

CITY OF BURNABY

Energy Step Code, Zero Carbon Step Code and Green Building Requirements

(Part 3 Buildings)

INFORMATION FOR APPLICANTS



Note to applicants: if your project will be connecting to the Burnaby District Energy Utility (BDEU), please contact the BDEU for guidance on their application process and for the emissions factor used for energy modeling and compliance with the Step Code requirements outlined in this document.

For inquiries about the District Energy Utility:
[Burnaby.ca/DistrictEnergy](https://burnaby.ca/DistrictEnergy) | districtenergy@burnaby.ca

Background

Reducing greenhouse gas (GHG) emissions from new buildings and improving their energy efficiency are critical components of Burnaby's Climate Action Framework, our plan to reduce carbon emissions by 45% by 2030, by 75% by 2040, and achieve carbon neutrality by 2050. These and other green building strategies also support Burnaby's Environmental Sustainability Strategy, a plan for Burnaby's green future.

On May 1, 2023, the **Zero Carbon Step Code (ZCSC)** became a part of the BC Building Code (BCBC) as a means for local governments to limit GHG emissions from the operation of commonly built BCBC Part 3 (larger, more complex) and BCBC Part 9 (smaller, simpler) buildings. Municipalities are free to adopt the ZCSC on a voluntary basis, which Burnaby has opted into.

In December 2023, Burnaby Council adopted Emission Level 4 (EL-4) of the ZCSC as the minimum requirement for Part 3 buildings, building on the success of green building policies in place since 2019 to limit GHG emissions from new buildings.

Implementation of EL-4 required that Burnaby's Part 3 Green Building Rezoning Policy be amended effective January 1, 2024, followed by amendments to the Building Bylaw effective July 1, 2024. These changes make ZCSC compliance a requirement for all new Part 3 buildings to which ZCSC applies, rather than only those buildings subject to a rezoning application. A previous amendment to the Building Bylaw established Step 2 as the minimum Energy Step Code (ESC) requirement for Part 3 buildings.

A special provision for in-stream rezoning applications, and an exemption for new buildings connected to Burnaby Mountain District Energy System, are discussed in subsequent sections of this document.

See City of Burnaby [Green Buildings and Land Development](#) webpage for additional information and resources.



Purpose of the informational guide

This guide provides a summary of the documentation and verification requirements at various steps of development approval to demonstrate compliance with the ESC and ZCSC requirements, and other green building requirements, in Burnaby. We will be publishing updates to this document from time to time as new bylaw changes are adopted; be sure to check the website for the latest version before consulting it for your development project.

About the ESC and ZCSC

What is the Zero Carbon Step Code?

The ZCSC is a new Provincial regulation that sets a maximum annual amount of GHG emissions for new buildings.

How does the Zero Carbon Step Code relate to the BC Energy Step Code?

The ESC regulates energy efficiency for new buildings, whereas the ZCSC regulates GHG emissions. Compliance for the ESC and the ZCSC are now reported through the same compliance checklist, similar to the previous BC Energy Step Code compliance forms and checklists.

Current requirements for Part 3 Buildings in Burnaby

Effective July 1, 2024, most new Part 3 buildings (except industrial occupancy) in Burnaby applying for a building permit are required to meet a minimum of:

» **Step 2 of the ESC**

» **Emission Level 4 (EL-4) of the ZCSC**

These requirements are contained in Burnaby's Building Bylaw, which references ESC and ZCSC as set out in Division B, Part 10 of the Building Code. The ESC applies to buildings containing any of the major occupancies set out in 10.2.3.1 of the Building Code, whereas the ZCSC applies to a smaller subset of buildings that contain the major occupancies as set out in 10.3.1.1 of the Building Code as follows: residential, business and personal services, or mercantile. Special provision is as follows:

The table below outlines Burnaby's ZCSC requirements, and corresponding ESC requirements, for common Part 3 building types.

Building Type	Energy Step Code Requirement	Zero Carbon Step Code Requirement	Effective Date
Residential buildings of 6 storeys or fewer, with combustible construction	Step 2 (minimum)	Emission Level 4: Zero Carbon Performance	July 1, 2024
Residential buildings taller than 6 storeys, or non-combustible construction			
Hotels and motels			
Commercial offices			
Retail buildings			

- » **In-stream rezoning applications:** Buildings applying for a building permit that were subject to a rezoning application that received Second Reading by December 31, 2023 are subject to ESC and carbon emission requirements as specified in City policies and the associated conditions of the Rezoning Bylaw AND NOT the amended Building Bylaw and EL-4, provided a complete building permit application is submitted and accepted by the City on or before December 31, 2026.

An exemption for meeting these requirements is as follows:

- » Buildings connected to the Burnaby Mountain District Energy Utility. It is expected this exemption will remain in place until such time as the City of Burnaby establishes a suitable emissions level of the ZCSC for this pre-existing system.

Note that buildings connecting to the future Burnaby District Energy Utility (BDEU) are **NOT** exempted from step codes. An Emissions Factor and related information for energy modeling and compliance with ESC and ZCSC is provided by the BDEU.

ESC and ZCSC performance requirements for Part 3 buildings can be found in Division B, Part 10, Sections 10.2 and 10.3, of the BC Building Code. Compliance tables can be seen in the convenience copy of the [BC Building Code](#).

How do these changes affect my project?

If your project falls within the included categories of buildings listed above and does not qualify for the listed special provision or the exemption, your project must comply with minimum Step 2 of the ESC and EL-4 (Zero Carbon Performance) of the ZCSC.

New buildings connecting to Burnaby Mountain DEU must still demonstrate compliance with ESC, as well as any other green building requirements established through the rezoning and development approval process.

Submission Requirements for Applicable Part 3 Buildings

Compliance with these requirements is demonstrated through the *Part 3 Energy and Zero Carbon Design Checklists* available from the Province of British Columbia for [Part 3 buildings](#). There are updated compliance forms that include space to report the ZCSC metrics, but the format and method of completion of the forms will be familiar to Energy Advisors and Energy Modelling professionals who have completed BC Energy Step Code compliance forms in the past.

The completion of these checklists must be submitted to the City of Burnaby to demonstrate compliance at 2 stages:

- » at the Building Permit stage, showing the 'As Designed' results
- » at the Occupancy Permit stage, showing the 'As Built' results

A diagram that outlines the general process of approval is available on Page 6.

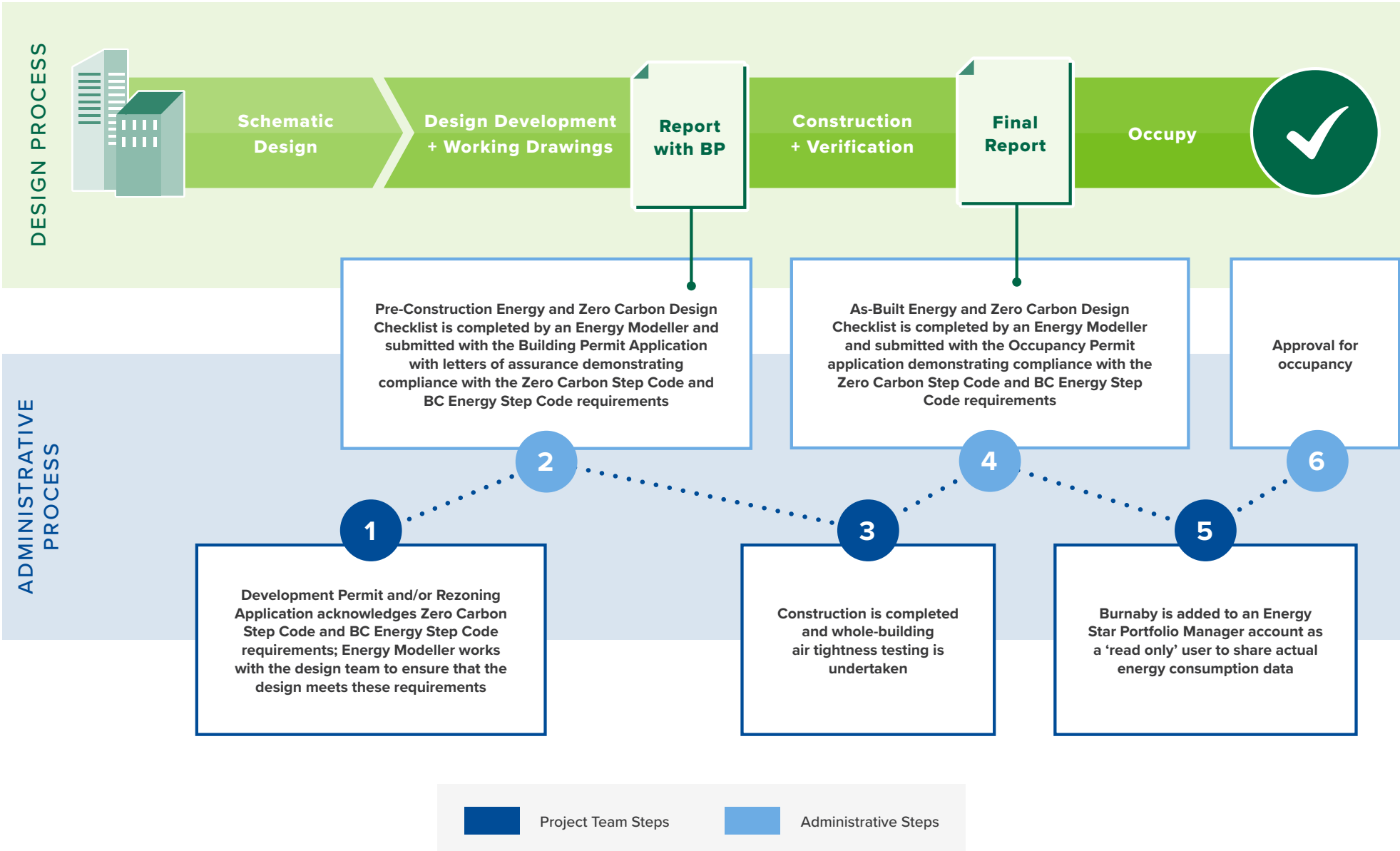
The City of Burnaby requests additional materials through the development process, including Green Building Reports and benchmarking requirements. These administrative requirements are meant to support an efficient and successful application process for high-performance buildings and are outlined in Table 1 below.

Bold terms included in the table below are further explained at the end of this document.

Table 1. City of Burnaby Part 3 Energy Step Code, Zero Carbon Step Code and green building administrative requirements and touchpoints through the Development Process. **Note that Part 3 projects that are not subject to a rezoning (e.g., Small-scale Multi-Unit Housing) are not subject to the items noted in the REZONING rows of Table 1.**

Design or Approval Stage	Administrative Requirements (items provided by the applicant)
REZONING Suitable Plan of Development	<p>Green building report, signed and sealed by a registered professional, with 1-3 page summary of key sustainability features of the project, including energy- and emissions-related design features; owner-signed commitment to achieve the City’s Energy Step Code, Zero Carbon Step Code; and Energy benchmarking (including system sub-metering) requirements.</p> <p>Included as an appendix to the Green Building Report, Energy Modeling Report, signed and sealed by a registered professional, with completed Part 3 Energy and Zero Carbon Design Checklists, noting preliminary energy modeling results, inputs and assumptions.</p>
REZONING Third Reading	<p>Updated Green Building Report, Energy Modeling Report and Part 3 Energy and Zero Carbon Design Checklists, as required, based on final design of the buildings.</p>
REZONING Final Adoption	<p>Registration of Green Building Covenant to require Energy Benchmarking, as well as other key sustainability features on a project specific basis.</p>
BUILDING PERMIT At application	<p>Green Building Report and Green Building Covenant linked from the REZONING / PPA / DP application, as applicable.</p> <p>Energy Modelling Report, signed and sealed by registered professional with reference to the submitted building permit drawings.</p> <p>‘As designed’ Part 3 Energy and Zero Carbon Design Checklists reflecting final building energy/GHG performance based on detailed design.</p>
BUILDING PERMIT Prior to Occupancy	<p>Air Tightness Testing Report</p> <p>Final (as-built) Energy Modeling Report (signed and sealed)</p> <p>As-built Part 3 Energy and Zero Carbon Design Checklists Design Checklist.</p> <p>Confirmation of set-up of Portfolio Manager account for Energy Benchmarking and sharing account as ‘read only’ with City of Burnaby.</p>
POST-OCCUPANCY	<p>Ongoing reporting of energy use through Energy Star Portfolio Manager and continued sharing of account as ‘read only’ with City of Burnaby.</p>

Process for Part 3 Projects (e.g. multi-unit residential, large commercial office)



APPENDIX 1

**DESCRIPTION
OF KEY TERMS,
DELIVERABLES, AND
SUPPORTING POLICIES**

- » **Green Building Report** means a report (PDF) prepared by a qualified professional that summarizes the key sustainability features of the project in plain language and supported by summary data tables where appropriate, which may include but is not limited to energy efficiency, GHG emissions, embodied carbon emissions, water conservation, indoor air quality, construction and demolition waste diversion, and site sustainability features. The report shall include an owner-signed declaration letter to understanding and acknowledging that the Project will be required to meet the City’s Energy Step Code and Zero Carbon Step Code requirements, implementing **energy system sub-metering** (see description below) and **energy benchmarking**, and any other sustainability commitments made as a condition of development approval. The **Energy Modeling Report** (see below) may be included as an appendix of the Green Building Report.
- » **Energy Modeling Report** means a report (PDF) prepared, signed, and sealed by a registered professional who has undertaken or overseen the building energy modeling to comply with the City of Burnaby’s Energy Step Code and Zero Carbon Step Code requirements. The report shall include a summary of the methodology and results of the energy modeling.
- » **Energy Step Code and Zero Carbon Step Code Design Checklist** means the Province’s Part 3 Excel-based checklists, with all required valued filled in. The checklist is to be provided as a separate digital (Excel) file and PDF file and attached to the **Green Building Report**. It can be accessed at <https://energystepcode.ca/compliance-tools-part3/>
- » **Energy Benchmarking** means creating an account in the Natural Resources Canada Energy Star Portfolio Manager system with the required building design and energy system inputs, setting up the account for automatic reporting from utility accounts, designating the City of Burnaby as an account reviewer, and providing any information necessary for the City to access the account, for the purpose of tracking ongoing energy use by major end use (enabled by system sub-metering as outlined below).
- » **System sub-metering for major energy end-use:**

Master metering for each energy utility and each building must be installed to provide the basic tools for energy auditing and benchmarking (part of Burnaby’s approved policy). To provide the tools for building owners to better understand where and how energy is used in buildings, this requires **sub-metering of major energy end-uses and/or space uses within each building**.

Note that this is NOT a requirement for sub-metering at the suite scale, where meters are not otherwise required by a utility, and does not include major end-uses that are contained entirely within a residential suite, or energy end-uses estimated to use approximately 10% or total building energy use or less. If the project includes metering of individual suites (at the choice of the developer or building owner), meter data from suites must be aggregated to include 20 suites or more, or otherwise be made anonymous.





Major energy end-uses for sub-metering may include, but are not limited to: domestic hot water, space heating, make-up air heating, cooling, fans, lighting, plugs, EV charging, and others. Major space uses for sub-metering may include, but are not limited to: parkades, common and amenity areas, retail, and other spaces that differ from the primary space type of the building.

The energy sub-metering strategy used should be appropriate for the size and complexity of the building. Smaller or simpler buildings with fewer systems and space uses may require relatively few meters compared to a large mixed-use building with complex energy systems. To maximize cost-effectiveness and the quality of metered data, the strategy may choose to: use a combination physical and virtual meters; interface with the Building Automation System (BAS), which can collect and aggregate energy use data from mechanical equipment and other systems; or connect digitally with meters already provided or required by utilities. The strategy should be created with direct input from the mechanical and electrical designers as well as the Commissioning Authority, and must be designed to provide building owners with the level of sub-meters and data necessary to conduct a high-quality energy assessment or retro-commissioning activities.

Meters should typically be capable of reporting hourly, daily, monthly, and annual energy use, and the sub-meter data collection system used must be capable of storing meter data for at least 36 months, providing remote data access for the building owner or energy advisor, and secure backup of data.

Renewable Natural Gas

In concept, the City supports the use of renewable natural gas (RNG) for building systems, whether supplied by FortisBC, or other. However, there are currently uncertainties around using RNG as a compliance pathway for ZCSC, as it is unclear whether a consistent supply of RNG could be maintained, or whether long-term agreements to supply a building with RNG could be established. The City is open to considering approaches that could encourage the use of RNG in future if these concerns can be addressed to the satisfaction of the City. Specific provisions may be added to this Information Guide in future for further clarification as needed.

The City of Burnaby's [Climate Action Framework](#) (2020) discusses in greater detail renewable natural gas and renewable energy in the context of our approach for climate action and meeting our carbon emission reduction targets.

Links to more information

- » [BC Energy Step Code website](#)
- » Burnaby [Green Building and Land Development](#)

