

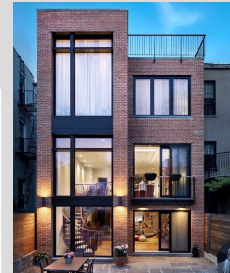
BC STEP CODE LOW CARBON ENERGY SYSTEM IMPLEMENTATION

Presentation to the Environment Committee
2022-JUL-27

Background

- BC Energy Step Code introduced in 2017
 - Tiered approach intended to replace all building energy efficiency standards in municipal codes (I.e.: LEED, Built Green, EnerGuide)
- City of Nanaimo Step Code Implementation Strategy endorsed – 2018
- Step Code included in Schedule D (density bonus) -2019 (Points awarded to developments that exceed the Step Code requirements of the Building Bylaw)
- Step Code Rezoning Policy Introduced in 2021- includes LCES path with a GHGi target (3kgCO₂e per m² per year)

Step Code - Part 9 Buildings (houses and small buildings)



Step Code- Part 3 Buildings (large and complex buildings)



What does GHGi mean?

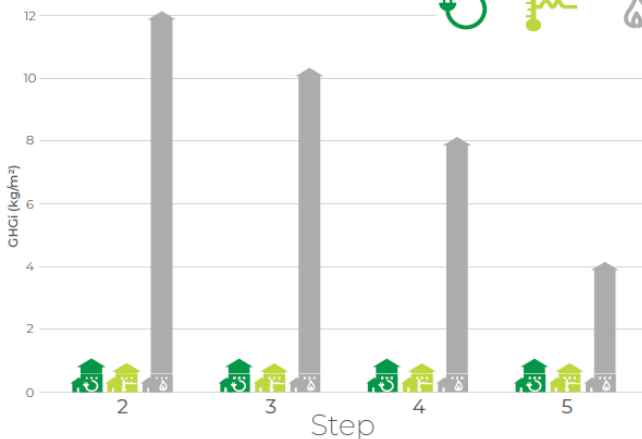
- Greenhouse gas (GHG) Intensity
- GHGi represents the typical amount of GHG emissions per unit area for the building
- Measured in kilograms of carbon dioxide equivalent (CO₂e) per square metre per year
- More suitable than measuring total GHG emissions for large and medium size buildings
- Step Code focus on energy efficiency vs. GHG requirements focus on reducing GHG emissions



kgCO₂e/m²/year



GHG Intensity by Fuel Type
(Vancouver Climate Zone - Average of All Part 9 Building Archetypes)



GHG intensity by fuel type of the lowest cost option to achieve a given Step of the Energy Step Code for Part 9 buildings. Average of all archetypes in Climate Zone 4. Source: BC Energy Step Code Metrics Research.

Low Carbon Energy System vs. Step Code

Source: Brendan McEwen



Anticipated Provincial Code Changes

- Update expected in December 2022
- Provincially required Step 3 for Part 9 and Step 2 for Part 3
- Optional GHG targets for local governments
- Tiered system - similar to Step Code
- 3 paths
 - GHGi targets for Part 3 buildings
 - Combined total GHG and GHGi targets for Part 9 buildings
 - Prescriptive path



Proposed GHG Target Levels

1. Measure only (requires measurement of a building's emissions *without* reductions, and is intended to build knowledge and capacity)
2. Medium carbon (in most cases, will require decarbonization of *either* space heating or domestic hot water systems)
3. Low carbon (in most cases, will require decarbonization of *both* space heating and domestic hot water systems)
4. Zero carbon ready

GHG emissions



Part 3 - GHGi Targets

Building Type	Level		
	Medium	Low	Zero Carbon Ready
Multi-Family Dwelling	7	3	1.8
Office	5	3	1.5
Retail	6	3	2
Hotel	9	4	2

Low carbon target matches City's rezoning policy

Part 9 - GHG Base Allowance

	GHG Base Allowance (ideal for small houses)- kg CO2e per unit
Medium	1050
Low	440
Zero Carbon Ready	265

Part 9 – GHGi and Maximum Cap

	Whichever emits less total GHG		
	Building GHG Intensity - kgCO ₂ e/m ² /year (ideal for medium-sized houses)	OR	GHG Maximum Cap- kg CO ₂ e per unit (limits emissions of the largest houses)
Medium	6		2400
Low	2.5		800
Zero Carbon Ready	1.5		500

Prescriptive Path

Level	Action
Medium	Decarbonize heat only
Low	Decarbonize heat and hot water
Zero carbon ready	Fully decarbonized building

Nanaimo Next Steps

- Fall 2022 - Staff prepare for consultation
- Early 2023 - Consultation with industry stakeholders (builders, developers, architects)
- 2023
 - Building bylaw amendment to include GHG targets for new buildings
 - Zoning bylaw amendment to update Schedule D (density bonus program) pending outcome of building bylaw changes
 - Rezoning policy update pending outcome of building bylaw changes

Step Code/GHG Target Timeline

		2017	2018	2019	2020	2021	2022	2023	2024
All building types	Province of BC	April - BC Step Code Introduced					Dec - GHG targets introduced		Phase in GHG targets/ Zero Carbon by 2030
	City of Nanaimo		July- Endorsed Step Code Implementation Strategy	Oct – Endorsed hhased Step Code in Building Bylaw; Schedule D in Zoning Bylaw		Rezoning Policy (adopted March, effective June)	Fall – begin prep on upper steps and GHG target implementation	Consult GHG targets in Building Bylaw	
Part 9 Buildings	Province of BC						Dec - Step 3		
	City of Nanaimo				April - Step 1	Jan - Step 2	Jan - Step 3		
Part 3 Buildings	Province of BC						Dec - Step 2		
	City of Nanaimo				April - Step 1		Jan - Step 2		

Thank you!

Questions?