Bulletin: Part 3 Green Building Policy

2019 August 27

Background

On 2018 November 19, Burnaby Council adopted Green Building Requirements for New Part 3 Buildings, which include implementation of the BC Energy Step Code, and an option for a low-carbon energy system with lower ESC performance requirements for buildings subject to Rezoning. Building Bylaw amendments were approved on 2019 February 11th for the minimum requirement of Step 1 of Energy Step Code for all applicable Part 3 buildings.

For a summary of requirements and additional resources see the website (under Resources): www.burnaby.ca/greenbuildings:

- Flow Chart of applicable building types
- Energy Step Code bulletin (Building Department)
- Low Carbon Energy System (LCES) Policy

Purpose

The purpose of this bulletin is to provide a summary of compliance, documentation and verification requirements at various steps of development approval, to demonstrate compliance with the Green Building Requirements and related Building Code energy requirements. The bulletin will be updated from time to time; applicants are advised to check the website to ensure the latest version is being referenced.

Submission Requirements for applicable Part 3 buildings[1]

- Table 1: All projects subject to **Rezoning** (that receive Second Reading after 2019 July 1)
- Table 2: All projects subject to **Rezoning** (that receive Second Reading after 2019 July 1) and that are opting for the **lower step/low-carbon energy system pathway**.
- Table 3: Projects NOT subject to Rezoning, or that have received Second Reading prior to 2019 July1.
- Table 4: Projects NOT subject to Energy Step Code

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

1 Over 3 storeys or 600m^2 in building area, with residential, business, personal services and mercantile occupancies.

Table 1. Projects subject to Rezoning (for projects opting for LCES pathway, see also Table 2)

Design or approval stage	**Submission Requirements**
Preliminary design (following Initial Rezoning Report)	**Green building report**, signed and sealed, with 1-3 page summary, including energy- and emissions-related design features, owner-signed commitment to achieve the applicable Step and LCES with GHG limits (if applicable) and commitment to undertake air tightness testing, and **energy benchmarking** (including **system sub-metering**), and other commitments as applicable.
	Signed and sealed **energy modeling report** with completed **energy checklist**, noting preliminary energy modeling results and high level inputs/assumptions.
Suitable plan of development (prior to Public Hearing)	**Green building report,** updated as necessary, reflecting any design changes and ensuring design still meets required Step.
	Updated **energy modeling report** and **energy checklist**
3rd Reading	**Updated green building report, energy modeling report,** and **energy checklist** as required based on final design of building(s).
Final Adoption	Registration of **green building covenant** including **green building report, energy modeling report,** and provisions for **energy benchmarking**.
Building Permit	**Final Green building report**.
	Final (signed/sealed) **energy modeling report** and **energy checklist** reflecting final building energy/GHG performance based on detailed design.
	Digital copy of energy model for filing purposes.
	Architectural drawings with relevant notations as appropriate, e.g. system **sub-metering** locations.
Occupancy Permit	**Air tightness testing report**, documenting methodology and results.
	Final **green building report**, **energy modeling report,** and **energy checklist**.
	Confirmation of set-up of **Portfolio Manager account** for **energy benchmarking**.
Post-Occupancy	Ongoing reporting of energy use through Energy Star Portfolio Manager.

Table 2. Additional requirements for projects subject to Rezoning, with LCES *(see also LCES Policy for details) Projects must* ***also*** *meet all submission requirements listed in Table 1.*

	LCES System Type		
Approval or Permit Stage	**Utility-Owned On-Site LCES**	**Utility-Owned District LCES**	**User-Owned On-Site LCES**
Preliminary design (following Initial Rezoning Report)	Signed and sealed report with preliminary LCES design summary, aligned with current drawings on file and the energy checklist, confirming site GHG limits achieved.	Signed and sealed report with preliminary LCES design summary, aligned with current drawings on file and the energy checklist, confirming site GHG limits achieved.	Signed and sealed report with preliminary LCES design summary, aligned with current drawings on file and the energy checklist, confirming the site achieves: Reduced site GHG limits; a system COP>2; peak sizing limits.
	Letter from proposed utility partner, confirming their interest in purchasing the LCES.	Letter from the owner, confirming their intent to connect the development to the proposed utility partner.	Letter from developer, confirming 2y min. warranty and optimization and 5y min. maintenance contracts, and strata funding structure, will be established.
Suitable plan of development (prior to Public Hearing)	If the design has changed, an updated report, confirming system still meets require energy and GHG performance.	Signed and sealed complete LCES feasibility study from the proposed utility partner and aligned with current drawings on file and the energy checklist, confirming development achieves site GHG limits	If the design has changed, an updated report, confirming system still meets require energy and GHG performance.
Final Adoption	Registration of **green building covenant**, including commitment to annual reporting (energy benchmarking)[2]	Registration of **green building covenant**, including commitment to annual reporting (energy benchmarking)[2]	Registration of **green building covenant**, including commitment to annual reporting (energy benchmarking) [2]
Building Permit	Signed and sealed **LCES report** with a final LCES design summary, aligned with professional drawings and energy checklist, confirming site GHG	BCUC issued Certificate of Public Convenience and Necessity (CPCN) for LCES, in accordance with City-approved feasibility study.	Signed and sealed **LCES report** with a final LCES design summary, aligned with professional drawings and energy checklist,

2 See Low Carbon Energy System Policy, Appendix A, for details.

	limits achieved.		confirming: reduced site GHG limits; COP>2; peak sizing limits.
	Documentation of agreement between utility and owner for purchase and long-term operation of the utility.	Documentation of agreement between utility and owner for long-term energy supply to the development from the LCES.	Documentation detailing the proposed 2y min. warranty and optimization and 5y min. maintenance contracts, and strata funding structure, will be established.
	Documentation of disclosure of relevant LCES information to future owners.	Documentation of disclosure of relevant LCES information to future owners.	Documentation of disclosure of relevant LCES information to future owners.
Occupancy Permit	Documentation of purchase by utility and registration with BCUC of utility (or micro TES exemption).	Documentation of connection of the development to the utility.	Report summarizing optimization and maintenance contract activities and outcomes, including documentation owner funding structure has been established.
	Letter of agreement by utility	Letter of agreement by utility	Letter of agreement from system provider.
Post-Occupancy	Annual reporting of building energy use, cost, and emissions data by fuel type and LCES-related end use.	Annual reporting of building energy use, cost, and emissions data by fuel type and LCES-related end use.	Annual reporting of building energy use, cost, and emissions data by fuel type and LCES-related end use.

Table 3. Projects subject to Energy Step Code and NOT subject to Rezoning, or that have received Second Reading of Rezoning prior to 2019 July 1

Approval or Permit Stage	**Submission Requirements**
Building Permit or Preliminary Plan Application	**Green building report**, signed and sealed, with 1-3 page summary, including energy- and emissions-related design features, and owner-signed commitment to undertake air tightness testing and **energy benchmarking** (including **system sub-metering**),.
	Signed and sealed **energy modeling report** with completed **energy checklist**, documenting energy modeling results, and **digital copy of energy model**.
Occupancy Permit	**Air tightness testing report**, documenting methodology and results.
	Final **green building report, energy checklist and energy model**.
	Confirmation of set-up of **Portfolio Manager account** for **energy benchmarking**.

Table 4. Projects NOT subject to Energy Step Code

Approval or Permit Stage	Submission Requirements
Building Permit or Preliminary Plan Application	Building Code compliance report, signed and sealed, including energy-related design features and projected performance based on detailed design.
Occupancy Permit	Final compliance report, **energy checklist** and **energy model**, if applicable.

Description of Key Terms and Deliverables

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 commitment letter to achieving the City's green building requirements for Step of Energy Step Code and (if applicable) implementing a low-carbon energy system that meets the City's LCES policy and GHG limits, implementing **energy system submetering** (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 a component of the Green Building Report, or provided separately.

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 Energy Step Code and (if applicable) City of Burnaby GHGI requirements. The report shall include a summary of the methodology and results of the energy modeling at a level of detail such that it could be replicated by a third party, and shall demonstrate compliance with the City's requirements for energy and GHG emissions.

Energy Checklist means the City-provided checklist (Excel spreadsheet), with all required valued filled in. The checklist is to be provided as a separate digital (Excel) file, and PDF file which may be attached to the **Energy Modeling Report**.

Digital Copy of Energy Model means a digital file output in the format used by the energy modeling software, or another more universal digital file (e.g. Excel) that could be used by another party, for potential auditing purposes.

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 submetering** as outlined below).

Green building covenant means a Section 219 covenant registered on title, with a copy of the final **green building report**, **energy modeling report**, **LCES report** (if applicable), and requirement for the building owner to allow/enable ongoing energy reporting, through the **energy benchmarking** account established by the developer. The covenant will include a clause allowing for minor amendments, however, system design changes that would significantly affect the energy performance may require replacement of the covenant; in either case, changes would need to be approved by the City.

LCES report means a report, signed and sealed by a professional engineer, describing the design and function of the LCES in order to substantiate that its performance meets the City's LCES policy and GHG limits.

System submetering 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 back-up of data.