CITY OF VICTORIA

Council Report
For the Meeting of December 13, 2018

To:	Council	**Date:**	December 12, 2018
From:	Andrea Hudson, Acting Director, Sustainable Planning and Community Development		
Subject:	**Update on OCP Amendment Application, Rezoning Application No. 00558 and Development Permit with Variances Application No. 000496 for 1303 Fairfield Road**		

RECOMMENDATION

That Council receive this update report for information regarding the proposed OCP Amendment Application, Rezoning Application No. 00558, and Development Permit with Variances Application No. 000496 for 1303 Fairfield Road.

EXECUTIVE SUMMARY

The purpose of this report is to present Council with updated information regarding an Official Community Plan (OCP) Amendment Application, Rezoning Application and Development Permit with Variances Application for the property located at 1303 Fairfield Road. Following the Committee of the Whole meeting on December 6, 2018, the applicant has provided a letter comparing the previous Passive House design with the current Step 3 Energy Code design in terms of energy performance. As per the applicant's letter, changing from a Passive House design to a Step 3 building will reduce the building's energy efficiency and increase its CO_2 emissions; however, the Step 3 building will still be approximately 40 percent more efficient than a building constructed to current BC Building Code requirements.

BACKGROUND

During the Committee of the Whole (COTW) meeting on December 6, 2018, Council asked staff to report back with additional information on the difference between Passive House design and the Step 3 Energy Code. The attached letter from the applicant provides a detailed comparison of the previous proposal for a building designed to Passive House standards compared to the current proposal for a Step 3 Energy Code building in terms of energy performance and potential greenhouse gas (CO_2) emissions.

Respectfully submitted,

Alec Johnston
Senior Planner
Development Services Division

Andrea Hudson, Acting Director
Sustainable Planning and Community
Development Department

Report accepted and recommended by the City Manager: Jocelyn Jenkyns

Date: DEC 13, 2018

List of Attachments:

- Attachment A: Applicant's letter regarding energy performance dated December 11, 2018.

LOW
HAMMOND
ROWE
ARCHITECTS

11 December 2018

Mr Alec Johnston
Senior Planner
City of Victoria
1 Centennial Square
Victoria BC

re 1303 Fairfield Road
Application for Rezoning and Development Permit
Energy Performance

As you are aware, the massing, layout, and detail of the upper three storeys of the proposal have been revised to meet community concerns, largely centered around privacy. These design changes will affect energy performance and increase TEDI (Thermal Energy Demand Intensity), TEUI (Total Energy Use Intensity), and CO_2 emissions.

The significant changes that will affect energy performance include:

- Elimination of much of the south-facing glazing to address the neighbours' privacy concerns. This significantly reduces the effective solar heat gain, and will increase the requirement for heating (a much higher TEDI is likely);
- Changing exterior-mounted balconies to inset corner balconies (again for privacy reasons) has increased the amount of thermal bridges and exterior wall area relative to floor area. (In other words, the revised design is less efficient with more routes for heat to escape);
- A reduction in total net rentable area has reduced the available revenue needed to pay for higher performance building envelope and mechanical systems. (In other words, the economic sustainability of the project has been affected in the redesign.)

An energy model of our previous design submission showed it exceeding the BC Energy Step Code TEDI and TEUI requirements for a Step 4 (Passive House equivalent) design. (Note that energy modelling of the revised proposal has not yet been undertaken.) The energy model of the original design predicted:

- TEDI of 84 kWh/m2, 16% below the Step 4 limit of 100 kWh/m2.
- TEUI of 14.7 kWh/m2, just below the Step 4 limit of 15 kWh/m2.
- Predicted annual energy use = 113,433 kWh/yr,
- Predicted CO2 emissions = 5,942 kg CO_2/yr (4.38 kg CO_2/m2).

BC Energy Step Code TEDI and TEUI limits:

	Step 3	Step 4
TEDI limit	30 kWh/m2	15 kWh/m2
TEUI limit	120 kWh/m2	100 kWh/m2

The BC Energy Step Code does not mandate limits for CO_2 emissions. The nearest relevant standard is the City of Vancouver Zero Emissions Building Policy, which sets a GHGI (Greenhouse Gas Intensity) limit of 5 $kgCO_2/m2$ for a 'Low Emission Green Building'. Our previous design met this target with a GHGI of 4.38 $kgCO_2/m2$. We are unable at this time to quantify the likely increase but by extrapolation assume it will be 20% higher in proportion to the TEUI increase: from 4.38 $kgCO_2$ /m2 to roughly 5.26 $kgCO_2/m2$, or 7,130 $kgCO_2/yr$.

Predicted performance:

	Previous design (Step 4)	**New design (Step 3)**	Step 2
TEDI	14.7 kWh/m2	**30 kWh/m2**	45 kWh/m2
TEUI	84 kWh/m2	**120 kWh/m2**	130 kWh/m2
Annual energy use	113,433 kwh	**136,120 kwh**	147,462 kwh
GHG emissions	5,942 $kgCO_2/yr$	**7,130 $kgCO_2/yr$**	9,269 $kgCO_2/yr$

The design changes made in response to urban design and neighbours' privacy concerns have made it unlikely that a Step 4 or Passive House performance target could be met within the project's narrow parameters for economic sustainability.

Detailed design of the revised proposal would ensure that when modelled, it would meet the Step 3 targets. This will enable the project to be compliant with the Step 3 requirement in the City's Building Bylaw when it comes into force in January 2020. It is important to note that for a Part 3 wood-frame building such as this, energy performance at Step 3 will still be approximately 40% better than the current BC Building Code requirement.

Sincerely,
Low Hammond Rowe Architects Inc

Christopher Rowe

Christopher Rowe, Architect AIBC CPHD LEED AP
principal