

Updated Energy Efficiency Requirements for New Homes

This handout provides designers, contractors, and energy advisors with information on an update to the City's Construction Regulation Bylaw. This update changes the minimum energy efficiency requirements for new Part 9 residential buildings (single family houses, coach houses, duplexes, townhouses, etc.) and comes into effect on July 1st, 2021.

Background

The BC Building Code (BCBC) defines the minimum level of performance for buildings in the areas of life safety, building safety, health, accessibility, and energy efficiency. Introduced in 2017, the [Energy Step Code](#) provides energy efficiency performance thresholds that local governments can require in their communities. The top Step (Step 5) is equivalent to a net-zero energy building, meeting BC's [CleanBC](#) mandate for all buildings by 2032.

Greenhouse gas (GHG) emissions associated with buildings represents 46% of all GHG emissions in the City, the majority of which come from heating and domestic hot water systems. Switching these mechanical systems to fuel sources that produce less GHG emissions (electricity and on-site renewable energy) will reduce this impact.

Current Requirements

Since July 1st, 2018, Building Permit applications for new Part 9 residential buildings have been required to demonstrate compliance with Step 3 of the Energy Step Code.

New Requirements

Bylaw Regulations

As of July 1st, 2021, Building Permit applications for new Part 9 residential buildings will be required to demonstrate compliance with one of two Energy Step Code compliance options:

1. Step 3, where all mechanical systems in the building are able to be classified as a *low carbon energy system*.
2. Step 5, where the mechanical systems in the building are not able to be classified as a *low carbon energy system*.

Defined in the Construction Regulation Bylaw, *Low Carbon Energy Systems* means all mechanical systems in a building that provide thermal conditioning and domestic hot water heating such that the modeled Greenhouse Gas Intensity (GHGI) for the floor area of conditioned space of the Building is no more than 3 kg CO₂e/m²/year.

The modeled GHGI is determined through an energy model of the building, already required by the Energy Step Code. For example, a typical HOT2000 energy model provides GHG emissions in tonnes/year; this metric can be converted to kilograms and divided by the heated floor area to determine the GHGI in CO₂e/m²/year.

Submission Requirements

Building Permit applications processed on or after July 1st 2021 must include the following:

- A clear statement on the project drawings stating the Step being pursued (Step 3 or Step 5). If the project is pursuing Step 3, the project drawings must state that all mechanical systems in the building will be able to be classified as *low carbon energy systems*.
- Project drawings must identify sufficient space to install mechanical equipment.
- Energy Step Code forms (House Performance Report, model, etc.) fully describing the heating and domestic hot water systems in the building, including a sequence of operation if redundant systems are being provided.
- The mechanical systems identified in project drawings, ESC forms, and energy model must all be the same.

Effective Date

All Building Permit applications for new Part 9 residential buildings submitted on or after July 1st 2021 must meet the updated energy efficiency requirements. Due to the current City Hall closure and COVID-19 protocols, please allow sufficient time for intake processing.

Please visit the City's Building Permit webpage at <http://www.cnv.org/permits> for up-to-date application information.

Additional Resources

The following online resources may be of assistance:

- Regulatory Guides
 - Province of British Columbia [Energy Efficiency Regulation portal](#)
 - BC Housing [Residential Design & Construction Guides](#)
 - BC Zero Emissions Building Exchange - [Low-Carbon Mechanical Systems for Houses in British Columbia's Lower Mainland](#)
- Training Opportunities
 - BC Energy Step Code Council – [Guides and Training Opportunities](#)
 - Thermal Environmental Comfort Association – [Courses and Qualifications](#)

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