

District of Squamish Zero Carbon Step Code Overview

The Zero Carbon Step Code (ZCSC) is a new provincial standard that is part of the BC Building Code. It is designed to reduce greenhouse gas (GHG) emissions in new buildings. The ZCSC is different than but complementary to the Energy Step Code (ESC). The ESC is a similar provincial standard for new buildings that was introduced to the BC Building code in 2018 to allow for municipalities to require incremental improvements to energy efficiency in building construction. The District implemented the ESC in 2018 and by 2021, most residential construction in the District was required to meet Step 4 (ahead of most jurisdictions in BC). Find out more about the ESC and Squamish’s adoption of it [here](#).

There are 4 Levels to the ZCSC, which are as follows:

Level:	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
Name:	Measure only	Moderate Carbon	Strong Carbon	Zero Carbon
Description (prescriptive approach)	No reductions required, just measurement of emissions	Electrification of space heating OR hot water system	Electrification of space heating AND hot water system	Full electrification of building - includes appliances
Description (performance approach)	Measure only	Max: 6 kgCO ₂ e/m ² /yr And 2400 kgCO ₂ e/yr	Max: 2.5 kgCO ₂ e/m ² /yr And 800 kgCO ₂ e/yr	Max: 1.5 kgCO ₂ e/m ² /yr And 500 kgCO ₂ e/yr

As is shown above, there is a **prescriptive approach** to compliance, where a builder simply discloses the equipment that they will install in the home. There is also a **performance approach**, where the builder can use software to calculate both the GHG quantity (total emissions house will produce) and GHG intensity (total emissions per square metre of the home). For each Level the building will have to meet certain standards. For part 3 (i.e., larger) buildings, there is only an intensity metric that must be met for the performance approach. Part 9 buildings (i.e., single homes and townhouses) must meet both an intensity target and a total maximum target. The detailed Step Code table from the BC Building Code is included as Appendix A.

The province has set a timeline for the 4 Levels of the ZCSC to come into effect: as of November 1, 2023 the BC Building code requires ZCSC Level 1, and it has a timeline to ZCSC Level 4 by 2030. However, communities can adopt the code more quickly if they choose. Squamish is planning to adopt the ZCSC at an accelerated pace, and will do so by amending the City’s Building Bylaw. The ZCSC will replace the [Low Carbon Incentive Program](#), which already encourages low carbon space and water heating in most

buildings in Squamish. Replacing the Low Carbon Incentive Program will tie Squamish to a recognized Provincial Standard and reporting process, and provide a clear timeline for more stringent requirements.

Communities such as Saanich, Nanaimo and the Whistler have already adopted the ZCSC. In Vancouver there has been a code and incentives since 2016 regulating emissions in buildings. A summary of other community actions is included as Appendix B. Some communities combine their ZCSC and ESC targets and offer relaxations on ESC if a certain ZCSC Level is reached.

The plan for ZCSC step code adoption for Squamish is to immediately adopt level 4. In order to respond to concerns from the building community – and to remain consistent with relaxations already in place – there will be a temporary one step ESC relaxation for most building types. Below is a summary of planned adoption:

	Summer 2024	Temporary relaxation
Part 3 buildings	ZCSC level 4	ESC step 3 (from 4)
Part 9 buildings – multi-family	ZCSC level 4	ESC step 3 (from 4)
Part 9 buildings – single family	ZCSC level 4	None – remains at ESC step 4
Part 3 and 9 commercial Buildings	ZCSC level 4	ESC step 2 (from 3)

A no-gas covenant will be considered sufficient to satisfy ZCSC level 4.

Appendix A: Detailed ZCSC information from the BC Building Code

Table 9.37.1.3.
Greenhouse Gas Emissions
Forming part of Sentence 9.37.1.3.(1)

GHG Emission Level	GHG Emission Compliance Options				
	Maximum GHG Emissions by House, Expressed in kg CO _{2e} /year	or	Maximum GHG Emissions by House ¹		Reduction of GHG Emissions by Energy Source of Building Systems ²
	Maximum GHGI of the House, Expressed in kgCO _{2e} /m ² /year		Expressed in kgCO _{2e} /year		
EL-1	measure only	or	measure only		N/A
EL-2	1050		6.0	2400	Energy sources supplying heating systems have an emissions factor ≤ 0.011 kgCO _{2e} /kWh
EL-3	440		2.5	800	Energy sources supplying heating and service water heating systems have an emissions factor ≤ 0.011 kgCO _{2e} /kWh
EL-4	265		1.5	500	Energy sources supplying all building systems, including equipment and appliances, have an emissions factor ≤ 0.011 kgCO _{2e} /kWh

Notes to Table 9.37.1.3.:

⁽¹⁾ Compliance for this option is demonstrated by meeting both the GHGI and the GHG emission requirements for each house.

⁽²⁾ Redundant or back-up equipment for the systems and equipment listed in Sentence 9.36.5.4.(1), is permitted to be excluded, provided it is equipped with controls and is not required to meet the space-conditioning load of the house.

Appendix B: Summary of BC community actions

Below is a summary of Actions from other Communities in BC that have taken action to implement the ZCSP. Each community is different, so the table may be hard to follow – readers can click on each community name to find the information for that location.

Community	Home type	Current requirement	Future requirement	Notes, links
Whistler	Part 3	ZCSC Step 3	2026: ZCSC Step 4	More information here
	Part 9	ZCSC Step 3	2026: ZCSC Step 4	
Nelson	Part 3	ZCSC Step 2	NA	¹ Rollback to ESC step 3 if reached
	Part 9	ZCSC Step 3 ¹	NA	
Saanich, Central Saanich and Victoria²	Part 3	ZCSC step 4 for buildings 6 stories & less	July 2024: ZCSC Step 4 - all buildings	² these 3 communities worked together to establish a regional standard More information here
	Part 9	ZCSC level 4	NA	
District of North Vancouver	Part 3 residential	ZCSC Step 3 ³	NA	³ If not reached must meet ESC step 4 ⁴ If not reached must meet ESC step 4 ⁵ If not reached must meet ESC step 4 More information here
	Part 3 commercial	ZCSC Step 3 ⁴	NA	
	Part 9	ZCSC 3 ⁵		

Appendix C: FAQs

What about embodied emissions?

Embodied emissions (or embodied carbon) is not incorporated into the ZCSC. The District is actively looking into density incentives, deconstruction practices, communications materials and other approaches to encourage lower embodied emissions in buildings. The BC Building code may change in the future to consider embodied emissions.

Can I just use the prescriptive approach?

Yes, you can use either the prescriptive or the performance approach. However, using the prescriptive approach means that modelling does not need to be done. A no gas covenant also satisfies requirements.

Does BC Hydro have enough electrical capacity to support electrification?

BC Hydro is actively planning to support electrification in BC and has incorporated ZCSC considerations into their projections. They are investing significantly into capacity, as well as transmission and distribution improvements. BC Hydro is working to meet changing needs through many mechanisms including: capacity, infrastructure, energy efficiency and measures to manage demand. Find out more about BC Hydro's strategic plans [here](#).

What is the emissions factor for electricity in BC?

The emissions factor for electricity in BC is 0.011kg CO₂e/kWh for electricity

For natural gas it is 0.180kg CO₂e/kWh

Do I have to use electricity to meet the ZCSC?

No, but the emissions must fall below the levels outlined in the performance approach.