

2024 BC Building Code Changes

Relevant Changes for RDCK



Web Link to 2024 BCBC Pdf:

https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/revisions-and-mo/bcbc_2024.pdf

Online Event:

Monday, March 4 2024:

5:30pm – 8:30pm PST

In Person Event:

Wednesday March 6, 2024:

RDCK Nelson Head Office Board Room

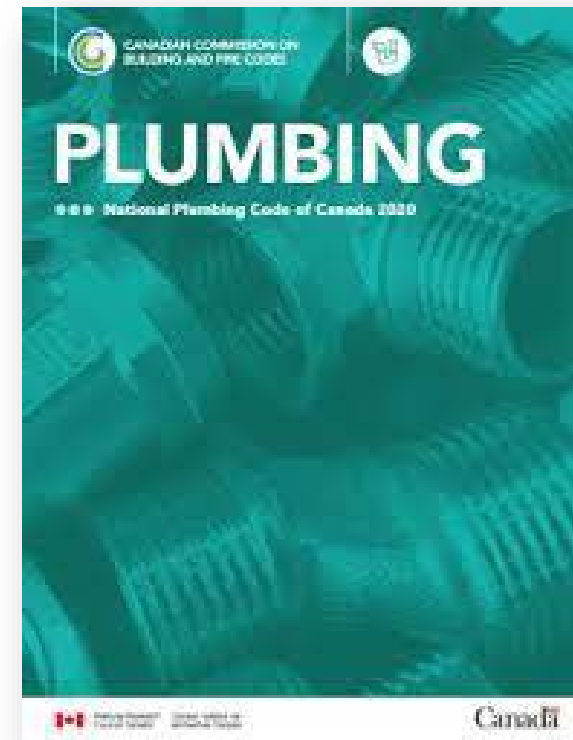
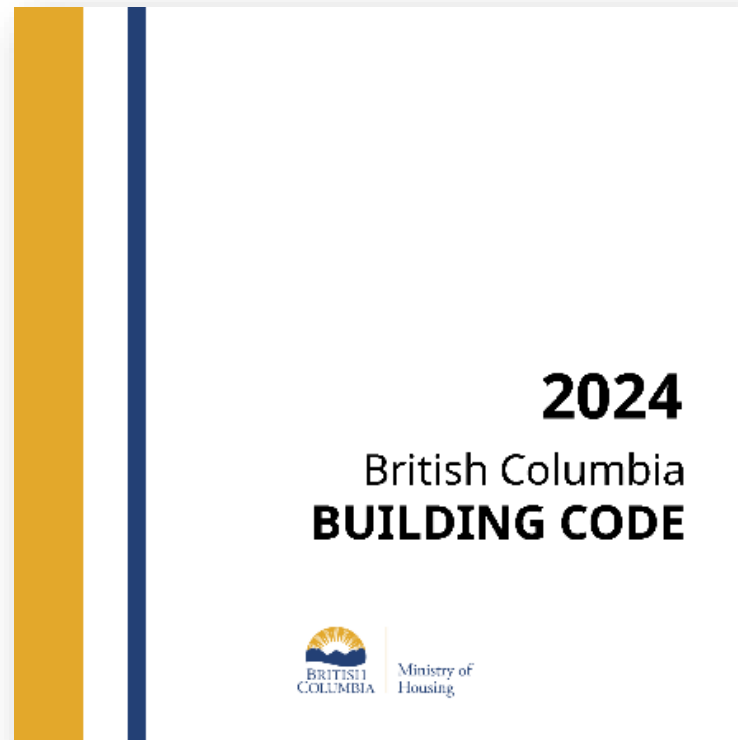
9:00am – 12pm PST

2024

British Columbia
BUILDING CODE

New Codes:

All new permits are subject to the 2024 versions if applied for or issued after March 8, 2024.



Overview of BCBC Changes

- Radon Mitigation (applies to whole Province with new standard)
- Energy Efficiency Increases & GHG emissions (Revision 5 of 2018 BCBC)
- Encapsulated Mass Timber construction
- Adopting cooling requirements to provide one living space that does not exceed 26 degrees Celsius
- Retaining existing ventilation requirements for systems serving single dwelling units
- Plumbing Code Changes (harmonization with the NPC)

BC-specific changes effective March 2025:

- Requiring 100% adaptable dwellings in large condominium and apartment buildings and the first floor dwelling units in new small apartments and condominiums to be adaptable
- Reinforcement of bathroom walls to allow future installation of grab bars
- Early adopting national provisions to improve earthquake design changes for housing and small buildings with high seismic hazard values



Division A – Part 1

- New Subsection BCBC 1.2.3. - Personnel Performing Plumbing Work

1.2.3. Installation of Plumbing Systems

1.2.3.1. Personnel Performing Plumbing Work

- 1) Personnel performing the installation, *alteration*, renewal or repair of a *plumbing system* shall
 - a) possess a Canadian tradesperson's qualification certification as a plumber,
 - b) be an indentured apprentice supervised by a journeyman who meets the criteria set out in Clause (a), or
 - c) be the registered *owner* and occupant or intended occupant of the single detached dwelling in which plumbing work will occur.



Division A – Defined Terms – Section 1.4 New Terms

Updated or new definitions for the following terms:

- ***Distillery***

means a *process plant* where *distilled beverage alcohols* are produced, concentrated or otherwise processed, and includes facilities on the same site where the concentrated products may be blended, mixed, stored or packaged.

- ***Distilled beverage alcohols***

means a beverage that is produced by fermentation and contains more than 20% by volume of water-miscible alcohol.

- ***Owner***

Owner means any person, firm or corporation controlling the property under consideration during that period of the application of Sentence 1.1.1.1.(1) of this Code.

- ***Direct Vented***

- (as applying to a fuel-fired space- or water-heating *appliance*) means an *appliance* and its venting system in which all the combustion air is supplied directly from the outdoors and the products of combustion are vented directly to the outdoors via independent, totally enclosed passageways connected directly to the *appliance*.

- ***Registered Professional*** means

- a person who is registered as an Architect with the Architectural Institute of British Columbia under the Professional Governance Act, or
- a person who is registered as a professional engineer or professional licensee engineering with the Association of Professional Engineers and Geoscientists of the Province of British Columbia under the Professional Governance Act.

- ***Ramp*** means a path of travel having a slope steeper than 1 in 20.



Division B – Part 2

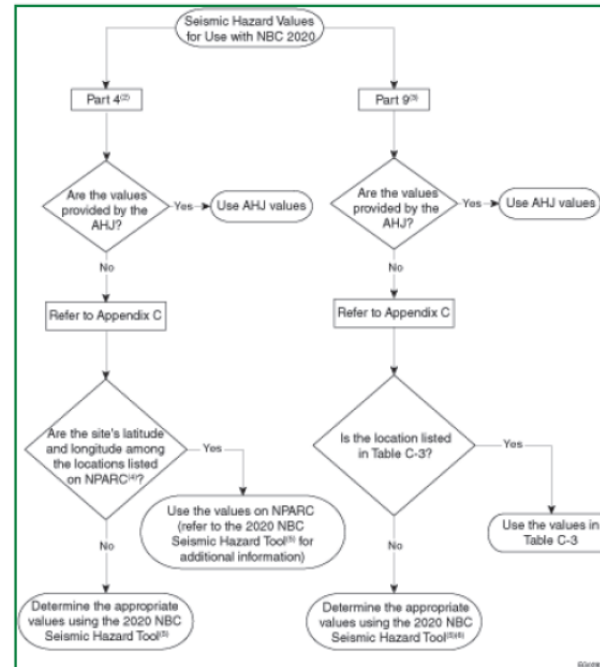
1.1.3. Climatic and Seismic Data

1.1.3.1. Climatic and Seismic Values

4) Where they have not been established by the *authority having jurisdiction*, the seismic values required for the design of *buildings* under Part 4 and Part 9 shall be in conformance with Appendix C. (See Note A-1.1.3.1.(4).)

New

A-1.1.3.1.(4) Seismic Values. Figure A-1.1.3.1.(4) illustrates how to determine the seismic hazard values to be used in the application of the Part 4 and Part 9 seismic provisions.



New flow chart – how to determine seismic hazard values to be used in Parts 4 and 9

Figure A-1.1.3.1.(4)
Determining seismic hazard values for use in Part 4 and Part 9

Notes to Figure A-1.1.3.1.(4):

(1) The abbreviations used in the figure have the following meanings:

AHJ = authority having jurisdiction

NPARC = NRC Publications Archive

(2) See also the section entitled "Seismic Hazard for Part 4" in Appendix C.

(3) See also the section entitled "Seismic Hazard for Part 9" in Appendix C.

(4) The seismic hazard values available on NPARC at <https://doi.org/10.4224/nqzr-dz38> were generated from the 2020 National Building Code of Canada Seismic Hazard Tool. This subset of values on NPARC is provided as a static, archival record for Code users.

(5) The 2020 National Building Code of Canada Seismic Hazard Tool is available at <https://doi.org/10.23687/b1bd3ct0-0672-4714-8bfa-290ae75de9b>.

(6) Refer to the procedure set out in the section entitled "Seismic Hazard for Part 9" in Appendix C.

Changes to Section 9.4 & 9.23 – Seismic Design

9.4.2.5. Seismic Design Parameter Coming March 10, 2025 ★

- “Braced wall panel – portions of walls where exterior sheathing or interior finish is designed and installed to provide the required resistance to lateral loads due to earthquakes.”
- “Braced wall band – imaginary continuous straight band extending vertically and horizontally through a building (or part of building) in which braced wall panels are constructed”
- Source: BC Housing – Illustrated Guide to Seismic Bracing Requirements

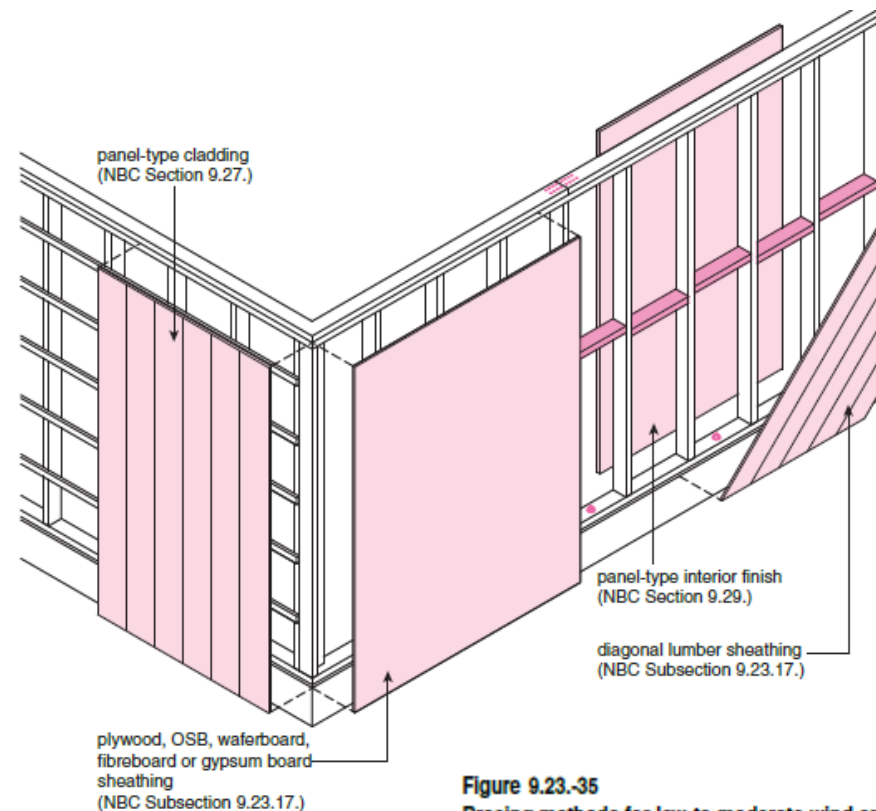
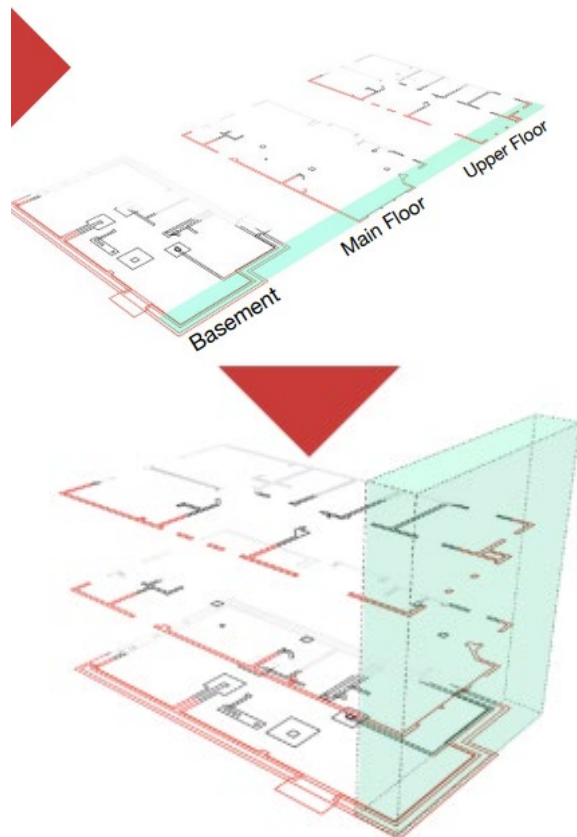
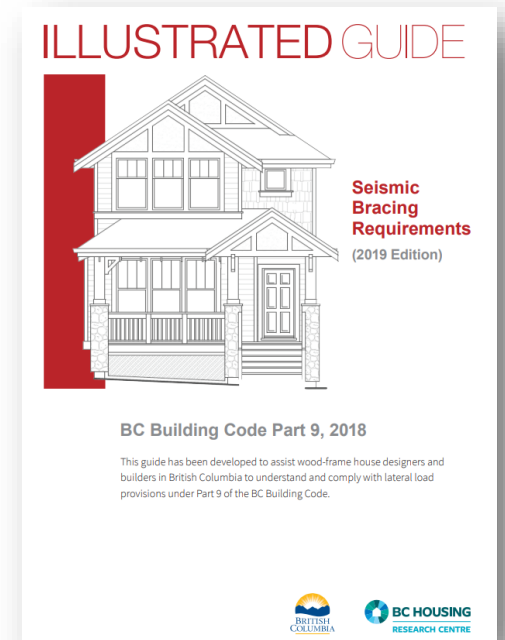


Figure 9.23.-35
Bracing methods for low to moderate wind and seismic forces



Adaptable Dwelling Units (ADU) 9.5.2.1.

9.5.2. Accessible Design

9.5.2.1. General

1) Except as provided in Articles 9.5.2.3. and 3.8.2.1., every *building* shall be designed in conformance with Section 3.8.

New- 3.8.2.1.(2) Requirement for compliance for (backing for future grab bars) in detached houses, duplexes, houses with secondary suites, triplexes, townhouses, row houses, and boarding houses.

9.5.2.2. Protection on Floor Areas with an Accessible Path of Travel

1) Where an *accessible* path of travel required in Article 9.5.2.1. is provided to any *storey* above the *first storey*, the requirements in Article 3.3.1.7. shall apply.

Coming March 10, 2025

- **Adaptable Dwelling Unit** means a *dwelling unit* designed and constructed with some *accessible* features and which accommodates the future modification to provide more *accessible* features.

New 100% ADUs in large condominium apartment buildings and first floor dwelling units in new small apartments and condominiums



Changes to Stairs & Guards (Sec. 9.8)

9.8.1.5. Tactile Walking Surface Indicators **NEW to Part 9**

- 1) Tactile attention indicators shall be installed in conformance with Article 3.3.1.19.

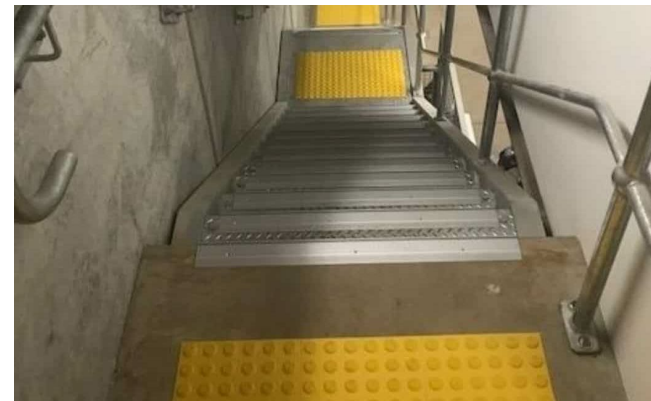
3.3.1.19. Tactile Walking Surface Indicators **NEW**

1) Except as provided in Sentence (2), tactile attention indicators complying with Clauses 4.3.5.3.1, 4.3.5.3.3 and 4.3.5.3.4 of CSA B651, "Accessible design for the built environment," shall be installed

- a) at the top of *flights* of stairs that are unenclosed, and
- b) at drop-off edges with a change in elevation greater than 300 mm that are unprotected by a *guard*.

(See Note A-3.3.1.19.(1).)

2) Sentence (1) does not apply to *service spaces*, bleachers addressed in Subsection 3.3.2., *stages*, loading docks, *industrial occupancies*, within *dwelling units*, and to stairs and drop-off edges serving not more than two *dwelling units*.



Changes to Stairs & Guards (Sec. 9.8)

9.8.4.9. Open Risers **NEW**

- 1) Except as provided in Sentence (2), stairs shall have no open risers.
- 2) Open risers are permitted in
 - a) interior and exterior stairs that serve a single *dwelling unit* or a house with a *secondary suite*,
 - b) fire escape stairs,
 - c) stairs that are principally used for maintenance,
 - d) stairs that serve *service rooms*, and
 - e) stairs that serve *industrial occupancies other than storage garages*.



Dwelling unit means a *suite* operated as a housekeeping unit, used or intended to be used by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.

Industrial occupancy (Group F) means the *occupancy* or use of a *building* or part thereof for the assembling, fabricating, manufacturing, processing, repairing or storing of goods and materials.

Storage garage means a *building* or part thereof intended for the storage or parking of motor vehicles and containing no provision for the repair or servicing of such vehicles. (See Note A-1.4.1.2.(1).)

Secondary suite means a self-contained *dwelling unit* located within a *building* or portion of a *building*

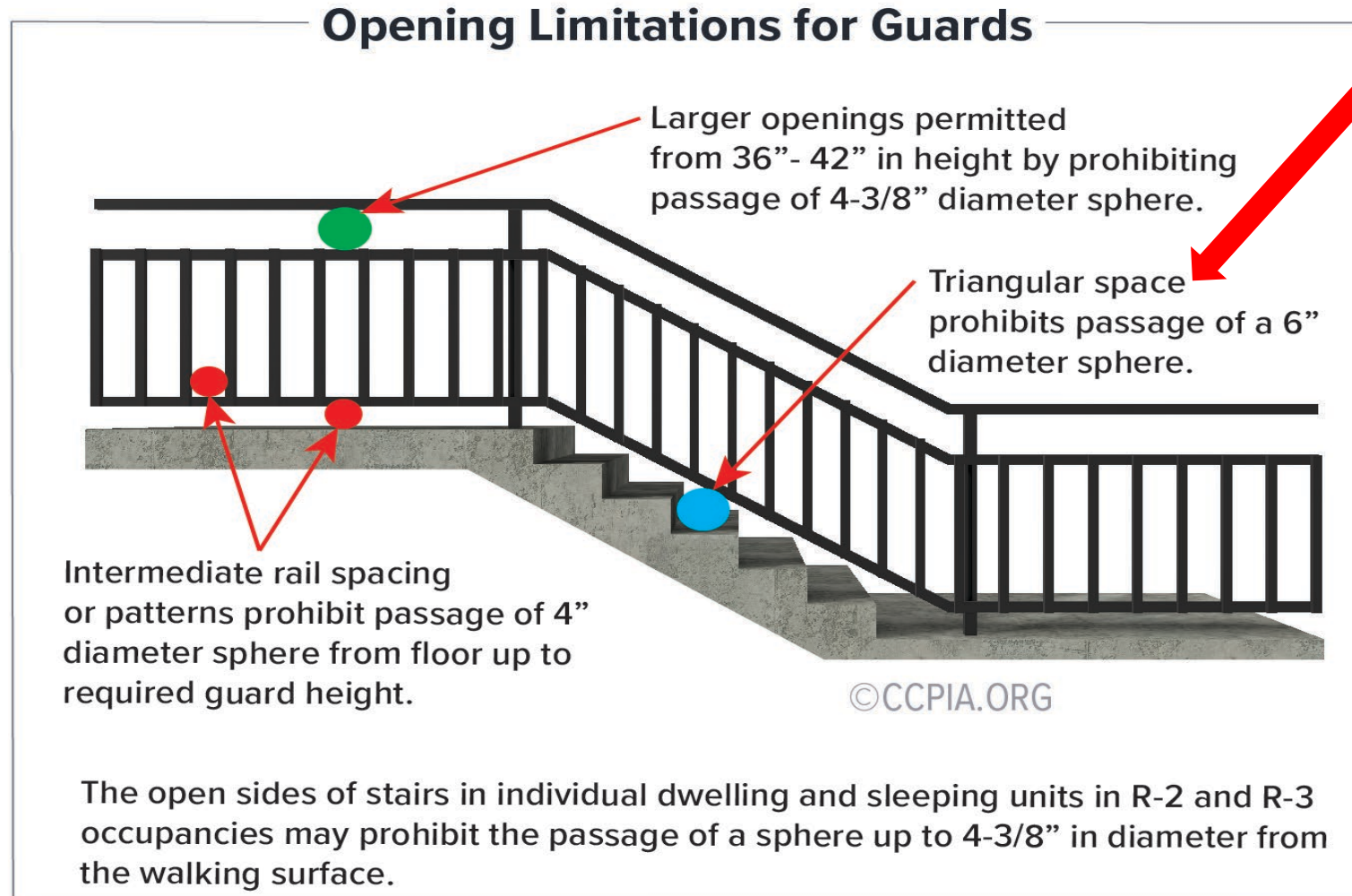
- completely separated from other parts of the *building* by a vertical *fire separation* that has a *fire-resistance rating* of not less than 1 h and extends from ground or lowermost assembly continuously through or adjacent to all *storeys* and spaces including *service spaces* of the separated portions,
- of only *residential occupancy* that contains only one other *dwelling unit* and common spaces, and
- where both *dwelling units* constitute a single real estate entity.
(See Note A-1.4.1.2.(1) of Division B.)

Service room means a room provided in a *building* to contain equipment associated with *building services*. (See Note A-1.4.1.2.(1).)

9.8.8.5. Openings in Guards

9.8.8.5. Openings in Guards

2) Except for *guards* that serve *industrial occupancies*, the triangular openings formed by stair risers, stair treads and the bottom element of a required *guard* shall be of a size that prevents the passage of a 150 mm diam sphere.



9.8.8. Guards

9.8.8.1. Required Guards ^{amended}

4) Except as provided in Sentence (5), openable windows in *buildings of residential occupancy* shall be protected by

a) a *guard*, or

b) a mechanism that can only be released with the use of tools or special knowledge to control the free swinging or sliding operation of the openable part of the window so as to limit any clear unobstructed opening to not more than 100 mm measured either vertically or horizontally.

(See Note A-9.8.8.1.(4).)

5) Windows need not be protected in accordance with Sentence (4), where the bottom of the openable portion of the window is located

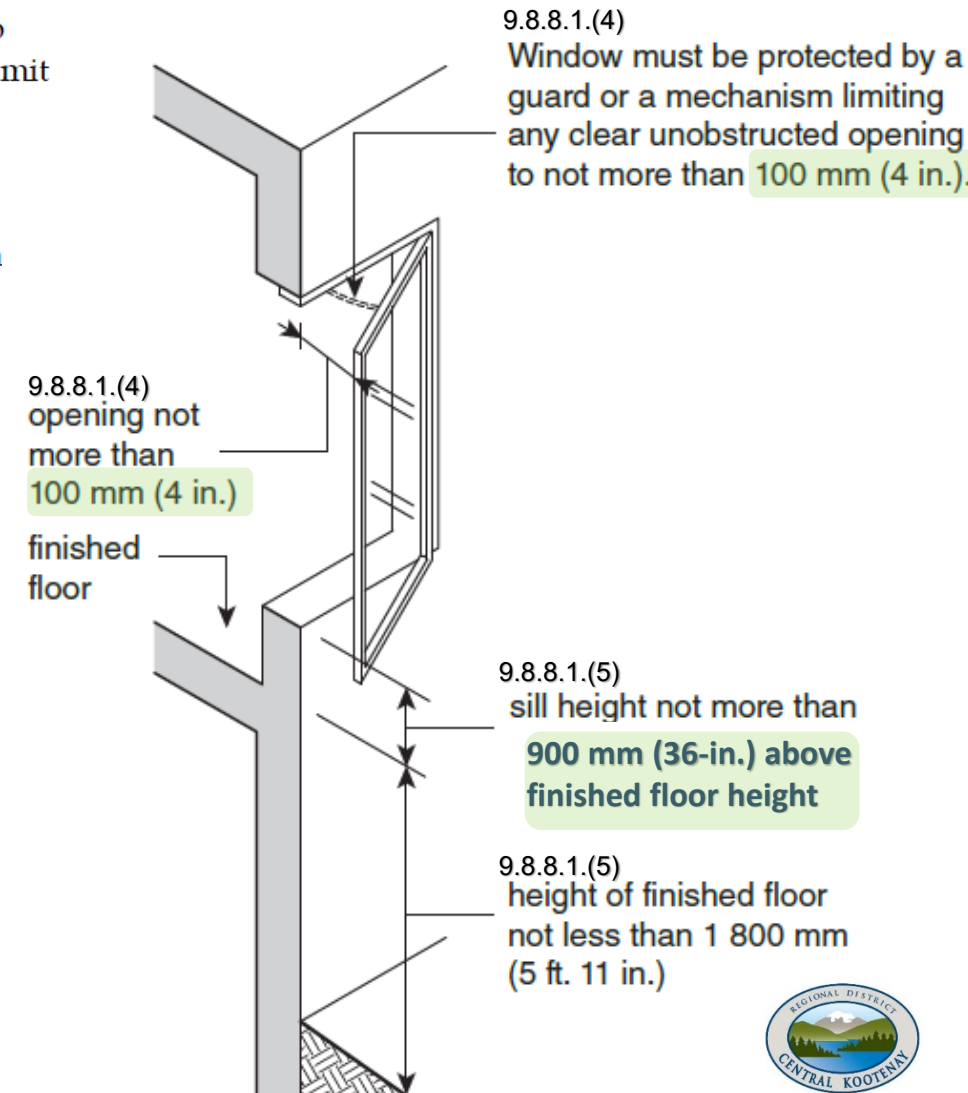
a) more than 900 mm above the finished floor, or ~~(was 450mm in 2018 BCBC)~~

b) less than 1 800 mm above the floor or ground on the other side of the window.

NOTE:

A-9.8.8.1.(4) Window Fall Prevention. The primary intent of the requirement is to minimize the likelihood of small children falling significant heights from open windows. Reflecting reported cases, the requirement applies to openable windows in dwelling units and generally those located on the second floor or higher of residential or mixed use buildings.

The 100 mm opening limit stated in Sentence 9.8.8.1.(4) is recognized as the maximum opening size required to protect small children from falling through open windows. The minimum 900 mm height of the openable portion of windows required by Sentence 9.8.8.1.(5) corresponds to the minimum height of guards required by Sentence 9.8.8.3.(2) as a means of fall protection in residential occupancies.



9.9.6. Doors in a Means of Egress

9.9.6.4. Door Action

- 5) *Exit* doors need not conform to Sentence (1) or (2), where
 - a) the doors serve accessory *buildings* where life safety is not adversely affected,
 - b) the doors serve *storage garages* or other accessory *buildings* serving not more than one *dwelling unit*, or
 - c) the doors
 - i) serve storage *suites* of not more than ~~(was 20m² in 2018 BCBC)~~ 28 m² in gross area that are in warehousing *buildings* of not more than one *storey*, and
 - ii) open directly to the exterior at ground level.

(revised from shall be installed not more than 1200mm above the finished floor in 2018 BCBC)

9.9.6.7. Door Latching, Locking and Opening Mechanisms

- 3) Door release hardware on doors in a *means of egress* shall be installed 900 mm to 1 100 mm above the finished floor.

9.9.11.3. Exit Signs

- 7) *Exit* signs with tactile information shall be provided in accordance with Article 3.4.5.2. **New Sentence**

3.4.5.2. Exit Signs with Tactile Information

- 1) An exit sign displaying the word “EXIT” in tactile form that complies with Subsection 3.8.3. shall be mounted on the approach side of exit doors described in Sentence 3.4.5.1.(1), in the direction of travel to the exit.



Division B – Part 9 – Section 9.10 – Fire Protection

9.10.9.17. Separation of Public Corridors

5) No *fire separation* is required in a *sprinklered floor area* between a *public corridor* and a space containing plumbing fixtures required by Article 3.7.2.2. and Section 9.31., provided

- a) the space and the *public corridor* are separated from the remainder of the *storey* by a *fire separation* having a *fire-resistance rating* not less than that required between the *public corridor* and the remainder of the *storey*, and
- b) the plumbing fixtures are not located within a *dwelling unit* or *suite*.

Renumbered Separation of Public Corridors and added New Sentence 9.10.9.17.5.

9.10.14. Spatial Separation Between Buildings

9.10.14.1. Application

1) This Subsection applies to *buildings* other than those to which Subsection 9.10.15. applies.

2) This Subsection does not apply to detached carports conforming to Section 9.35. that serve not more than one *dwelling unit* or a house with a *secondary suite*.



Added New Sentence 9.10.14.1.(2). Exempts detached carports not serving more than one *dwelling unit* or house with a *secondary suite*.

9.10.14.5. Construction of Exposing Building Face and Walls above Exposing Building Face

4) Except as provided in Sentence (5), where a garage or accessory *building* serves one *dwelling unit* only and is detached from any *building*, the *exposing building face*

c) need not conform to the type of cladding and type of construction required by Table 9.10.14.5.-A, regardless of the *limiting distance*.

Added “and type of construction” to 9.10.14.5.(4).(c)

Radon Mitigation – 9.13

- New requirements to include radon mitigation rough-ins throughout the entire Province. (no exemptions)
- Addition of CAN/CGSB-149.11 standard, “Radon control options for new construction in low-rise residential buildings”.
- Changes include updated materials and design. Pressure test required
- Removed 9.13.4.2.3), 4) & 5) (~~occ. 4 hours or more / 24hr period~~)
- Now any *conditioned space* the subfloor shall be provided with the rough-in subfloor depressurization system conforming to 9.13.4.3.
- Passive and Active designs

9.13.4.2. Protection from Soil Gas Ingress

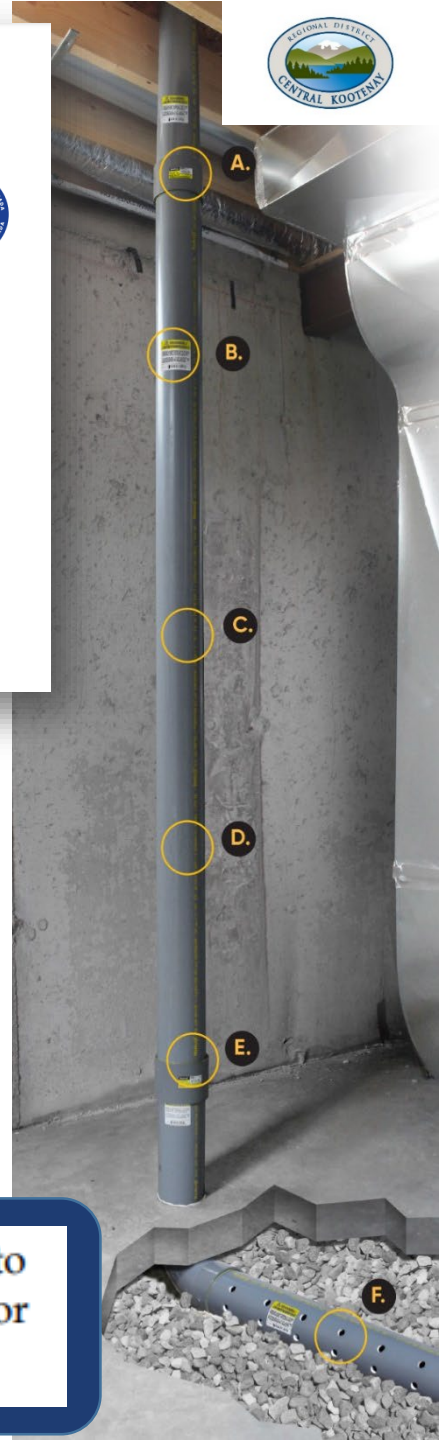
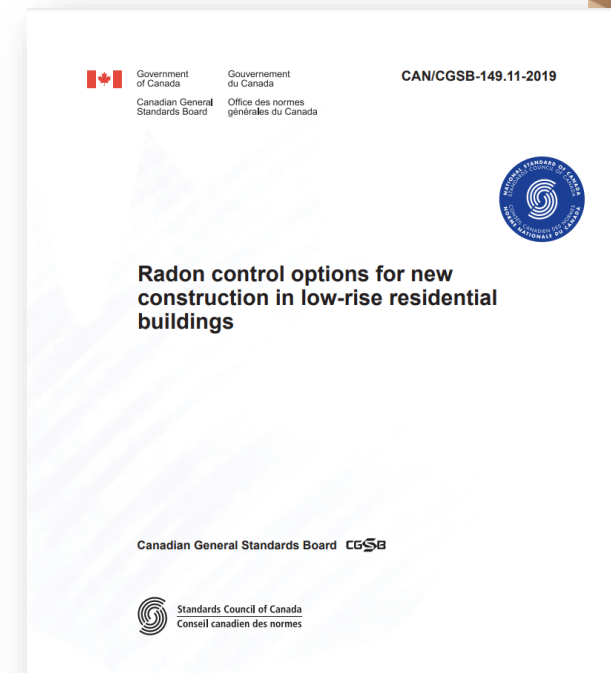
1) All wall, roof and floor assemblies, or parts thereof, separating *conditioned space* from the ground shall be protected by an *air barrier system* conforming to Subsection 9.25.3.

2) Unless the space between the *air barrier system* and the ground is designed to be accessible for the future installation of a subfloor depressurization system, *buildings* shall

a) be provided with the rough-in for a subfloor depressurization system conforming to Article 9.13.4.3., or

b) conform to Parts 5 and 6 for the protection from radon ingress and the means to address high radon concentrations in the future (see Articles 5.4.1.1. and 6.2.1.1.).

Conditioned space means any space within a *building*, the temperature of which is controlled to limit variation in response to the exterior ambient temperature by the provision, either directly or indirectly, of heating or cooling over substantial portions of the year.



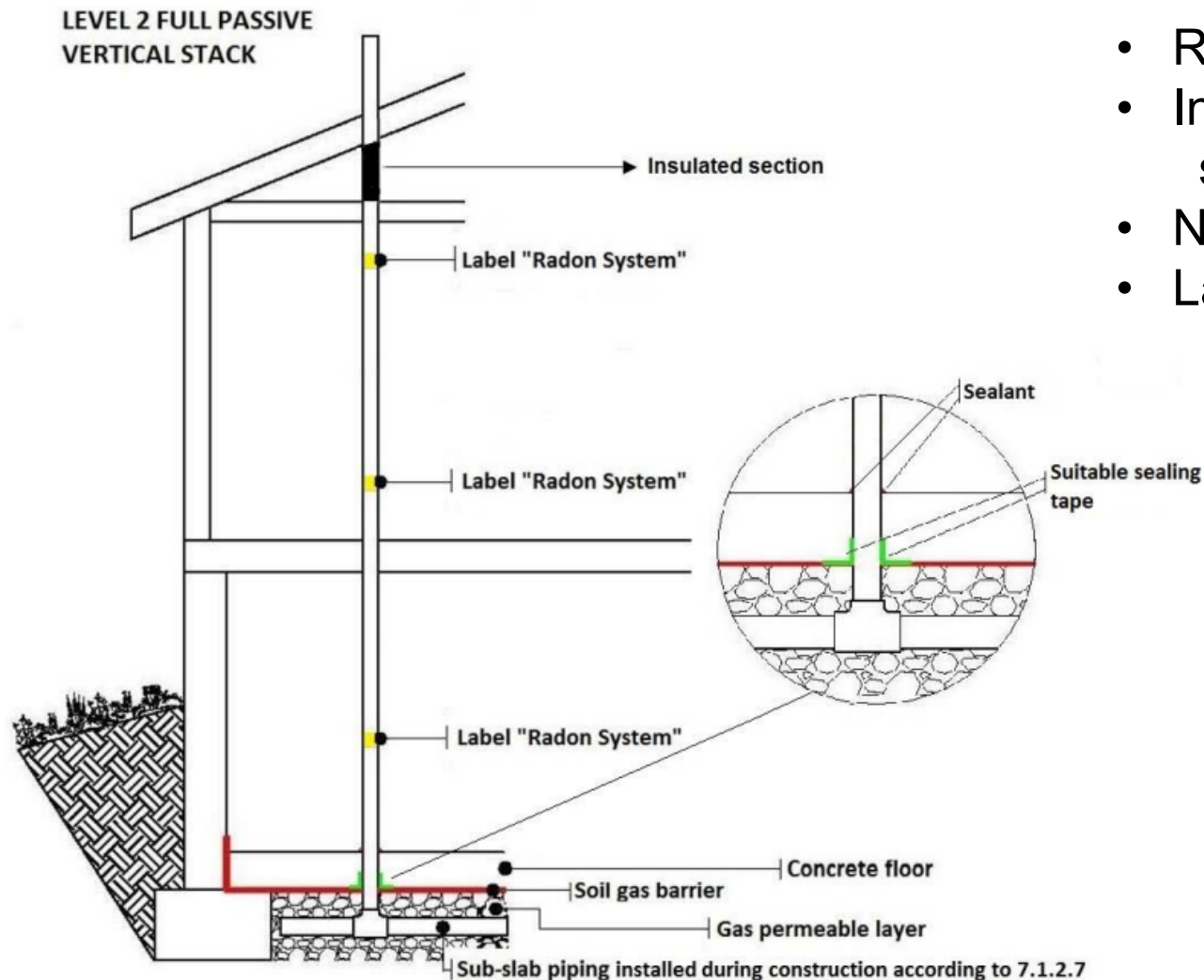
Radon Mitigation – 9.13

9.13.4.3. Rough-in for a Subfloor Depressurization System

- 1) Floors-on-ground shall accommodate the future installation of a subfloor depressurization system by installing a radon vent pipe, and a contiguous gas-permeable layer between the *air barrier system* and the ground consisting of
 - a) a material or materials that allow effective depressurization of that space (see Sentence 9.16.2.1.(1)), or
 - b) not less than 100 mm of coarse clean granular material containing not more than 10% of material that would pass a 4 mm sieve.
- 2) The radon vent pipe required by Sentence (1) shall
 - a) be sealed to maintain the integrity of the *air barrier system*, with no perforations along the pipe above the *air barrier system*,
 - b) have one or more inlets that allow for the effective depressurization of the gas-permeable layer (see Note A-9.13.4.3.(2)(b) and (3)(b)), and
 - c) permit connection to depressurization equipment,
 - d) where it passes through *conditioned space*, be completely surrounded by *conditioned space*,
 - e) consist of pipe and fittings in accordance with 7.1.3 of CAN/CGSB-149.11, "Radon control options for new construction in low-rise residential buildings," **See note in upper right corner**
 - f) terminate outside the *building* in a manner that does not constitute a hazard,
 - g) be installed to prevent the accumulation of moisture and away from locations where snow and ice accumulate, and
 - h) be clearly labeled every 1.8 m and at every change in direction to indicate that it is intended only for the future removal of radon from below the floor-on-ground.
- 3) A radon vent pipe shall be deemed to comply with
 - a) Clause (2)(b) where its inlet or inlets below the *air barrier system* are located at or near the centre of the floor-on-ground with gas-permeable material extending not less than 100 mm beyond any inlet, and
 - b) Clause (2)(f) where it terminates outside the *building*, not less than 1.8 m from a property line, and located in accordance with either 7.2.4.6 or 7.3.4 of CAN/CGSB-149.11, "Radon control options for new construction in low-rise residential buildings," with the opening of the pipe fitted with a corrosion-resistant screen or grille with a mesh opening size of 10 mm to 12.5 mm or a product of equivalent air flow performance.



Continuous Pipe System (Passive)

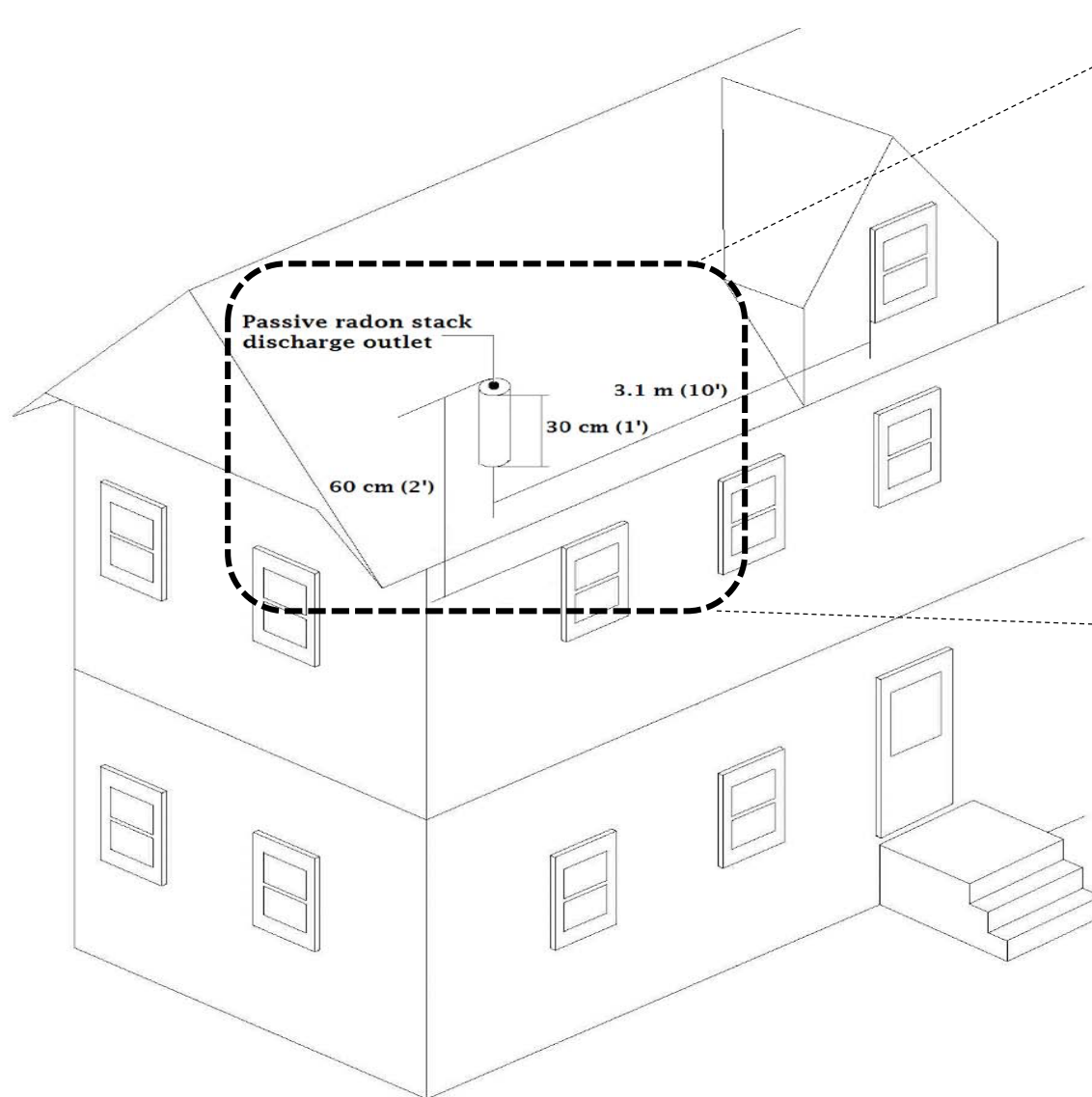


- Roof penetration only
- Insulated where in non-conditioned spaces
- Not permitted in exterior walls
- Labelled entire length (1.8m intervals)



Figure 7.2b — Level 2 — Full passive vertical radon stack

Pipe Terminations - CAN/CGSB 7.2.4.6



PASSIVE SYSTEM – above roof:

- Corrosion-resistant screen with mesh
- Opening size of 10mm to 12.5 mm.
- Min 1' (30cm) above roof
- Min 2' above windows
- Min 3' above air intake
- Min 10' from wall or windows

Active Radon Reduction System – CAN/CGSB 7.3.4

ACTIVE SYSTEM

- Roof top, gable end or sidewall venting permissible (near ground level)
- Moisture/ice accumulation on surfaces to be minimized
- 2m clearance to mech air intake
- 2m clearance to openable window
- 2m above paved sidewalk/driveway

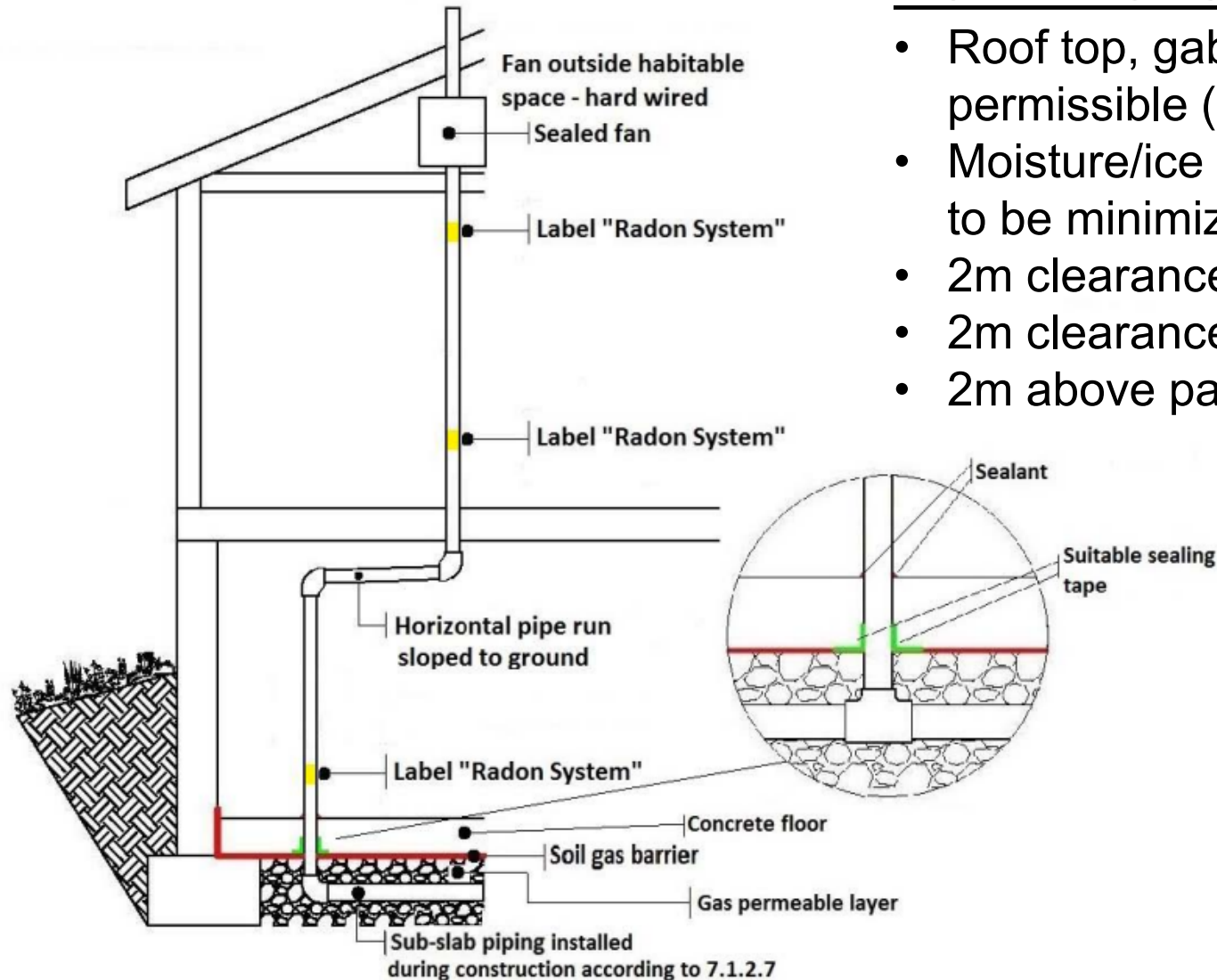


Figure 7.3.4a — Level 3 — Full active soil depressurization system-rooftop discharge

Heating and Air-conditioning –Section 9.33

9.33.2. Required Heating and Cooling Systems Added “and Cooling Systems”

9.33.2.1. Required Heating and Cooling Systems

1) Residential *buildings* intended for use in the winter months on a continuing basis shall be equipped with heating facilities conforming to this Section.

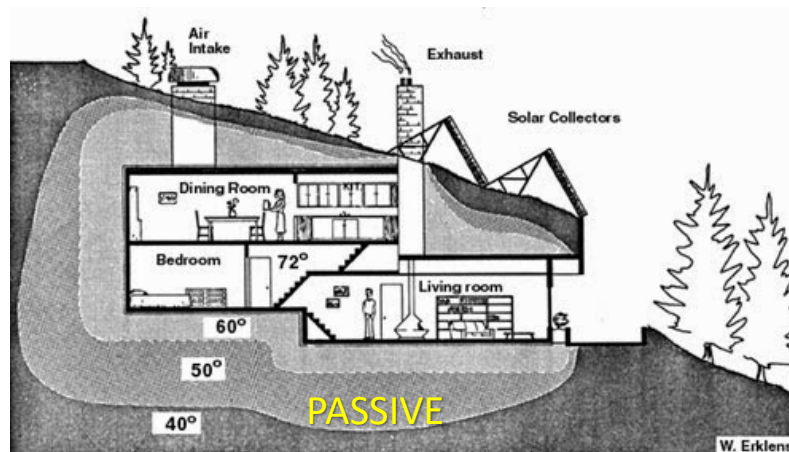
2) Except where determination according to Article 9.33.5.1. or good engineering practice according to Article 6.2.1.1. can show it to be unnecessary, *dwelling units* intended for use in the summer months on a continuing basis shall be equipped with cooling facilities conforming to this Section. (See Note A-9.33.2.1.(2).) **New Sentence**

Renumbered Separation of Public Corridors and added New Sentence 9.10.9.17.5.

9.33.3. Design Temperatures

9.33.3.1. Indoor Design Temperatures

2) At the outside summer design temperature, required cooling facilities shall be capable of maintaining an indoor air temperature of not more than 26°C in at least one living space in each dwelling unit. **New Sentence**



Energy Step Code/Zero Carbon Step Code Sections 9.36 & 9.37 and 10.2 & 10.3



Seeks to address energy consumption via increased energy efficiency measures.

Smaller Buildings: Section **9.36**
Larger Buildings: Section **10.2**



Seeks to address energy source emissions via encouraging mechanical systems that use energy sources with a lower emissions factor.

Smaller Buildings: Section **9.37 *NEW**
Larger Buildings: Section **10.3 *NEW**

Energy Efficiency Changes

Major Part 9 Energy Efficiency changes include:

- 9.36 Energy Efficiency Minimum Requirement = **Step 3 Performance.**
- 9.36.2 to 9.36.4 – **Prescriptive pathway** (can be adopted by an AHJ **under a Bylaw update only**)
- 9.36.5 – updates to modelling based off of Reference house targets
- Two **new airtightness** metrics for Part 9 performance pathway
- Exceptions for Log Homes



SFD w/ or w/o a *Secondary Suite*, *Row-houses*, Buildings containing only dwelling units with common spaces ≤ 20% of building's total floor area, and *Duplexes*

9.36. / Energy Step Code (ESC)



C – Occupancy:
Residential (apartments, hotels, dormitories)



D – Occupancy:
Personal service (offices)



E – Occupancy:
Mercantile (stores, displaying or selling retail goods)

Refer to Part 10 for ESC and ZCSC target metrics

F3– Occupancy: Low-hazard Industrial (storage garages, workshops)
F2 – Occupancy: Medium-hazard Industrial (service stations, aircraft hangar)

Refer to Part 10 OR NECB

BCBC 10.2 – Part 3 Buildings Performance Pathway & Part 9 Buildings Other Than SFD



Energy Performance Requirements Based on Occupancy		
Occupancy Group	ESC Requirements	NECB Requirements
C – Hotels & Motels	Steps 2-4	
C - Other Residential Occupancies	Steps 2-4	
D – Offices	Steps 2-3	
D – Other than Offices and E - Mercantile	Steps 2-3	
A – Schools (other than Colleges)	Step 2	Part 8 of the NECB
A - Libraries	Step 2	Part 8 of the NECB
A - Colleges	Step 2	Part 8 of the NECB
A – Recreation Centers	Step 2	Part 8 of the NECB
B - Hospitals	Step 2	Part 8 of the NECB
B- Care Centres	Step 2	Part 8 of the NECB

Other Residential Occupancies

- Steps 2 – 4ESC
OR - *NECB*.

HOSPITALS

- Step 2 – ESC Max.
- **OR - *NECB*.**

Zero Carbon Step Code Simplified



Table 9.37.1.3.

Greenhouse Gas Emissions

Forming part of Sentence 9.37.1.3.(1)

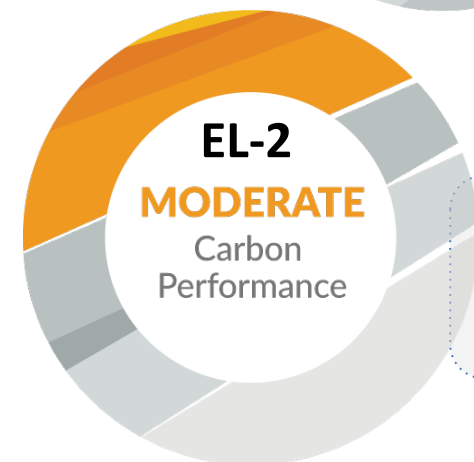
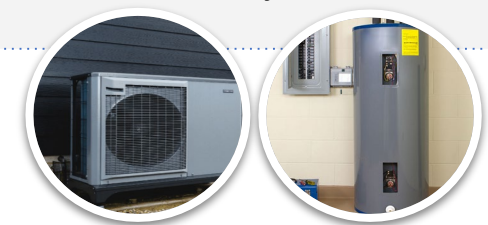
	Reduction of GHG Emissions by Energy Source of Building Systems
EL-1	N/A
EL-2	Energy sources supplying heating systems have an emissions factor ≤ 0.011 kgCO _{2e} /kWh
EL-3	Energy sources supplying heating and service water heating systems have an emissions factor ≤ 0.011 kgCO _{2e} /kWh
EL-4	Energy sources supplying all building systems, including equipment and appliances, have an emissions factor ≤ 0.011 kgCO _{2e} /kWh



No fossil fuels allowed.
Space and water heating and cooking must be zero carbon.



Fossil fuel cooking allowed.
Space and water heating systems must be zero carbon.



Fossil fuel water heating and cooking allowed. Space heating must be zero carbon.



BCBC 9.37 & 10.3 – Greenhouse Gas Emissions

Performance / Measured

Prescriptive

GHG Emission Level	GHG Emission Compliance Options				
	Maximum GHG Emissions by House, Expressed in kg CO _{2e} /year	or	Maximum GHG Emissions by House ¹		Reduction of GHG Emissions by Energy Source of Building Systems ²
			Maximum GHGI of the House, Expressed in kgCO _{2e} /m ² /year	Maximum GHG Emissions by House, Expressed in kgCO _{2e} /year	
EL-1	measure only		measure only		N/A
EL-2	1050	or	6.0	2400	Energy sources supplying heating systems have an emissions factor ≤ 0.011 kgCO _{2e} /kWh
EL-3	440		2.5	800	Energy sources supplying heating and service water heating systems have an emissions factor ≤ 0.011 kgCO _{2e} /kWh
EL-4	265		1.5	500	Energy sources supplying all building systems, including equipment and appliances, have an emissions factor ≤ 0.011 kgCO _{2e} /kWh

PART 9 BUILDINGS

This data is already available on energy compliance forms

GHG Emission Level	Maximum GHGI of the Building, Expressed in kgCO _{2e} /m ² /year			
	Residential Major Occupancy		Business and Personal Service and Mercantile Major Occupancies	
	Hotels and Motels	Other Residential Occupancies	Offices	Other Business and Personal Service and Mercantile Occupancies
EL-1	measure only			
EL-2	9.0	7.0	5.0	6.0
EL-3	4.0	3.0	3.0	3.0
EL-4	2.0	1.8	1.5	2.0

PART 9 COMPLEX and PART 3 BUILDINGS

no prescriptive option available



Energy Step Code/Zero Carbon Step Code Sections 9.36 & 9.37 and 10.2 & 10.3

BCBC May 1st 2023 – Current

STEP 2

Step 2 Energy Step Code – Part 9 Complex Buildings and Part 3 Buildings

STEP 3

Step 3 Energy Step Code – Part 9 applicable Buildings (residential)

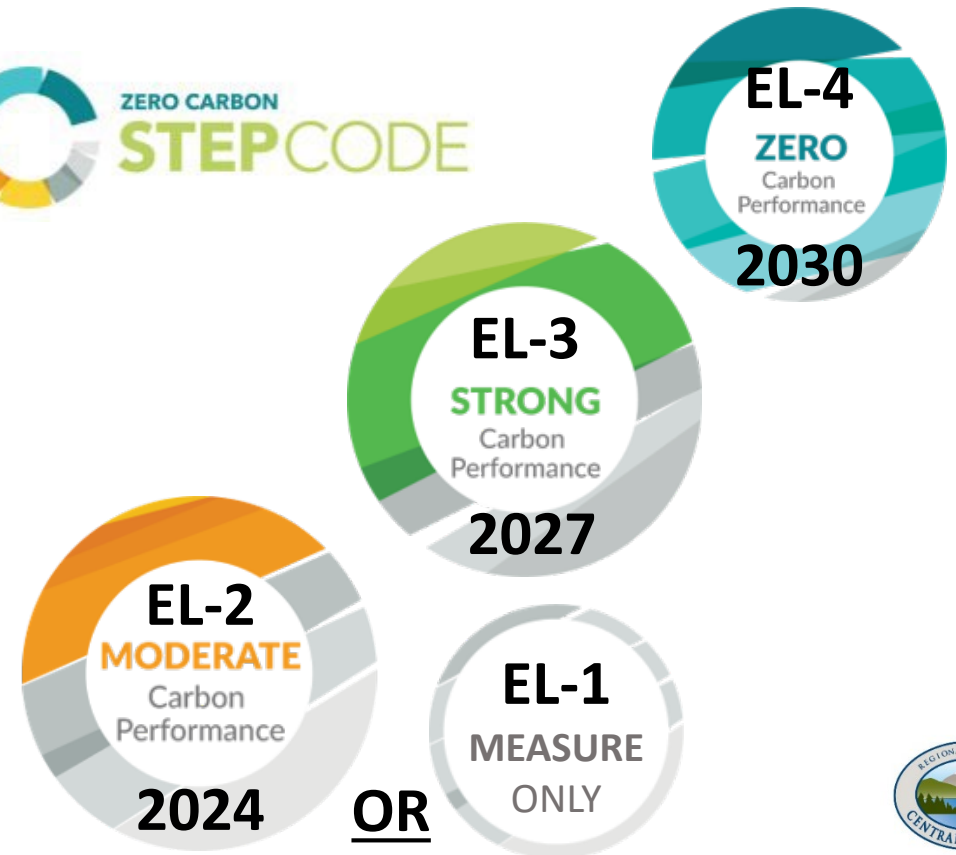
Provincial targets coming soon..



PART 3 – Residential Building



PART 3 – Residential Building



Highest Efficiency Equipment Standard (HEES)

- Coming in 2030

After 2030, all new space and water heating equipment sold and installed in B.C. will be at least 100% efficient, significantly reducing emissions compared to current combustion technology. Electric resistance technologies like baseboard and electric water heaters are 100% efficient: they convert all the energy they use into heat. But heat pump technologies exceed 100% efficiency by capturing and moving ambient heat, without having to produce it. The new requirements will encourage more people to install electric heat pumps while continuing to allow the use of electric resistance technologies. They will also allow hybrid electric heat pump gas systems and high-efficiency gas heat pumps.



Highest Efficiency Equipment Standards Regulatory Consultation

December 22, 2023

BACKGROUND

The Province of British Columbia (B.C.) is developing a policy to implement the Highest Efficiency Equipment Standards for Space and Water Heating (HEES) commitment outlined in the CleanBC Roadmap to 2030, which states:

Space and water heating are the primary drivers of GHG emissions from buildings. To meet our targets, we need to ensure these functions are super-efficient, improve resilience and, wherever possible, run on clean electricity or other renewable fuels. To help accelerate this transition, we're committing to highest-efficiency standards for new space and water heating equipment by 2030, and earlier where feasible.

After 2030, all new space and water heating equipment sold and installed in B.C. will be at least 100% efficient, significantly reducing emissions compared to current combustion technology. Electric resistance technologies like baseboard and electric water heaters are 100% efficient: they convert all the energy they use into heat. But heat pump technologies exceed 100% efficiency by capturing and moving ambient heat, without having to produce it. The new requirements will encourage more people to install electric heat pumps while continuing to allow the use of electric resistance technologies. They will also allow hybrid electric heat pump gas systems and high-efficiency gas heat pumps.

The CleanBC Roadmap to 2030 was informed by modelling of climate policies and targets, technology adoption, energy use, and market trends, as well as stakeholder consultation.

Following the CleanBC Roadmap to 2030 mandate, the Ministry of Energy, Mines and Low-Carbon Innovation (EMLI) began preliminary policy development.¹ EMLI completed a cost-benefit and market readiness assessment of compliant equipment and considered legislation and administrative options for implementation. Regulatory partners and subject matter experts were consulted on the compliance options as well as the administrative options.

Once they come into effect in 2030, the standards will drive the adoption of high-efficiency, low carbon equipment across BC's residential and small-to-medium commercial and institutional buildings. Although the standards apply to both existing buildings and new construction, the primary impact is on existing buildings. That is because there is a CleanBC commitment that all new buildings will be zero carbon by 2030, which is a higher bar than what will be required by the HEES.



Part 3 BCBC Changes

- Encapsulated Mass Timber (up to 12 storeys)
- Firestopping ('F' and 'T' ratings)
- Visible fire alarm signal devices (corridors/washrooms, hotel/motels)
- Exit signs/floor numbers/emerg lighting notification with tactile info
- Accessibility changes –all bldgs, limited exceptions
- Self Storage Bldgs

3.1.6. Encapsulated Mass Timber Construction (EMTC)

New

(See Note A-3.1.6.)

3.1.6.1. Scope

1) *Encapsulated mass timber construction* permitted in this Part shall conform to this Subsection.

3.1.6.2. Materials Permitted

1) Except as otherwise provided in this Part and Sentence 6.4.3.1.(1), materials used in a *building* or part of a *building* permitted to be of *encapsulated mass timber construction* shall conform to Subsection 3.1.5.

3.1.6.3. Structural Mass Timber Elements

(See Note A-3.1.6.3.)

1) Except as otherwise provided in this Subsection and Articles 3.2.2.16. and 3.2.3.19., a *building* or part of a *building* permitted to be of *encapsulated mass timber construction* is permitted to include structural mass timber elements, including beams, columns, arches, and wall, floor and roof assemblies, provided they comply with Sentences (2) and (3).



Division B – Part 3



3.1.8.3. Continuity of Fire Separations

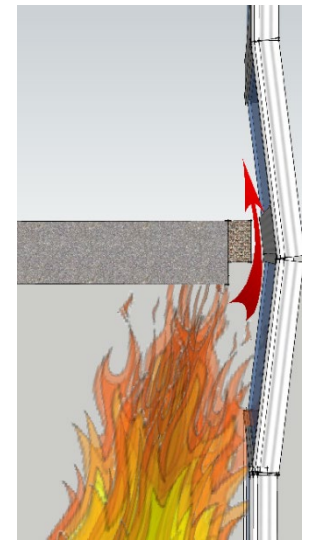
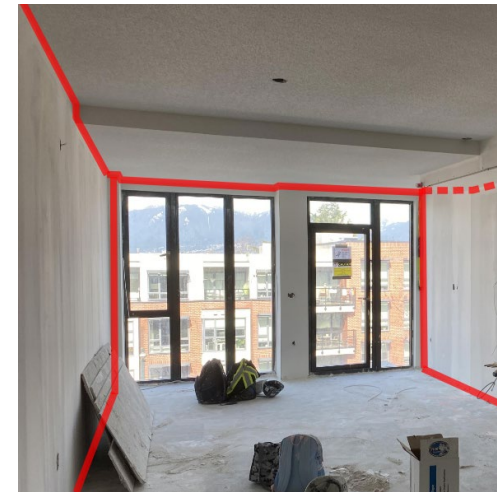
New 2) Except as provided in Sentence (5), the continuity of a *fire separation* having a *fire-resistance rating* that abuts another *fire separation*, a floor, a ceiling, or a roof shall be maintained by a *firestop* conforming to Sentence (3). (See Note A-3.1.8.3.(2).)

New 3) The *firestop* required in Sentence (2) shall have an FT rating not less than the *fire-resistance rating* of the abutting *fire separation* when subjected to the fire test method in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems."

New 5) Joints between ceilings and walls, between floors and walls, and between walls at corners need not comply with Sentences (2) and (4) where such joints consist of gypsum board that is attached to framing members and arranged so as to restrict the passage of flame and smoke through the joints. (See Note A-3.1.8.3.(5).)

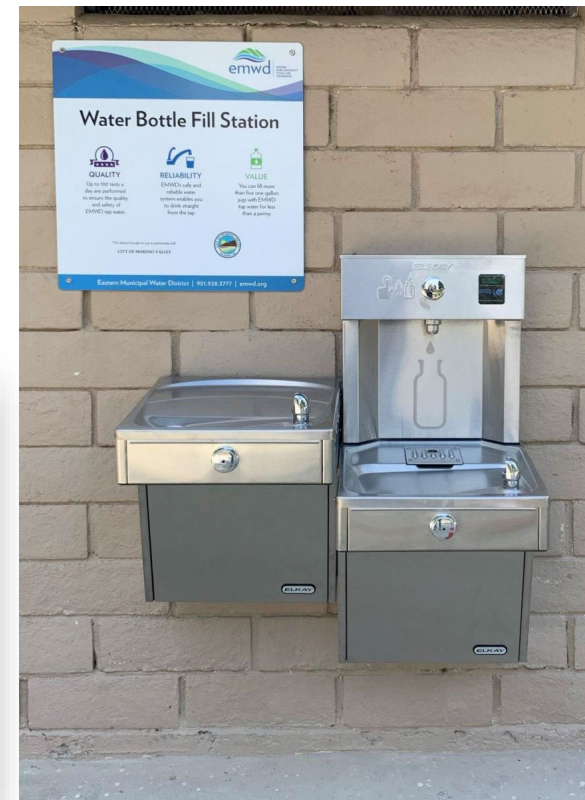


- F rating = the amount of time the penetration through the fire separation must remain intact and prevent the passage of flame
- T rating = temperature prevented on the non-flame side of assembly rating of 325 F of temperature rise

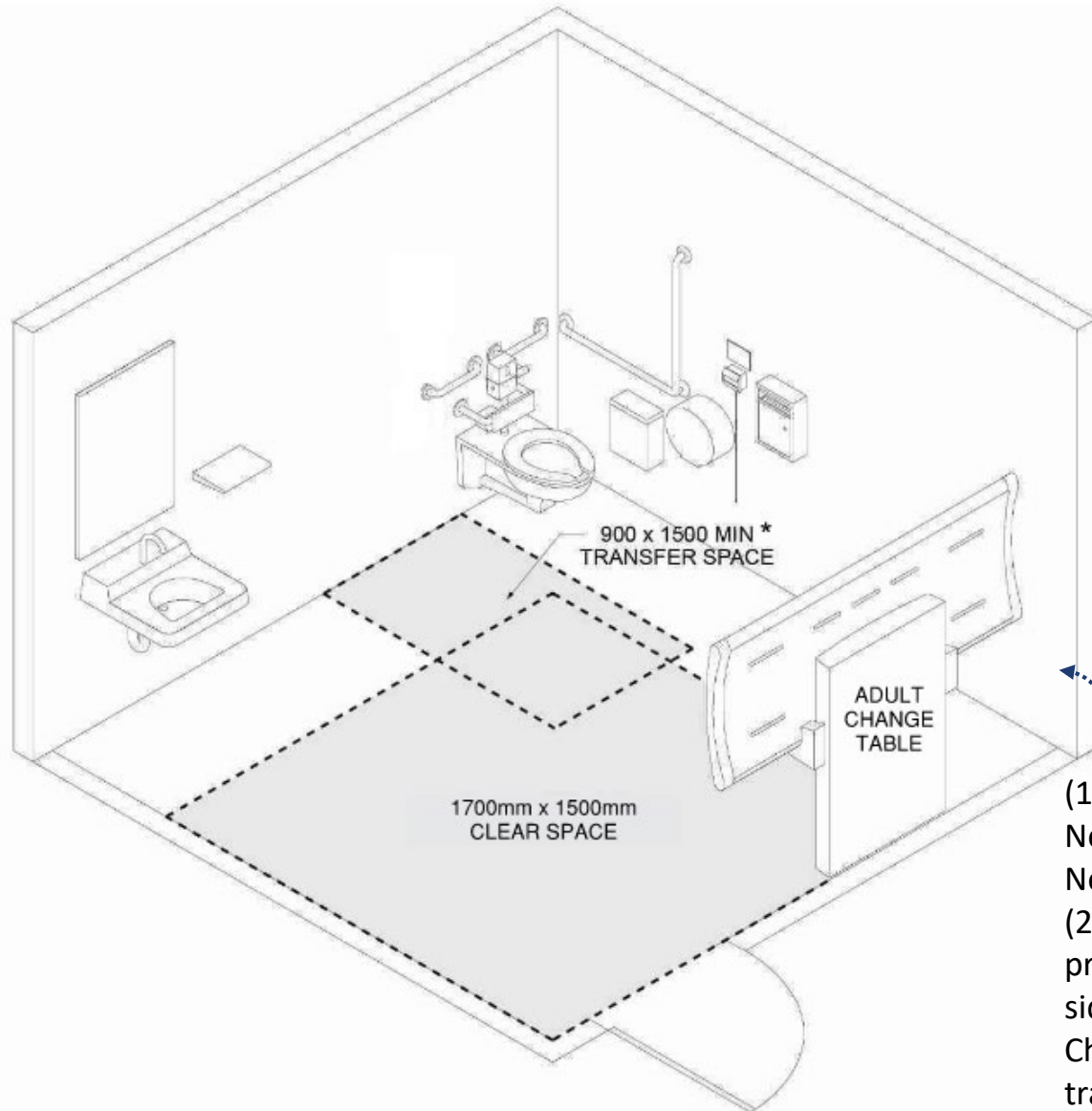


Accessibility Changes –Section 3.8

- Mandatory backing for grab bars in all residential bldgs. (Adaptable)
- All entrances to be accessible (inc. power door operators)
- Accessible and limited mobility washrooms, stalls/urinals
- Universal washroom design changes (inc. adult accessible change tables), lateral transfer space
- Adaptable design guidelines
- Accessible water bottle filling stations



Universal Washroom Design



New- 3.8.2.1.(5) Requirement accessible change space in a universal washroom or on the main entrance storey in a building of A, B-2 or E occupancy. (this is an adult change table, see 3.8.3.13.(2)).



3.8.3.13. Universal Washrooms

- (1) – Clear lateral transfer space inside stall 1500mm x 900mm. New provision for 1700mm diameter turn space. New provision for emergency lighting.
- (2) – Provision for an adult change table that is 810mm x 1830mm that is provided with a clear floor space of 900mm x 1350mm adjacent to the long side of the change table. Change table in open position cannot overlap water closet or change table transfer spaces and 1700mm turn space.

3.8.4. Alterations and Additions to Existing Buildings

3.8.4.1. Application

1) Except as provided in Sentence (2), *access* as described in Articles 3.8.4.2. to 3.8.4.8. shall be provided

- a) to additions to existing *buildings* where such additions have internal path of travel connections with the existing *buildings*,
- b) to existing parts of *buildings* to which additions described in Clause (a) are made, and
- c) to the extent required by Article 3.8.4.5., to existing *buildings*
 - i) where the *occupancy* is changed, or
 - ii) that are altered or renovated.

2) This Subsection does not apply to

- a) *buildings* of new construction,
- b) vertical additions of one *storey* not more than 600 m² in *floor area* regardless of *occupancy*,
or
- c) horizontal or vertical additions to *occupancies* described in Clauses 3.8.2.1.(1)(a) to (c).

3.8.4.2. Specific Requirements

1) Exterior *access* shall be provided to an addition except where *access* to the addition is provided by way of the existing *building*.

2) Walks and ramps for an addition shall conform to Subsection 3.8.3.

3) An entrance to an addition shall be *accessible* except where

a) the addition is *accessible* by an *accessible* path of travel from an *accessible* entrance serving the existing *building*, and

b) not less than 50% of the pedestrian entrances to the *building* are *accessible*.

New- Subsection 3.8.4 – Alterations and Additions to Existing Buildings – Accessibility Requirements for Part 3 Applicable Buildings.

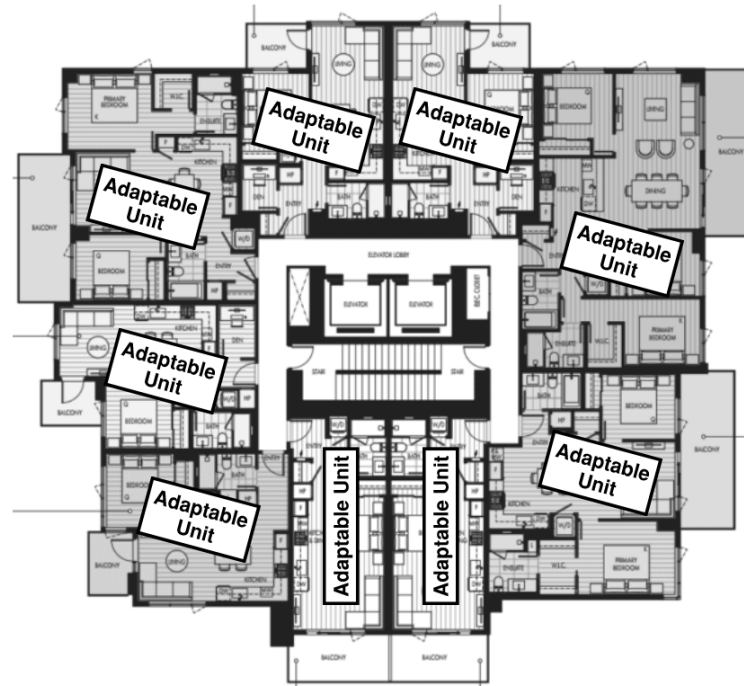


3.8.5. Adaptable Dwelling Units New

3.8.5.1. Application

3.8.5.1. Application

- 1) Except as provided in Sentence (2), this Subsection applies to
 - a) one storey dwelling units served by an accessible interior public corridor and an accessible common building entrance, as required to be accessible by Articles 3.8.2.2. and 3.8.2.3., and
 - b) common spaces and facilities intended for use by the residents of the dwelling units described in Clause (a) including common rooftop occupancies.
- 2) Buildings described in Clause 3.8.2.1.(1)(a) including secondary suites and all other dwelling units to which this Section applies shall, as required by Sections 3.7. and 9.31., provide at least one bathroom with walls reinforced in accordance with Clause 3.8.5.7.(1)(e).



Section 3.9. Self-service Storage Buildings

3.9.1. General NEW Section

3.9.1.1. Definition

1) For the purpose of this Section, the term “self-service storage *building*” shall mean a *building* that is open to the public for the sole purpose of providing individual self-service storage units.

3.9.1.2. Application

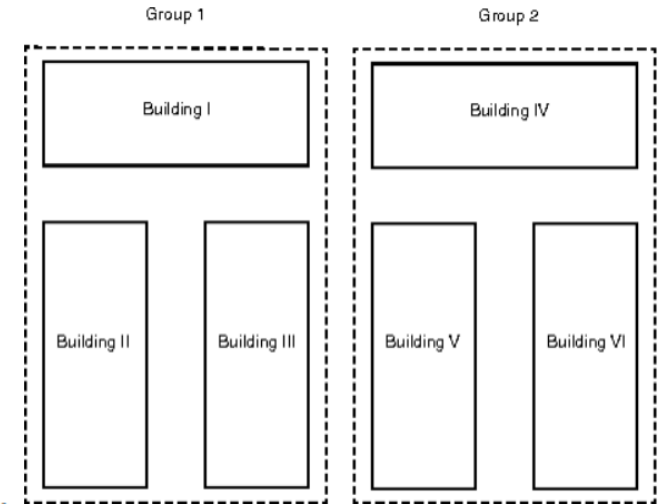
- 1) This Section applies to self-service storage *buildings* that
 - a) are not more than one *storey* in *building height*,
 - b) do not contain a *basement* or *mezzanine*,
 - c) consist of individual self-service storage units with external access only,
 - d) are used for no purpose other than storage, and
 - e) except as provided in Sentences 3.9.3.1.(2) and (4), contain no other *major occupancy*.

2) Where there is a conflict between the requirements of this Section and other requirements in Part 3, this Section shall govern.

3) The requirements in Part 3 regarding *occupant load* shall not apply to self-service storage *buildings*.

3.9.1.3. Occupancy Classification

- 1) Self-service storage *buildings* shall be classified as Group F, Division 2 *major occupancies*.

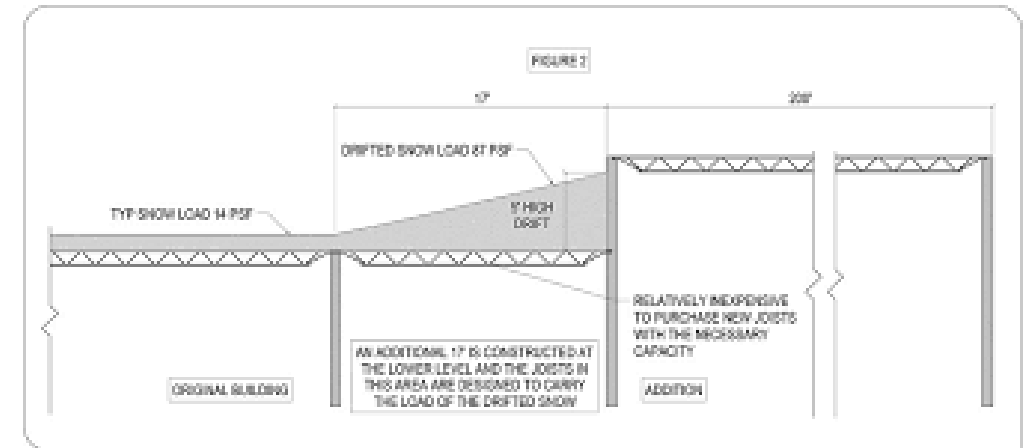


Group 1 building area = Area of I + Area of II + Area of III
Group 2 building area = Area of IV + Area of V + Area of VI

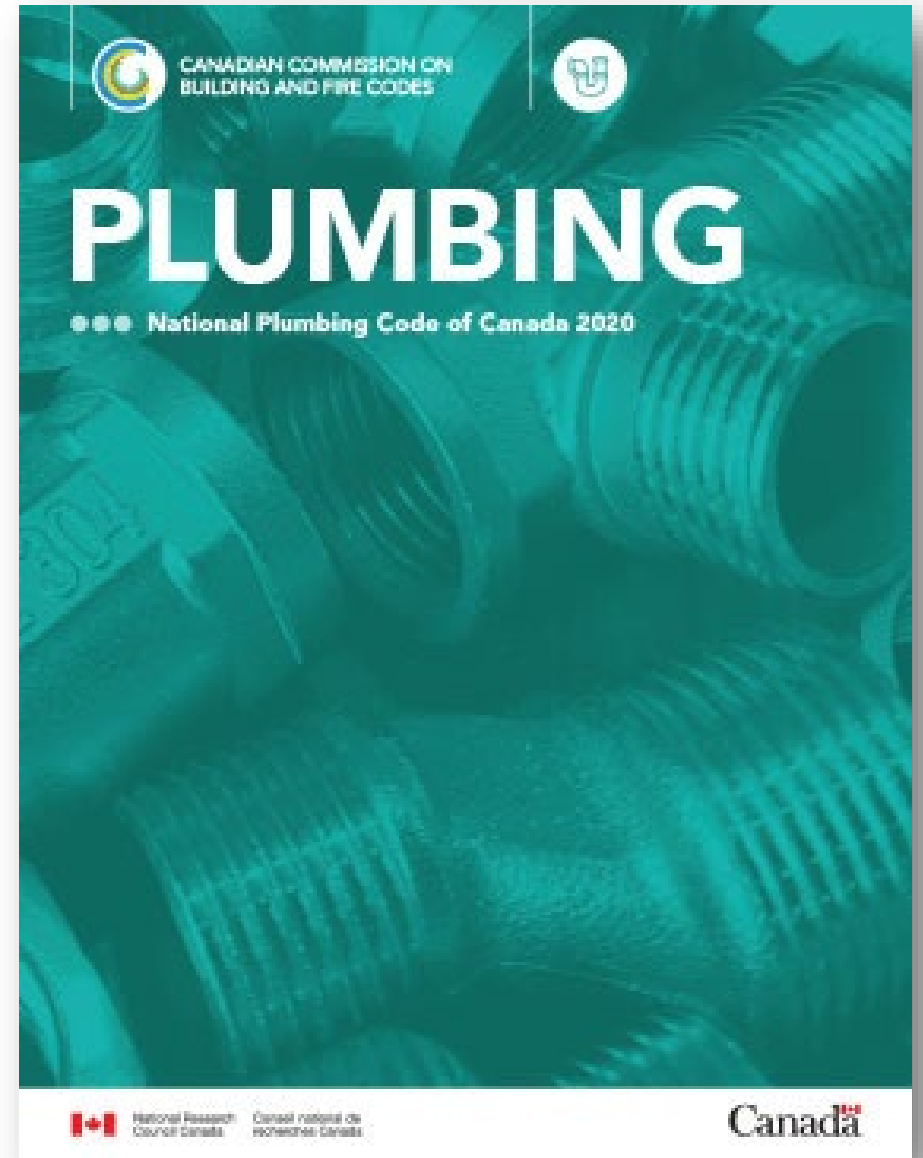
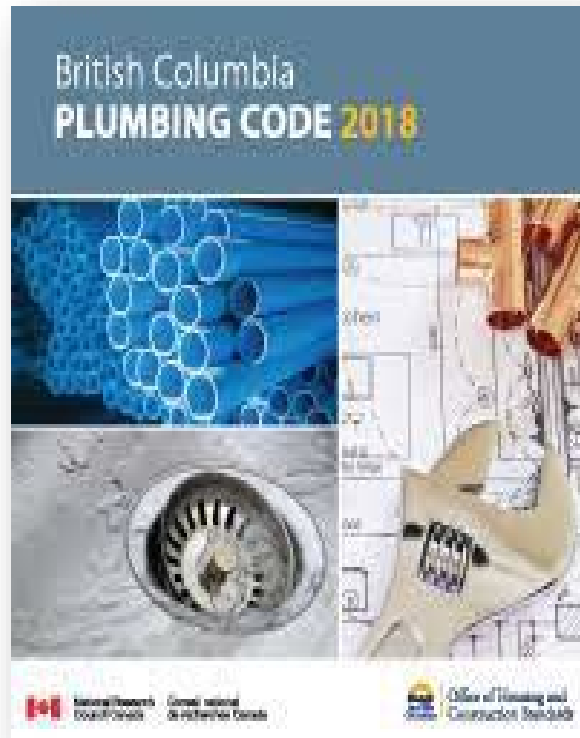
This is **only** applicable to **Part 3 buildings that meet the applicable criteria**. Self-service storage warehouses that **do not meet the criteria in Section 3.9** are subject to **Sentence 3.3.5.9.(1)**

Part 4 BCBC Changes

- Low roof guidance (close to ground)
- New standard for snow loading where 2 roofs are less than 5m in elevation
- Roof deck parking and snow loading
- Solar panels and relationship to snow/wind loading on roofs
- Storage Racking requires Professional Engineer
- Importance category of Building to be added to Structural Drawings



BC Plumbing Code Changes



Alignment with National Plumbing Code of Canada



Summary of Plumbing Code Changes

- New terms, definitions (NPS, Sanitary Drainage Pipe)
- Non-potable water systems (inc. connection to public system)
- Fibro-cement, PE-RT, Cellular core PVC
- Bathtubs (+ showers) require automatic compensating valves
- Lower max HW temp for seniors or healthcare facilities (43°C)
- Flexible waterline standard
- Subsurface water sumps require water/air-tight lids
- Deleted 2 ½" pipe reference

Applicable Links

Below are a the links that were mentioned during the presentation. I have also attached the slides.

-
- Link to PDF of 2024 Code: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/revisions-and-mo/bcbc_2024.pdf
- Link to the Building Safety Standards Branch (BSSB) 2024 BC Building Code information page. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/revisions-and-mo/bcbc_2024.pdf
- CAN/CGSB-149.11-209 – Standard for Radon control options for new construction in low-rise residential buildings - https://publications.gc.ca/collections/collection_2019/ongc-cgsb/P29-149-011-2019-eng.pdf
- Step Code website: <https://energystepcode.ca/>
- Zero Carbon Step Code: <https://energystepcode.ca/zero-carbon/>
- Provincial Government page link regarding reducing carbon emissions – buildings and communities page (there are reports here and case studies) <https://www2.gov.bc.ca/gov/content/environment/climate-change/clean-buildings>
- CleanBC website: <https://cleanbc.gov.bc.ca/>
- CleanBC:
- Brochure: https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_brochure.pdf
- CleanBC Roadmap to 2030 pdf: https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf
- Highest Efficiency Equipment Standard pdf: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/energy-efficiency/highest_efficiency_equipment_standards_-_consultation.pdf
- Energy Efficiency Standards – Province of BC page: <https://www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/energy-efficiency-conservation/policy-regulations/standards>
- Engineers & Geoscientists of BC (EGBC) link to Part 4 changes presentation: <https://apps.egbc.ca/knowledge-centre/5a6d5960-2eff-4508-8c70-a112d01640ce/>
- 2020 National Plumbing Code of Canada link: https://publications.gc.ca/collections/collection_2022/cnrc-nrc/NR24-29-2020-eng.pdf