

Energy Saving Provisions in Part 9.36 & 9.32 BCBC 2012

Date: January 22, 2015

This bulletin is intended to provide some clarification to the new energy efficiency requirements, effective December 19, 2014, for houses and small Part 9 commercial and industrial buildings.

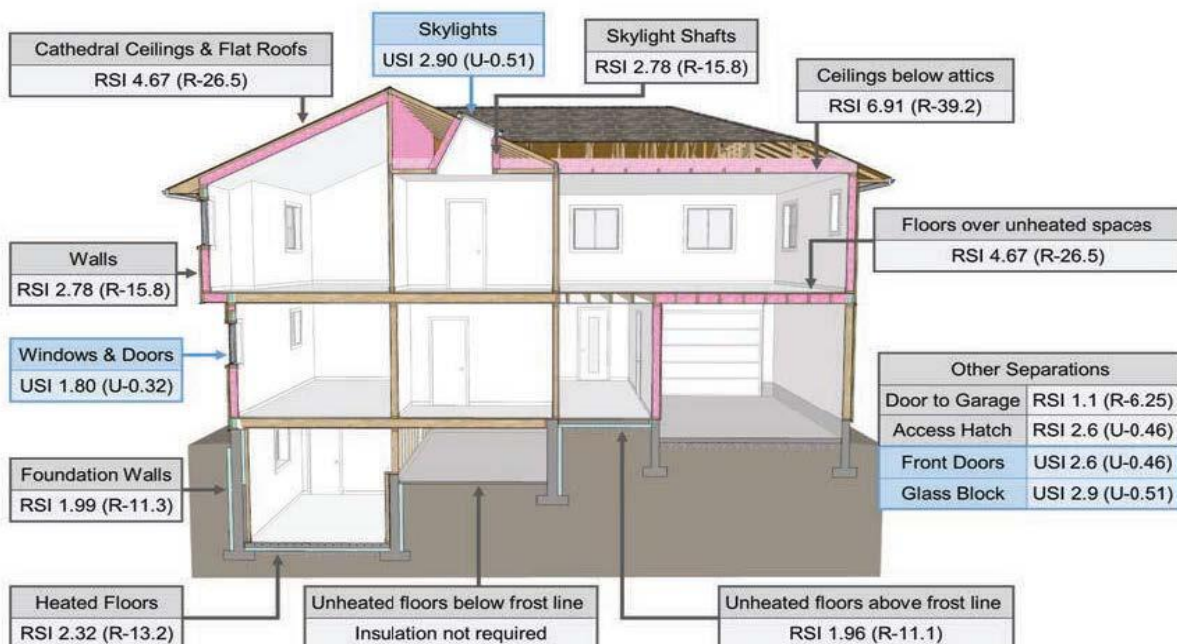
The code changes apply to heating, ventilation and air-conditioning (HVAC) and service water heating (SWH) (Section 9.36). Residential dwelling units will be required to have a principal ventilation system that exhausts air from bathroom and kitchens and supplies fresh air to bedrooms and living room areas (Section 9.32). For the purpose of the application, City of Victoria is in Climate Zone 4.

There are three available options to attain the necessary compliance:

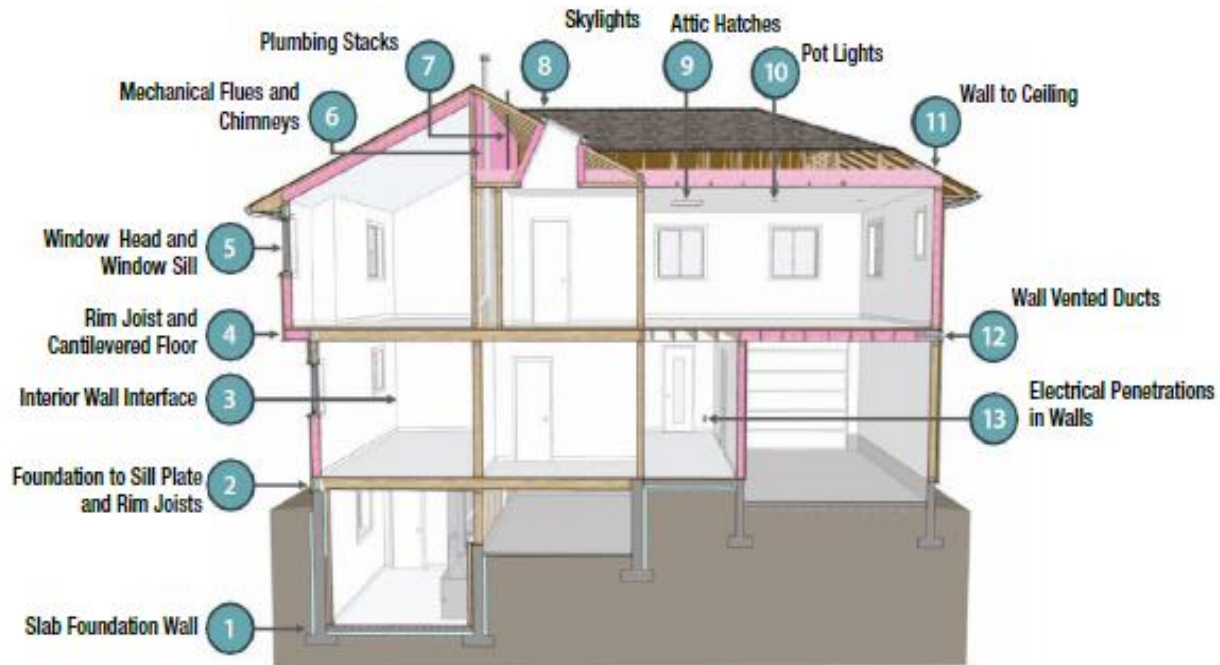
1. Prescriptive requirements of Section 9.36.2 – 9.36.4
2. Prescriptive requirements of Section 9.36 and use simple trade-offs as outlined in Article 9.36.2.11 or NECB 2011 Part 3-7
3. Performance modeling Section 9.36.5 must be prepared by a Certified Energy Advisor (CEA) using software that complies with ANSI/ASHRAE 140 (NECB 2011 Part 8).

1. In all three paths, determine the ‘Thermal Characteristics of Building Assemblies’ :

- Minimum required effective thermal resistance (RSI values) are required for various elements of the building (floors, walls, roofs, windows, skylights). 9.36.2.6 – 9.36.2.8
- Continuity of insulation is required.
- Construction details to achieve this are in the HPO Illustrated Guide for the energy efficiency requirements <https://www.hpo.bc.ca/energy-efficiency-requirements>



- Airtightness 9.36.2.9 – 9.36.2.10 requires that the air barrier be continuous across joints, between assemblies and around penetrations (further requirements are defined in 9.25.3).
- Construction details to achieve this are in the HPO Illustrated Guide for the energy efficiency requirements <https://www.hpo.bc.ca/energy-efficiency-requirements> pages 13-16.



- Ventilation requirements for residential dwellings 9.36.2.1–9.32.4.2 (principal ventilation system fan sizing 9.32.3.5, supply and exhaust fan must run continuously and be on a dedicated switch).
- HVAC and SWH new installation, performance and control requirements have been introduced in 9.36.3 to 9.36.4.

**All Part 9 permit submissions must be accompanied by a completed
“Design Verification Report”
included at the end of this bulletin detailing submission requirements.**

RESOURCES / LINKS

Illustrated Guide: Energy Efficiency Requirements for Houses in British Columbia
<https://www.hpo.bc.ca/energy-efficiency-requirements>

Canada Wood Council Effective R-Value Calculator
<http://cwc.ca/resources/wall-thermal-design/>

Pathways to High-Performance Housing in British Columbia
<http://www.hpo.bc.ca/PathwaysToHigh-PerformanceHousing>

“Avy Woo”

Avy Woo, P.Eng.
Chief Building Official

DESIGN VERIFICATION REPORT

Part 9 BCBC Section 9.36 and 9.32 Verification

- Effective December 19, 2014.
- To be completed by the Designer accompanied with supporting documentation where necessary.

Project Address _____

Building Permit # _____

BCBC COMPLIANCE PATHWAY - check one :

- ___ 1. Prescriptive: 9.36.2 to 9.36.4 or NECB – 2011 Part 3-7
- ___ 2. Prescriptive + Trade-offs: 9.36.2 to 9.36.4 or NECB – 2011 (attach trade-off documentation).
- ___ 3. Performance: 9.36.5 (attach Performance Report) or NECB – 2011 Part 8 (attach Modelling Report)

DRAWING SUBMISSION REQUIREMENTS – TO BE SHOWN ON DRAWINGS (or separate drwg) :

All drawing submissions to include :

- Minimum of one building cross-section drawing indicating the 'Effective Thermal Resistance' (RSI) values and respective areas of all opaque building envelope assemblies, including all above-ground and below-ground roof/ceiling, wall, and floor assemblies. Refer to tables 9.36.2.6.A/B and Table 9.36.2.8 A/B. A sufficient list of assemblies should demonstrate location and continuity of both air barrier and insulation.
- This list of building envelope assemblies must be submitted to demonstrate location and continuity of both air barrier and insulation: slab to foundation wall, foundation to sill plate, interior wall interface with exterior walls and ceilings/roofs, rim joists, cantilevered floors, window headers and sills, exterior walls to ceilings/roofs, skylights, and attic hatches.
- Window section drawing indicating the 'Overall Thermal Resistance' (U-Value), solar heat gain coefficient and respective areas of all fenestration, door and skylights. Refer to Table 9.36.2.7.A/B/C.
- Indicate location, type and Performance Rating for all space-heating, space cooling and service hot-water systems. Refer to prescriptive requirements in Tables 9.36.3.10 and 9.36.4.2.
- Ventilation system design and assembly/fixture locations, including crawlspaces (where applicable).

Performance pathway submission to also include:

- Provide the ratio and areas (in sq.m.) of total vertical fenestration and door areas to gross wall area and Solar Heat Gain Coefficient (SHGC) of each window.
- A signed letter from the certified energy advisor (CEA) that the design meets the requirements of 9.36 & 9.32 and that sufficient field reviews will be done to confirm the construction generally conforms to the proposed design.
- Where a test is used to determine the airtightness of a house, state the measured airtightness of the building envelope in air changes per hour and the design basis for the ventilation rates.

The undersigned has produced and/or reviewed the above-mentioned project with the Compliance Pathway indicated, based on the project's design as provided by the Designer of Record. The undersigned has verified that the project complies with the Compliance Pathway as detailed in Section 9.36 of the BCBC 2012.

SIGNATURE _____

DATE _____

NAME (print) _____

COMPANY NAME _____

EMAIL _____

PHONE _____