

2406-2488 Garden Drive
Vancouver, BC

City of Vancouver Sustainable Design Strategy

PREPARED FOR:

Porte Communities
100 – 33 East 8th Avenue
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PREPARED BY:

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solve and simplify

A. OVERVIEW

Pottinger Gaherty Environmental Consultants Ltd. has been engaged by Porte Communities to prepare this report documenting the sustainability strategy for the proposed development at 2406-2488 Garden Drive in Vancouver, BC (the Site). This Sustainable Design Strategy report provides confirmation the project design is on target to meet the requirements as dictated by the City of Vancouver (COV) Green Buildings Policy for Rezonings, Option B. Low Emissions Green Building, as amended on May 2, 2018.

This report documents the preliminary strategies explored by the design team to achieve each of the following requirements of the Low Emissions Green Building pathway:

- Item B.2: Brief summary of strategies and measures to achieve performance limits for energy use, heat loss, and greenhouse gas emissions, including:
 - Preliminary Zero Emissions Building Plan (ZEBP) Energy Checklist, completed by the project energy modeller, showing that the project meets the performance limits for energy use (TEUI), heat loss (TEDl), and greenhouse gas emissions (GHGI), together with key inputs; and
 - A summary of detailed energy model inputs.
- Item B.6: refrigerant emissions and embodied emissions calculations;
- A commitment by the owner to meet the requirements of the Green Buildings Policy for Rezonings with documentation to be submitted at later project phase(s), including:
 - B.3: design, build, and test to meet an airtightness target of 2.0 L/s/m² @ 75 Pa;
 - B.4: complete an enhanced commissioning process;
 - B.5: design and build to include building metering and sub-metering of energy, and to enter into agreement on energy reporting, including assistance for future building owners;
 - B.7: design and build a direct ventilation system;
 - B.8: design and build with low-emitting materials;
 - B.9: test indoor air quality prior to occupancy; and
 - B.11: design and build a resilient potable water access point.
- Item B.10: The site integrated rainwater management plan (IRMP) describing the chosen strategies and infrastructure measures included in the landscape and building design.

B.1: LEED GOLD – BUILDING DESIGN + CONSTRUCTION

As the project is over 50% residential, LEED registration, design, and certification is not required.

B.2: PERFORMANCE LIMITS

At this stage, the project is still in concept design where the building shape/massing and suite layout are subject to COV approval and other changes. The mechanical, electrical, and envelope design are also in the design stage. The preliminary energy model will serve to guide further design development.

A preliminary energy model has been completed by SRC Engineering Consultants (Appendix 1). The model identifies building design parameters that comply with performance limits for Residential Low-Rise buildings not connected to a City-recognized low carbon energy system. Whole-Building Performance Limits modeled for the Site include: TEUI 76.7 kWh/m²; TEDI 15.2 kWh/m²; GHGI 3.9 kgCO₂/m², which meets the adjusted COV targets of TEUI 102.8 kWh/m²; TEDI 15.2 kWh/m²; GHGI 4.9 kgCO₂/m². The design team and project owner confirm the project will be designed in compliance with these limits.

This project will meet the above targets by including:

- A high-performance building enclosure that focuses on passive energy savings from reduced thermal transmittance through the building envelope;
- Relatively low glazing ratios and high-performance double-glazed windows;
- In-suite high efficiency heat recovery ventilation; and
- Efficient lighting, hot water heating, and low-flow plumbing fixtures.

The Zero Emissions Building Plan Energy Checklist, along with a summary of the preliminary energy model, is included in Appendix 1.

B.3: AIRTIGHTNESS TESTING

Whole-building and suite airtightness testing and reporting is required for this residential building. The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment).

B.4: ENHANCED COMMISSIONING

An enhanced commissioning process is required for all building energy systems. The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment).

B.5: ENERGY SYSTEM SUB-METERING + REPORTING

Separate master metering for each energy utility, along with sub-metering of all major energy end-uses and major space uses is required. The building owner must enter an agreement with the COV to share utility data for minimum three years and provide assistance for future building future owners. The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment)

B.6: REFRIGERANT EMISSIONS + EMBODIED EMISSIONS

Preliminary refrigerant emissions and embodied emissions calculations have been completed based on current building design. The project is still in concept design where the building shape/massing and suite layout are subject to COV approval and other changes. The mechanical,

electrical, and envelope design are also in the design stage. The preliminary calculations will serve to guide further design development.

Refrigerant emissions have been calculated by SRC Engineering Consultants at 0.0927 kgCO₂e/m² (Appendix 1).

An embodied emissions model is in progress and will be reported when this document is finalized.

B.7: VERIFIED DIRECT VENTILATION

The building's ventilation system will provide outdoor air directly to all occupiable spaces, in the quantities defined by code. The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment).

B.8: LOW EMITTING MATERIALS

All interior finishes will be selected to minimize volatile organic compounds and urea formaldehyde to improve the indoor environmental air quality. The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment).

B.9: INDOOR AIR QUALITY TESTING

Prior to occupancy, testing for formaldehyde, particulates, ozone, total volatile organic compounds, and carbon monoxide will be conducted. The results will be compared to COV targets and will be reported for occupancy permit. The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment).

B.10: INTEGRATED RAINWATER MANAGEMENT + GREEN INFRASTRUCTURE

In consultation with the COV's Best Management Practice Toolkit, the project site IRMP includes measures considered appropriate for the building type, design, project location, and surrounding area. The IRMP has been included with this Rezoning Application Package (please see Appendix 4 – Rainwater Management Report).

B.11: RESILIENT DRINKING WATER ACCESS

The building's design will provide access to potable water which utilizes COV operated system pressure (not electrically aided). The project owner has committed to meet this requirement (please see Appendix 2 – Letter of Commitment).

C. SUMMARY

The above noted strategies support a holistic approach to addressing the requirements of the COV's Green Buildings Policy for Rezonings. Implementing these strategies through design and construction will produce a sustainable and resilient building capable of delivering optimum building performance, while also improving indoor environmental quality for occupants.

Respectfully submitted,

PGL ENVIRONMENTAL CONSULTANTS

Per:

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