City of Richmond

Bulletin
Building Approvals
6911 No. 3 Road, Richmond, BC V6Y 2C1

www.richmond.ca

Building to the Energy Step Code: Part 9 Townhouses and Apartments

No.: BUILDING-39
Date: 2018-09-05

Purpose:

To inform applicants and designers of new Part 9 townhouse and apartment buildings about requirements of the BC Energy Step Code.

Background:

On July 16, 2018, Richmond City Council adopted Bylaw 9769 that requires new buildings to be constructed to the energy efficiency targets set under the BC Energy Step Code.

Implementation:

Building permit applications for Part 9 **townhouse** and **apartment** buildings submitted on or after September 1, 2018 are required to meet **Step 3** of the BC Energy Step Code.

- If a development permit has been **issued prior to September 1, 2018**, the owner may, while their development permit remains valid, apply for a building permit in compliance with the energy efficiency requirements applicable prior to the adoption of Bylaw 9769; or
- If a development permit application has been **submitted to the City prior to July 16, 2018**, the owner may, until **December 31, 2019**, submit a building permit application in compliance with the energy efficiency requirements applicable prior to the adoption of Bylaw 9769.

Rezoning and Development Permit Applications are also subject to the following BC ESC requirements:

- Prior to City Council's consideration of a rezoning application, and prior to Development Permit Panel's consideration of a proposed project, the applicant is expected to conduct energy modelling to ensure their proposed building design shall be in compliance with BC ESC targets.

Requirements at Building Permit Submission:
Effective **September 1, 2018**, all building permit applications for Part 9 **townhouse** and **apartment** buildings, must be accompanied with either:

Compliance Pathway	
9.36.6: Energy Step Code *Energy Advisor required*	**9.36.5: Energy Performance** *Registered Professional required*
1. **BC Energy Compliance Report**: **Pre-Construction** form[1] completed by **a Certified Energy Advisor,** licensed by Natural Resources Canada. 2. Printed copy of HOT2000 Full House report. 3. Electronic copy of the HOT2000 "p-file" (provided on CD-ROM or USB flash drive)**.** 4. For each Energy Advisor, a copy of a valid certificate of insurance for no less than $2 million of general liability insurance and $1 million in errors and omissions insurance. 5. Plan drawings clearly showing all energy efficiency upgrades. 6. A printed copy of a City of Richmond Business License for the Energy Advisor.	1. **BC Energy Compliance Report: Pre-Construction** form[1] completed by **a Registered Professional.** 2. Printed copy of the HOT2000 Full House report or alternative energy model stamped and sealed by a Registered Professional. 3. Electronic copy of the building energy model (provided on CD-ROM or USB flash drive)**.** 4. For each Registered Professional Schedule F, A, B, and E with a certificate of insurance. 5. Plan drawings clearly showing all energy efficiency upgrades. 6. A printed copy of a City of Richmond Business License for the Registered Professional.

See over →

[1] Download the *BC Energy Compliance Report: Pre-Construction* at: https://energystepcode.ca/for-industry/

Requirements at Frames Building Inspection:

1. Pre-drywall blower door test* conducted by an Energy Advisor or a Registered Professional.
    a. A pre-drywall blower door test result that is **more than 1.5 ACH_{50} above** the proposed value in the energy compliance report OR with sub-standard energy-efficiency upgrades will be required to improve the airtightness and/or energy performance of the building.
    b. A second pre-drywall blower door test* and/or new verification report may be required.
2. A **BC Energy Compliance Report: Mid-Construction** form[2]**,** completed by the Energy Advisor or Registered Professional, indicating pre-drywall blower door test results and verification of all building energy efficiency upgrades.

Requirements at Final Building Inspection:

1. Post-construction blower door test* conducted by a Certified Energy Advisor or a Registered Professional.
2. A **BC Energy Compliance Report: As-Built** form[3], completed by the Energy Advisor or Registered Professional, indicating post-construction blower door test results and verification of all building energy efficiency upgrades.
3. A revised electronic copy of the energy model for each building—as constructed.
    a. For compliance via the "percent better than Reference House" score, *the post-construction blower door test result* must be used by the Energy Advisor in the HOT2000 "n-file" energy model of the building as constructed.
    b. For compliance via 9.36.5 performance pathway, the outputs of the energy model must be signed and sealed by a Registered Professional.
4. EnerGuide Rating System, Passive House Certification or other home energy label affixed on or near the electrical panel within each dwelling unit in each building.
    a. Information required for a valid Home Energy Label is listed in Appendix 3. Information on the Label may be available online and does not include any personal information.

***Note:** Provide a building inspector two days advance notice of a scheduled blower door test so that they may choose to attend this test.

Non-compliance with Energy Step Code targets:

If a building does not meet the BC ESC targets, a building inspector may issue an inspection notice for occupancy, if the applicant demonstrates all reasonable measures were taken to improve the energy performance of the building. The following requirements must also be completed:

a. Another post-construction blower door test conducted by a Certified Energy Advisor or Registered Professional.
b. A revised BC **Energy Compliance Report: As-Built** form[3], completed by the Energy Advisor or Registered Professional, indicating post-construction blower door test results and verification of all building energy efficiency upgrades.
c. The building constructed must demonstrate compliance to an alternative energy efficiency performance or prescriptive requirements set out in the building code for Part 9 construction.

For any further information, please contact the Sustainability Department at 604-276-4000.

See attached

[2] Download the *BC Energy Compliance Report: Mid-Construction* here: [not yet available]
[3] Download the *BC Energy Compliance Report: As Built* at: https://energystepcode.ca/for-industry/

ENERGY STEPCODE
BUILDING BEYOND THE STANDARD

Part 9 Step Code Requirements
Climate Zone 4
(Lower Mainland and southern Vancouver Island)

Step	Building energy model	Airtightness Requirement:		Performance Requirement of Building Equipment and Systems			Performance Requirement of Building Envelope		
		Blower door test	ACH_{50}: *air changes per hour @ 50 Pa pressure differential*	Reference House: *__% better than ERS v15 ref. house*	OR	mechanical energy use intensity (MEUI): *kWh/m²·year*	thermal energy demand intensity (TEDI): *kWh/m²·year*	OR	peak thermal load (PTL): *W/m²*
1	✓	✓	report score	0%	OR	conform to Subsection 9.36.5			
2	✓	✓	≤ 3.0	10%	OR	≤ 60	≤ 45	OR	≤ 35
3	✓	✓	≤ 2.5	20%	OR	≤ 45	≤ 40	OR	≤ 30
4	✓	✓	≤ 1.5	40%	OR	≤ 35	≤ 25	OR	≤ 25
5	✓	✓	≤ 1.0			≤ 25	≤ 15	OR	≤ 10

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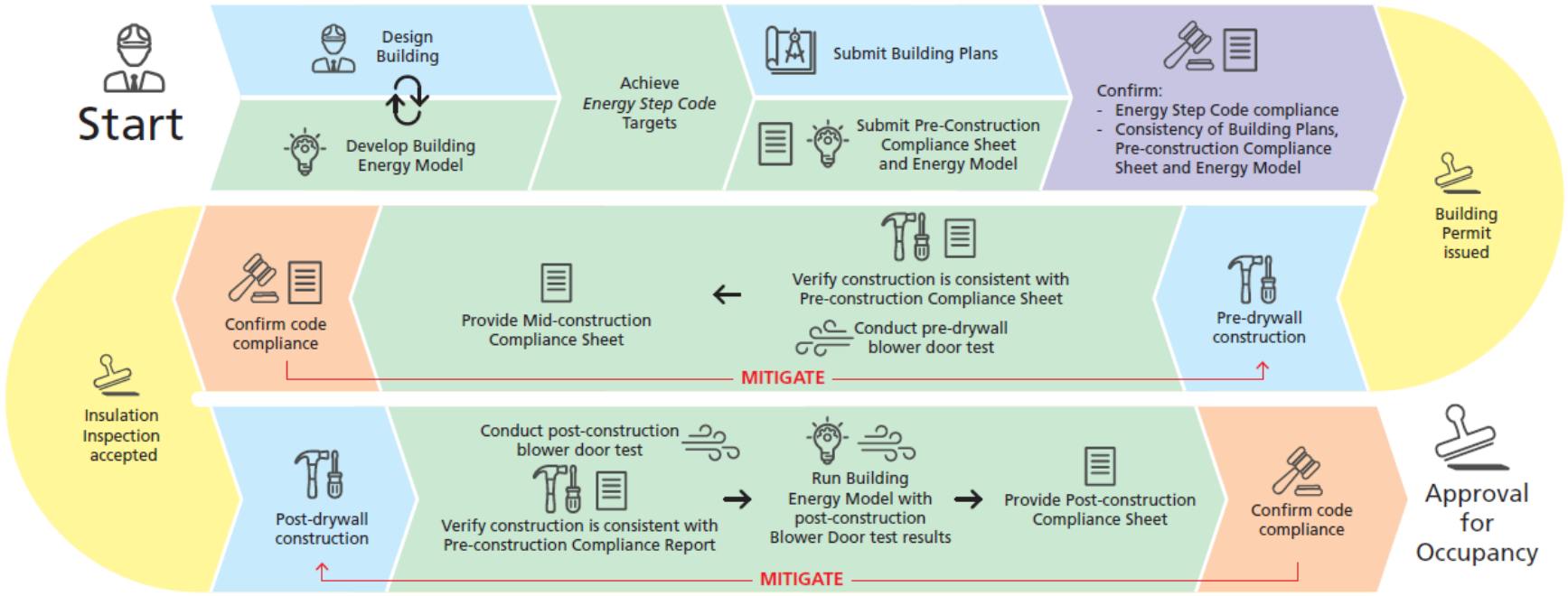
How the Energy Step Code fits into the Building Permit Process for new Part 9* Residential Development



OWNER — BUILDER, ENERGY ADVISOR

RICHMOND BUILDING APPROVALS — PLAN CHECKER, BUILDING INSPECTOR

*detached, duplex, townhouse, 3-storey wood-frame apartment

Richmond

Appendix 2: Energy Step Code Regulatory Process

Appendix 3: Requirements for Home Energy Labels

As an administrative requirement for occupancy, the City of Richmond requires that an energy label be affixed on next to the electrical panel in each housing unit where an electrical panel is present.

The following energy labels are acceptable:

- EnerGuide Rating System energy label, OR
- Passive House Certificate OR
- An comparable energy label including all required information

The “comparable energy label” can be used when:

- Energy modellers are using software tested in accordance with ANSI/ASHRAE 140 Evaluation of Building Energy Analysis Computer Programs;
- Energy advisors not registered with the EnerGuide Rating System use Hot2000 to model a home and produce a BC Energy Compliance Report; OR
- Registered energy advisors are using HOT2000 but are unable to produce a formal EnerGuide Rating System home energy label. (e.g. when energy advisors use HOT2000 to model a townhome or row home as-a-building rather than as a unit). Note also that when EnerGuide Rating System energy advisors are using alternate energy modelling and blower door testing procedures they are not able to produce an EnerGuide home energy label.

“Comparable energy labels” must include the following information:

Address:	• The street address of the home.
Modeller:	• The date that the evaluation was conducted. • The company name and name of energy modeller that conducted the evaluation. • The name of the entity that provides quality assurance.
Energy Rating:	• Energy Rating: Energy consumption of the home in GJ per year, including baseloads. • Reference House Energy Rating: Reference house energy consumption in GJ per year, with baseloads.
Energy Metrics:	• Rated Annual Energy Consumption: Energy consumption GJ per year, broken down by fuel type (Natural Gas, Electricity, Oil, and Propane). • Breakdown of Rated Annual Energy Consumption by system: Percentage of total energy consumption GJ per year by end use (space heating, space cooling, water heating, ventilation, lights & appliances, and other electrical) • Rated On-site Renewable Energy Contributions: Energy generated annually from onsite renewable sources (solar PV, wind, solar hot water). • Rated Energy Intensity: Measured in gigajoules per square meter per year. • Rated Greenhouse Gas Emissions: Annual amount of greenhouse gases emitted in tonnes/year. • Total Heated Floor Area: The total usable heated floor area of the building unit, including all above-grade heated areas regardless of ceiling height, and all below-grade heated areas with a ceiling height of more than 1.2m (i.e. basements).