2014 Vancouver Building By-Law

Unique to Vancouver Provisions for 1 & 2 Family Dwellings

Presented by

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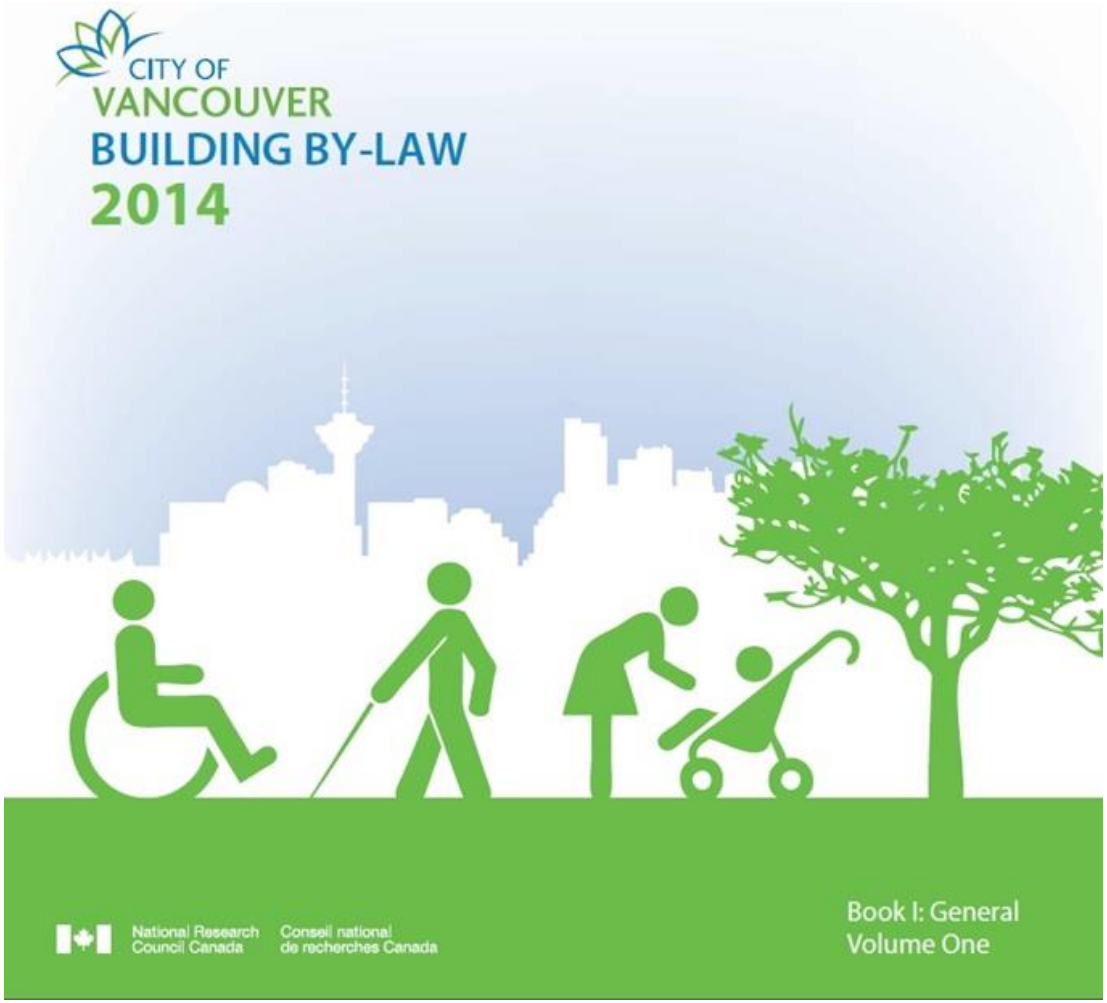
Overview

- New Look, Websites, Stakeholders, By-law Structure, Plumbing
- Administration Provisions
- Adaptable Housing
- Structural Design, Spatial, FD Access, Noise Control, Venting
- Secondary Suite and Lock-off Unit Requirements for New 1 & 2 FD
- Upgrade Requirements for Alterations to Existing 1 & 2 FD
- Conversion of a Portion of an Existing 1 & 2 FD to a Secondary Suite or lock-off Unit
- Energy Requirements for New and Altered 1 & 2 FD
- Reuse and Recycling
- Questions

New Look for 2014 VBBL



Reflects Council's Objectives

Greenest City

Accessible City

Adaptable Housing for Seniors and Visitors

Safe City

Availability of 2014 VBBL

2014 VBBL URL – Available Now

http://former.vancouver.ca/blStorage/10908.PDF

City of Vancouver Building By-law Website - Available

http://vancouver.ca/your-government/vancouver-building-bylaw.aspx

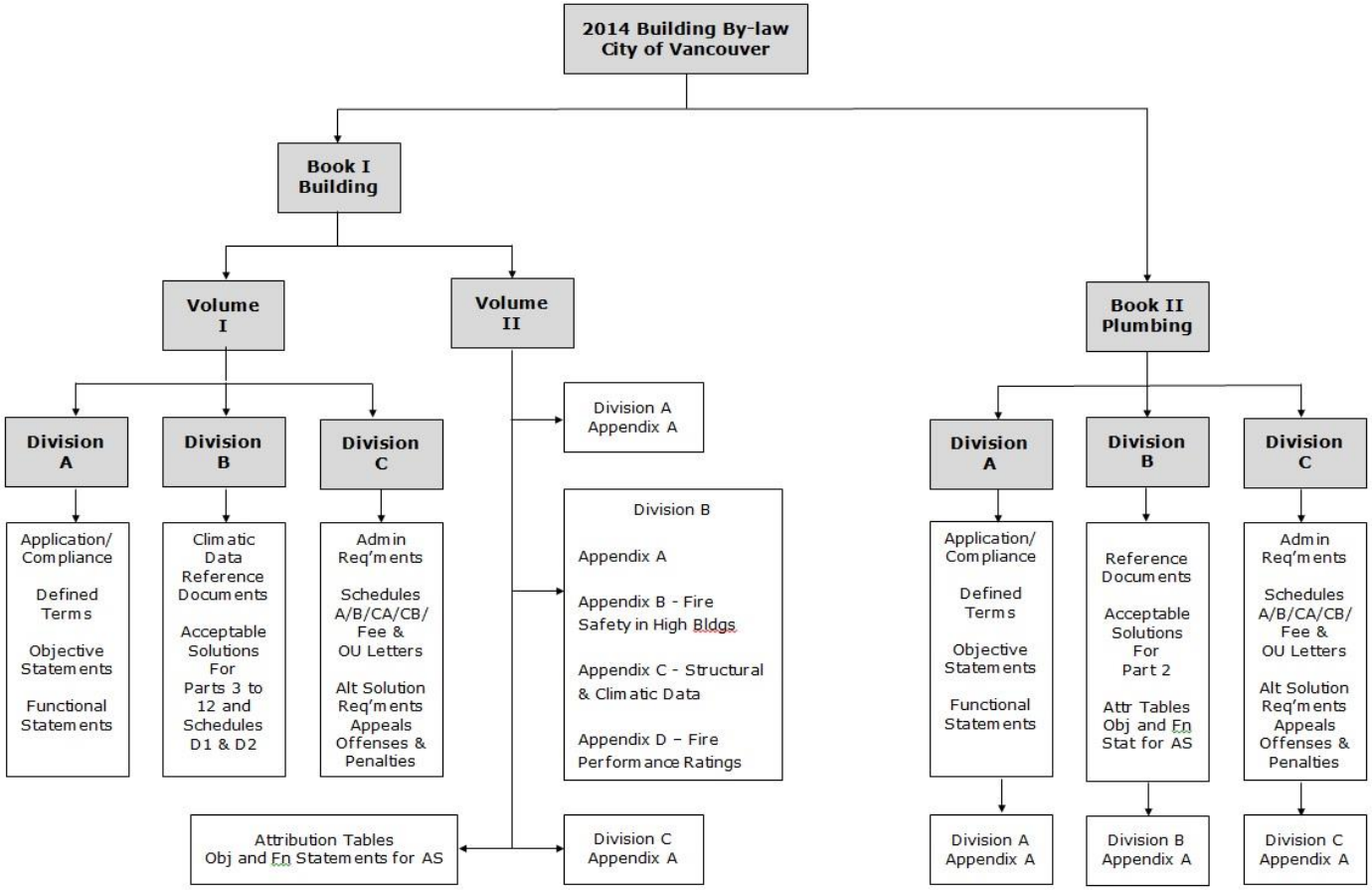
Queen's Printer Website – Expected Fall 2014

http://www.bccodes.ca/vancouver-bylaws.aspx?vid=QPLEGALEZE:bccodes_2012_view

Public & Industry Consultation (2+ Years)

- Association of Professional Engineers & Geoscientists of BC
- Architectural Institute of BC
- Building Owners and Managers Association of BC
- Canadian Home Builders Association/Greater Vancouver Home Builders Association
- The LGBTQ, Persons with Disabilities, Seniors', and Women's Advisory Committees
- Urban Development Institute (UDI)
- Fenestration BC

By-law Structure and Composition



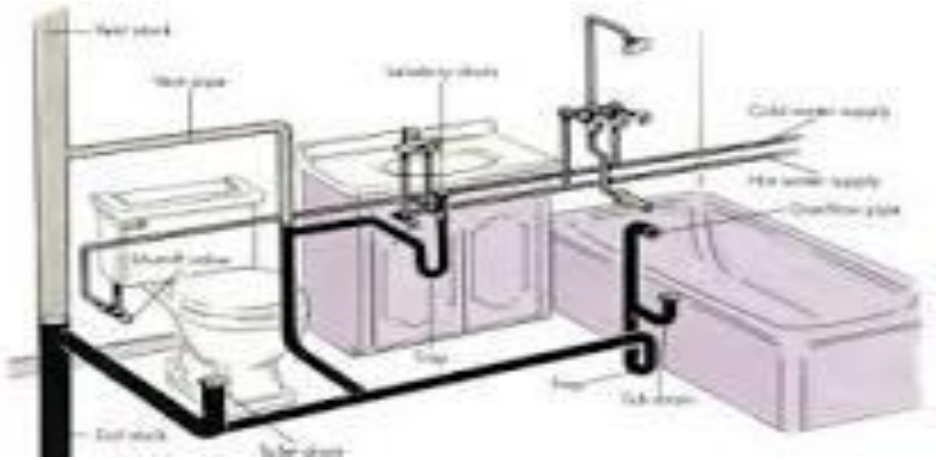
VBBL STRUCTURE AND COMPOSITION

Peter Toneguzzo May 2013

Quick Reference Guide to the Bylaw

Book II Plumbing Systems

- Carryover from 2007
- Part 7 of Book I refers to Book II for plumbing provisions
- No new provisions



Administration Provisions – Vancouver is Unique

Vancouver Charter provides the legislative authority for UTV Administration Requirements

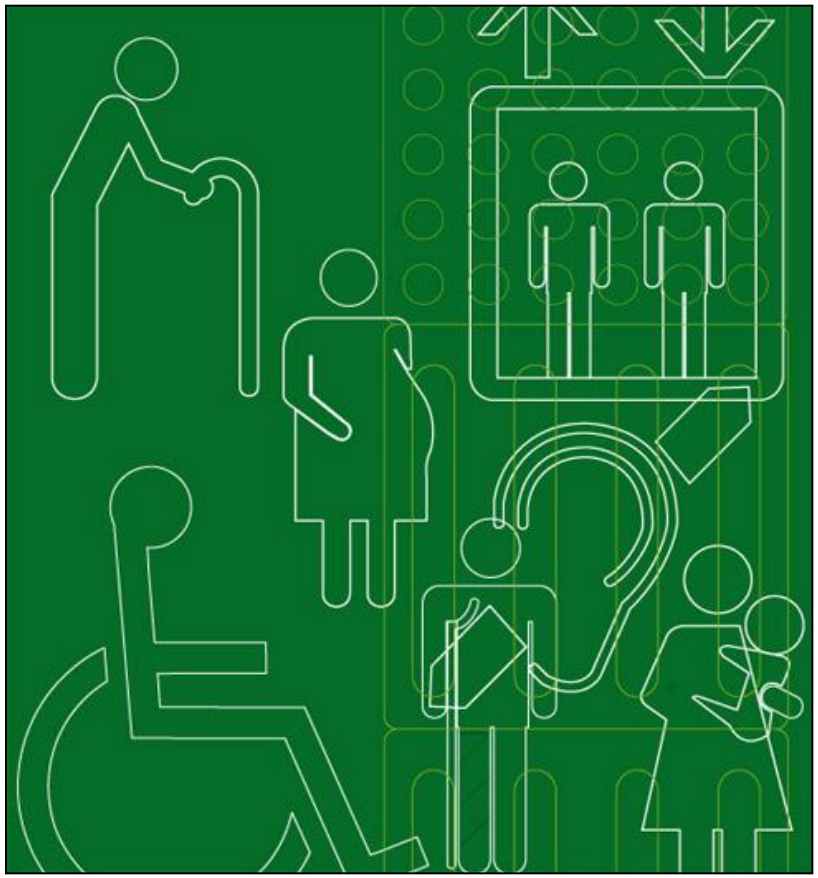
Combined former Division C Parts 1A and 1B into a single document

Reorganized into Sections 1.3 to 1.10 in Part I of Division C

Administrative Provisions – Owner Responsible

- Owner undertaking letters now in VBBL
- Professional letters of assurance aligned with BCBC
- Permit extensions without council approval
- Explicit reliance on registered professionals
- Owner ultimately responsible
- New provisions for buildings on flood plains
- Alignment of fines & penalties with other by-laws

3.8.5. Adaptable Housing for Buildings



Adaptable Housing

Enable dwelling to adapt to needs of occupants and visitors

Minimal cost and design impact

Applies to new construction only and new additions to existing buildings

3.8.5. Adaptable Housing for Buildings

Applicable to the following:

- One and two family dwellings
- Laneway houses
- Secondary suites
- Row housing
- Multi-family residential buildings
- Does not apply to single room accommodation (SRA)

3.8.5. Adaptable Housing for Buildings

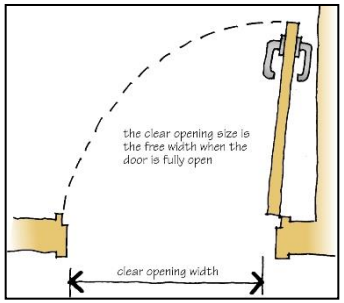
Adaptable Housing requirements are located in Part 3

Sentence 9.5.2.1.(1) requires every Part 9 buildings to meet Section 3.8.

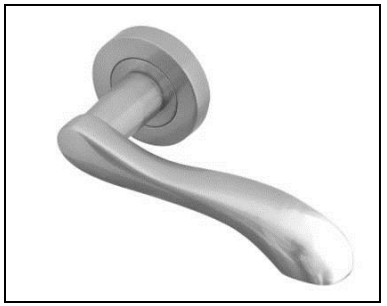
Therefore Adaptable Housing dimensions takes precedence over Part 9 dimension requirements

3.8.5.2. Entrance Doors

- At least one at 865mm
- Two peep holes at 1067mm and 1524mm above floor or glass sidelight or intercom

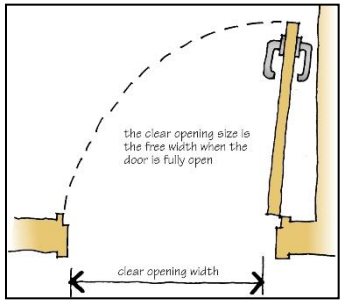


- Beveled threshold not more than 13mm above floor
- Door opening hardware without a tight grasp or twisting action with a force of not more than 38 N



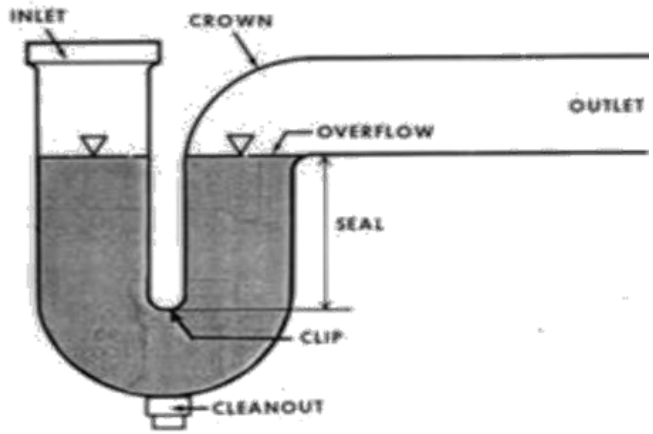
3.8.5.3. Interior Doors, Corridors and Stairs

- Doorways 800mm
- Doors to have opening hardware without a tight grasp or twisting action with a force of 22 N or less
- Doors with beveled threshold not more than 13mm above floor
- Corridors to have minimum clear width of 900mm
- Except for laneway houses, have at least one stair with minimum width of 915mm



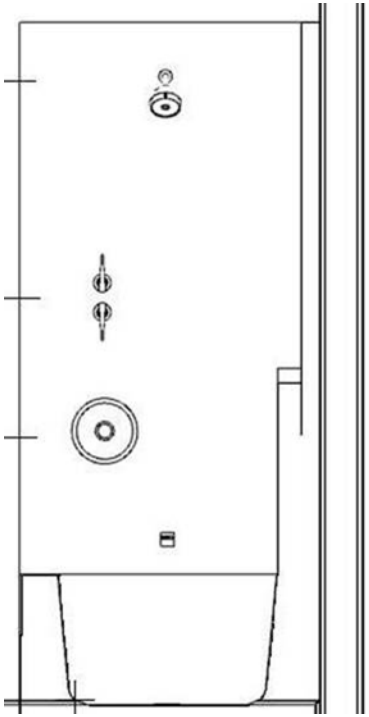
3.8.5.4. Kitchens

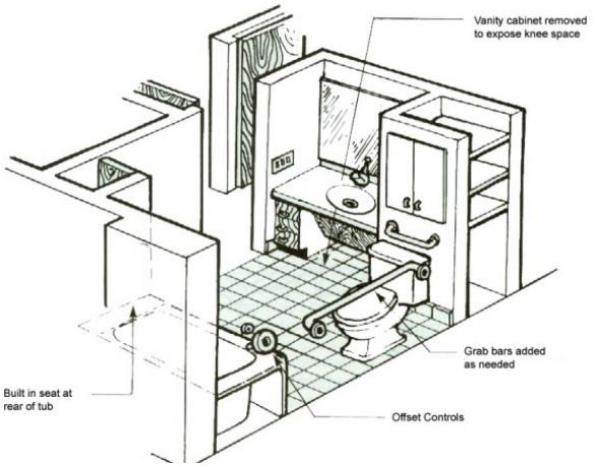
- Lever faucets on sinks
- Lower waste pipe below sink to allow for lowering of counter no greater than 305mm above floor



3.8.5.5. Bathrooms

- Bath and shower controls to be easily accessible from an open floor space or offset
- Washbasins to be lever-type faucets without a tight grasp or twisting action
- One bathroom to be configured so that a low barrier shower can be installed in the future without substantial modifications (double up floor joists or provide second drain for concrete floors)
- One bathroom to have a minimum clear floor space of 750 mm by 1200 mm in front of the washbasin, toilet, bathtub or shower





3.8.5.5. Bathrooms

Wall assemblies to include reinforcement to accommodate future installation of grab bars

3.8.5.6 Minimum Fixture Requirements for Bathrooms on the Main Level of a Multi-Level Dwelling Unit

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Bathtub or Shower requirement for accessible level of multi level suites

Table 3.8.5.6.
Minimum Fixture Requirements for Bathrooms in Multi-Level Dwelling Units
(Forming Part of Sentence 3.8.5.6.(1))

Total Floor Area Of Dwelling Unit (m^2)	Bathroom Required on Lower Floor	Minimum Required Fixtures		
		Washbasin	Toilet	Bathtub or Shower
≤40	No			
>40 to 50	Yes	•	•	
>50	Yes	•	•	•[1]

Note: [1]In lieu of providing a bathtub or shower, it is permissible to provide roughed-in plumbing for future installation of a floor drain, wall faucets and a hand held showerhead with a clear floor space of 750mm by 1200mmin front of the washbasin and toilet

3.8.5.7. Outlets Switches and Controls

- Electrical, telephone, cable and data outlets in dwelling units to be located between 450 mm and 1200 mm above floor except to facilitate equipment and appliances

- Controls for building services or safety devices, electrical switches, thermostats and intercoms in a dwelling unit to be located no more than 1 200 mm above floor except where the lower control could be deemed a hazard in the lower position

3.8.5.8. Living Room Window

One window in living room to have a window sill no higher than 800 mm above the finished floor

9.4.1.1.(4) Structural Design for One and Two Family Dwellings or Laneway Houses

- Codify Bulletin 2001-011-BU SEISMIC DESIGN OF ONE & TWO FAMILY DWELLINGS

- Registered professional engineer to provide assurance that the design of the structure has been reviewed for resistance

  to the structural

  requirements of

  Section 9.4. of Division B

9.10.14.5. Construction of Exposing Building Face for Shared Detached Garage

If a garage serves two dwelling units and if a 45 minute FS separates the two car spaces then the garage may be treated as a serving only one dwelling unit

9.10.15. Spatial Separation Between Residential Buildings

All reference to “Glazed or Glazing” has been deleted and replaced with “Unprotected” including the associated appendix notes in Division B Appendix A

9.10.20.3. Fire Department Access

FD access to each principal entrance of a *building* in accordance with Articles 3.2.5.4., 3.2.5.5. and 3.2.5.6.

3.2.5.6 requires a width of

- 2m for > 2 suites
- 1.2m for 2 suites
- 0.9m for 1 suite or laneway house

9.33.4.10. Noise Control for HVAC Equipment

Heating and A/C equipment to be installed and located so that the noise generated by the equipment conforms with the Vancouver Noise Control By-law

9.33.10.4 - Exhaust Vents Serving One and Two Family Dwellings

Exhaust vents from heating and air conditioning equipment and similar appliances, other than direct vent fire place to be directed:

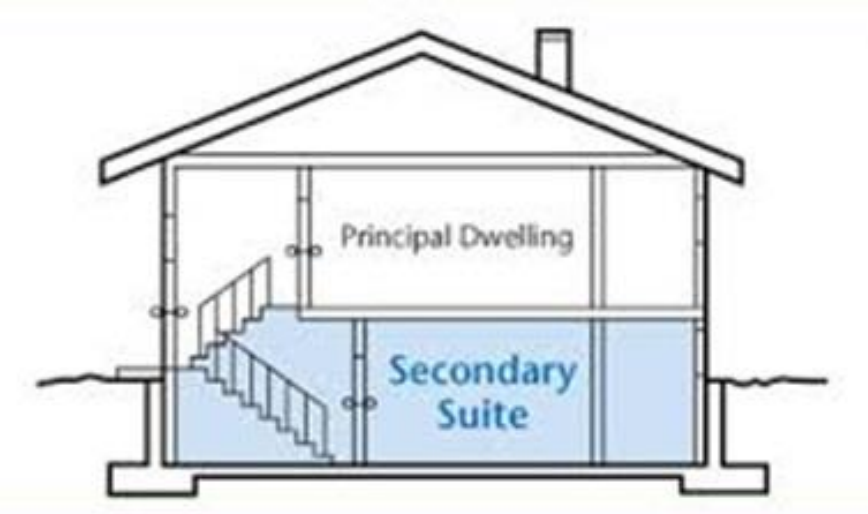
- Through the roof with the discharge located at least 1.5m from the property line.
- Horizontally through an exterior wall which faces a street with the discharge at least 3m from the property line

9.37.2. Secondary Suites & Lock-off Units

BCBC Subsection 9.37.2. Deleted and replaced by

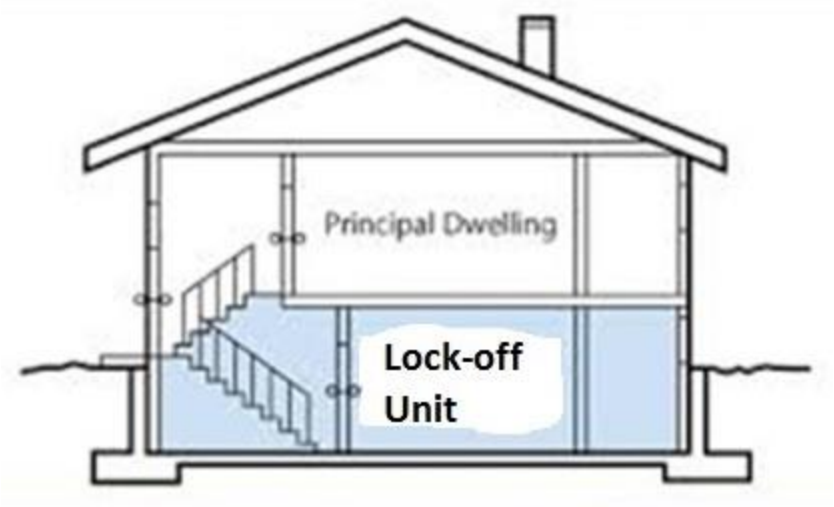
- 9.37.3. New one Family Dwelling with Secondary Suite & Lock-off Units
- 9.37.4. New two Family Dwelling with Secondary Suites & Lock-off Units

Existing buildings with secondary suites handled under Subsection 11.4.3 provided building permit issued prior to July 01, 1994.



Lock-off Units

Lock-off unit means a smaller *dwelling unit* within a larger principal *dwelling unit*, which must have separate external access and shared internal access, and which can be locked off from the larger *dwelling unit*, but does not include a *secondary suite*



9.37.3. One Family Dwelling with Secondary Suite or Lock-off Unit

- Fire compartmentation per Table 11.4.5.1.
- Smoke alarms per Subsection 9.10.19.
- Electrical facilities per Subsection 9.34.1.
- Gas shut off valve to be accessible to all occupants
- A one-family dwelling with secondary suite may be classified as a one family dwelling

9.37.4. Two Family Dwelling with Secondary Suite(s) or Lock-off Unit(s)

- Sprinkler to NFPA 13D where no unit over another unit otherwise to NFPA 13R
- Each DU and its associated secondary suite or lock-off unit to be separated from adjoining DU and its associated secondary suite by 1h FS and a STC of 50
- Each DU and its associated secondary suite or lock-off unit to be separated by minimum 13mm GWB on each side of wood studs on 450mm centre with tightly fitted service penetrations

Upgrade Requirements for

Alterations To Existing I & 2 Family Dwellings

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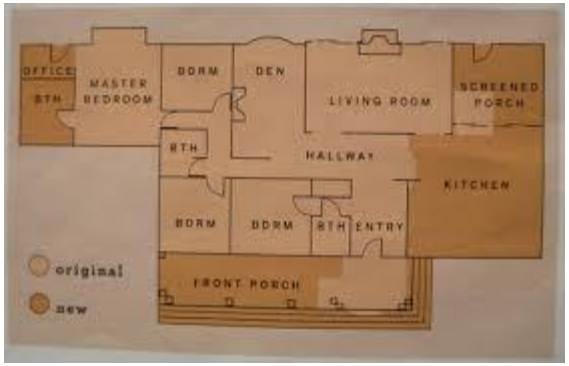


Part 11 Existing Buildings

All existing building provisions moved to Part 11

Clarified definitions and provisions to reduce ambiguity

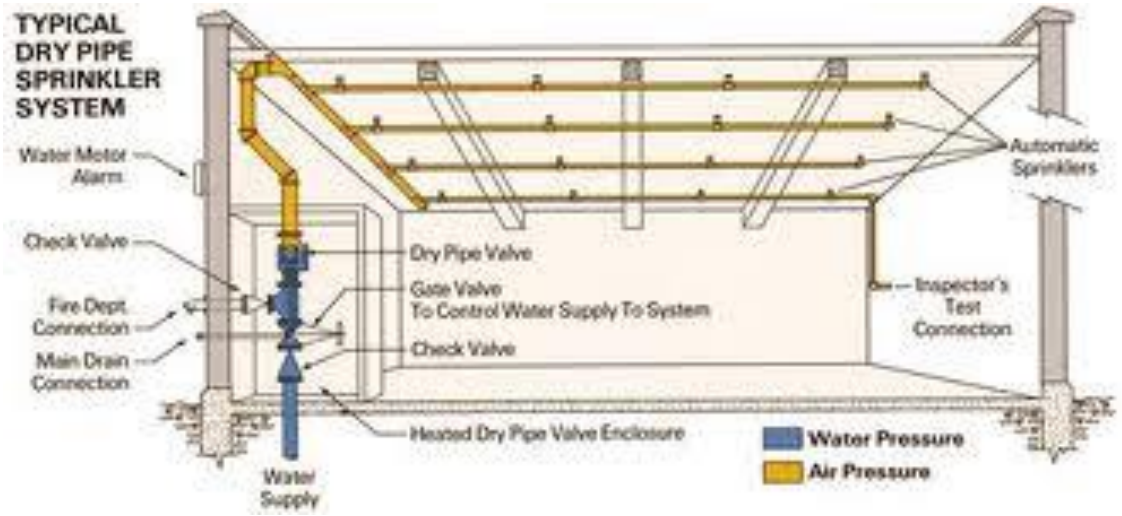
Introduced energy efficiency upgrade requirements for existing one and two family dwellings

Part 11 Section Organization

- 11.1 General
- 11.2 Upgrade Application
- 11.3 Alternative Acceptable Solutions (construction, spatial, etc.)
- 11.4 Alternative Acceptable Solutions for Building Conversions
- 11.5 Alternative Acceptable Solutions for Heritage Buildings
- 11.6 Temporary Special Event Facilities and Emergency Shelters

11.2.1.2. General Requirements

- Voluntary upgrade for FAS, sprinkler systems, exits, accessibility, seismic work, washrooms and kitchens for SRAs, energy efficiency or building envelope repair will not trigger upgrading



- If building envelope repair involves more than 60% of one vertical section of a building face, then entire vertical section of building face to be replaced

11.2.1.4. Upgrade Requirements for Alterations to One Two Family Dwellings

- Unsafe guards, handrails and stairs to be upgraded
- Smoke alarms to be installed in conformance with Subsections 3.2.4. and 9.10.19.
- Carbon monoxide alarms to be installed in conformance to Subsections 6.2.4. and 9.32.4.
- Existing exterior wood frame walls to be anchored to existing concrete foundation walls where the work exposes all of the foundation walls
- Energy efficiency of the building to be upgraded to Table 11.2.1.4.

11.2.1.3. Sprinkler Requirements

Add additional DU or covert other space into an existing DU

- Sprinkler requirements to conform to Table 11.2.1.3.
- If required, sprinklers to be installed on DU Floor and below
- If value of work >50% of replacement value, whole building to be sprinklered

Table 11.2.1.3.
Sprinkler Installation
Requirements Where Dwelling Units are Added

Existing Dwelling Units	New DUs[1] Added Over Any 5 year Period[2]				
	1	2-3	4-5	6	>6
1	Spr R[3]	Spr R	Spr R	Spr R	Spr R
2-4	-	Spr R	Spr R	Spr R	Spr R
5-10	-	-	Spr R	Spr R	Spr R
11-20	-	-	-	Spr R	Spr R
>20	-	-	-	-	Spr R

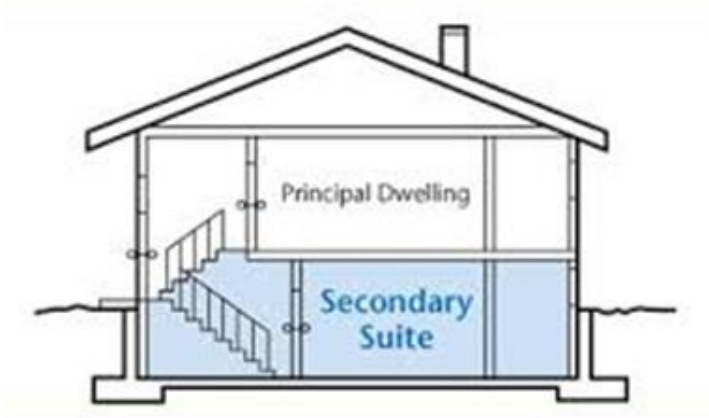
Notes: [1] Dwelling Units [2] The creation of dwelling units over the previous 5 years from the date of the proposed *building* permit application [3] Sprinklers Required

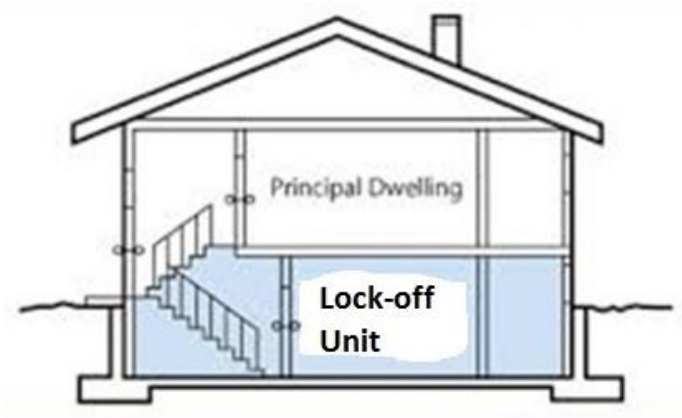
11.2.1.4. Alterations involving Change of Major Occupancy

- If alteration is a change of major occupancy other than a Community Care Facility, Group Residence or Child Care Facility, upgrade as defined in the *existing building* upgrade mechanism model in Appendix Note A-11.2.1.2. of Division B
- If alteration is a Conversion to a Community Care Facility, Group Residence or Child Care Facility, upgrade as defined in Subsection 11.4.2. of Division B

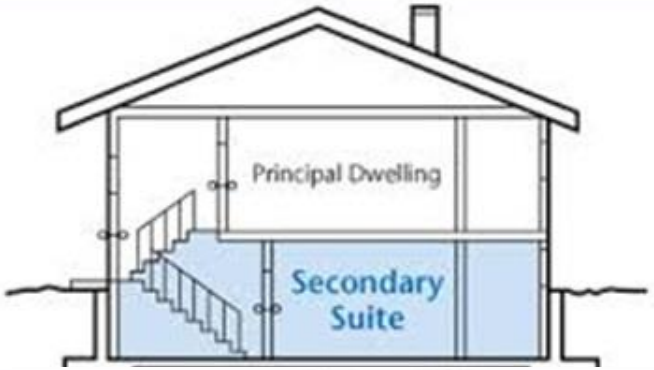
11.4.3. Conversion of a Portion of a 1 & 2 Family Dwelling into a Secondary Suite or Lock-off Unit

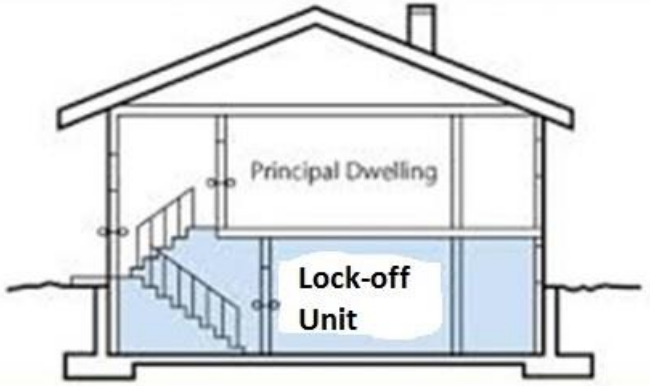
- If alteration includes an addition, the addition to conform to Part 9
- If building was constructed on or after July 1, 1994, the building and the alteration to conform to Part 9





11.4.3. Conversion of a Portion of a 1 & 2 Family Dwelling into a Secondary Suite or Lock-off Unit





Secondary suite or lock-off unit to have

- two kitchen counter duplex receptacles supplied by two appliance circuits and wired on single circuits or a split circuit
- two duplex receptacles located on different walls in each bedroom, and
- three duplex receptacles located on different walls in the living area.
- a single existing panel board may supply electrical loads to both the principal dwelling and secondary suite
- if the panel is located in a common area within the building, then must be accessible for both suites

11.4.3. Conversion of a Portion of a 1 & 2 Family Dwelling into a Secondary Suite or Lock-off Unit

- If building was constructed on or after July 1, 1994 building to conform to Part 9
- If building was constructed prior to July 1, 1994 building to conform to Table 11.4.3.1.

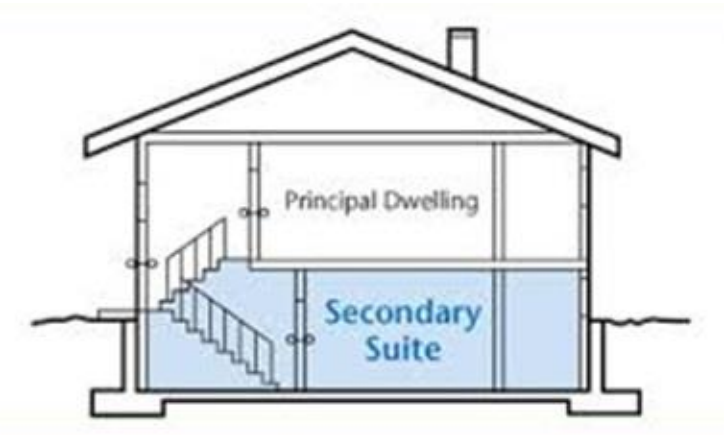


Table 11.4.3.1. Alternative Acceptable Solutions

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Table 11.4.3.1.
Fire Safety Requirements
Forming Part of Article 11.4.3.1.

Item	Item Details	Alternative Acceptable Solution
Windows	Existing and new	Original openings may remain. New openings to conform to Part 9
Fire Containment (Separation)	Between the principal dwelling and its associated *secondary suite* or *lock-off unit*	Fire resistant *combustible construction*[1]
	Between each principal dwelling and its associated *secondary suite* or *lock-off unit* and the adjoining principal dwelling and its associated *secondary suite* or *lock-off unit*	*Fire separation* with a 1 hr *fire-resistance rating*
	Heating ducts that penetrate *fire separations*	*fire dampers* not required
	Plumbing and sprinkler plastic piping that penetrate *fire separations*	fire stopping not required
	Suite entry doors between the principal dwelling and the *secondary suite or lock-off unit*	Existing unglazed solid core doors and frames or glazed solid core doors with wired glass in good condition are *acceptable*. Doors to be provided with closers

Table 11.4.3.1. Alternative Acceptable Solutions

Exits	Egress from each *suite*	At least one conforming *exit* is required from the principal dwelling and the *secondary suite or lock-off unit*
	Windows adjacent to *exits*	No requirement
Flame Spread Rating	*Exits*	≤150
	Remainder of *building*	No requirement
Sprinklers	*One family dwelling* with a *secondary suite* or *lock-off unit*	Sprinklers not required provided the value of the alteration is less than or equal to 50 per cent of the replacement value of the *existing building*
	Two family dwelling with a *secondary suite* or *lock-off unit* in one or both of the primary suites	Sprinklers not required provided a) the value of the alteration is less than or equal to 50 per cent of the replacement value of the *existing building*, and b) the separation between each family dwelling is a *fire separation* with a 1 hr *fire resistance rating*
Heating Systems	Furnace room enclosure	Separation not required except that combustion air requirements and clearance from all equipment is required[2]

Table 11.4.3.1. Alternative Acceptable Solutions

Smoke Alarms	Entire *building*	Interconnected *smoke alarms* to be installed on each storey including basements, in each sleeping room and in a location between the sleeping room and the remainder of the storey and if the sleeping room is served by a hallway, the smoke alarm to be located in the hallway. Installed by permanent connections to an electrical circuit in conformance with Subsection 9.10.19. Provided with battery backup and manual silencing devices which will silence the alarm in conformance with Article 9.10.19.6.
Stairs and Handrails	Entire *building*	If existing stairs are considered an *unsafe condition* as determined by the *Chief Building Official*, stair tread, rise and run requirements to conform to Section 9.8. All existing stairs to have at least one handrail in conformance with Subsection 9.8.7.
Guardrail Protection	Entire *building*	*Guards* to be provided around all stairways, balconies, landings, decks, and porches in conformance with Subsection 9.8.8. and Article 4.1.5.14. Existing *guards* may be retained provided they are structurally sound and ≥900 mm high.
Existing Headroom	Entire *building*	Headroom may be reduced to 1980 mm over 80 per cent of the *suite* area and all egress routes

Table 11.4.3.1. Alternative Acceptable Solutions

Sound Separation	Between each principal dwelling and its associated *secondary suite* or *lock-off unit* and the adjoining principal dwelling and its associated *secondary suite* or *lock-off unit*	50 STC
Unsafe Condition	Entire *building*	Any condition within or around the *building* which could cause undue hazard or risk to persons to be corrected as directed by the *Chief Building Official*

Notes: [1]Fire resistant *combustible construction* means existing lath and plaster in good condition, or minimum 13mm gypsum wallboard on wood studs at maximum 450 mm on centre.

[2]The Gas Code places restrictions on locating gas furnaces adjacent to sleeping rooms or bathrooms."

Energy Requirements

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Applies to:

- Single Family (w or w/o suite)
- Duplex/ semi attached (w or w/o suites)

Does not apply to:

- 3+ townhouse developments
- Multi family (apartments or condo) 3+ units

Part 10 Energy Efficiency Provision

Measure	2014 VBBL
Rainwater Capture	Allowed
Domestic Hot water (DHW)	Minimum 78% efficient
Domestic Hot Water (Electric)	RSI 1.75 Tank Wrap
Hot Water Pipe Wrap	Pipe Insulation 3M output, 1M input or all if recirculating
Electric Vehicle Charging	Dedicated 240V junction box
Heating furnace or boiler	Minimum 92% AFUE No side-yard venting
Gas fireplaces	Intermittent pilot ignition (IPI) systems must be direct vent
Wood Burning Appliances (labels showing)	Max 2.5 grams/hour - catalytic Max 4.5 grams/hour - non catalytic

Measure	2014 VBBL
Windows and Sliding Glass Doors	USI-Value of 1.4 W/(K·m^2)
Skylights	USI-Value of 2.4 W/(K·m^2)
Wall Insulation	RSI 3.85 (R22) Effective
Under Slab Insulation	RSI 2.1 (R12)
Attic Insulation (traditional attic)	RSI 8.8 (R50)
Air Tightness	ACH 3.5 and actions
Solar Ready Pipe	Yes (PVC or Other)

VBBL Goal for Energy Efficiency Improvement by 2020

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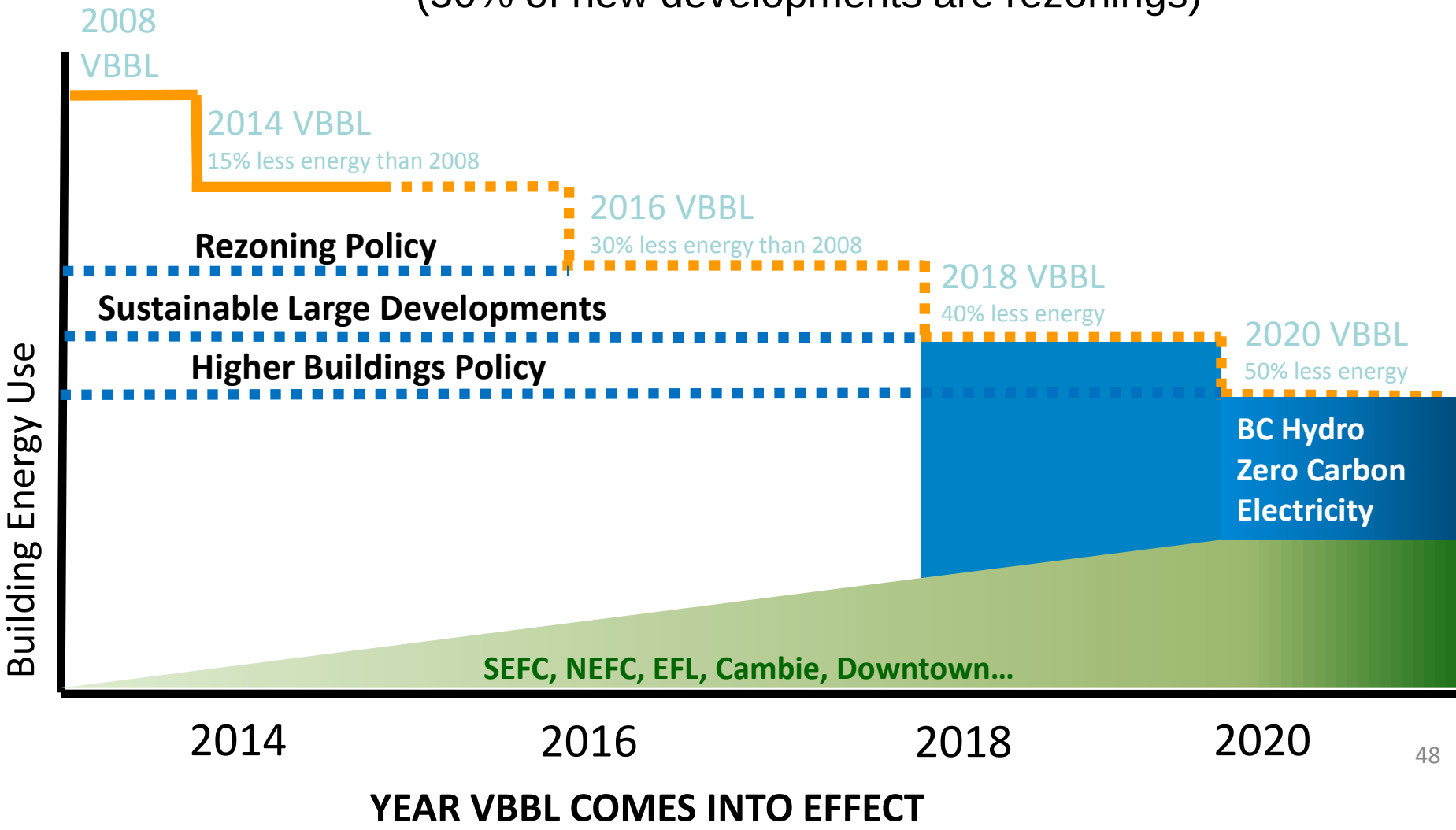
Rezoning Policies build capacity for future VBBL

(50% of new developments are rezonings)



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GREEN BUILDINGS 2020

GOAL: Lead the world in green building design and construction

Need to Build Capacity For New Home Construction

2020 target:

Require all buildings constructed from 2020 onward to be carbon neutral in operations

Key Updates:

- High Efficiency Heating/Boilers
- Better wall & attic insulation
- Better *Windows* & Sliding Glass Doors
- Water Heating > 78% efficient
- Improved Air Tightness
- Electric Vehicle Charging

New Activities for 1& 2 Family Construction

- Pre-BP Requirements
- Prior to Insulation Inspection
- Prior to Final Inspection

Certified Energy Advisor History

History:

- "Certified Energy Advisors" have worked with almost every 1&2 family home since 2009 in Vancouver, well over 3000 homes submitted reports
- Role was to create an energy model and blower door test (BDT) the home
- Model and BDT submitted to the city

New VBBL:

- "Certified Energy Advisors" will continue to work with every 1&2 family home
- Role will continue to create an energy model and blower door test (BDT) the home
- Role will now visually verify that the energy model meets or exceeds VBBL
- Role will now complete a pre drywall and final visual verification that model is correct

EnerGuide History and Overview

- Developed and in use in Canada since 1978
- A 0-100 scale where 100 is a home that produces as much energy as it consumes
- Currently new Vancouver homes fall in the high 70s
- New code to move towards 80 for the average new home

Form from CEA confirming P-File aligns with VBBL

The house was modeled to meet or exceed 2014 VBBL:

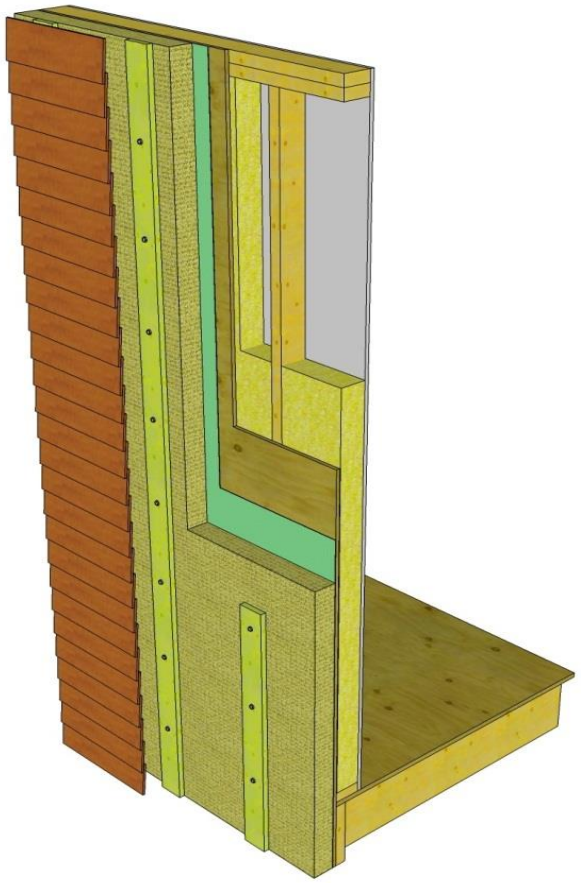
Attic Insulation (RSI-Value):	*8.8 (R50)*
Wall Insulation (Effective RSI-Value):	*3.85 (R22)*
Direct Vent DHW Efficiency:	*78%*
Heating Equipment Efficiency:	*95%*
Average Window U-Value:	*1.40 (R4.06)*
Air Changes Per Hour:	*3.0*

Predicted ERS Score (EnerGuide)	*81.2*

CEA Name:	*CEA Number:*

Split Insulation R-values: Screws through Insulation

Exterior Insulation R-value added to exterior of sheathing	Effective Wall R-value Accounting for Thermal Bridging & Fasteners	
	2x4 stud wall @ 16” o.c. with R-14 batts	2x6 stud wall @ 16” o.c. with R-22 batts
1” Mineral Wool (R-4)	-	21.9
1” XPS (R-5)	-	21.0*
1.5” Mineral Wool (R-6)	**-**	**22.9**
1.5” XPS (R-7.5)	**-**	**24.3***
2” Mineral Wool (R-8)	19.6	-
2” XPS (R-10)	21.4*	
2.5” Mineral Wool (R-10)	21.5	
3” Mineral Wool (R-12)	**23.2**	
2.5” XPS (R-12.5)	**23.7***	



* Potential Elevated Moisture risk

11.2.1.4. Energy Upgrade Requirements When an Alteration is Made

Table 11.2.1.4. Energy Efficiency Upgrade for One and Two Family Dwellings	
Const. Value ($)	**Upgrade Level**
≤5K	Not Required
>5 ≤25K	A and B
>25 ≤50K	A, B, and C
>50K	A, B, C and D

Level A – Submit an EnerGuide (EGH) report completed within the last 4 years
Level B – Where work includes a new boiler or furnace, annual fuel utilization efficiency (AFUE) shall be ≥90 per cent
Level C – Where EGH > 5 air changes per hour, *building* envelope air sealing is required
Level D – Where attic insulation <R12 (2.11RSI), increase to R28 (4.93RSI); where attic insulation ≥R12 (2.11RSI), increase to R40 (7.04RSI); and all flat roof and cathedral ceiling insulation shall be upgraded to ≥R14 (2.47RSI).

Note: attic insulation shall not exceed R43.7 (7.7RSI

Encourage Reuse and Recycling

Performance requirements for reuse and recycling (as of Sept 1, 2014):

- Pre-1940 house: 75% reuse/recycling required
  (by weight, excluding hazardous materials)
- Pre-1940 character house: 90% reuse/recycling required (by weight, excluding hazardous materials)

These changes also support demo & construction waste diversion goals in:

- City of Vancouver's Greenest City Plan
- Metro Integrated Solid Waste Plan




Encourage Reuse & Recycling

Role of Deconstruction:

Better reuse and recycling can be achieved when single family homes are demolished using ***deconstruction*** techniques.

Deconstruction is the systematic disassembly of a building, allowing for materials to be separated which makes recycling easier.

Encourage Reuse

Character elements & more can be recovered and reused through deconstruction.














Process for Pre-1940 Homes

Projects applying for a demo permit must submit:

1. Recycling and Reuse Plan with demolition permit application
2. Recycling and Reuse Compliance Form when demolition is complete

Note: A building permit for construction will not be issued until a completed Recycling and Reuse Compliance Report is submitted to the City.

As of March 2015

- A $15,000 deposit will be required when you apply for a demolition permit with minimum reuse and recycling requirements.
- The deposit will be refunded if the reuse and recycling requirements are met.

http://vancouver.ca/home-property-development/demolition-permit.aspx

Questions?