

Bulletin

Green Buildings Policy for Rezoning – Process and Requirements

Effective July 22, 2010

*Amended [June 25, 2014](#), [June 8, 2015](#), [January 14, 2016](#), [April 28, 2017](#), [June 14, 2019](#), [June 14, 2022](#), and
August 17, 2022*

Authority: Director of Planning

Regulatory References

- Green Buildings Policy for Rezoning
- Vancouver Building By-law

Background and Context

In July 2010, Council approved the *Green Buildings Policy for Rezoning* ('the Policy') setting out requirements for all applicable developments applying for rezoning to help transition industry toward more sustainable building practices. Subsequent amendments to this Policy in 2014, 2017 and 2018 updated requirements as the local development industry gained capacity in green building design and construction practices and new priority topics emerged.

This Bulletin ('the Bulletin') was developed to advise applicants of the required submissions related to the Policy, last amended by Council on May 17, 2022.

Applicability

This Bulletin applies to Rezoning Applications received on or after May 18, 2022. Developments receiving rezoning approvals under previous versions of this Policy may refer to the [Zero Emissions Buildings webpage](#) for more information on the applicable Policy and supporting Bulletin versions.

In-stream or Previously Rezoned Developments

Rezoning applications received prior to May 18, 2022 that have not yet been referred to public hearing for Council's decision as of August 1, 2022 may choose to meet the current Policy or the preceding version.

Developments that received rezoning approval under the 2014 version of the Policy (effective date June 25, 2014 to April 30, 2017) and have not received their Development Permit Prior-To-Permit-Issuance letter may voluntarily respond to the requirements in the 2018 version of the Policy (effective date May 1, 2018 to May 17, 2022) in its entirety, as either version is accepted as achieving the rezoning conditions related to the Policy. Developments that received rezoning approval under the 2017 or 2018 versions of the Policy (effective dates May 1, 2017 to May 17, 2022) shall continue to meet requirements under those versions of the Policy.

Renovations

This Policy applies to new buildings (including additions) and reconstructions¹. Renovations of existing buildings that are not reconstruction must continue to meet all building code and upgrade requirements, and are encouraged to incorporate the requirements of this Policy where possible.

¹ 'Reconstruction' is defined in the Vancouver Building By-law in Division B - Notes to Part 11 Existing Buildings.

Requirements

1. Requirements for Integrated Rainwater Management and Green Infrastructure

Submission Requirements

The technical and submission requirements for Rainwater Management are outlined in the [Rainwater Management Bulletin](#).

2. Requirements for Reporting of Green and Resilient Building Measures

This requirement applies for all developments containing Part 3 buildings (as defined by the *Vancouver Building By-law*), except those rezoning to RM-8A, RM-8AN, and RR-1 district schedules.

Rezoning applications to CD-1 zones shall include the design reports outlined in Sections 2.1, 2.2 and 2.3.

Rezoning applications to district schedules containing Part 3 buildings (RR-2A/2B/2C, RR-3A/3B, and I-C1, etc.) shall include a Letter of Commitment from the project owner to submit the design reports outlined in Sections 2.1, 2.2, and 2.3 at the time of Building Permit application (first above grade or full construction stage).

Note: The Policy refers to standardized submittals and guidelines that are currently under development (i.e. *Embodied Carbon Design Report, Embodied Carbon Guidelines, Energy & Emissions Design Report, and Resilient Buildings Planning Worksheet*). This bulletin provides clear guidance on what is to be submitted for each requirement currently, and once these documents are available, this bulletin will be updated accordingly.

2.1 Energy & Emissions Performance Limits

Submission Requirements

Developments must provide the latest version of the ZEBP Rezoning Energy Checklist² for each distinct Part 3 building. As noted in the Policy, the submission is to demonstrate that the development is on track to meet the Vancouver Building By-law energy and emissions performance limits expected to be in force at the time of the project's first Building Permit application.

Technical Guidance

Refer to the *City of Vancouver Energy Modelling Guidelines*² for technical guidance on assessing compliance with the applicable limits.

2.2 Embodied Carbon Limits

Submission Requirements

Developments must provide an Embodied Carbon Design Report, showing the inputs and results of a whole-building life-cycle assessment (LCA) for each distinct Part 3 building.

As noted in the Policy, the submission is to demonstrate that the project is on track to meet the *Vancouver Building By-law* embodied carbon limits expected to be in force at the time of the project's first Building Permit application.

² Refer to the [Zero Emissions Buildings webpage](#) for the latest versions.

Technical Guidance

Developments may demonstrate compliance with this requirement by providing a LCA using available LCA software and using the following standard requirements:

- 1) The LCA must include all envelope and structural elements (including parking structure), including footings and foundations, and complete structural wall assemblies (from cladding to interior finishes, including basement), structural floors and ceilings (not including finishes), roof assemblies, and stairs construction, but exclude excavation and other site development, partitions, building services (electrical, mechanical, fire detection, alarm systems, elevators, etc.), and parking lots;
- 2) The LCA must assume a building lifetime of 60 years;
- 3) The life-cycle boundary must account for cradle-to-grave impacts, including resource extraction, product manufacturing and transportation, building construction, product maintenance and replacement, and building demolition/deconstruction/disposal (EN 15804/15978 modules A1-A5, B2-B4, and C1-C4). Operating energy and water consumption are excluded;
- 4) The Life-Cycle Inventory (LCI) database used must be ISO 14040, 14044, and 21930 compliant, and regionally-specific, if possible;
- 5) The Life-Cycle Impact Assessment (LCIA) method used must be the US EPA's Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI);
- 6) If the service life of a product used in initial construction is greater than the building's assumed service life, the impacts associated with the product may not be discounted to reflect its remaining service life.

The report shall include, where possible:

- 1) Other calculated life-cycle indicators and impacts, such as ozone depletion potential (CFC-11eq), acidification potential (SO₂eq), eutrophication potential (Neq), smog potential (O₃eq), and human health particulate (PM_{2.5}eq);
- 2) A breakdown of impacts by life-cycle stages (extraction, manufacturing, construction, use/maintenance, end of life), assembly and/or product category (structure, foundation, wall, glazing, etc.), and material type (steel, wood, concrete, plastic, etc.);
- 3) The lifecycle impacts associated with other building elements that are excluded from the mandatory calculation and reporting (e.g., mechanical systems);
- 4) The impacts and benefits beyond the system boundary (EN 15804/15978 module D). This is a quantification of environmental benefits or loads associated with reuse, recycling and energy recovery from flows exiting the system boundary. Note that these impacts are reported for information only, and are not counted towards the embodied carbon of the building.

2.3 Resilient Buildings Planning

Submission Requirements

Developments must provide a one- to two-page written summary of the level of resilience planning undertaken by the project and to identify proposed resilience strategies. A resilient project is built to withstand, or recover quickly from natural and human-caused hazards and disasters, and delivers co-benefits to people and systems in the absence of hazards and disasters.

Technical Guidance

The written summary may reference the following prompts, as relevant to the project:

- 1) Describe any risks and hazards that have been considered for the project and occupants today and throughout the useful life of the project:

- a) Typical risks and hazards in Vancouver include (but are not limited to) flooding (fluvial, pluvial and coastal), sea level rise, earthquakes, fires, hazardous materials incidents, extreme heat events, power outages, extreme precipitation events and poor air quality;
- 2) Describe how impacts and risks to occupants and risk mitigation strategies have been considered, whether any strategies or design features are planned to support rapid recovery after a hazard event, and whether any targets will be set for recoverability or re-occupancy of the project after a hazard event (for example: earthquakes, floods, etc.);
- 3) Describe any emergency design features planned for the building, such as back-up power capacity, emergency supplies and a safe and accessible location for occupants to shelter during a hazard event;
- 4) Describe strategies that will address the impacts of heat (due to higher future average temperatures, higher extreme temperatures and longer and more frequent heatwaves and droughts) on the project in relation to the following:
 - a) Health and safety of vulnerable occupants
 - b) Impacts on the project's mechanical, electrical and building envelope systems
 - c) Landscape and site impacts
- 5) Describe any building/site measures planned to reduce urban heat island effect;
- 6) Describe any strategies planned to improve water system resilience;
- 7) Describe any plans to protect below-grade areas from flooding and whether any essential systems are planned to be located below-grade;
- 8) If the project is located in a floodplain³, describe site design strategies planned for adapting to sea level rise.

3. Requirements for Enhanced Commissioning

This requirement applies for all developments containing Part 3 buildings (as defined by the *Vancouver Building By-law*), except those rezoning to RM-8A, RM-8AN, and RR-1 district schedules.

Submission Requirements

Rezoning applications shall include a Letter of Commitment from the project owner to complete an Enhanced Commissioning process throughout the design, construction and occupancy stages of the development as outlined below.

Technical Guidance

A third-party Commissioning Authority (CxA) must be designated to oversee the enhanced commissioning process. Where the proposed CxA is from the same company as a member of the design or project team, a disclosure letter signed by the CxA and the owner must be included in the Commissioning Plan that describes how the CxA will remain independent and objective in fulfilling their duties to the owner. The CxA must be able to demonstrate experience commissioning projects of similar size and complexity, and be a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia or the Architectural Institute of BC, or otherwise holds a professional designation in building commissioning, energy management, efficiency or sustainability (for example, a credential issued by a post-secondary institution or a third party certification body such as ASHRAE or LEED),

³ Refer to the maps in the City of Vancouver [Flood Plain Standards and Requirements](#)

The owner and CxA are responsible for developing and documenting the Owner's Project Requirements (OPR), and the design team and CxA are responsible for developing and documenting the Basis of Design (BOD). Both documents should contain the project and design requirements of this Policy and other applicable green building and sustainability policies and standards.

The CxA is responsible for ensuring the Commissioning Plan and Commissioning Report contain, at a minimum, the following:

- 1) Commissioning Plan:
 - a) Review the OPR, BOD, and project design, summarize and provide commentary where required;
 - b) Outline roles and responsibilities of the design and construction team in the commissioning process;
 - c) Confirm incorporation of commissioning requirements into the construction documents;
 - d) Approximate timelines of commissioning activities;
 - e) Details of the planned commissioning activities, such as a list of equipment and systems to be commissioned, functions to be tested, test conditions, and/or performance criteria;
 - f) Commissioning documentation to be provided, and final acceptance criteria (aligned with the OPR); and,
 - g) If a project chooses to pursue Ongoing or Monitoring Based Commissioning, a Monitoring and Verification (M&V) Plan should be included in the Commissioning Plan.

- 2) Commissioning Report:
 - a) Summarize how design and installation has met with OPR and BOD requirements;
 - b) Summarize the results of commissioning activities described in the Commissioning Plan, including:
 - i. final test procedures and criteria;
 - ii. functional performance test results;
 - iii. deficiencies noted and corrections made;
 - iv. a list of unresolved deficiencies or deferred tests, along with climatic conditions required to perform them;
 - v. a record of training given to the owner or operator(s), including a summary of any remaining training to be completed;
 - vi. a summary or status report of the Operating and Maintenance (O&M) Manuals, as-built drawings and final building energy model; and,
 - c) Note any further actions that the owner needs to take in the warranty period of the equipment to ensure efficient operation, or that the system is balanced and optimized.

As part of the commissioning process, the following items must be provided to the owner post-occupancy:

- 1) The final Commissioning Report;
- 2) O & M Manuals;
- 3) Training for operators or building managers;
- 4) A digital copy of the full O&M manuals, a full PDF set of building as-built drawings, a copy of the BIM files if applicable, and the final building energy model file.

Alternate commissioning standards may be proposed for acceptance by the City, such as ASHRAE Standard 202-2013 The Commissioning Process for Buildings and Systems, CSA Z320-11 Building Commissioning Standard, CSA Z8001-13 Commissioning Standard of Health Care Facilities, or the upcoming CSA Z5000, Building Commissioning For Energy Using Systems.

For developments pursuing LEED v4 or v4.1, achievement of the Enhanced Commissioning credit, Option 1, Path 1, is acceptable to meet the intent of this requirement.

4. Requirements for Energy System Sub-Metering

This requirement applies for all developments containing Part 3 buildings (as defined by the *Vancouver Building By-law*), except those rezoning to RM-8A, RM-8AN, and RR-1 district schedules.

Submission Requirements

Rezoning applications shall include a Letter of Commitment from the project owner to design and build to incorporate energy system main metering and sub-metering as outlined below.

Technical Guidance

Main metering for each energy utility and each building must be installed to provide the basic tools for energy auditing and benchmarking. To provide the tools for building owners to better understand where and how energy is used in buildings, the Policy also requires sub-metering of major energy end-uses and/or space uses within each building.

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.

While other applicable standards or by-laws may contain additional requirements, this Policy does not require sub-meters for:

- each individual residential suite, where meters are not otherwise required by a utility;
- energy end-uses contained entirely within a residential suite; or,
- energy end-uses estimated to use approximately 10% of total building energy use or less.

If the project includes metering of individual suites, meter data from suites must be aggregated to include 20 suites or more, or otherwise be made anonymous.

The energy sub-metering strategy used should be appropriate for the size and complexity of the building. Smaller or simpler buildings with less 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.

For developments pursuing LEED v4 or v4.1, achievement of the Advanced Energy Metering credit is acceptable to meet the intent of this requirement.

Summary of Submission Requirements

The following table provides a summary of the submission requirements at the rezoning application stage, based on the type of rezoning application.

Policy Requirement	Rezoning Type		
	CD-1	Rezoning to RR-2A/2B/2C & RR-3A/3B & I-1C	Rezoning to RR-1, RM-8A, RM-8AN
1. Rainwater Management & Green Infrastructure	Refer to Rainwater Management Bulletin		
2. Reporting of Green and Resilient Building Measures	<ul style="list-style-type: none"> - ZEBP Rezoning Energy Checklist - Embodied Carbon Design Report - Resilient Buildings Planning Summary 	Letter of Commitment to provide the following at Building Permit: <ul style="list-style-type: none"> - ZEBP Rezoning Energy Checklist - Embodied Carbon Design Report - Resilient Buildings Planning Summary 	None
3. Enhanced Commissioning 4. Energy System Sub-metering	Letter of Commitment to: <ul style="list-style-type: none"> - complete an Enhanced Commissioning process - incorporate Energy System Sub-metering 	And to: <ul style="list-style-type: none"> - complete an Enhanced Commissioning process - incorporate Energy System Sub-metering 	None