

Urban Development Institute/Port Moody Liaison Committee Meeting – August 20, 2024

City of Port Moody staff presented to the Liaison Committee to share the endorsed Energy Step Code (ESC) and Zero Carbon Step Code (ZCSC) approach and timeline and to receive feedback and questions from members. The following questions were received, and answers given below:

ZCSC – Regarding BC Hydro capacity, has the City accounted for the location of high voltage power lines and the response from residents?

Response from BC Hydro: The previously planned “Metro North” transmission line corridor has been put on hold. The timing of that project is dependent on load growth. However, the bulk of the load growth is driven by an increase in building sizes and number of housing units rather than the adoption of ZCSC.

ZCSC – How will gas appliances in restaurants and industrial facilities be considered, will they be exempt?

Restaurants are not captured by ZCSC requirements. They are considered Group A occupancies in the BC Building Code and thus the ZCSC would not apply. As such, stakeholders within that industry should have no concern regarding any challenges complying as there are no ZCSC requirements for their establishments. The same applies for industrial facilities, and even if the building needs to comply, the process loads would be exempt.

Fireplaces and back-up heating sources are not included in the compliance paths for the ZCSC for Part 9 homes. In general, the BC Building Code also has no authority for the use of systems outside of the building such as pools, heated driveways, hot tubs, and BBQs. As such, stakeholders in industries related to these outdoor appliances should understand that their products could continue to be part of ZCSC compliant home designs.

ZCSC – The City will be installing a District Energy System (DES), will this be subject to these requirements?

If Port Moody installs a DES in the future, it may set specific guidelines for how buildings connected to a DES are evaluated. In some cases, the energy supplied by a DEU might be treated differently under the ZCSC, especially if the DES is part of a larger municipal or regional strategy to reduce overall GHG emissions. If the future proposed DES is highly efficient and uses renewable energy, buildings might be granted flexibility in meeting certain ZCSC criteria. If the City plans to install a district energy system, whether it will be subject to the ZCSC depends on the energy source of the DES and the municipality’s approach to integrating district energy with the ZCSC requirements. The City will consider all factors during the planning and implementation stages of a DES to ensure that both the DES and the buildings connected to it align with the City’s zero-carbon goals.

ESC/ZCSC – How is the City considering marginal price differences that these changes could cause for different building types?

Zero Carbon Step Code

Building all-electric can be constructed to similar budgets as non-high-performance homes. Costing studies estimate the incremental cost increase for implementing the ZCSC is between 0 to 2% for both single-family homes and multiple-family residential buildings compared to a Step 3 building heated with gas. In many cases municipalities are hearing that there is no cost increase to build to the ZCSC (which is different than previous experiences with the Energy Step Code). In some cases it is cheaper to go all electric than have gas (e.g., Part 3 multi-family buildings with baseboards and centralized cooling, a common archetype for responding to increased housing needs). Municipalities have also heard from some developers that they achieve cost savings from avoiding having any gas infrastructure in their designs, as well as the benefits of avoiding the extra permitting, gas trades, and dealing with a second utility. Examples of this can be found in the links listed below (for example in Victoria).

Energy Step Code

The cost of complying with energy efficiency and low carbon regulations will vary from building to building and project to project, depending on the project type, goals of the project, product availability and cost, and the decisions made during design.

As noted in the 2018 and 2022 Provincial BC Energy Step Code Metrics reports, historically, the cost premiums of high-performance building components have gone down over time, as the technology develops and as the market matures.

Overall, the expected cost increase from the baseline National Energy Code of Canada for Buildings (NECB 2017) standard ranges from 1 to 8% for single-family homes constructed to Step 5 and 1 to 6% for multiple-family dwellings constructed to Step 4 of BC Energy Step Code. As currently in BC, single-family homes are required to meet Step 3 and large multi-family dwellings Step 2, the cost increase will likely be less than the above noted ranges. The cost increase for single-family homes is greater in small homes (less than 200m²) than large or medium-sized homes over 200m². For large and medium sized homes, the cost increase ranged from 1 to 3%

Please see the below links for further details related to the above responses:

[Building All-Electric in Victoria | B2E \(b2electrification.org\)](#)

[BC-Energy-Step-Code-Costing-Studies-Analysis-Rev1.pdf \(energystepcode.ca\)](#)

[BC Energy Step Code and Zero Carbon Code \(nanaimo.ca\)](#)

[bc-energy-step-code-metrics-report-2022-update.pdf \(nanaimo.ca\)](#)

[Att 4 - City of New Westminster Technical Review and Industry Consultation.docx \(escribemeetings.com\)](#)

ESC/ZCSC – Is the City considering any incentives in terms of reducing upward cost pressure on builders?

Although the city will not be providing any financial incentives for new builds at this moment in time, BC Hydro are looking to develop new construction incentives as they ramp up their energy efficiency Demand Side Management programs. In addition, there are many clear and effective in person and online resources and training available to the building industry across the province to help with adhering to the ZCSC. Some examples of these include:

- The British Columbia Institute of Technology, University of Northern British Columbia, and Vancouver Island University offer hands-on courses to teach building industry professionals how to build more energy-efficient buildings;
- BC Housing incorporated the BC Energy Step Code into its continuing professional development requirements for homebuilders;
- Engineers and Geoscientists BC (EGBC) and the Architectural Institute of BC (AIBC) created compliance tools, templates, and professional practice guidelines;
- The Building Officials Association of BC (BOABC) and the Canadian Home Builders' Association - British Columbia (CHBA-BC) now include both step codes in their training;
- The Step Code Committee and its subcommittees support implementation with research and guidance;
- ZEBx and the Zero Emissions Innovation Centre provide ongoing resources for industry and local governments to help the building community design and build to the ESC and ZCSC helping support the transition.

ESC/ZCSC – Please can you give clarification on what temperature heat pumps are effective to?

Cold climate heat pumps can work even when temperatures drop to -40 degrees, with the added bonus of also being able to provide cooling during hot weather. Please see the below links for further details on this:

[Live Better Electrically: A Not-So-Novel Concept in BC | B2E \(b2electrification.org\)](https://www.b2electrification.org/live-better-electrically-a-not-so-novel-concept-in-bc/)

<https://natural-resources.canada.ca/energy-efficiency/energy-star-canada/about/energy-star-announcements/publications/heating-and-cooling-heat-pump/6817>

ESC - Has the city considered the impacts on mental health and livability that may result from minimizing access to natural light inside suites, especially in a dark geographic region where many people already struggle on a seasonal basis?

The Energy Step Code and Zero Carbon Step Code focus primarily on reducing energy consumption and carbon emissions. They are performance-based, meaning they set targets for energy efficiency and carbon emissions rather than prescribing specific design solutions. This flexibility allows designers to create buildings that both meet the required standards and provide adequate natural light. These codes do not mandate the reduction of window sizes or the exclusion of natural light as a strategy to achieve energy efficiency. Instead, they encourage improved building envelope performance, which can be achieved while still allowing for ample natural light.

Architects and builders are encouraged to use design strategies that maximize natural light while meeting the energy efficiency and carbon reduction goals of the Energy Step Code and Zero Carbon Step Code. These strategies can include:

- **Optimal Window Placement:** Careful placement and sizing of windows to capture maximum daylight without compromising energy efficiency.
- **Use of High-Performance Glazing:** Installing high-performance windows that reduce heat loss while allowing natural light to penetrate the living spaces.
- **Daylighting Design:** Incorporating daylighting techniques, such as light shelves and reflective surfaces, to distribute natural light more effectively throughout the interior spaces.

The City is committed to ensuring that these codes are implemented in a way that supports both environmental sustainability and the well-being of our residents. This includes encouraging designs that enhance livability by maintaining or even improving access to natural light within suites.

In addition, with the Zero Carbon Step Code, heat pumps can significantly enhance livability by providing consistent, comfortable indoor temperatures year-round, improving indoor air quality, and operating quietly. These factors contribute to a stress-free, healthy living environment, which supports mental well-being by reducing discomfort, noise pollution, and respiratory issues. Additionally, heat pumps are energy-efficient, leading to cost savings and a reduced carbon footprint. This not only alleviates financial stress but also offers peace of mind for environmentally conscious individuals, knowing that they are contributing to sustainability. The combination of comfort, health benefits, and environmental responsibility makes heat pumps an asset for enhancing both mental health and livability.

ESC - Has the city considered impacts on the livability of suite layouts, since ESC compliance incentives long/deep suites with minimized external wall area?

The City recognizes that compliance with the Energy Step Code often leads to building designs with minimized external wall areas, which can result in long or deep suite layouts. While these designs enhance energy efficiency by reducing heat loss, the City is committed to ensuring that such layouts do not compromise the livability and quality of life within residential suites.

To balance energy efficiency with livability, the City encourages architects and developers to use creative design solutions that maintain well-lit, well-ventilated, and functional living spaces. The Energy Step Code's performance-based approach offers flexibility, allowing for innovative designs that meet energy targets without sacrificing comfort or aesthetics. This includes optimizing layouts for natural light, creating open floor plans, and integrating features that enhance indoor air quality.

ESC - Given that Port Moody is the City of the Arts, and architecture is the art that people experience most on a day-to-day basis, does the City understand that ESC 3 and 4 would result in a monotonous, blocky architectural expression for Port Moody's built environment?

The City deeply values the role that architecture plays in shaping the daily experiences of its residents. We understand that architecture is not only functional but also a form of art that

contributes to the city's character and vibrancy. While the Energy Step Code Levels 3 and 4 prioritize energy efficiency, the City is committed to ensuring that these levels do not result in a monotonous, blocky architectural landscape.

The Energy Step Code is performance-based, allowing for flexibility in how energy targets are met. This flexibility gives architects and designers the opportunity to explore innovative solutions that achieve high energy efficiency while still delivering visually appealing and varied architectural forms. The City supports and encourages such creativity, ensuring that new developments contribute to the rich architectural building types of Port Moody.

ESC/ZCSC - Thus far, there has been minimal or no communication to Council of the noted trade-offs. For council to make a responsible and informed decision, these trade-offs be clearly communicated both in the presentation materials and in the verbal report.

This has been addressed through this secondary report and accompanying presentation for Council review.