

## Attachment 4

# *City of New Westminster Technical Review and Consultation*



## Att 4 - City of New Westminster Technical Review and Industry Consultation.docx

### TECHNICAL REVIEW AND INDUSTRY CONSULTATION

NOVEMBER 2, 2023

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## Introduction

The Province adopted the BC Roadmap to 2030 which sets targets for energy efficiency and greenhouse gas emissions for new buildings in British Columbia. To support achieving these targets the Province has included the BC Energy Step Code (2017) and the BC Zero Carbon Step Code (2023) in the BC Building Code. The Province has indicated they will incrementally increase the requirements of each code to reach the Provincial targets. Local governments who wish to advance energy efficiency and greenhouse gas emissions reduction in their communities are permitted to opt-in to a step of the Energy Step Code (ESC) or level in the Zero Carbon Step Code (ZCSC) ahead of the Provincial timeline.

At the July 10, 2023 Council meeting, New Westminster Council directed staff to engage with interested parties to secure feedback on the supports needed to implement proposed targets in 2025 and 2027 to reach the highest steps of the ESC and ZCSC by 2030.

## BC Energy Step Code

The ESC establishes measureable energy-efficiency requirements for each Step in the code. The Province has an implementation schedule to incrementally align the base building code with steps in the ESC to reach the highest step by 2032. The most recent milestone in the schedule was reached May 1, 2023. The highest Step for Part 9 (small residential buildings) is Step 5 and for Part 3 (multi-unit residential over three storeys, and most office and commercial buildings) is Step 4.

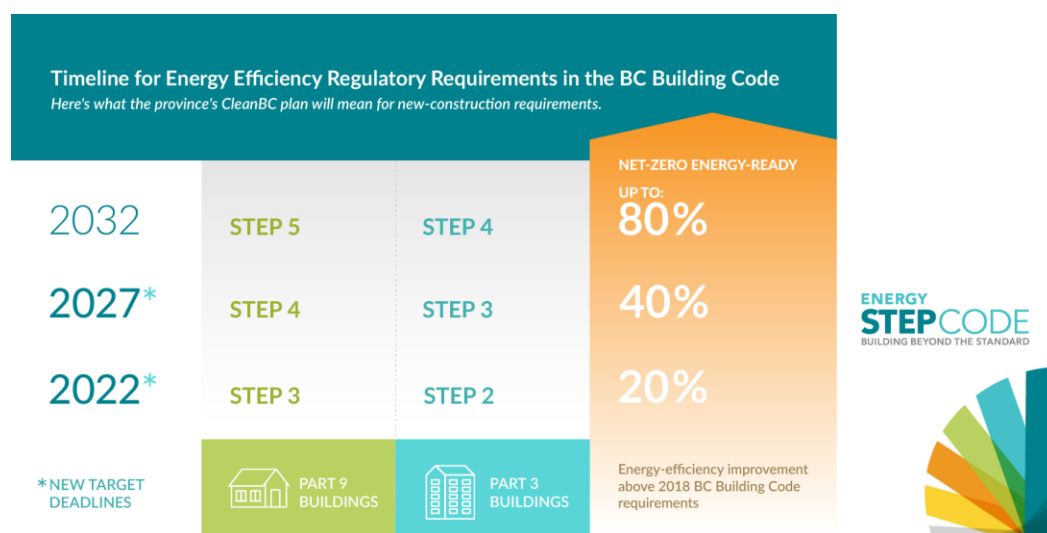


Figure 1: Timeline for Energy Efficiency Regulatory Requirements in the BC Building Code

## BC Energy Step Code and New Westminster

New Westminster was an early adopter of the ESC in 2019. Leading up to its adoption the City provided Energy Advisor support and training events to build knowledge and capacity to transition local industry to meet energy efficiency requirements using the new performance based pathway in the ESC. The City also adopted a Passive Design Exclusion Zoning Bylaw Amendment to allow increased Floor Space Ratio (FSR) in single-detached zones to compensate for thicker insulated walls for Steps 3-5, and a building height relaxation to accommodate increased height to achieve Step 5 or Passive house.

## Energy Save New West (ESNW) New Homes Program

To support local builders and designers, the City administers the New Homes program through ESNW. Since the inception of the program in 2018, support has been provided to 78 new home projects with 56 projects completed and the remaining 22 projects currently in design or construction phase. More recently, and with the increased requirements of the ESC, there has been an increase in homes reaching Step 4 (13 homes) and Step 5 (7 homes). Of these homes at least 9 have fully electric heating and domestic hot water systems. The ESNW website showcases high performing homes in New Westminster.<sup>1</sup>

In 2022 and the spring of 2023, the City provided a 50% subsidy totaling \$4,163 for 19 builders to attend courses at BCIT focused on building net zero energy and emissions buildings. Additional information and technical guidance has been provided through 2-3 builder breakfasts a year and a monthly newsletter.

## BC Energy Step Code and Greenhouse Gas Emissions

As we build to higher steps of the ESC, buildings are more energy efficient and there is a reduced need for energy to provide space heating. A study published by the BC Energy Step Code Council<sup>2</sup> showed that while the Step Code is an effective tool for driving significant emissions reduction in select building types and configurations, it can nevertheless result in buildings that continue to emit significant emissions over their lifetime. The ESC focus on energy efficiency does not guarantee the level of emissions reduction necessary to drive emissions to zero or near-zero levels. This is illustrated in Figure 2. Both energy conservation

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<sup>1</sup> Energy Save New West New Homes Case Studies, available at: <http://www.energysavenewwest.ca/new-home-case-studies>

<sup>2</sup> Implications of the BC Energy Step Code on GHG Emissions, Integral Group, June 2019, available at: [https://energystepcode.ca/app/uploads/sites/257/2019/11/BC-Step-Code-GHGI-Report\\_Nov-2019.pdf](https://energystepcode.ca/app/uploads/sites/257/2019/11/BC-Step-Code-GHGI-Report_Nov-2019.pdf)

measures and low-carbon energy supply must be considered in combination to achieve significant reductions in greenhouse gas emissions.

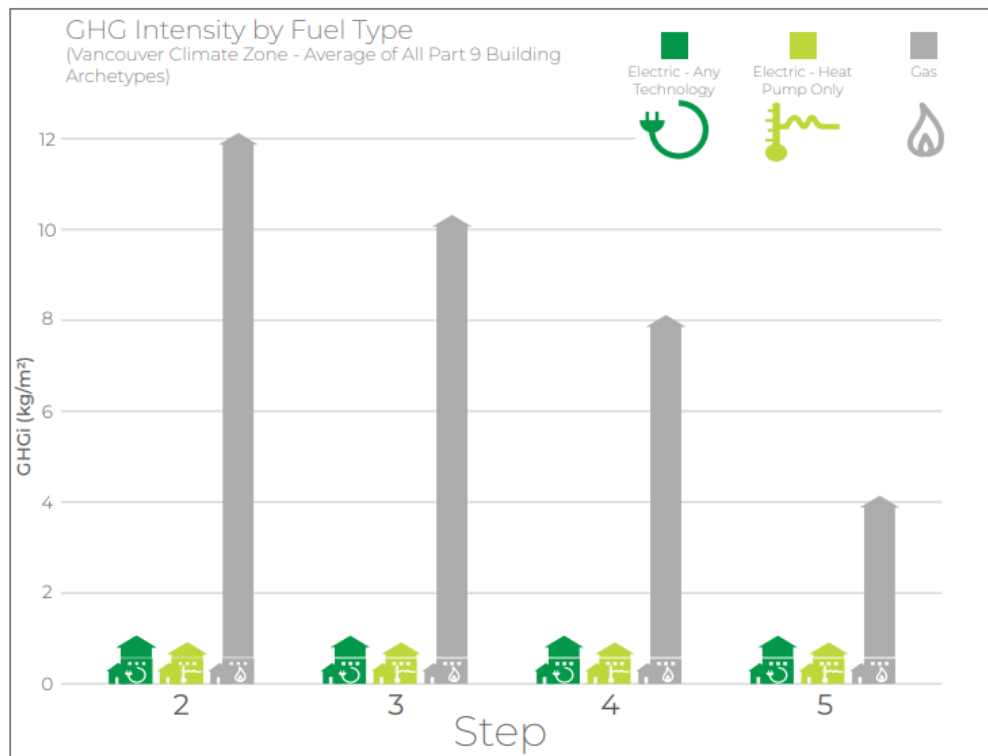


Figure 2: GHG Intensity by Fuel Type, Vancouver Climate Zone, Average of All Part 9 Building Archetypes<sup>3</sup>

## BC Zero Carbon Step Code

The Zero Carbon Step Code (ZCSC) was included in the BC Building Code May 1, 2023 to support greenhouse gas emission reduction in new buildings. The new code establishes carbon performance tiers which align with carbon emissions levels associated with the energy used by the building's systems and supports electrification of new construction.

<sup>3</sup> Low Carbon Building Systems in Energy Step Code Requirements, A Best Practice bulletin & Report on Low Carbon Energy System Options in Energy Step Code Requirements, Brendan McEwen with AES Engineering, available at: <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/power-smart/business/programs/low-carbon-building-systems-in-energy-system-code-requirements.pdf>

## Staggered carbon performance tiers

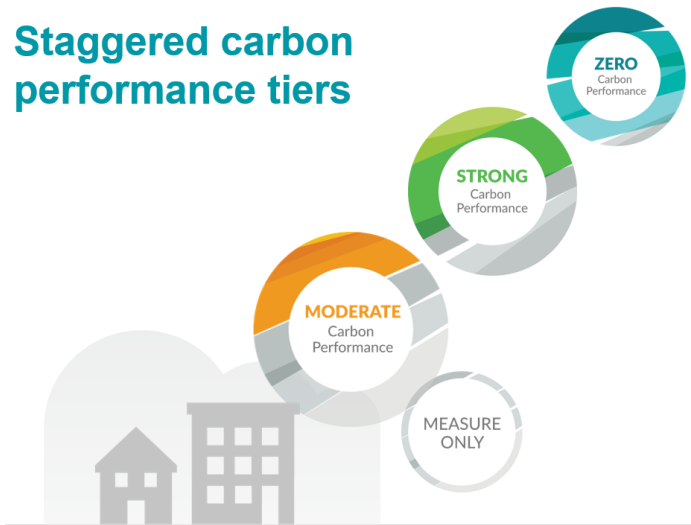


Figure 3: The Carbon Performance tiers in the BC Zero Carbon Step Code

In general the requirements of the Carbon Performance tiers are:

**Measure-only** (*Emission Level 1 – EL-1*) – requires measurement of a building’s emissions without reductions;

**Moderate carbon** (*Emission Level 2- EL-2*) – in general requires electrification of either space heating or domestic hot water systems;

**Strong carbon** (*Emission Level 3 – EL-3*) - in general requires electrification of both space heating and domestic hot water systems; and

**Zero carbon ready** (*Emission Level 4- EL-4*) – in general requires the full electrification of a building

The BC Building Code establishes maximum modelled greenhouse gas emissions for each Emissions Level. Similar to the ESC, the Province has indicated the intent to incrementally increase the required level of the ZCSC in future Building Code updates to meet the CleanBC target of zero carbon new buildings by 2030. ZCSC requirements are anticipated in 2024 and 2027, but it is currently unclear what carbon performance levels will be required at those milestones.

In addition to reducing greenhouse gas emissions, the ZCSC can also enhance resilience in new buildings by incorporating cooling solutions when heat pumps are installed to meet electrification requirements.

## Community Energy and Emission Plan 2050 and Greenhouse Gas Reduction Targets

As part of the City's ongoing efforts to reduce its impact on climate change, the City endorsed an updated Community Energy and Emissions Plan (CEEP 2050) in 2022. CEEP 2050 provides a roadmap to approaching net zero greenhouse gas emissions by 2050. Reducing energy and emissions in buildings is one of the five key action areas.

The operation of buildings accounted for approximately 53% of total energy use and 43% of total greenhouse gas emissions in New Westminster in 2016. The CEEP indicates that as the City continues to grow, it is essential that new buildings are constructed to the highest energy efficiency standards and to be able to adapt quickly as new technologies develop and energy standards change<sup>4</sup>. Energy and greenhouse gas emissions modelling to reach the City's Climate Action goals shows that significant emission reductions can be achieved over the mid- to long-term by accelerating requirements for higher Step Code levels in new construction and requiring that new buildings do not use fossil fuel energy sources. The CEEP recommends that all new buildings meet the highest tier of the ESC and use low-carbon energy systems by 2030.

## Proposed Timeline for Implementation

The City of New Westminster has developed a proposed timeline to reach the highest steps of both the ESC and the ZCSC.

The proposed timeline, subject to City Council approval, provides a two option framework with the ZCSC concurrently with the ESC ahead of the provincial timeline. This approach will serve two functions: 1) long term reduction of carbon emissions (ZCSC); and, 2) reduction of energy consumption (ESC). At the July 10, 2023 council meeting, Council directed staff to engage with industry on supports needed to implement the proposed targets in 2025 and 2027.

The proposed timeline is in alignment with the required action needed to meet the City's Climate Emergency Declaration targets for emission reductions outlined in the Community Energy and Emissions Plan (CEEP 2050).

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<sup>4</sup> New Westminster Community Energy and Emissions Plan 2050, October 2022, available at: [https://www.newwestcity.ca/environment/energy-emissions-and-climate-change/sb\\_expander\\_articles/492.php](https://www.newwestcity.ca/environment/energy-emissions-and-climate-change/sb_expander_articles/492.php)



<b>Building Type Part 9 Residential</b>	<b>May 1, 2023</b>	<b>Jan 1, 2024</b>	<b>Jan 1, 2025</b>	<b>Jan 1, 2027</b>
Single or Two Family Dwellings	Step 3	Step 5 EL-1 Measure Or Step 3 EL- 4 Zero Carbon	Step 5 EL-2 Moderate Carbon Or Step 4 EL-4 Zero Carbon	Step 5 EL-4 Zero Carbon
Laneway and Carriage Dwellings				
Townhomes and Apartment Buildings up to three storeys				
<b>Part 3 Multi-Family Residential</b>	<b>May 1, 2023</b>	<b>Jan 1, 2024</b>	<b>Jan 1, 2025</b>	<b>Jan 1, 2027</b>
Group C Residential Occupancies 6 stories or less and combustible construction	Step 3	Step 3 EL-1 Measure	Step 4 EL-1 Measure Or Step 3 EL-4 Zero Carbon	Step 4 EL-4 Zero Carbon
Group C Residential Occupancies over 6 stories or non-construction				
Hotels/Motels				
<b>Part 3 Commercial</b>	<b>May 1, 2023</b>	<b>Jan 1, 2024</b>	<b>Jan 1, 2025</b>	<b>Jan 1, 2027</b>
Group D Offices (Business and Personal Services)	Step 2	Step 2 EL-1 Measure	Step 3 EL-1 Measure Or Step 2 EL-4 Zero Carbon	Step 3 EL-4 Zero Carbon
Other Group D and Group E (Mercantile) Occupancies				

*Table 1: Proposed timeline for implementation of the Energy Step Code and Zero Carbon Step Code*

## Implementation in Other Municipalities

Many local governments in British Columbia have set greenhouse gas reduction targets and are considering how to implement the ZCSC in their communities. The Community Energy Association, on behalf of the City of Surrey, gathered information on eight local governments who are early adopters or considering adopting the ZCSC. The City of New Westminster was interviewed and included in the study.<sup>5</sup> The below table details the current and proposed level of adoption of the ZCSC for each of the municipalities.

<sup>5</sup> City of Surrey Step Code and Carbon Policy Review, completed by Community Energy Association, October 2023

## Part 9 Buildings

Jurisdiction	Building Type	Requirement	Effective Date	Future requirement		
				2025	2027	2030
Victoria/Saanich*		Step 3 + EL-4	Nov 1, 2023			
Burnaby		Step 3 + EL-3	Jan 1, 2024	Jan 1, 2025 Step 3 + EL-4	Jan 1, 2027 Step 4 + EL-4	Jan 1, 2030 Step 5 + EL-4
Whistler	Single Family + Duplex + Townhomes	Step 4 + EL-3	Jan 1, 2024		Jan 1, 2027 Step 4 + EL-4	
	Single Family or Duplex with in-ground basement floor area exclusion	Step 5 + EL-3	Jan 1, 2024		Jan 1, 2027 Step 5 + EL-4	
District of North Vancouver**		Step 4 + EL-3 Or Step 5	Nov 1, 2023			
Richmond		Step 5 + EL-2 Or Step 4 + EL-3 Or Step 3 + EL-4	Oct 1, 2023	Jan 1, 2025 Step 5 + EL-3 Or Step 4 + EL-4	Jan 1, 2027 Step 5 + EL-4	
New Westminster		Step 5 + EL-1 Or Step 3 + EL-4	Jan 1, 2024	Jan 1, 2025 Step 5 + EL-2 Or Step 4 + EL-4	Jan 1, 2027 Step 5 + EL-4	

## Part 3 Buildings

Jurisdiction	Building Type	Requirement	Effective Date	Future requirement		
				2024	2025	2027
Victoria/Saanich*	Residential (Group C) Between 4-6 storeys	Step 3 +EL-4	July 1, 2024	Nov 1, 2024 Step 3 + EL-4		
	Residential (Group C) Over 6 storeys	Step 2 + EL-1		Nov 1, 2024 Step 2 + EL-4		
	Commercial (Group D & E)	Step 2 + EL-1		Nov 1, 2024 Step 2 + EL-4		
Burnaby	Residential (All Group C)	Step 3 + EL-4	Jan 1, 2024			Jan 1, 2027 Step 4 + EL-4
	Commercial (Group D & E) Offices & Mercantile	Step 2 + EL-4	Jan 1, 2024			Jan 1, 2027 Step 3 +EL-4
Whistler	Residential (All Group C)	Step 3 + EL-3	Jan 1, 2024			Jan 1, 2027 Step 3 + EL-4
	Commercial (Group D & E)	Step 2 + EL-3				Jan 1, 2027 Step 3 + EL-4
District of North Vancouver	Residential (All Group C)	Step 4 Or Step 3 + EL-3	Nov 1, 2023			
	Commercial (Group D & E)	Step 3 Or Step 2 + EL-3				
Richmond	Residential Concrete Frame	Step 3 + EL-1 Or Step 2 + EL-2	Oct 1, 2023		Jan 1, 2025 Step 4 + EL-2 Or Step 3 + EL-3	Jan 1, 2027 Step 4 + EL-4
	Residential Wood Frame	Step 4 + EL-1 Or Step 3 + EL-2				
	Hotels & Motels	Step 3 + EL-2 Or Step 2 + EL-3				
	Office and Retail	Step 3 + EL-1 Or Step 2 + EL-2			Jan 1, 2025 Step 3 + EL-2 Or Step 2 + EL-3	Jan 1, 2027 Step 3 + EL-4
New Westminster	Residential (All Group C) Hotels & Motels	Step 3 + EL-1	Jan 1, 2024		Jan 1, 2025 Step 4 + EL-1 Or Step 3 + EL-4	Jan 1, 2027 Step 4 + EL-4
	Commercial (Group D & E)	Step 2 + EL-1			Jan 1, 2025 Step 3 + EL-1 Or Step 2 + EL-4	Jan 1, 2027 Step 3 + EL-4

\*Victoria and Saanich have collaborated on the implementation of the new requirements and therefore are grouped as one.

\*\*The District of North Vancouver, City of North Vancouver, and District of West Vancouver also collaborated and have aligned their requirements.

*Table 2 Summary of requirements by Municipality, City of Surrey Step Code and Carbon Policy review, CEA, October 2023*

## Provincial Costing Studies

The updated Provincial Energy Step Code Metric Report (Sept 2022)<sup>6</sup> builds on previous metrics reports which models different energy efficiency measures and options to achieve steps in the ESC for different building archetypes.

The incremental capital cost is calculated by considering the average cost of the top ten modelled scenarios to meet each of the Steps without consideration of the fuel type and greenhouse gas emissions. It's important to recognize there are limitations to this approach as it is based on theoretical costing data and energy models. The results are summarized in Table 2 for building archetypes in climate zone 4. The base case is the base energy efficiency requirement of the BC Building code prior to May 1, 2023, without Energy Step Code requirements. New Westminster has required Step 3 for all building types with the exception of Laneway homes since January 1, 2020.

Part 9	Step 2	Step 3	Step 4	Step 5
<b>Laneway</b>		2.1%	2.7%	5.4%
<b>Small SFD</b>		2.0%	3.1%	6.6%
<b>Medium SFD</b>		1.2%	1.5%	2.9%
<b>Large SFD</b>		1.0%	1.4%	3.3%
<b>Quadplex</b>		1.6%	2.2%	4.3%
<b>Row</b>		0.6%	0.7%	1.5%
<b>10-unit MURB</b>		0.4%	0.6%	1.4%
<b>Part 3</b>				
<b>High MURB</b>	0%	0.5%	3.1%	
<b>Low MURB</b>	-0.4%	0.4%	1.3%	

*Table 3: Incremental Capital Cost increase compared to the base energy efficiency requirements in the 2018 BC Building Code prior to the May 1<sup>st</sup>, 2023 in Climate Zone 4 (adapted from Metrics Report)<sup>7</sup>*

Smaller homes have higher incremental capital costs on a percentage basis, which is as expected since measures, such as Heat Recovery Ventilator (HRV) and drain water heat recovery and to some extent windows and walls, are not dependent or not linearly dependent on floor area, meaning the cost does not change linearly with floor area whereas the base cost of construction estimate in this report does scale with floor area. The study also states that historically, the cost premiums of high-performance building components have gone down over time, as the technology develops and as the market matures.

<sup>6</sup> BC Energy Step Metrics Report Update, Building Safety Standard Branch, Province of British Columbia, September 2022, available at: [https://energystepcode.ca/app/uploads/sites/257/2022/10/BC-Energy-Step-Code\\_Metrics-Report\\_2022-09-29-R1-Compressed.pdf](https://energystepcode.ca/app/uploads/sites/257/2022/10/BC-Energy-Step-Code_Metrics-Report_2022-09-29-R1-Compressed.pdf)

The report also includes modeling done to support the development of the ZCSC and the incremental cost impact of building using electrical mechanical systems. The report indicates that incremental capital costs to build to zero carbon for all building types within climate zone 4 was within a range of 0.1% cost savings to a high of 2.2% increased costs depending on the electric systems that were chosen.

## Industry Consultation and Communication

The proposed implementation timeline of the ESC and ZCSC was communicated to builders and developers through the following means:

- July 10, 2023 council report was included in the Urban Development Institute newsletter
- Cover page added to the Building Bylaw on the City website informing of January 1, 2024 changes
- Email communication to current applicants to the Planning and Development sections
- In person Builder Breakfast in conjunction with the City of Burnaby (45 participants)
- Presentation to Urban Development Institute/New Westminster committee
- Update to City webpage content
- New Westminster City Page
- Social media posts, Facebook, Instagram and LinkedIn
- Energy Save New West monthly newsletters
- Economic development newsletter

## Industry Survey

A survey was developed and disseminated through each of the above communications. The purpose of the survey was to gather information on barriers that may exist for builders to meet the proposed timeline requirements and to identify potential City-supported capacity building programs and initiatives to address them.

The survey had 24 respondents from a wide range of industry representatives and who build both small residential and large multifamily residential and commercial buildings.

Below summarizes the survey results:

- 50% have participated in the Energy Save New West High Performance Home program.
- 50% are concerned about meeting the ZCSC standard as it relates to electrical servicing, incremental cost increase and operating costs
- All respondents building small residential (Part 9) expressed that they are more likely to build Step 3 with Emissions Level 4, rather than Step 5.

- Concerns related to building to higher steps of the ESC included availability of required expertise, cost increase and design impacts.
- All respondents indicated they would select a heat pump over baseboard heating to meet zero carbon requirements.

The needs identified in the survey to overcome challenges include:

1. Educational opportunities
2. Financial and floor space ratio incentives
3. Expansion of Energy Save New West incentives
4. Certainty regarding ability to meet electric capacity


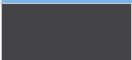
The full survey including answers to open ended questions can be seen below.

## Survey - BC Energy Step Code and Zero Carbon Step Code Proposed Implementation Timeline

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Have you taken part in the Energy Save New Westminster (ESNW) New High Performance home program?

Respondents: 24

Choice	Percentage	Count	
<b>Yes</b>	58.33%	14	
<b>No</b>	41.67%	10	
<b>Total</b>	100%	24	

Have you accessed any of the rebates/financial support below to support building with the Energy Step Code? (Please select all that apply)

Respondents: 16

Choice	Percentage	Count	
City funding through Energy Save New West to support BCIT courses	31.25%	5	
City funding through Energy Save New West to support an Energy Advisor	50.00%	8	
City funding through Energy Save New West to support mid blower door test	43.75%	7	
Clean BC Better Homes New Construction Program	37.50%	6	
CleanBC Commercial New Construction Program	12.50%	2	
FortisBC New Home Program	50.00%	8	
FortisBC Commercial New Construction Performance Program	18.75%	3	
<b>Total</b>	<b>100%</b>	<b>16</b>	

How would you describe your role as it relates to development and buildings?


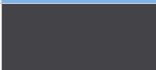
Respondents: 23

Choice	Percentage	Count	
Design Professional (architect/engineer/energy advisor)	34.78%	8	
Property Owner/ Developers	43.48%	10	
Builder	26.09%	6	
Other, please specify (builder association, technical support, etc.)	13.04%	3	
<b>Total</b>	<b>100%</b>	<b>23</b>	

#	Respondent	Other, please specify (builder association, technical support, etc.)
1		energy advisor
2		Designer
3		Industry Association





Where are your new construction projects located?

Respondents: 20

Choice	Percentage	Count	
<b>New Westminster</b>	50.00%	10	
<b>Throughout Metro Vancouver, including New Westminster</b>	50.00%	10	
<b>Other, please specify</b>	0.00%	0	
<b>Total</b>	100%	20	


What type of buildings do you construct or design?

Respondents: 23

Choice	Percentage	Count	
<b>Part 9</b>	47.83%	11	
<b>Part 3</b>	17.39%	4	
<b>Part 9 and Part 3</b>	30.43%	7	
<b>None of the above</b>	8.70%	2	
<b>Total</b>	100%	23	


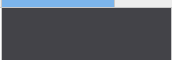
Which of the two options are you most likely to choose as a compliance path?

Respondents: 11







Choice	Percentage	Count	
<b>Step 5 of the BC Energy Step Code</b>	0.00%	0	
<b>Step 3 with Emissions Level 4</b>	100.00%	11	
<b>Total</b>	100%	11	

Please select the top two challenges you anticipate to build to Step 5 of the Energy Step Code?

Respondents: 11


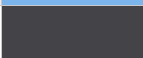

Choice	Percentage	Count	
<b>Availability of appropriate building materials</b>	36.36%	4	
<b>Availability of required expertise</b>	54.55%	6	



<b>Ensuring performance at completion</b>	18.18%	2	
<b>Incremental cost increase</b>	18.18%	2	
<b>Time to master construction details</b>	9.09%	1	
<b>Design impacts related to building form</b>	36.36%	4	
<b>Availability of appropriate equipment</b>	9.09%	1	
<b>Considering design of building as whole system</b>	18.18%	2	
<b>I do not anticipate any challenges</b>	0.00%	0	
<b>Total</b>	100%	11	


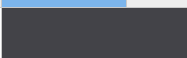
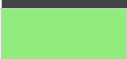

Do you feel there are barriers to implementing zero carbon ready electric space heating systems in new Part 9 buildings?


Respondents: 11

Choice	Percentage	Count	
<b>No</b>	45.45%	5	
<b>Yes</b>	45.45%	5	
<b>I don't know</b>	9.09%	1	
<b>Total</b>	100%	11	

What do you feel are the top two barriers?

Respondents: 5

Choice	Percentage	Count	
<b>Incremental cost increase</b>	40.00%	2	
<b>Electrical service</b>	60.00%	3	
<b>Operating costs</b>	40.00%	2	
<b>Availability of appropriate equipment</b>	40.00%	2	
<b>Confidence in relatively new practices/equipment</b>	0.00%	0	
<b>Design (availability of required expertise)</b>	0.00%	0	

<b>Market demand for gas boilers</b>	0.00%	0	
<b>Other (please specify)</b>	20.00%	1	
<b>Total</b>	100%	5	


#    Respondent            Other (please specify)

1                            Qualified trades to properly install and commission heat pump equipment

When building using electricity as the primary heating source, which system are you most likely to use?

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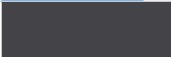
Respondents: 11

Choice	Percentage	Count	
<b>Electric Heat Pumps</b>	100.00%	11	
<b>Electric resistive heating</b>	0.00%	0	
<b>Other (please specify)</b>	0.00%	0	
<b>Total</b>	100%	11	

Do you feel there are barriers to implementing zero carbon ready electric domestic hot water systems in new Part 9 buildings?

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Respondents: 11

Choice	Percentage	Count	
<b>No</b>	45.45%	5	
<b>Yes</b>	54.55%	6	
<b>I don't know</b>	0.00%	0	
<b>Total</b>	100%	11	

What do feel are the top two barriers?

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Respondents: 6

Choice	Percentage	Count	
Incremental cost increase	0.00%	0	
Electrical service	33.33%	2	
Operating costs	50.00%	3	
Availability of appropriate equipment	50.00%	3	
Confidence in relatively new practices/equipment	16.67%	1	
Design (availability of required expertise)	0.00%	0	
Market demand for gas boilers	0.00%	0	
Other (please specify)	0.00%	0	
Total	100%	6	

Based on the above timeline to reach the highest steps of the Energy Step Code and new Zero Carbon Step Code, what do you see at the biggest challenges?

Respondents: 8

- 1 new fast moving step code for smaller builders, who would not get enough practice to achieve step code compliance
- 2 Knowing what equipment to use
- 3 Finding appropriate materials available locally to get a step code 5 envelope without compromising on reducing the cradle to grave carbon footprint.
- 4 The step code should be step by step . i wish that 2024 starts with EL3 and then to EL4 and inclusion of step 4 option in Jan 2024
- 5 Timelines are too accelerated for Step 5 and arguably do not significantly impact GHG reductions (vs. Step 4 and zero carbon ready). Step Code has limitations for achieving low MEUI in small housing due to the standard assumptions for hot water loads, so this will discourage small housing types being built.
- 6 lack of municipal support, the energy save program only allows city qualified EA's which is very limiting when many other available EA's have better expertise than the city qualified EA's lack of available and reliable products - eg heat pump hot water tanks are required to meet step 5 but available products are not good enough for consumer use

- 7 If zero carbon step code is just about the heating and cooling system, I'm fine with it, but when it gets to the point that the building material has to be source locally, I have iue with the result and quality as well as cometition on better product

8 Expertise - both in trades and city inspectors


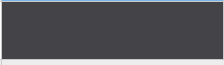
What supports will help to reduce barriers or challenges to build to the highest steps of Energy Step Code and Zero Carbon step code for Part 9 buildings by 2027?

Respondents: 7

- 1 enough technical education with air to water heat pump & too fast moving step code requirements
- 2 More education on mechanical options
- 3 Financial incentives to clients to help facilitate a team approach to high efficiency buildings, trade education support for builders, education of city staff to understand different options.
- 4 More incentives: CleanBC Better Homes for New Construction program is no longer available. New Westminster Energy Advisor funding is unduly limited to certain individuals, and should be available to any Natural Resources Canada's Energy Advisor (as listed on the CleanBC better homes website.)
- 5 Energy saver program needs to allow all registered EA's not just their city approved
- 6 More trade education, like HVAC and Framers and plumbers revising electrical code to allow solar panels to be counted as part of the load calculation incentives to encourage solar panel installations to reduce the load on BC hydro loads
- 7 Available training and finding instructors with the required expertise

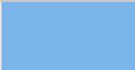
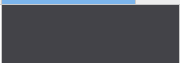




What Part 3 occupancies do you typically build?

Respondents: 7

Choice	Percentage	Count	
<b>Residential</b>	71.43%	5	
<b>Commercial</b>	71.43%	5	
<b>Neither</b>	0.00%	0	
<b>Total</b>	100%	7	

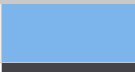


Please choose the top two challenges you anticipate for building to Step 4 of the Energy Step Code for Part 3 buildings.

Respondents: 7

Choice	Percentage	Count	
Design impacts related to building form and exterior insulation	42.86%	3	
Incremental cost increase	57.14%	4	
Ensuring performance at completion	0.00%	0	
Availability of appropriate building materials	28.57%	2	
Availability of required expertise	14.29%	1	
Design (availability of required expertise)	14.29%	1	
I do not anticipate any challenges	14.29%	1	
Total	100%	7	

Do you feel there are barriers or challenges to implement zero carbon ready electric space heating systems in new Part 3 buildings?

Respondents: 7

Choice	Percentage	Count	
No	42.86%	3	
Yes	42.86%	3	
I don't know	14.29%	1	
Total	100%	7	

Please choose the top two challenges you anticipate for using zero carbon ready electric space heating systems in new Part 3 buildings

Respondents: 3

Choice	Percentage	Count	
Availability of appropriate equipment	0.00%	0	
Confidence in relatedly new practice/equipment	0.00%	0	
Electrical service	66.67%	2	<div></div>
Design (availability of required expertise	0.00%	0	
Incremental cost increase	66.67%	2	<div></div>
Operating costs	66.67%	2	<div></div>
Common area space heat	0.00%	0	
Other (please specify)	0.00%	0	
Total	100%	3	


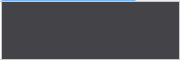
When building using electricity as the primary heating source, which system are you most likely to use?

Respondents: 7

Choice	Percentage	Count	
Electric Heat Pumps	100.00%	7	<div></div>
Electric resistive heating	0.00%	0	
Other (please specify)	0.00%	0	
Total	100%	7	






Do you feel there are barriers to implementing zero carbon ready electric domestic hot water heating systems in new Part 3 buildings?

Respondents: 7

Choice	Percentage	Count	
No	42.86%	3	
Yes	57.14%	4	
I don't know	0.00%	0	
Total	100%	7	

Please choose the top two challenges you anticipate for using zero carbon ready electric domestic hot water heating systems in new Part 3 buildings

Respondents: 4

Choice	Percentage	Count	
Operating costs	25.00%	1	
Electrical Service	75.00%	3	
Confidence in relatively new practices/equipment	25.00%	1	
Incremental cost increase	50.00%	2	
Availability of appropriate equipment	25.00%	1	
Design (availability of required expertise)	0.00%	0	
Other (please specify)	0.00%	0	
Total	100%	4	

Based on the above timeline to reach the highest step of the Energy Step Code and new Zero Carbon Step Code, what do you see as the biggest challenges for Part 3 new Residential buildings?

Respondents: 4

- 1 Material supply and cost

- 2 Cost and availability of power from NW electric commission
- 3 Ability of design industry to adapt. Possibly the impact from new BC Hydro hookups - not knowledgeable about this, but it is a fear that I've heard.
- 4 Architectural Assemblies, transition away from window wall systems.

Based on the above timeline to reach the highest steps of the Energy Step Code and new Zero Carbon Step Code, what do you see at the biggest challenges for Part 3 new Commercial buildings?

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Respondents: 4

- 1 Material supply and cost
- 2 Same as above
- 3 Ability of design industry to adapt. Possibly the impact from new BC Hydro hookups - not knowledgeable about this, but it is a fear that I've heard.
- 4 I don't suspect large challenges with commercial buildings.

What supports will help to reduce barriers or challenges to build to the highest steps of ESC and Zero Carbon step code for Part 3 buildings by 2027?

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Respondents: 4

- 1 Incentives and adoption of higher fsr to meet some of these targets. Faster permit and inspection time lines
- 2 A feasible plan to provide power to new developments
- 3 Relaxations for projects that achieve low embodied carbon.
- 4 Energy efficiency education and transparency on costing. Cost benefit of various measures/ availability of technologies. Rebates for energy efficient technologies.