

Energy Step Code An Introduction

Overview: The purpose of this guide is to introduce the BC Building Code's (BCBC) Energy Step Code, addressing typical questions that may arise.

What is the Energy Step Code?

The BC Energy Step Code is an optional performance-based compliance path in the BC Building Code (BCBC). The path leads to net-zero-energy-ready buildings through a series of increasingly stringent requirements for energy use, thermal energy demand, and airtightness. A phased Step Code was adopted 2019-OCT-21 by amendment to the City of Nanaimo's Building Bylaw (see Pg.32, 33). Phasing of the steps of the Step Code is designed to give builders time to familiarize themselves with the new requirements, while working towards improving energy performance in their construction techniques.

How will adoption of the Step Code benefit Nanaimo?

The City of Nanaimo is committed to climate action and has established an action plan to move towards community sustainability. Adoption of the Step Code provides energy-efficiency benefits to the community, such as lower energy consumption and greenhouse gas reduction.

Homeowners will benefit from reduced energy bills; energy-efficient buildings better able to manage temperature; reduced noise while allowing fresh air in; and, improving comfort and health for occupants.

What buildings will the Step Code pertain to?

Any new building or structure to which Part 3 or Part 9 of the BCBC applies and is within the scope of application of the Energy Step Code, as described in the BCBC. This includes:

- Part 9 residential buildings: detached homes, laneway homes (carriage homes), multi-plexes, row housing and low-rise apartments.
- Part 3 residential buildings, public sector buildings, mercantile buildings, and buildings of business and personal services.
- Building projects where a density trade-off includes higher levels of the Step Code than required by the Building Bylaw.
- Rezoning applications for increased density or change of use will trigger the requirement for one step above the Energy Step Code step prescribed for that building or subject to a legal commitment to install a low-carbon energy system that satisfies a greenhouse gas intensity limit of 3kg/m²/year.

The Step Code does not apply to industrial construction or renovations.

What steps of the Step Code have been adopted in the Building Bylaw amendment?

- **Step 1** of the Step Code will apply to Part 9 residential building permits and Part 3 building permits applied for on or after 2020-APR-21.
- **Step 1** is intended to familiarize builders with airtightness tests and energy modeling. Buildings are to be designed and constructed to comply with the BCBC using whole building energy modelling to achieve the same energy performance as the reference model building.
- **Step 2** of the Step Code will apply to Part 9 residential building permits applied for after 2021-JAN-01. Step 2 will apply to Part 3 building permits applied for after 2022-JAN-01.
- **Step 2** will provide energy efficiency 10% greater than the current BCBC for residential Part 9 buildings and 20% to 40% greater than the current BCBC for Part 3 buildings.
- **Step 3** of the Step Code will apply to Part 9 residential building permits applied for after 2022-JAN-01.
- **Step 3** will provide energy efficiency 20% greater than the current BCBC.

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How did the implementation of STEP 1 on 2020-APR-21 impact Part 9 or Part 3 projects?

Step 1 – Builders are required to use a whole-building energy model to calculate the energy consumption of their buildings, as well as have a building airtightness test done (i.e. a blower door test). However, the construction of the building remains the same as conventional construction, and it only needs to meet the performance of the base BCBC. To meet the BC Energy Step Code standards, builders need to work with a qualified Energy Advisor and/or Architect, as appropriate, and submit the applicable Energy Reports for Part 9 and Part 3 buildings.

How did the implementation of STEP 2 on 2021-JAN-02 impact Part 9 residential projects?

Step 2 – To achieve the requirements for Step 2, the design and construction had to meet a 10% higher level of energy performance as described in Table 9.36.6.3.-A of the BCBC.

How did the implementation of STEP 3 on 2022-JAN-02 impact my Part 9 residential project?

Step 3 – To achieve the requirements for Step 3, the design and construction must meet a 20% higher level of energy performance as described in Table 9.36.6.3.-A of the BCBC. This relates to airtightness; performance of building equipment and systems; as well as the performance of the building envelope. The BCBC offers more than one compliance path to achieve the Step Code requirements. To meet the required standard, builders will need to work closely with their qualified Energy Advisor to determine the compliance path that is appropriate for their project.

How did the implementation of STEP 2 on 2022-JAN-02 impact my Part 3 project?

Step 2 – To achieve the requirements for Step 2, the design and construction must meet a 20% to 40% higher level of energy performance as described in Table 10.2.3.3.-A to -J of the BCBC. The requirements for performance of the building equipment and systems and the performance of the building envelope vary by major occupancy of the building. Part 3 buildings shall be tested for airtightness as required by BCBC 10.2.3.5. To meet the required standard, builders will need to work closely with their Registered Professionals to determine the compliance path that is appropriate for their project.

What documentation is required for STEP Code compliance?

Part 9 Residential buildings, in addition to typical requirements:

Building Permit Applications:

- Drawing(s) with building characteristics consistent between the drawings and compliance report, including a statement indicating the Step pursued.
- [Pre-Construction Energy Efficiency Compliance Report](#) – example.
- Model summary for the reference house and pre-build (as-designed) house.

Issuance of Occupancy Permit:

- [As-Built Energy Efficiency Compliance Report](#) – example.
- EnerGuide Homeowner Information Sheet.
- Energy model summary for the reference house and as-built building.

Part 3 residential, public sector, business, personal services, or mercantile buildings, in addition to typical requirements:

Building Permit Applications:

- Drawing(s) with building characteristics consistent between the drawings and compliance report, including a statement indicating the step pursued.
- [Energy Compliance Report for Part 3 Building](#) (Pre-Construction) by a qualified energy modeller i.e. a building envelope consultant or building scientist. This report is not required to be sealed.

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What documentation is required for STEP Code compliance? (continued)

- Energy Model Report sealed by an Engineer acting as a supporting consultant to the Architect or an Architect. The Architect or Engineer sealing the report must have expertise as an energy modelling supervisor or a qualified energy modeller.
- Letters of Assurance to include all Professionals of Record signed-on for Part 10, Building Envelope Energy Step Code requirements and testing, as applicable.
- The Energy Reports must comply with the requirements as detailed in the 2018 BCBC under Division C 2.2.9. - Drawings, Specifications and Calculations.

Issuance of Occupancy Permit:

- [Energy Compliance Report for Part 3 Building](#) (As-Built) by a qualified energy modeller i.e. a building envelope consultant or building scientist. This report is not required to be sealed.
- Energy Model Report sealed by an Engineer acting as a supporting consultant to the Architect or an Architect. The Architect or Engineer sealing the report must have expertise as an energy modelling supervisor or a qualified energy modeller.
- Letters of Assurance Schedule C-A and C-Bs.

What climate zone does Nanaimo use?

Based on the posted Government of Canada climate data for Nanaimo, Building Inspections has identified Climate Zone 4 as the appropriate zone for the purpose of British Columbia Building Code-related requirements.

Energy Advisors should use the appropriate degree days from the National Research Council's [HOT2000 Climate Map](#) when completing the BC Energy Compliance Reports.

Energy Modellers for Part 3 buildings should use the Canadian Weather year for Energy Calculation (CWEC) as per the City of Vancouver Energy Modelling Guidelines.

What is an Energy Advisor and what do they do?

Energy Advisors conduct performance evaluations under a Natural Resources Canada (NRCan)-licensed service organization and must be registered and in good standing with Natural Resources Canada in accordance with the EnerGuide Rating System Administrative Procedures and adhere to the technical standards and procedures of the EnerGuide Rating System.

An Energy Advisor reviews plans, models energy consumption, and conducts airtightness testing to verify the plans and as-built home comply with the energy performance requirements of a given step.

What are the STEP Code compliance paths?

To assist builders, designers, and the public, the Building and Safety Standards Branch has produced a number of Information Bulletins explaining the details of the compliance paths for Part 9 buildings:

[The BC Energy Compliance Reports – Performance Paths for Part 9 Buildings.](#)

[Complying with Step 1 of the BC Energy Step Code for Part 9 Buildings.](#)

[Step 1 in the BC Energy Step Code: Airtightness, Enhanced Compliance and Compliance Paths.](#)

[Changes to the BC Energy Step Code – Revision 2](#)

The Building and Safety Standards Branch has developed a new standardized form for energy compliance for Part 3 buildings. This tool gives industry and local authorities a consistent way to gather and review modelled energy performance characteristics of Part 3 Step Code buildings at both the pre-construction and as-built stages.

[Compliance Tools for Part 3 Buildings](#)

[City of Vancouver Energy Modelling Guidelines](#)

[AIBC & EGBC's Joint Professional Practice Guidelines for Whole Building Energy Modelling Services](#)

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How do I find an Energy Advisor?

A list of Energy Advisors can be found on the [CleanBC Better Homes](#) website under menu, “Find an Energy Advisor”. Please note, to operate in Nanaimo, your Energy Advisor must have a valid business licence.

How can I make sure my building will meet the airtightness requirements?

A mid-construction blower door test is recommended, but not required.

Are there incentives and / or rebates?

A list of incentives and rebates can be found at the [CleanBC Better Homes](#) website under the menu, “Submit Your Rebate Application”. CleanBC Better Homes is BC’s online hub for homeowners and businesses to access information, rebates, and find support to reduce energy use and greenhouse gas emissions in new and existing homes and buildings. Also see City of Nanaimo’s “[Home Energy Efficiency Rebates](#)” for City of Nanaimo rebates and supporting information.

Density incentives exist through the development permit process for developments reaching a higher level of the Energy Step Code than required under the City of Nanaimo Building Bylaw. More information is outlined in “Schedule D” of the 2019-NOV-04 [amendment to Zoning Bylaw 4500](#).

If you have any questions or require clarification, please contact a commercial plans reviewer at our office at 250-755-4429. This guideline should not be used as a substitute for existing building codes and other regulations. The building owner is responsible for compliance with all codes, bylaws, and other regulations whether or not described in this guideline.

Documents and forms identified in this guide can be found on the City of Nanaimo website www.nanaimo.ca under Building Inspections, Publications and Forms or at our office at 411 Dunsmuir Street.