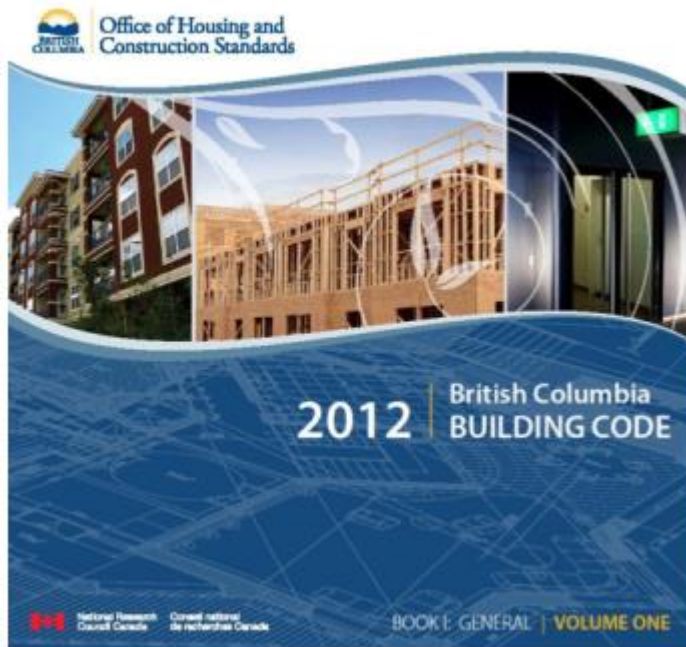


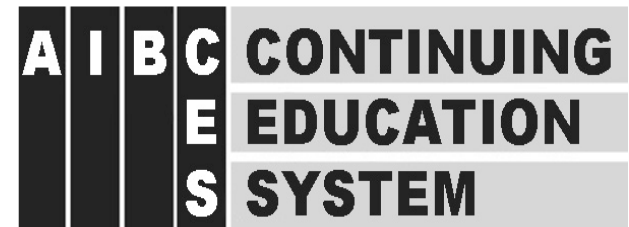


BCBC Energy Efficiency Requirements for Part 9 Buildings



Introduction
BCBC 9.36.
2014

BCBC Energy Efficiency Requirements for Part 9 Buildings

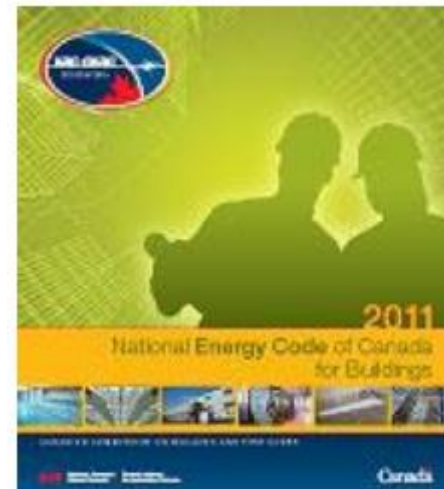
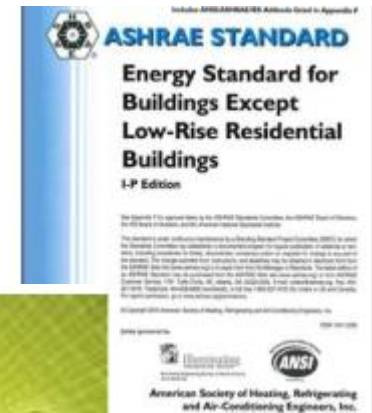


Homeowner
Protection Office
Branch of BC Housing



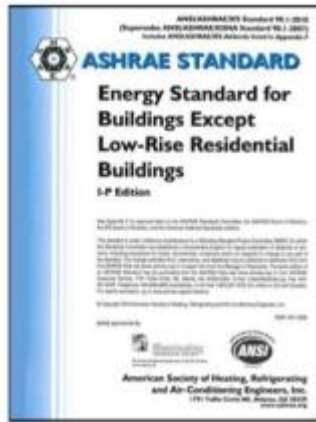
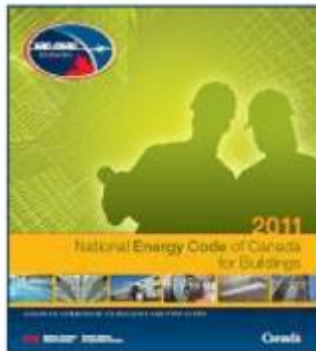
BCBC 2012: Part 10: Energy Efficiency current requirements

- Part 3: applies to Larger buildings
 - ASHRAE 90.1 (2010) – updated
 - National Energy Code for Buildings (NECB)
 - Water Efficiency
- Part 3 Compliance
 - Professionals (Letters of Assurance)





NECB vs ASHRAE

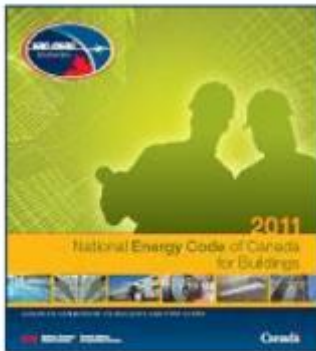


- **NECB**
 - Energy based
 - Trade-offs throughout
 - Reference to Canadian standards
 - Flexible
- **ASHRAE**
 - Energy-cost based
 - Trade-offs for envelope only
 - Reference to performance requirements
 - Prescriptive



NECB vs ASHRAE

- **NECB**



- Stringent insulation requirements
- Stringent air leakage rates
- Required full slab insulation (unheated)
- Window requirements are generally more stringent; Some curtain wall assemblies may not comply
- Complex compliance

- **ASHRAE**



- Generally less stringent insulation requirements
- Less stringent air leakage
- Optional slab insulation in some areas
- Complex thermal performance consideration
- Less complex compliance



BCBC 2012: Part 10: Energy Efficiency current requirements

- **Part 9 (Houses and Small Buildings)**
 - Prescriptive Insulation tables
 - EnerGuide 77
 - No requirement for professionals



BCBC - December 2014

- **Current Part 9 Insulation tables (Table 10.2.1.1.A & Table 10.2.1.1.B) deleted**
- **Current reference to EnerGuide 77 deleted**
- **New admin section 2.2.8. sets out Information required for energy compliance by performance path**

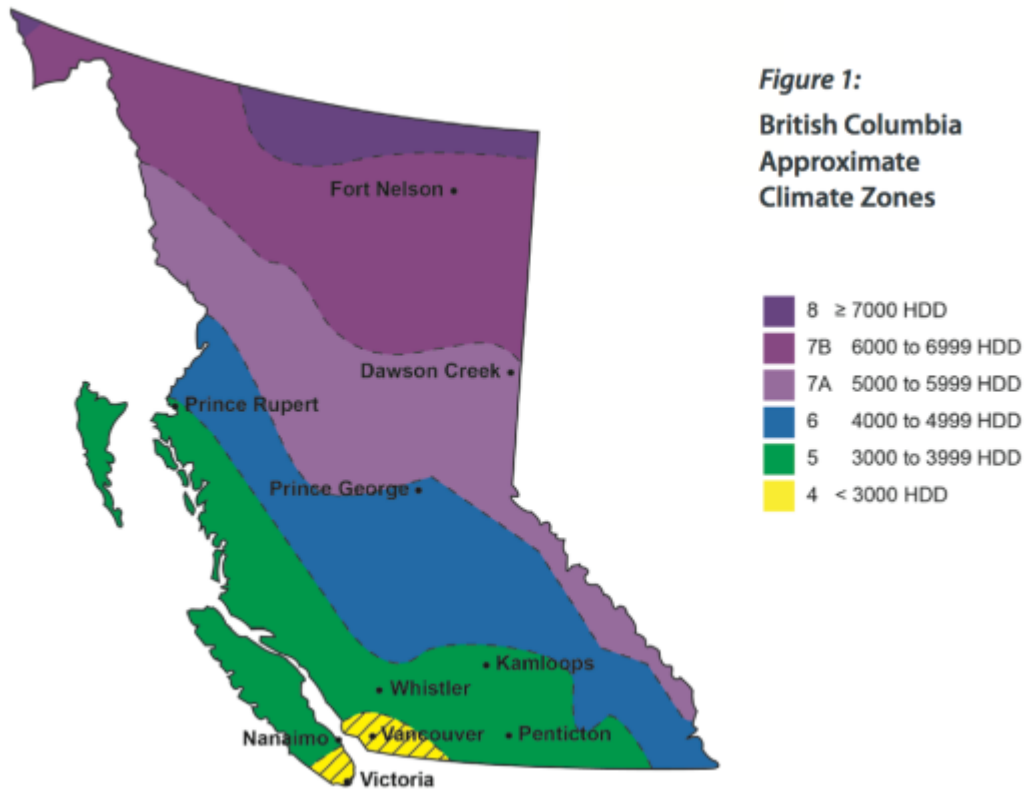


BCBC - December 2014

- **New Section 9.36. Energy Efficiency**
 - Incorporates NBC 9.36. as a new section of the BC Code
- **Current Section 9.36. (Secondary Suites) becomes 9.37.**
- **Section 9.37. Objectives and Functional Statements**
 - Renumbered to 9.38.



Climate Zones





Climate Zones

Current 3 climate zones changed to match NECB & ASHRAE divisions.

Climate Zone, Heating Degree Days °C					
Zone 4	Zone 5	Zone 6	Zone 7A	Zone 7B	Zone 8
<3,000	3,000 to 3,999	4,000 to 4,999	5,000 to 5,999	6,000 to 6,999	≥ 7,000
Vancouver Victoria Abbotsford Hope	Kamloops Kelowna Courtenay Parksville	Whistler Prince George Williams Lake Fernie	Ft. St. John Smithers McKenzie	Ft. Nelson Dease Lake	Smith River



9.36. Scope & Application

9.36.1.1. Scope

This section is concerned with the energy used by *buildings* through

- The building envelope heat losses (9.36.2),
- Heating systems (9.36.3), and
- Domestic hot water (9.36.4)



9.36. Exempt buildings

- Buildings exempt from 9.36. include
 - storage and parking garages,
 - small service buildings or service rooms
 - unconditioned spaces in buildings.



Compliance

- **9.36.1.3. Compliance and Application**
- **Prescriptive Requirements (9.36.2. to 9.36.4.)**
 - Part 9 *buildings of residential occupancy*
 - Group D, Group E, Group F-3 less than 300m²
- **Performance Requirements (9.36.5.)**
 - Houses with or without a secondary suite
 - Buildings containing only dwelling units and common spaces



9.36. Compliance Options

Building Type	Compliance Options		
	Part 9 - Prescriptive	Part 9 - Performance	NECB
<ul style="list-style-type: none"> - Houses, houses with secondary suites, - Buildings containing only dwelling units with common spaces $\leq 20\%$ floor area 	✓	✓	✓
<ul style="list-style-type: none"> - Purely residential buildings - Any building, where all non-residential portions (not F2) have a floor area $\leq 300 \text{ m}^2$ 	✓		✓
<ul style="list-style-type: none"> - Any building where non-residential occupancies have a floor area $> 300 \text{ m}^2$ - Buildings containing F2 occupancies (any size) 			✓



Application

- **9.36.5. applies only to houses with or without a *secondary suite*, and to *buildings* containing only *dwelling units* and common spaces whose total *floor area* does not exceed 20% of the total *floor area* of the *building*.**
- ***Buildings* containing *non-residential occupancies* whose combined total *floor area* exceeds 300 m² or *medium-hazard industrial occupancies* shall comply with the **NECB.****
- **Buildings not required to be conditioned are exempted from energy efficiency requirements**



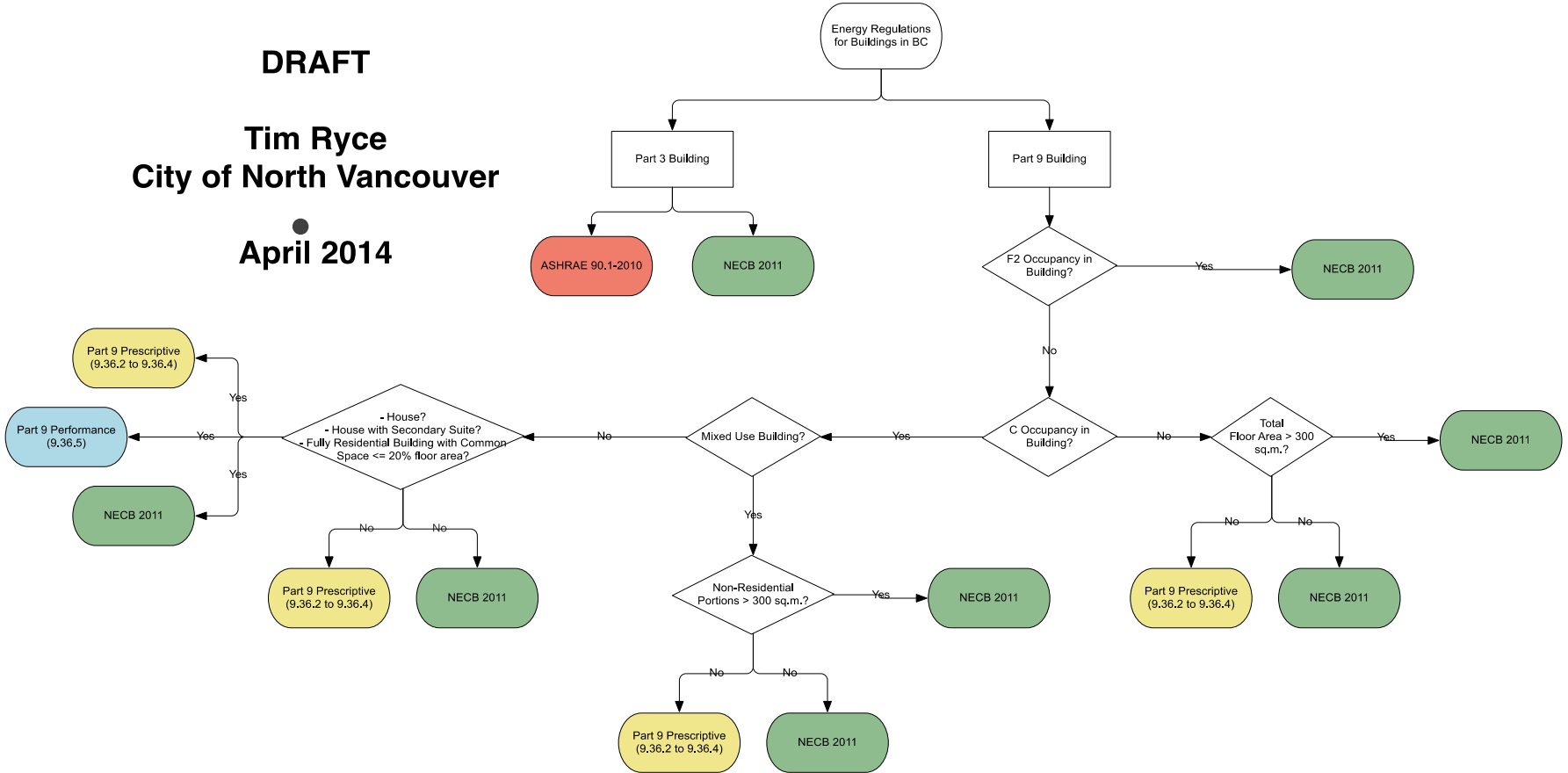
9.36. Scope & Application

- Addresses heat transfer and air leakage
- Applies between conditioned space and unconditioned space, exterior air or ground
- Applies between conditioned space and adjoining garage, even if garage is heated

DRAFT

**Tim Ryce
City of North Vancouver**

April 2014



* NOTE: Buildings or portions of buildings that are not required to be conditioned spaces are exempted from the requirements of Section 9.36



3 Compliance options

1. Prescriptive

- Table with minimum *effective* R-values
 - Look-up tables for most common assemblies, and information on how to calculate others
 - No HRV option or
 - with HRV
 - No limits on glazing area
 - Air tightness criteria - identifies details that must be addressed.

2. Prescriptive + Simple trade-offs

3. Performance