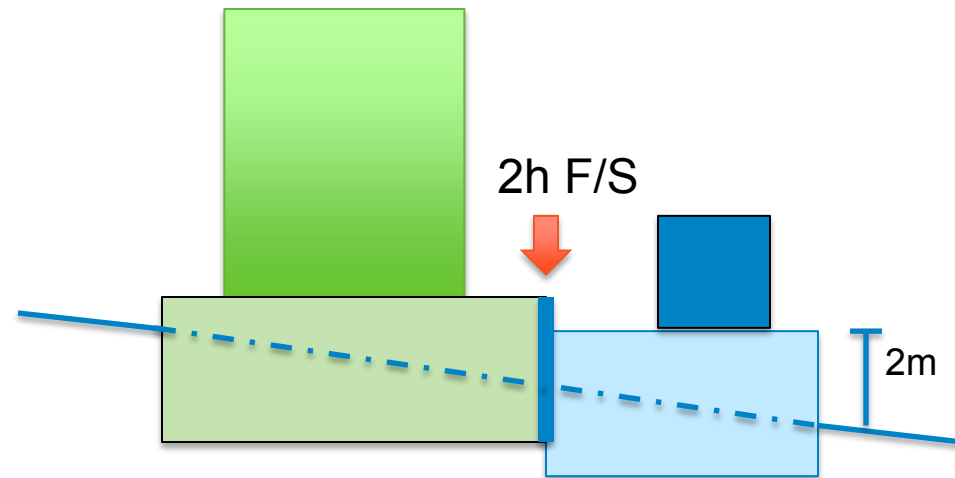
Fire & Life Safety Updates

- Harmonize with Existing Policy and Provincial Codes
 - No major changes
- Address Industry requests
 - Review known areas of concern and
 - Address areas of non-clarity
- Ancillary Suites
 - Adopt Provincial approach
 - Simplify



Building Height

- Independent assessment of Building Height for physically separated portions.
 - Allows requirements dependent upon building height to be applied individually
 - Expands on Division A Building Height (1.3.4.4.) requirements
 - Specific construction requirements need to be in place to apply this option



*Building Height

- Adopt BCBC Article 1.3.3.4.(2). with the following changes:
 - Renumber existing Sentence (3) as (4)
 - Add new Sentence (3) to consider the heights of physically separated portions of buildings connected only with non-combustible construction separately

3) Except as permitted in Sentence (4), where portions of a building are completely separated by a distance of at least 3 m, each separated portion is permitted to be considered as a separate building for the purpose of determining building height, provided

- a) each separated portion complies with the requirements of Subsection 3.2.3. of Division B,
- b) all connecting construction is
 - i) of noncombustible construction,
 - ii) sprinklered throughout, and
 - iii) contains only F3 occupancies, or uses and occupancies subsidiary to the remainder of the building,
- c) a vertical fire separation that has a fire-resistance rating of not less than 2 h extends through all storeys and service spaces of the connecting construction, and
- d) the unobstructed path of travel for a firefighter from the nearest street to the principal entry of each separated portion shall comply with Division B, Article 3.2.5.5.

(See Note A-1.3.3.4.(2) & (3).)

High Buildings

- Six storey buildings on sloped sites
 - Frequently exceed 18 m by a small amount due to sloping site conditions
 - High-rise measures may not be that advantageous in this circumstance
 - Will require specific measures limiting the application



- FD access not to exceed 18 m
- Stairs not to span more than 6 storeys

*High Buildings

- Maintain existing Vancouver approach to high buildings, but with the following changes/additions:

- An new alternative to the high building measures (Subsection 3.2.6.), where those buildings

- Do not exceeding 6 storeys
- No Institutional major occupancy above the 3rd storey

3.2.6.1. Application

2) A building need not comply with the requirements of this Subsection, provided

a) the building does not exceed 6 storeys in building height,

b) the building does not contain a floor area or part of a floor area located above the third storey designed or intended as a Group B, Division 2 or Group B, Division 3 major occupancy,

c) the principal entrance for fire fighters is located on the storey which requires vertical travel to the topmost floor level to be not more than 18 m,

d) stairs and elevators shall not directly connect more than 6 consecutive storeys, and

e) exit stair enclosures are provided with not less than a 2 h fire separation.

f) the sprinkler system is designed in accordance with NFPA 13 except that the design area and density shall be a minimum of 0.1 gpm/ft² over 3000 sq ft. regardless of the exemptions or design methods permitted in NFPA 13.

- Proposal to delete allowance for FT-4 wire drops from plenum spaces
 - Eliminate unclear language and confusion about FT-4 vs FT-6 wiring in limited locations and conditions
 - Recognizes the risk of smoke migration throughout increasingly larger and more complex buildings.



Maglocks

- Adding clarifying note with regards to the use of maglocks in buildings
 - Not intended for indiscriminate use
 - Administrative requirements to demonstrate designers have reviewed the installation
 - Approval of sequence of operation required by Chief Building Official



*Maglocks in a Means of Egress

- Adopt the BCBC provisions for egress
 - Add a clarifying appendix note is to address the operational and procedural concerns.
- Will correspond with a future Bulletin
 - No alternative solution, but Professional letter of opinion required to confirm code compliance and provide sequence of operation

A-3.3.1.13.(7) Electromagnetic Locking Devices

Electromagnetic locks and similar door control security devices are not intended to be used indiscriminately as alternative to proper security design. Where improperly designed or installed, these may inadvertently entrap or delay persons during an emergency as a result of physically impeding egress or confining egress to high traffic areas. Designers and installers wishing to install electromagnetic locking devices are to demonstrate that the requirements of the By-law have been met.

This demonstration is to include a sequence of operation for the installation of any new maglocks and similar security devices that could singly or in combination, prevent, impede, or otherwise delay occupant egress or emergency responder access. This is to be provided to the Chief Building Official for acceptance, along with any necessary supporting documentation to demonstrate by-law compliance. (See also note A-3.4.6.16.(4))

Electro-magnetic Locking Devices

- Adopt BCBC Maglock requirements with amendments:
 - Include the existing UTV requirements 3.4.6.16.(6) for an acceptable door release at an exit door.
 - The requirements of Clause 3.4.6.16.(4)(h) for maglocks on emergency crossover access will not be adopted.

4) Except as permitted by Sentence (76),
~~E~~electromagnetic locks that do not incorporate latches, pins or other similar ...

...

k) ~~Deleted. where they are installed on doors providing emergency crossover access to floor areas from exit stairs in accordance with Article 3.4.6.18.,, and~~

~~i) the locking device releases immediately upon the operation of a manual station for the fire alarm system located on the wall on the exit stair side not more than 600 mm from the door, and~~

~~ii) a legible sign with the words “re-entry door unlocked by fire alarm” written in letters at least 25 mm high with a stroke of at least 5 mm is permanently mounted on the door on the exit stair side.~~

*Electro-magnetic Locking Devices

- Add clarifying note identifying how to assess the egress delay for a door complying with 3.4.6.16.(7).
 - Add a further reference to the proposed new appendix note A-3.3.1.13.(7) in 3.1.13.(4)(h)

A-3.4.6.16.(4)(h) Time Delay for Electromagnetic Locks with Proximity Sensors For the purposes of Clause 3.4.6.16.(4)(h), a door provided with a hardware arrangement complying with Sentence 3.4.6.16.(7) is not considered to have a delay.

Separation of Suites at Grade

- Reviewing the requirements for 2 h fire separation of adjoining commercial suites with direct street access
 - Intent is to address future conversions to occupancy combinations that would require a 2 h major occupancy separation,
 - Recognize that it is a problem to achieve a 2 h fire separation above or below existing construction.



*Suites with Direct Street Access

- Adopt BCBC Article 3.3.1.1. with the following amendments:
 - Add the existing unique to Vancouver requirements of 3.3.1.1.(5) as revised.
 - Revise 3.3.1.1.(5) to limit the application.

5) Each suite other than a residential suite, located at ground level and having direct access to the street shall be separated from **horizontally and vertically** adjoining suites by a fire separation having a fire-resistance rating not less than 2 h **except as permitted by Sentence (6)**.

6) The fire separation required by Sentence (5) need not be provided to a storage garage.

*Suites with Direct Street Access

- Added a new Sentence (2) to alternatives to existing suites in Article 11.3.4.2.
 - to facilitate the application of UTV Sentences 3.3.1.1.(5) & (6) to existing buildings
 - Essentially allows a floor/ceiling assembly to be reduced to 1 h fire separation if the space is sprinklered.

11.3.4.2. Occupancy and Suite Separations

1) Existing vertical occupancy fire separations and suite fire separations in Group A Division 2, D, E, F Division 2 and F Division 3 occupancies, need not exceed a 1 h fire-resistance rating provided acceptable smoke detectors are installed on each side of such separations and are connected to the building fire alarm system.

2) Existing floor assemblies required by Sentence 3.3.1.1.(5) to be fire separations, need not exceed a 1 h fire-resistance rating provided the suite is sprinklered.

Egress from Dwelling Units

- Proposing additional option for egress from multi-level dwelling units in sprinklered buildings
 - A single means of egress for 2 storey units, and travel distance 18 m or less.
 - A single means of egress from 3 storey units if the lowest level is the first storey.



*Egress from Dwelling Units

- Adopt BCBC Article 3.3.4.4. with modifications
- Add a new Sentence (7) to permit new alternatives for a single means of egress from multi-storey dwelling units in a sprinklered building.

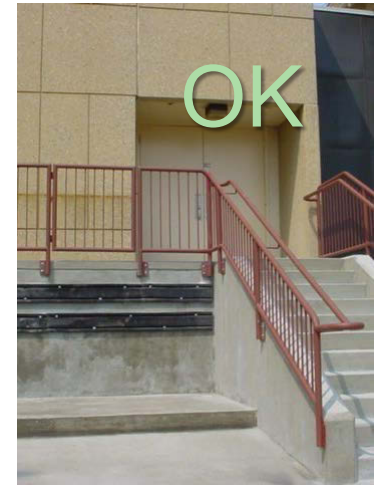
3.3.4.4. Egress from Dwelling Units

7) A single means of egress is permitted from a dwelling unit in a sprinklered building if it is not necessary to travel within the dwelling unit more than

- a) 18 m measured from the most remote point,
- b) 1 storey up or down, or
- c) two storeys above the first storey of the building.

Guard Climbability

- Deleting new BCBC requirements for minimum 200 mm wide openings in guards (under some circumstances)
 - Not inherently unsafe, but
 - Risk of potentially unsafe outcomes if applied incorrectly



*Minimum Size of Guard Opening

- Adopt BCBC Sentence 3.3.1.18. with the following amendments:

- Remove the reference in Sentence 3.3.1.18.(2) to the requirements of 3.3.1.18.(3)
- Delete Clause 3.3.1.18.(3)(c)

3.3.1.18. Guards

1) ...

2) Except as provided in Sentences ~~s (3) and~~ 3.3.2.9.(4) and Articles 3.3.4.7. and 3.3.5.10., openings through guards shall be of a size that prevents the passage of a spherical object whose diameter is more than 100 mm.

3) Deleted. ~~Openings through guards other than those required by Sentence (1) that serve occupancies other than industrial occupancies shall be of a size that~~

~~a) prevents the passage of a spherical object whose diameter is 100 mm, or~~

~~b) permits the passage of a spherical object whose diameter is 200 mm.~~

~~(See Note A 9.8.8.5.(3).)~~

4) ...

*Minimum Size of Guards Openings

- Adopt BCBC Sentence 9.8.8.5. with the following amendments:
 - Remove the reference in Sentence 9.8.8.5.(1) to the requirements of 9.8.8.5.(3)
 - Delete Clause 9.8.8.5.(3)
- Delete Note A-9.8.8.5.(3)

9.8.8.5. Openings in Guards

1) Except as permitted in Sentences (2) ~~and (3)~~, openings through guards shall be of a size that prevents the passage of a spherical object having a diameter of 100 mm. (See Note A-9.8.8.5.(1) and (2).)

2) ...

3) ~~Deleted. Openings through any guard that is not required by Article 9.8.8.1. and that serves an occupancy other than an industrial occupancy shall be of a size that~~
~~a) prevents the passage of a spherical object having a diameter of 100 mm, or~~
~~b) permits the passage of a spherical object having a diameter of 200 mm.~~
~~(See Note A-9.8.8.5.(3).)~~

- Not adopting the BCBC/NBC change regarding climbability of guard under 4.2 m
 - The current guard requirements will not be altered
 - Retain the existing safety standards

4) Except for *guards* conforming to Article 3.3.5.10., *guards that protect a level located more than one storey or 4.2 m above the adjacent level* shall be designed so that no member, attachment or opening located between 140 mm and 900 mm above the level protected by the *guard* facilitates climbing. (See Note A-9.8.8.6.(1).)

Mailbox Security

- Proposed new minimum construction requirements for mailboxes serving buildings with 20+ suites
 - Mail and identity theft is rising
 - Aggregate costs to the city and owners to respond to mail theft and identity theft is very significant
 - Increased peace of mind for owners



Public Storage Garage Lighting

- Public parking facilities to be illuminated to meet Safer Parking Initiative recommendations
- Minimum illumination of
 - 550 lx along the first 15 m of interior roadway
 - 220 lx along pedestrian access routes, stairwells, and lobbies



Exit Exposure

- Sprinkler water curtain for exit exposure option first provided in 2014 VBBL
 - Propose removal of 10 person limitation
 - More comprehensive requirements
- Can still propose alternative solutions for unusual cases

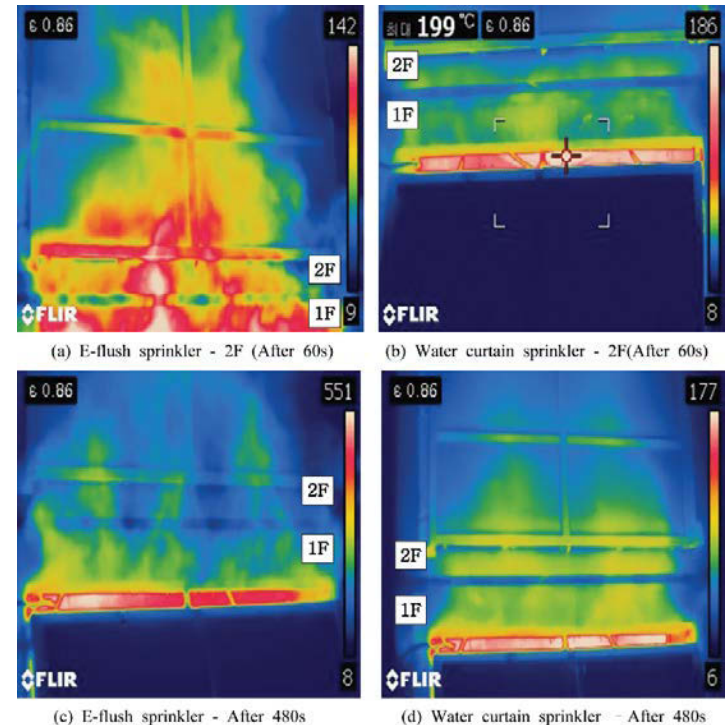


Figure above.: Fire Test of Water curtain sprinklers

*Exit Exposure

- Adopt BCBC Article 3.2.3.13. with the following amendments:
 - The UTV requirements of Sentence 3.2.3.13.(2) have been revised to harmonize with the 2018 BCBC language, and provide greater clarity to the CoV intent.

3.2.3.13. Protection of Exit Facilities

2) If ~~any~~ **an** unenclosed exterior exit stair, ~~or~~ ramp, **or confined path of travel** could be exposed to fire from an opening in the exterior wall of the building it serves, the opening ...

- 3.2.3.13.(4) as revised:
 - Add the existing UTV requirements of Sentences 3.2.3.13.(2), 3.2.3.13.(4), and 3.2.3.13.(5) as revised.
 - Sentence 3.2.3.13.(5) has been substantially reorganized for clarity (see pages following)

3.2.3.13. Protection of Exit Facilities

4) The opening protection referred to in Sentences (1), (2) and (3) shall consist of

- a) glass block conforming to the requirements of Article 3.1.8.16.,
- b) a wired glass assembly conforming to D-2.3.15. in Appendix D, ~~or~~
- c) a closure conforming to the requirements of Subsection 3.1.8. and Articles 3.2.3.1. and 3.2.3.14., ~~or~~
- d) ~~if the exit facility serves not more than 10 persons,~~ **dedicated sprinkler water curtain in accordance with Sentence (5).**

- Sentence 3.2.3.13.(5) reorganized (1 of 2)

5) An opening provided with a dedicated sprinkler water curtain for opening protection as permitted in Clause (4)(d) shall

a) be provided with tempered or laminated safety glass glazed openings where windows are provided.

b) be provided with quick response sprinklers with a nominal k factor of 5.7 of the upright or pendant type

c) be located such that

i) the water curtain sprinklers are between 150 mm and 300 mm horizontally from the interior face of the opening at ceiling level

ii) located and not more than 3.6 m vertically above the floor immediately below,

iii) if the opening is 1.8 m or less in width, have one sprinkler head installed at the center of the opening at a maximum distance of not more than 0.9 m from the vertical edge of the opening,

*Exit Exposure

- Sentence 3.2.3.13.(5) reorganized (2 of 2)

- iv) if the opening is more than 1.8 m in width, have multiple sprinkler heads installed at a maximum distance of 1.8 m on center and at a maximum distance of not more than 0.9 m from the sprinklers to the vertical edge of the opening,

- d) have sprinkler heads protected from spray and from cold solder effects from adjacent sprinklers (floor area or water curtain sprinkler heads) by means of baffles in accordance with NFPA 13, and

- e) be hydraulically designed to

- i) discharge water at a minimum flow rate of 68 L/min (18 usgpm),

- ii) be independently zoned from sprinklers providing floor area coverage, and

- iii) be included in the most hydraulically demanding area for the design of the adjacent floor area sprinklers.

*Exit Exposure

- Adopt BCBC Article 9.9.4.4 with the following amendments:
 - Add the existing UTV requirements of Sentences 9.9.4.4.(1) as revised (Clarity update only)

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, **or confined path of travel** 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, 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.

- 2018 BCBC requirements for accessibility will be adopted as a base
 - Existing UTV requirements for enhanced accessibility and adaptability will be layered on top
 - As with the BCBC, alternative standards for accessibility and adaptability may be acceptable (such as CSA-B651) subject to approval from the CBO.



Exterior Lighting

- Limitations on Exterior lighting
 - Full cut-off optics or fully shielded fixtures - if >600 lumens, or facing back or side yards,
 - partially shielded or diffusing cover - if 600 lumens or less
 - No fixture over 4 m above grade, or the surface that it illuminates
 - Dimmer or timer controls required
- Exceptions for lighting and signage required for egress, safety, or other enactments



*Exterior Lighting

- Revise the Lighting Requirements of Part 10 to include language about exterior lighting
 - Prevent overlighting
 - Reduce nuisance lighting complaints

10.2.2.10. Lighting in Residential Buildings

2) Except as permitted by Sentence (3), permanent ancillary exterior lighting of a *building of residential* occupancy or the *residential* portion of a multi-use *building*, or those parts of a *building* facing a *lane*, that is required to conform to this Article shall

a) be provided with fixtures that are appropriately shielded that

- i) utilize full cut-off optics or are fully shielded for luminaires that emit over 600 lumens, or any luminaire installed along the side or back yard, and
- ii) are partially shielded and utilize a diffusing cover for luminaires that emit 600 lumens or less.

- Revised Exterior Lighting Requirements of Part 10 (cont'd)

10.2.2.10. Lighting in Residential Buildings(cont'd)

b) be mounted no higher than 4 m above grade or the balcony surface it illuminates along the side yard, back yard, and similar outward facing courtyards or setbacks of the *building*,

c) be provided with dimmer and timer controls,

d) minimize lighting of adjacent exterior properties and properties across a *street, lane, or public way*.

3) Where exterior lighting is required by this By-law or other regulator enactments to provide illumination along paths of pedestrian or vehicular travel, fire department access, or equipment signage or lighting, it need not comply with the requirements of Sentence (2).

Key Change – Mass Wood Option

- New mass wood option for multi-use buildings
 - Harmonizes with 2018 BCBC changes
 - Supports passive house integration
 - Provides more choice for designers
- Simplified third party review for unusual structures
(ex. mass wood >6 storeys)



Mass wood option for fire separation

*Fire Containment in Comb. Bldgs.

- Modifications of the 3.2.1.7. requirements for the separation of residential occupancy to:
 - permit encapsulated mass timber construction as a new alternative to the concrete or masonry construction presently permitted by the current requirements.

3.2.1.7. Fire Containment in Combustible Buildings

1) All Group C major occupancies, of combustible construction and greater than 2 storeys in building height, shall be separated from all other major occupancies, except as prohibited in Article 3.1.3.2. and except as permitted in Sentence (2) and (3) , by a fire separation with at least a 2 h fire-resistance rating constructed of

- a) concrete,
- b) masonry, or
- c) in a sprinklered building , encapsulated mass timber construction in accordance with Sentence (4) or (5).

*Fire Containment in Comb. Bldgs.

- New Sentence (4)

- places limits on the application of 3.2.2.50. & 3.2.2.58. to include A2, and E occupancies in excess of the requirements of the traditionally applicable construction requirements.

4) Except as permitted by Sentence (3), Where a building of combustible construction greater than 2 storeys in building height, contains an occupancy other than Group C or Group D on the second or third storeys that is required to be constructed in accordance with Sentences 3.2.2.50.(5) or 3.2.2.58.(4), the building shall

- a) be sprinklered,
- b) be divided into at least two horizontal fire compartments on each storey containing a major occupancy other than Group C or Group D which are
 - i) not more than 1,000 m² in area
 - ii) constructed of as fire separations with at least a 2 h fire-resistance rating,

*Fire Containment in Comb. Bldgs.

- Sentence (4) (cont'd)
- New Sentence (5) defining permissible Encapsulated Mass Timber construction for the purposes of Clause (1)(c)
 - c) exit stairs serving storeys above the third floor shall be constructed as fire separations with at least a 2 h fire-resistance rating, and
 - d) each fire compartment required by Clause (a) shall be served by at least one exit stair.
- 5) Encapsulated mass timber construction as identified in Sentence (1)(c) shall consist of structural mass timber elements, including beams, columns, arches, and wall, floor and roof assemblies encapsulated in a continuous fire-resistive membrane and

*Fire Containment in Comb. Bldgs.

- a) be arranged in heavy solid masses containing no concealed spaces,
- b) have essentially smooth flat surfaces with no thin sections or sharp projections,
- c) timber elements shall conform to the minimum dimensions stated in Table 3.2.1.7.
- d) Adhesives used in structural mass timber elements provided in accordance with Clause (1)(c) that are constructed of cross-laminated timber shall conform to the elevated temperature performance requirements in ANSI/APA PRG 320 “Standard for Performance-Rated Cross-Laminated Timber.”

Table 3.2.1.7. Minimum Dimensions of Structural Mass Timber Elements in Encapsulated Mass Timber Construction Forming Part of Sentence 3.2.1.7.		
Structural Wood Elements	Minimum Thickness (mm)	Minimum Width x Depth (mm x mm)
Walls that are fire separations or exterior walls	96	-
Walls that require a fire-resistance rating, but are not fire separations (2-sided exposure)	192	-
Floor and roofs (1-sided exposure)	96	-
Beams, columns and arches (2- or 3-sided fire exposure)	-	192 x 192
Beams, columns and arches (4-sided fire exposure)	-	224 x 224
Notes to Table 3.2.1.7.: (1) See Note A-Table 3.2.1.7.		

*Fire Containment in Comb. Bldgs.

- Sentence (5) (cont'd)
 - e) The exposed surfaces of structural timber elements conforming to clause (d) shall be protected from adjacent spaces in the building, including adjacent concealed spaces within wall, floor and roof assemblies, by a fire-resistive membrane consisting of two layers of 5/8" thickness type 'X' or 1/2" thickness type 'C' gypsum board, or Gypsum-concrete topping and concrete not less than 38 mm thick when installed on the upper side of a mass timber floor or roof assembly.
 - f) Gypsum board membranes shall be installed with staggered joints, and mechanically fastened directly to the mass timber elements with fasteners spaced not more than 400 mm o.c. and 20 mm to 38 mm from the boards' edges.

*Fire Ratings (Appendix D)

- Added QAI Laboratories as a listing agency
- Added note about Cross Laminated Timber Fire-Resistive Performance (1 of 2)

D-2.12. Cross Laminated Timber

At this time, this By-law does not presently contain explicit provisions for the use of CLT although this may be considered as part of a design compliant with Article 3.2.1.7. As a developing technology, it is expected that designers follow best practice in the use of this material. To this end, in addition to compliance with the CSA-086-14 standard (as amended), designers should consider the information and criteria contained in published good engineering practice references such as the Canadian Wood Council Wood Design Manual (2017) and CLT handbook which are recognized to represent much of the current information related to the design of cross laminated timber (CLT) assemblies...

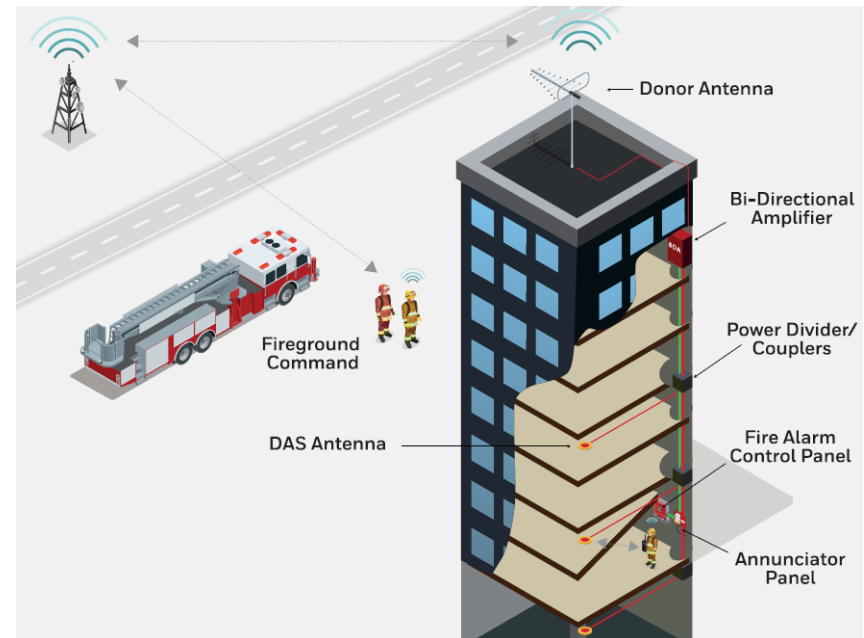
*Fire Ratings (Appendix D)

- Cross Laminated Timber
Note (2 of 2)

...In addition, research by the NRC, Canadian Wood Council, and other groups have shown that the type and arrangement of connections and penetrations, and the adhesive used as part of the CLT play a major role in the fire-resistive performance of these assemblies. Designers are therefore urged to carefully consider the impacts of such details as a part of their design.

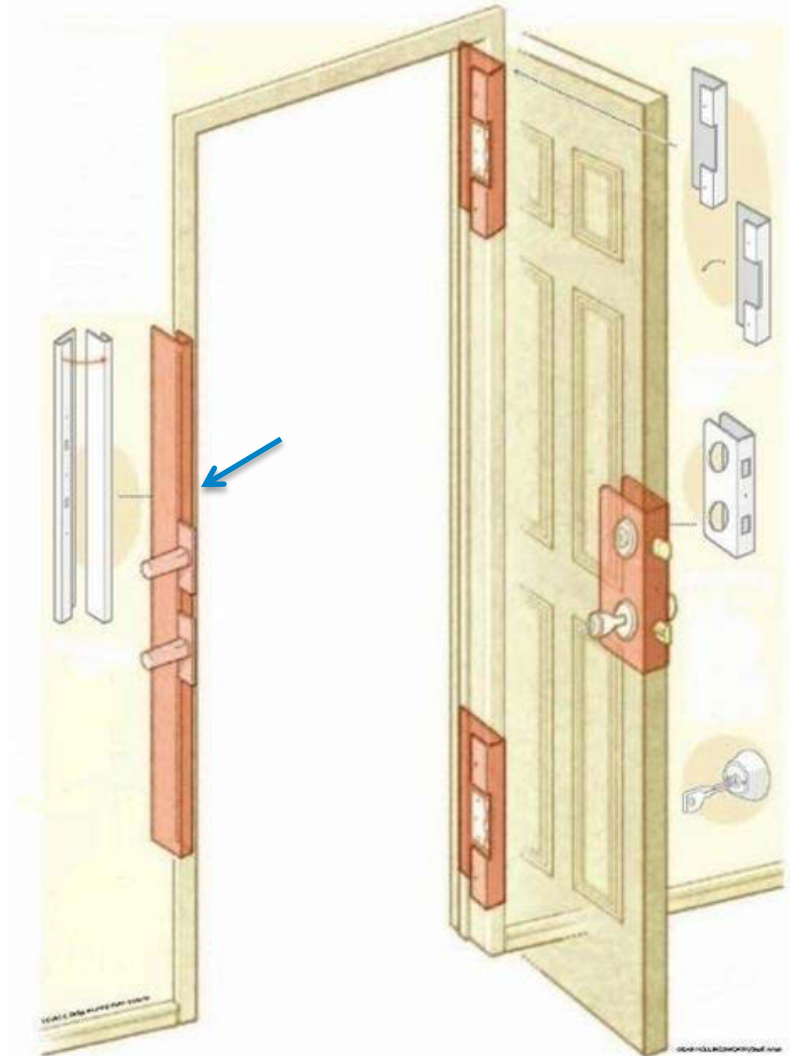
Emergency Radio Communications

- New requirement for a Bi-direction Radio Antenna
 - Reflects updates to the Fire By-law
 - Addresses the complexities of emergency communications in modern buildings
 - Replaces the Firefighters Telephone
- Applicable to:
 - New high buildings
 - Older high building undergoing large renovations triggering an 'F4' level of upgrade



Residential Security

- Enhanced exterior door jamb reinforcement requirements introduced with amendment to 2014 VBBL will be expanded to detached storage garages in 1- & 2-family homes



*Resistance to Forced Entry

- Adopted 9.7.5.2. of the 2018 BCBC with the following amendments:
 - Modify Sentence 9.7.5.2.(1) to expand the application to detached garage doors
 - Carry across the existing 2014 VBL Sentence 9.7.5.2.(10) & (11) as modified.
 - Add a new Sentence (12) as an exception to Sentence (10) & (11) to allow for multi-point latching systems in lieu of the reinforced door jamb.
 - Carry across the existing 2014 VBL Appendix notes A-9.7.5.2.(10)
- 10) Except as permitted by Sentence (11) and (12), a door frame reinforcement plate shall be installed between the jack stud and door frame, and shall be:
- a) ...
- 11) Except as permitted by Sentence (12), strikeplates required by Clause 9.7.5.2.(7)(a) and installed in a wood door frame without the reinforcement plate of Sentence (10), shall be:
- a) ...
- 12) A door provided with a multi-point locking system is not required to comply with Sentences (11) or (12).

Key Change – Sound Separation

- STC 50 (noise resistance) requirement removed for separations between a dwelling unit and adjoining storage garage (for another dwelling unit)
 - Applicable to houses only
 - Recognizes exterior wall construction provide a reasonable level of sound separation and the garage is not inherently noisy



Addresses industry concern:
Garage walls must be constructed as exterior wall assemblies due to the new energy requirements, so interior sound separation requirements are unreasonable and unnecessary

*Sound Separation to Garages

- Adopt Article 9.11.1.1.
With the following UTV
changes/additions:
 - Add an exemption for a
defined sound transmission
rating to a storage garage
in a residential building
containing not more than 1
or 2 dwelling units.

9.11.1.1. Required Protection

1) Except as provided in Sentences
(3) **and (4)**, a dwelling unit shall be
separated from every other space
in a building in which noise may be
generated by

...

**4) A dwelling unit in a building
containing not more than 1 or 2
primary dwelling units, need not
be separated from an adjoining
storage garage containing not
more than five stalls, provided
that the adjoining separating
assemblies are provided with
exterior sheathing and at least 89
mm of insulation.**

- Generalize the requirements for Secondary suites, Lock-off units, and other subsidiary dwelling units to 1 or 2 Family dwelling
 - Adopt the Provincial secondary suite requirements as a base
 - Blend Vancouver, Provincial, and National requirements
 - Follow a prescriptive approach with simplified language

- Intent:
 - Easier for the lay person to understand and construct,
 - Easier to achieve for existing construction,
 - Easier for inspectors to verify in the field,
 - To treat all such units in a uniform and predictable manner, and
 - Outcomes for new and existing will be more consistent

- Clarifying changes in 9.32 & 9.34 and coordination with:
 - Part 10 Energy Efficiency Requirements
 - Ancillary Residential Unit changes

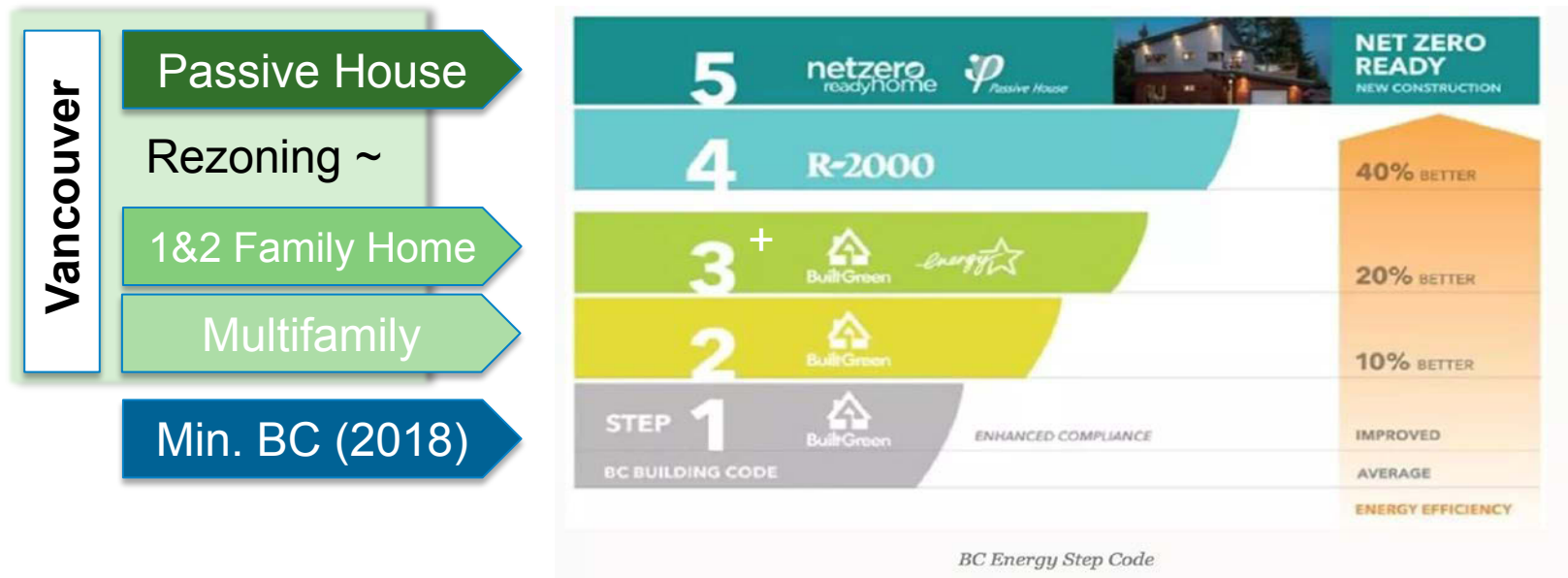


- Energy Efficiency
 - BC Step Code Outcomes (Bylaw #12103)
 - Electric Vehicle & End-of-trip Facilities (By-law 12154)
- Water Efficiency
 - Water Use (Bylaw #12104)
 - Non-Potable Water (Bylaw # 12346)



Key Adoptions from 2018 BCBC

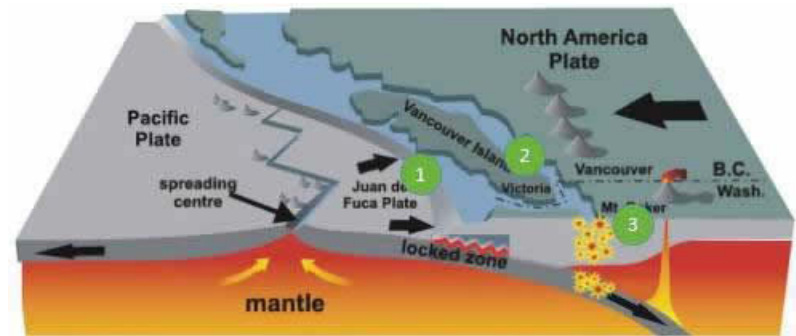
- Vancouver Energy Efficiency Outcomes
 - Improved over minimum provincial requirements
 - Rezoning requirements may require more



- Key change is implementing the Zero Emissions Building Plan as directed by Council at the end of the 2014 VBBL cycle.
 - Introduces “Performance Limits” approach for commercial buildings, and residential buildings of 7 storeys or more
 - Performance targets will be based on the occupancy and fuel source
 - Is consistent with the BC Step Code
- Most other Part 10 requirements do not change

*Seismic Design Data (Appendix C)

- Abridged Seismic Design Data
 - Vancouver and immediately surrounding areas only



*Climatic Design Data (Appendix C)

- Condensed Climatic Design Data for Part 9
 - to single location for Window/Door Performance (NAFS)
- Added to Appendix C reference data for predicted climatic design data for 2020s & 2050s

In this By-law, future climatic design data projections have been provided based upon climate modelling by the Pacific Climate Impacts Consortium. Given the inherent uncertainty of making future prediction, the provided values can not necessarily be seen to be a wholly accurate prediction of future occurrences. Rather, these projections are intended to be a baseline guide for designers to wishing to consider how their building systems designs will perform in the near future. It is cautioned that complete data is not presently available for all variables, and those values related to snow and wind pressures are derived from fewer data points and are therefore less reliable.

End of Trip Facilities

- End-of-trip facilities removed from Building By-law
- Moved to the Parking By-law



Electric Vehicle Charging

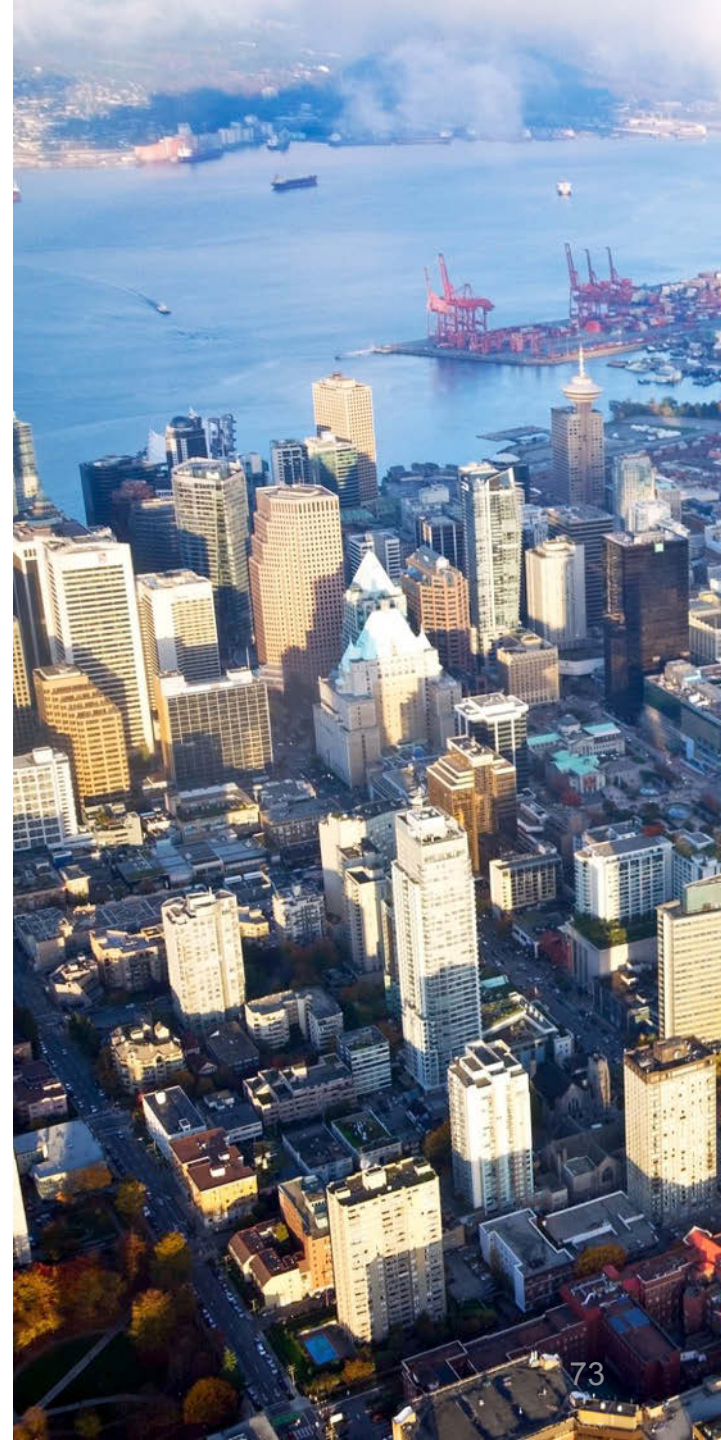
- Requirements other than electrical safety requirements have been removed from the Building By-law
- Now in the Parking By-law



Book II (Plumbing)

Key Proposals

2019 VBBL Change Proposals



- Adopt BCBC Book II (Plumbing Systems)
 - Minimal changes from 2014 VBBL



- Water efficiency requirements in Part 10 will be moved to Book II (Plumbing Systems)
 - Clarity change
 - Make all plumbing information available in the same place.
 - Harmonizes with the BCBC approach

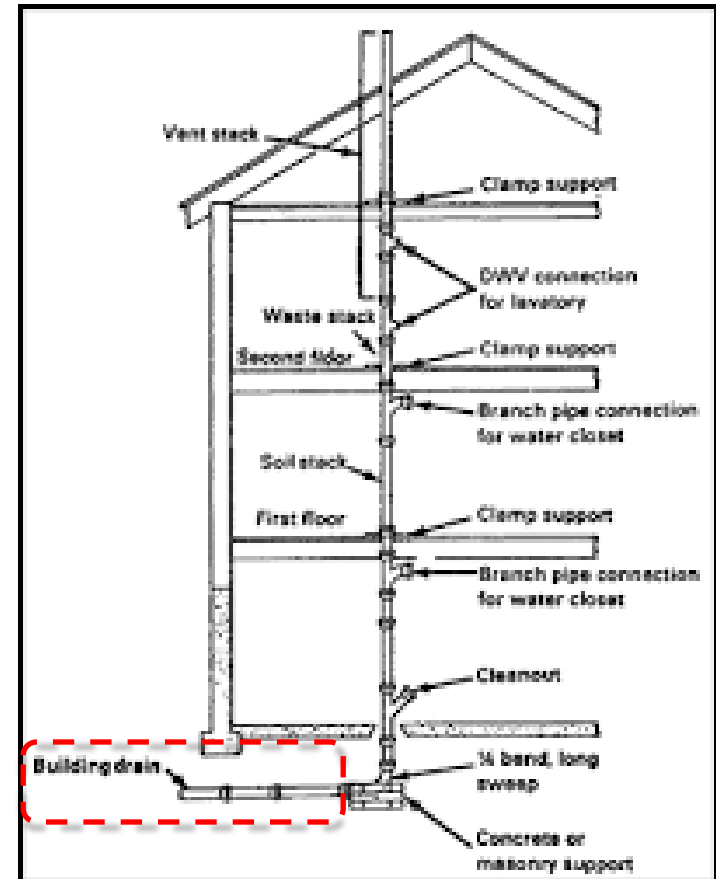


- New non-potable water requirements to Book II (Plumbing Systems)
 - More extensive than older purple pipe requirements
 - Considers the operational requirements of the system



Building Drain Vent

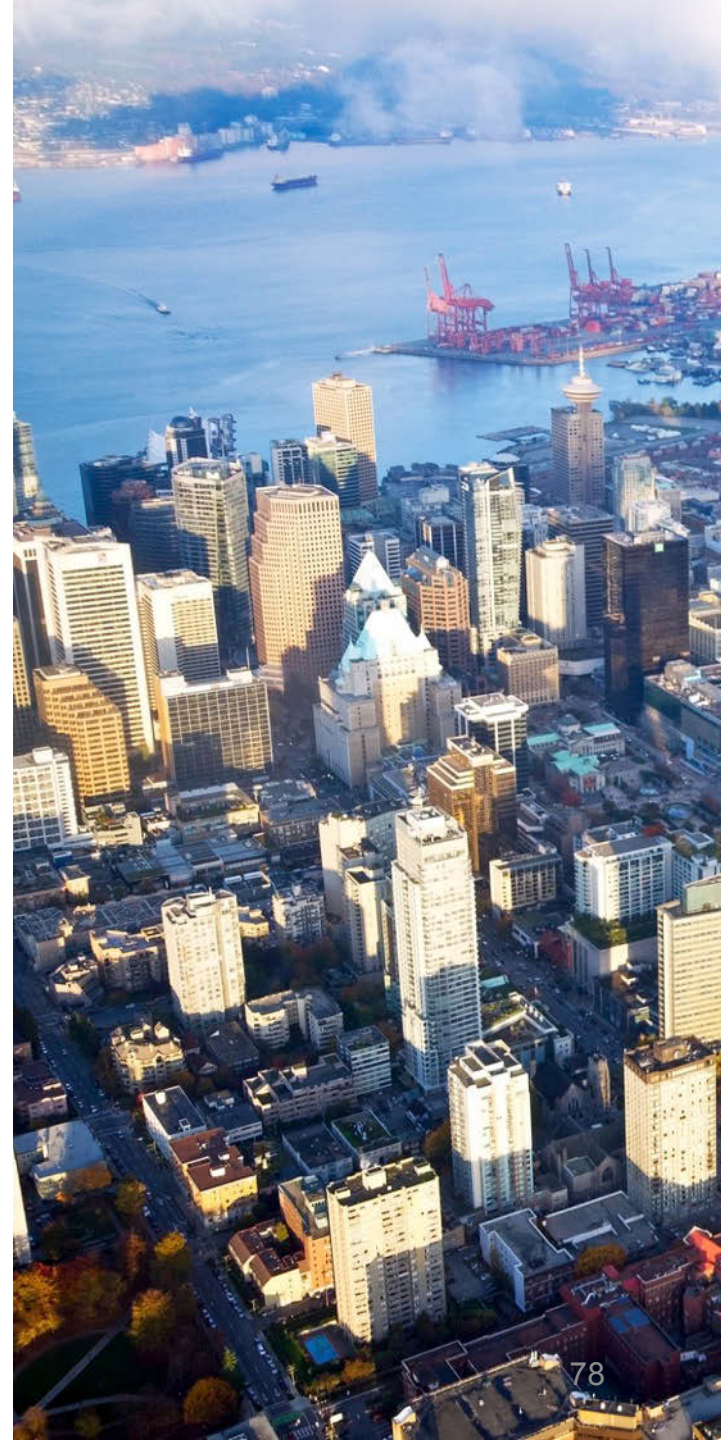
- Low risk of frost closure in Vancouver
- Revised requirements to
 - Require only one vent for the building drain
 - Reduce to min. 3" vent



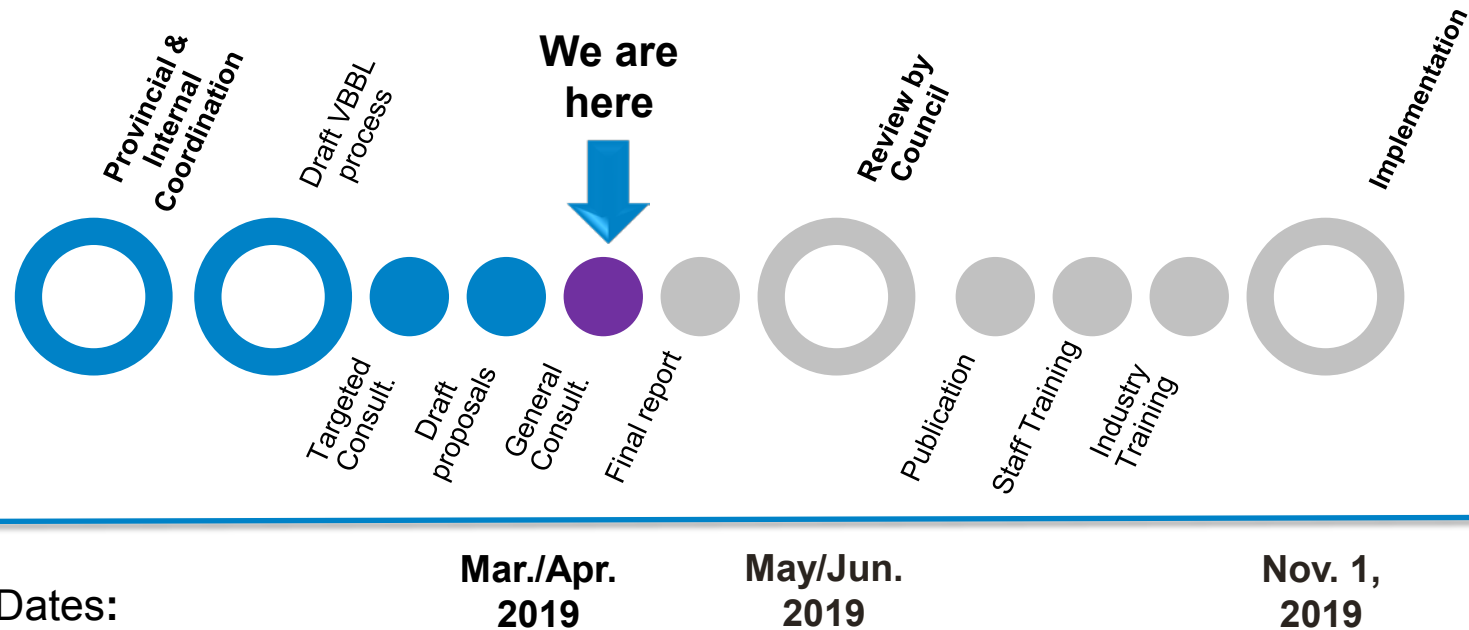
Update:

Timeline

Anticipated & Revised



Timeline – Current Estimate



Note: Estimated timeline subject to change.

Questions & Discussion

Your comments and suggestions are welcome.

Contact:

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