



THE CORPORATION OF THE
DISTRICT OF SUMMERLAND
INFORMATION REPORT

DATE: April 9, 2024
TO: Graham Statt, Chief Administrative Officer
FROM: Odessa Cohen, Sustainability Coordinator
SUBJECT: BC Zero Carbon Step Code

FILE: 0540-24

STAFF RECOMMENDATION:

That Council pass the following resolution:

THAT staff be directed to conduct engagement with the public and the development industry about the upcoming changes to the BC Building Code for the Zero Carbon Step Code,

AND THAT staff subsequently provide recommendations to Council in consideration of feedback and/or concerns raised from that engagement process.

STRATEGIC PRIORITY:

To Build an Adaptable and Affordable Community

The adoption of the Zero Carbon Step Code (ZCSC) will support reductions of community level greenhouse gas (GHG) emissions in the building sector, specifically residential buildings. New buildings built to this standard will contribute to lower emissions and more resilient homes.

PURPOSE:

To provide Council with information on the BC Zero Carbon Step Code, as it pertains to implementation and feasibility in the District of Summerland, and recommendations for public and industry engagement prior to consideration of early adoption of the Zero Carbon Step Code by the District.

DISCUSSION:

Overview of Zero Carbon Step Code (ZCSC)

The ZCSC when mandated by the province or implemented in advance by local governments, will require specific emission levels to be met for new Part 9 and Part 3 buildings. The ZCSC will work in tandem with the existing Energy Step Code, which targets home energy efficiency. The Province has mandated the minimum requirement of Energy Step Code Level 3 for Part 9 buildings and Step Level 2 for Part 3 buildings on May 1, 2023. Together, the emission reduction targets from the ZCSC and the energy efficiency requirements from the Energy Step Code, will work to support the CleanBC Roadmap to 2030 targets to make buildings net-zero ready by 2032.

In order to meet emission targets for each Emission Level (EL) in the ZCSC, a new home will need to be built and designed to use energy sources that have a lower GHG emission impact (i.e. renewable natural gas, or electric). The Zero Carbon Step Code has four emission target levels:

1. **Measure-only (Emission Level 1)** - requires measurement of a building’s emissions without reductions, and is intended to build knowledge and capacity;
2. **Moderate Carbon Performance (Emission Level 2)** - in most cases, will require electrification of space heating, but fossil fuel water heating and cooking likely still possible/allowed;
3. **Strong Carbon Performance (Emission Level 3)** - in most cases, will require electrification of both space heating and water heating, but fossil fuel water heating could still be allowed dependent on design and fossil fuel cooking still possible/allowed; and
4. **Zero Carbon Performance (Emission Level 4)** - in most cases, will require the full electrification of a building.

The ZCSC dictates maximum emission targets for Part 9 buildings based on the emissions from space heating and cooling equipment (i.e. Heat pumps, furnaces), domestic hot water, and ventilation. For Part 3 buildings, in addition to equipment and sources noted for Part 9 Buildings, appliances such as laundry equipment and cooktops, are also included as part of the emissions calculations.

In 2024 and 2027, the Province plans to announce Emission Level target requirements for new buildings under this Code, however until that time, local governments can decide which of the emission levels, if any, will apply.

The Province has shared the implementation timeline for both ESC and ZCSC as follows:

	Building Type	May 2023	2024	2027	2030	2032
BC Energy Step Code	Part 9	Step 3			Step 4	Step 5 (net zero ready)
	Part 3	Step 2			Step 3	Step 4
Zero Carbon Step Code		Optional Compliance Path	March*	TBD	TBD	Net zero ready

* At the time this report was submitted the Province has not announced any mandated requirements for the Zero Carbon Step Code.

Industry Concerns

The District has not yet surveyed development industry professionals, however other municipalities in BC that have already adopted the ZCSC have engaged and surveyed industry professionals to understand possible concerns with implementation and to inform their adoption process. Some considerations identified during those engagements could include:

- a) Cost (operating, implementation, incremental)
- b) Availability of equipment
- c) Low confidence in new technology
- d) Electrical servicing capacity

The industry concerns are reviewed below based on existing technical reports that have investigated changes to the building industry based on the ZCSC requirements.

Homeowner Utility Costs

The BC Building Safety and Standards Branch Technical Report modelled anticipated utility costs when the ZCSC Emissions Level-4 is used together with the Energy Step Code 3. Utility costs range from 18.4% in savings in some housing types, to utility cost increases as high as 24%. The range of savings and costs are based on modelling completed for different space heating and water heating equipment in a home. The following table summarizes anticipated utility costs from different housing types when Energy Step 3 and Emission Level 4 are implemented together for a new build.

Housing Type	Modelled Utility cost changes (Energy Step Code 3 and Emission Level-4)
Laneway	6% to 24%
Small single family dwelling	14.4%
Medium single family dwelling	10.9%
Large Single family dwelling	15.4%
Row Home	-14.3%
Quadplex	16.4% to 29.9%
10-unit MURB	-18.4%

The report notes utility costs are impacted by the type of space heating, with electric resistance having the greatest utility cost increases compared to heat pumps. This is seen in the table above for laneways (24%) and quadplex (29.9%). Heat pumps were noted to have the greatest decrease in costs when use for both space heating and hot water, which can be seen by the lower end range of utility changes for laneways (6%) and quadplex (16.4%).

When higher ZCSC levels are implemented across municipalities, the use of natural gas and other fossil fuels will lessen in order to meet emission targets, and replaced instead by electrical use. Therefore, utility costs for natural gas will go down progressively as less is used over time in homes, and electrical usage will increase, which could result in utility cost changes. Generally, utility costs will vary home to home depending on the design and size, and while the above table provides a good example of the range for different home types, these are not static numbers.

Homebuilding Costs

The technical report from the BC Building Safety and Standards Branch also examined the cost implications of electrifying most or all building systems from Emission Level 2 to Emission Level 4 (Zero Carbon). The incremental costs (ICC) of new builds was modelled according to the specific climatic zone for Summerland, the table below summarizes associated incremental costs for each level of the ZCSC and Energy Step Code:

	EL-2	EL-3	EL-4
Part 3 Buildings (Energy Step Code 2)	-0.1% to 1.3%	1.2% to 1.3%	-(0.1)% to 2.1%
Part 9 Buildings (Energy Step Code 3)	0% to 1.4%	N/A	0% to 1.9%

The modelling was conducted using the Energy Step Code because new Part 9 and 3 buildings will still need to meet Energy Step Code requirements as mandated by the Province on top of any required ZCSC emission level targets.

Based on this assessment of Part 3 and 9 Buildings for the climate zone of Summerland, the ICC is between -0.1% to 2% for implementation of Emission Level 3. While increasing when higher Energy Step Codes are implemented in tandem with Emission Level 3, the ICC remains very low across building types and would have a minimal impact on construction costs.

Availability of equipment

Air source heat pumps are widely available to builders and homeowners, in fact, most homes are already built with heat pumps serving as the cooling unit for the home (A/C units). In most cases these cooling units are factory built with the capability of providing heat. Due to recent Building Code changes, a method to cool at least 1 living space in a house will be required for all dwelling units. The majority of dwelling units will achieve this by installing air source heat pumps or ductless mini splits.

Low confidence in new technology

While electricity as a fuel source for heating an entire house at this scale is relatively new concept, many other styles of dwelling units (apartment units, secondary suites) have been using electric heating for many years. The main form of electric heat has historically been baseboard radiant heat units, which generally use more power and are less efficient than a modern air source heat pump, however, there are situations where electric resistance heating will be more efficient (very low temperatures). The technology of air source heat pumps has been around for decades and is constantly seeing efficiency improvements at lower and lower temperatures.

Electrical Servicing Capacity

The District of Summerland's Director of Utilities has confirmed the electrical capacity of our utility will be able to accommodate expected increases in electrification for new buildings. Many homes in the District require a 150-amp or 200-amp service, at this service level the District would be able to accommodate expected electrical needs based on the anticipated electrical needs of homes built with more electrical systems.

Implementation in Summerland

Implementing the ZCSC will require a Building Bylaw amendment. Because this is a provincially mandated change, while we have the option to opt in early, any mandates made by the Province will be required to be adhered to by all B.C. communities, unless early adoption is above what is to be mandated by the Province.

Based on housing developments to-date, the additional requirements from the ZCSC will not change the current development process here at the District. New homes are already required to provide an energy report, which provides information to Building Officials on Step Code requirements, and includes expected housing emissions. This will now be formatted to show the emissions of the home in relation to the ZCSC Emissions Levels.

Council Committee Feedback

As part of the Zero Carbon Step Code review the Development Process Improvement Advisory Committee (DPIAC) and Community Climate Action Advisory Committee (CCAAC) were presented information from staff and delegations from First Things First Okanagan. The full summary of their comments and recommendations to Council are in 'Attachment A,' as part of this report.

Industry Engagement

Engagement with industry professionals has not been conducted by the District at this time. However, a number of communities in the Lower Mainland and Vancouver Island who are early adopters have conducted and shared their engagement process and results publicly. To date, the City of Penticton has been the only community in the Okanagan and Interior to adopt an Emissions Level for the ZCSC, Emissions Level-1. Engagement with Industry is part of their next steps in order to inform future adoption of ZCSC steps.

Staff are recommending the District conduct engagement prior to adoption to inform the industry and public of the upcoming changes, and provide recommendations to Council with consideration for feedback and or concerns raised from the engagement process. The intent would be to conduct engagement between the months of May and June, with multiple dates for each engagement group.

Staff are proposing the following engagement process:

- a) **Industry breakfasts:** Staff will prepare multiple information sessions for industry professionals in the area to inform and educate on the Zero Carbon Step Code and any administration changes at the District. These will be conducted in the morning as part of a 'breakfast session.'
- b) **Public Engagement session:** It is recommended an information session directed at homeowners be prepared to inform of the changes and what it means to them when building new homes. These will be formatted as an open house with multiple dates.
- c) **Social Media:** As part of informing the public a social media campaign will also take place during the engagement timeframe with posts made about the upcoming change on the District's Facebook page, website, and information pamphlets at the Development Services desk to be provided.

BACKGROUND:

On May 1 2023, Sections 9.37 & 10.3 were adopted into the BC Building Code, this amendment to the BC Building Code is referred to as the Zero Carbon Step Code (ZCSC). Currently municipalities have the option to opt-in to specific emission level targets prior to Provincial mandates being announced in 2024 (and subsequent years). This is intended to provide the opportunity for municipalities to get ahead on emission reductions in new buildings.

On August 29th, 2024, District of Summerland Council heard from First Things First Okanagan regarding the new regulation for the Zero Carbon Step Code, and the delegation requested Summerland investigate the implementation and early adoption of the Code. Council requested staff determine the feasibility of opting into the Zero Carbon Step Code.

FINANCIAL IMPLICATIONS:

To conduct the open houses and cover costs related to food provision for the industry breakfasts, cost will come out of the Development Services general operating budget.

Reviewed by Financial Services:



LEGISLATION and POLICY:

1. Building Bylaw 2022-002
2. British Columbia Building Code (2018)
3. CleanBC Roadmap to 2030

SUPPORTING DOCUMENTS

1. Council Committee Comments – Zero Carbon Step Code
2. Presentation Slides

CONCLUSION:


If Council proceeds with the staff recommendations for engagement in May and June, staff will come back to Council with an overview of the results of the engagement and any feedback heard, along with proposed recommendations for the adoption of the ZCSC.

OPTIONS:

1. Move the motion as recommended by staff.
2. **THAT engagement not take place and staff come back to Council with a staff report with recommendations for the adoption of the Zero Carbon Step Code.**
3. **That the District follow the Provincial mandates for the Zero Carbon Step Code when they are announced in 2024 and not proceed with public engagement at this time.**
4. Refer to staff for other options.



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Presentation: Yes No