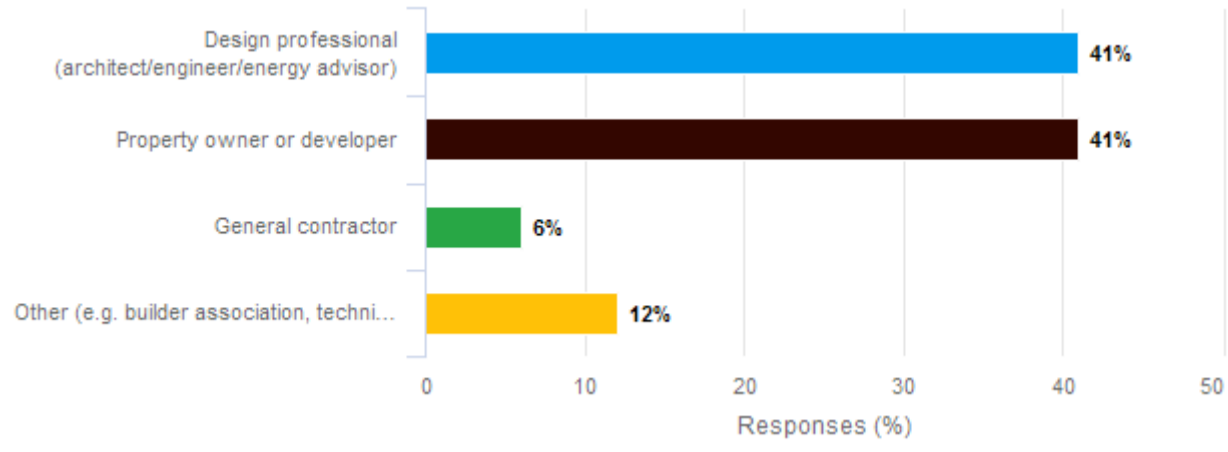


# BC Energy Step Code and Zero Carbon Step Code Proposed Implementation Timeline Survey

2023-11-27 19:30

Which of the following best describes you?



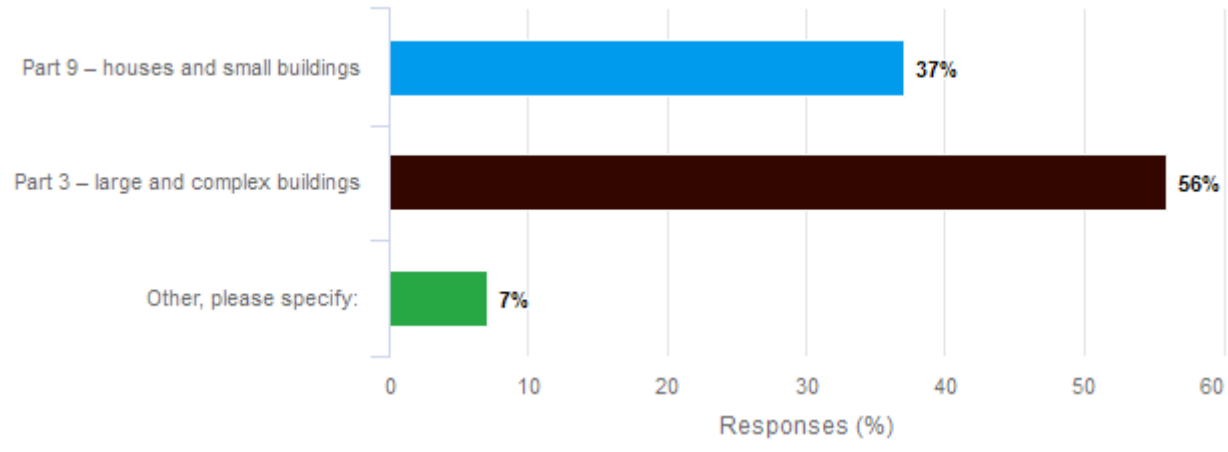
	%	Frequency
Design professional (architect/engineer/energy advisor)	41.18%	7
Property owner or developer	41.18%	7
General contractor	5.88%	1
Other (e.g. builder association, technical support, energy utility representative), please specify:	11.76%	2
<b>Total</b>		<b>17</b>

Other, please specify:

"Local government staff (not Burnaby)

"Capacity building organization"

What types of new developments are you/your firm working on in Burnaby?



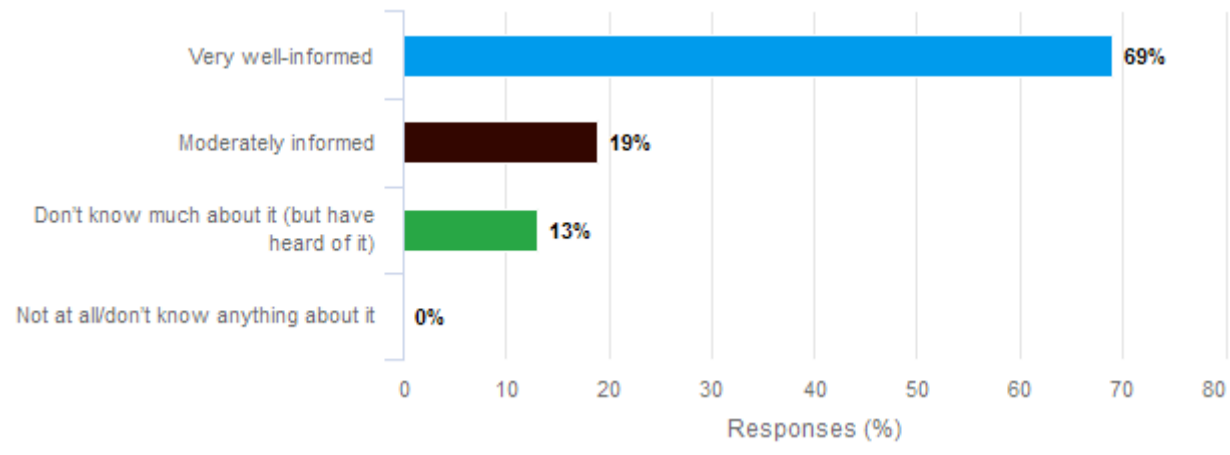
	%	Frequency
<b>Part 9 – houses and small buildings</b>	37.04%	10
<b>Part 3 – large and complex buildings</b>	55.56%	15
<b>Other, please specify:</b>	7.41%	2
<b>Total</b>		27

Other, please specify:

"Industrial"

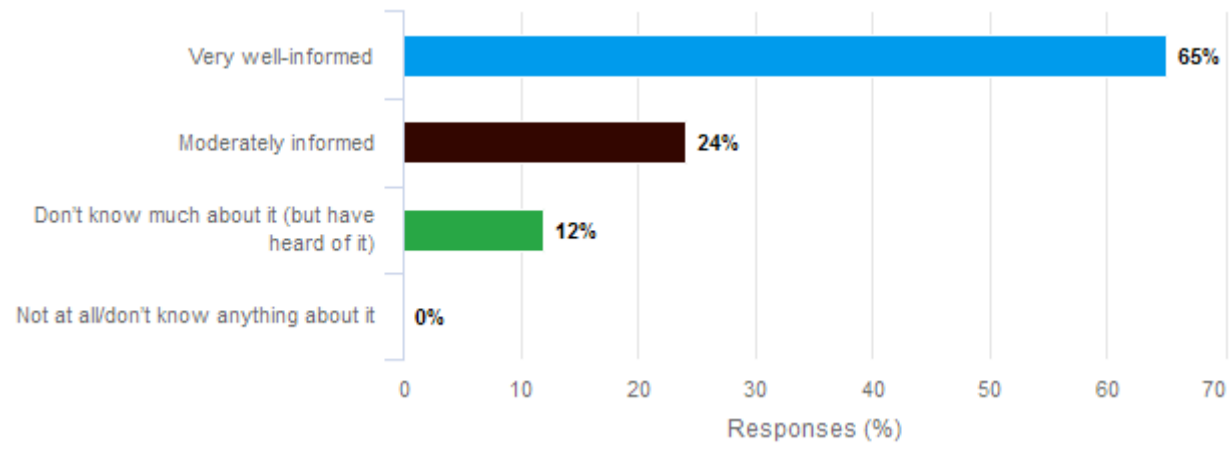
"P3 and P9, not in Burnaby"

## How well-informed are you about BC Energy Step Code?



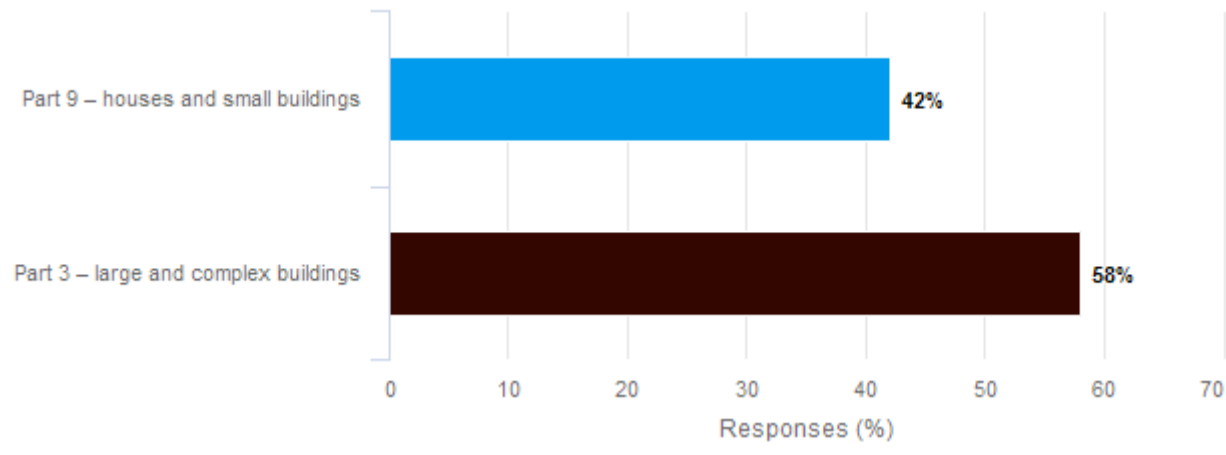
	%	Frequency
<b>Very well-informed</b>	68.75%	11
<b>Moderately informed</b>	18.75%	3
<b>Don't know much about it (but have heard of it)</b>	12.50%	2
<b>Not at all/don't know anything about it</b>	0.00%	0
<b>Total</b>		16

## How well-informed are you about BC Zero Carbon Step Code?



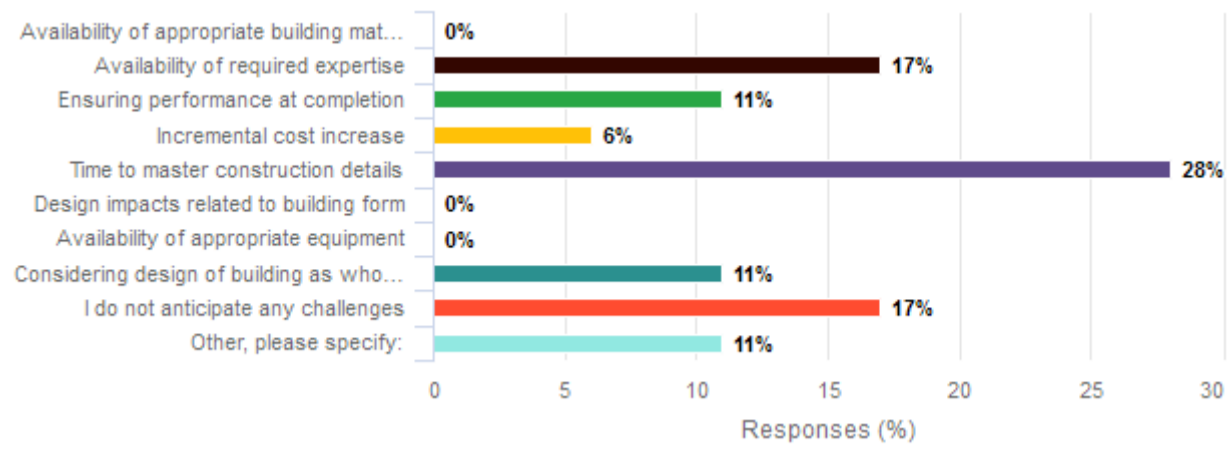
	%	Frequency
<b>Very well-informed</b>	64.71%	11
<b>Moderately informed</b>	23.53%	4
<b>Don't know much about it (but have heard of it)</b>	11.76%	2
<b>Not at all/don't know anything about it</b>	0.00%	0
<b>Total</b>		17

Please indicate which types of buildings you would like to provide feedback on (check all that apply):



	%	Frequency
<b>Part 9 – houses and small buildings</b>	42.31%	11
<b>Part 3 – large and complex buildings</b>	57.69%	15
<b>Total</b>		26

For Part 9 new buildings, please select the top two challenges you anticipate in building construction projects which go beyond Step 3 of the Energy Step Code.



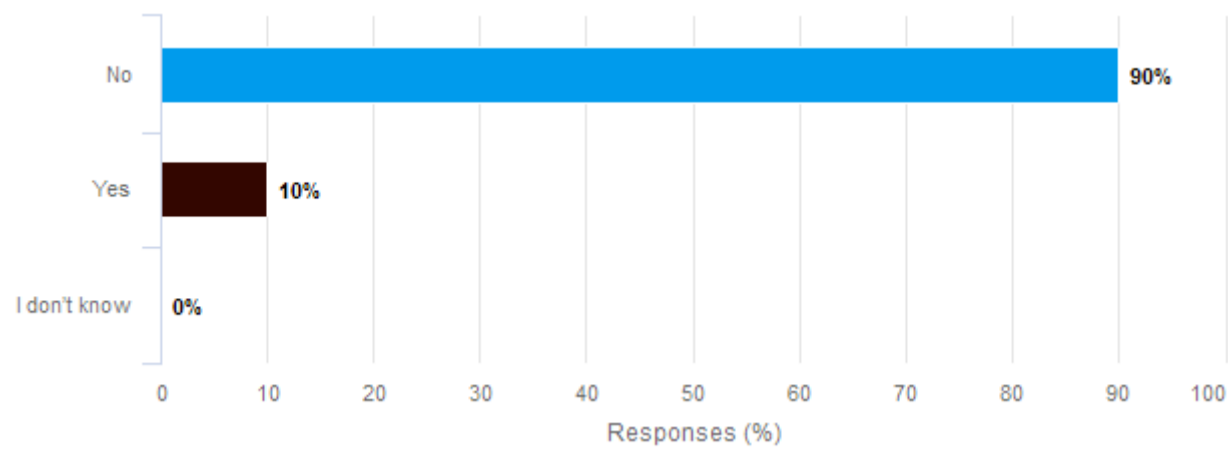
	%	Frequency
Availability of appropriate building materials	0.00%	0
Availability of required expertise	16.67%	3
Ensuring performance at completion	11.11%	2
Incremental cost increase	5.56%	1
Time to master construction details	27.78%	5
Design impacts related to building form	0.00%	0
Availability of appropriate equipment	0.00%	0
Considering design of building as whole system	11.11%	2
I do not anticipate any challenges	16.67%	3
Other, please specify:	11.11%	2
<b>Total</b>		<b>18</b>

Other, please specify:

"Initial incremental cost increase for the first project or two."

"I do not anticipate any challenges \*as long as other jurisdictions continue to advance alongside Burnaby and there is good training/education for builders and building officials"

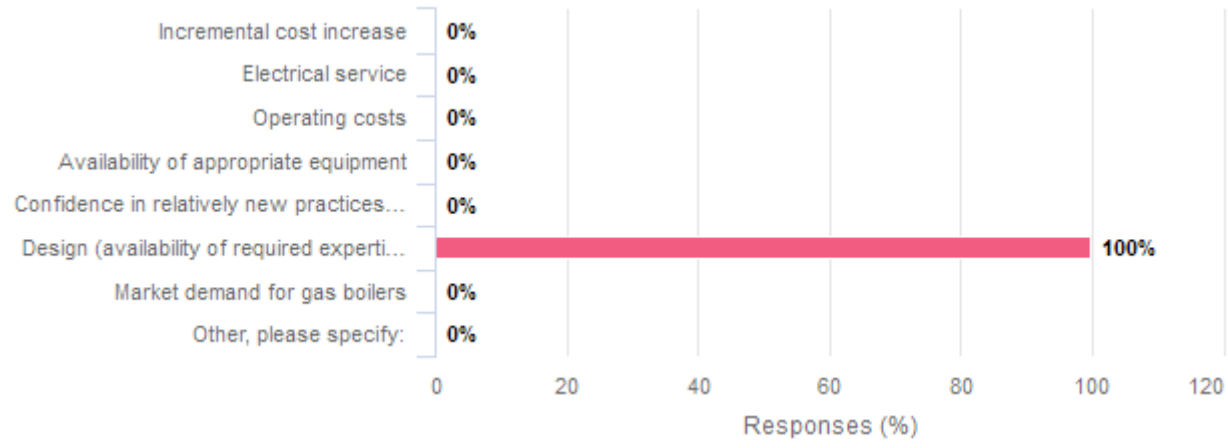
Do you feel there are barriers to implementing zero carbon ready electric space heating systems in new Part 9 buildings?



	%	Frequency
<b>No</b>	90.00%	9
<b>Yes</b>	10.00%	1
<b>I don't know</b>	0.00%	0
<b>Total</b>		10

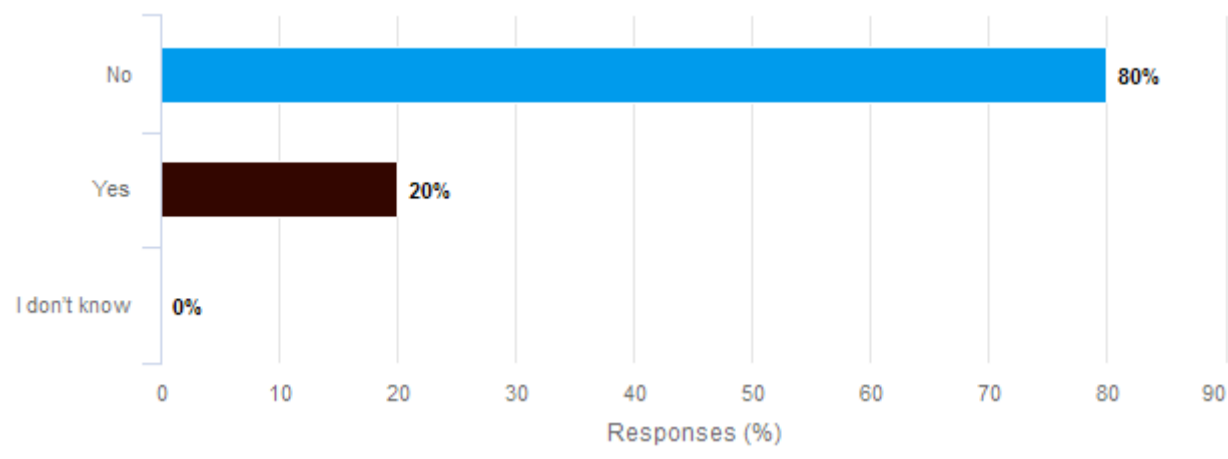


## What do you feel are the top two barriers?



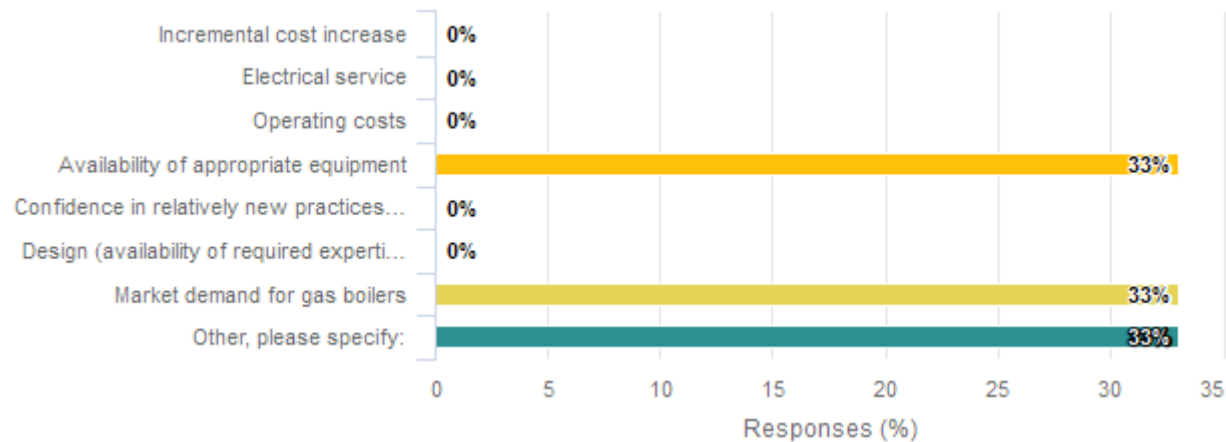
	%	Frequency
<b>Incremental cost increase</b>	0.00%	0
<b>Electrical service</b>	0.00%	0
<b>Operating costs</b>	0.00%	0
<b>Availability of appropriate equipment</b>	0.00%	0
<b>Confidence in relatively new practices/equipment</b>	0.00%	0
<b>Design (availability of required expertise)</b>	100.00%	1
<b>Market demand for gas boilers</b>	0.00%	0
<b>Other, please specify:</b>	0.00%	0
<b>Total</b>		1

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



	%	Frequency
No	80.00%	8
Yes	20.00%	2
I don't know	0.00%	0
Total		10

## What do you feel are the top two barriers?



	%	Frequency
<b>Incremental cost increase</b>	0.00%	0
<b>Electrical service</b>	0.00%	0
<b>Operating costs</b>	0.00%	0
<b>Availability of appropriate equipment</b>	33.33%	1
<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>	33.33%	1
<b>Other, please specify:</b>	33.33%	1
<b>Total</b>		3

Other, please specify:

"Availability of labour who know the systems"

Based on the timeline above for Part 9 new buildings, what are the biggest challenges or barriers you face to building construction projects which meet the requirements of the highest steps of the Energy Step Code and Zero Carbon Step Code?

"Don't move too fast, let the industry complete current steps first. Industry has made massive leaps forward and needs time to settle. When embodied carbon is considered Step 2 can have lower Carbon Emissions than Step 5."

"implementing a high-performance air barrier, especially if builders still use the interior poly method (as opposed to an external air barrier approach). proper sizing of the air-source heat pump and ducting required, and ensuring installation enables the needed airflow. preventing the use of natural gas ""back-up"" systems which are then used as the principal heating system."

"Resistance of some designers and other consultants to going beyond business as usual."

"A lot of the industry will require training. BC Housing has mandatory ESC training. Organizations like HAVAN also have training for their members. HPCN also offers training that is applicable to new construction. Manufacturers and suppliers also offer training for the products used to achieve high levels of airtightness or thermal performance. The industry will have to actively train up for this adoption schedule, but the training opportunities are there. CoB could help ease this increased demand for training by hosting monthly or bimonthly builder's breakfasts like Surrey, New West, ToL do. I also think a big challenge will be the additional workload imposed on City staff as new permits come in that are non-compliant. LGCAP funding could be used to add staff to assist with this contractor/designer learning curve."

"Entrenched influence of the gas industry seeding doubt and misinformation. These practices are not rocket science, just require commitment to evolve with the times."

What supports are required to meet these challenges or to remove barriers to build to the highest steps of the Energy Step Code and Zero Carbon Step Code?

"Need a new generation of plumbers and installers who have come up on these systems and know the ins and outs- aren't trying to learn something new after working w/ gas for 20+ years"

"See above, follow CoV for Embodied Carbon consideration."

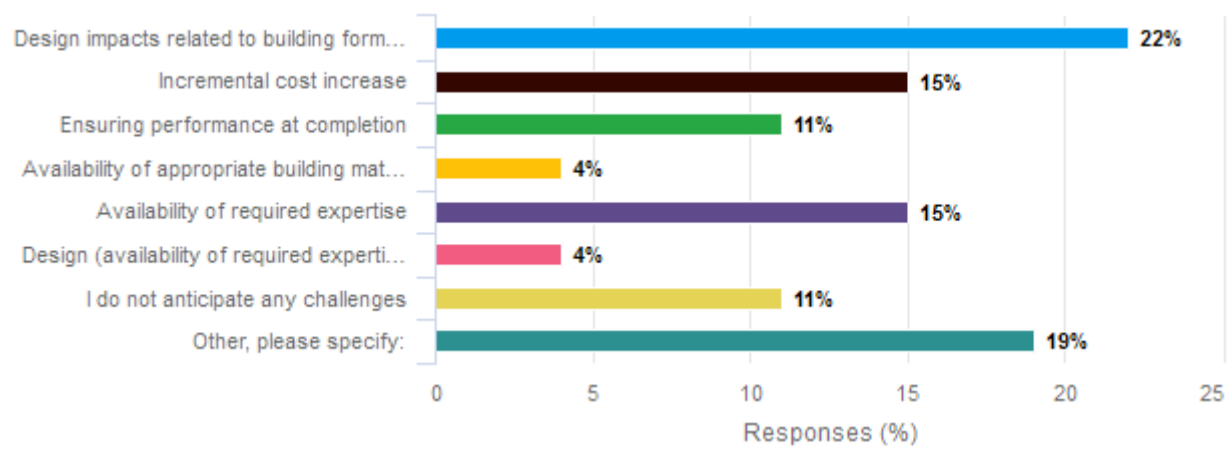
"Make training in airtightness, and installing effective ventilation available to contractors and trades. Consider the use of multiple compliance pathways (i.e. "step down" options allowing builders to trade off energy efficiency with low-carbon performance) to give builders more flexibility in transitioning to high-performance buildings."

"Required training for designers and installers especially around building envelope and heat pumps."

"See above. An important strategy is to showcase leading examples of Step 5, EL4 homes that are built on a budget. Once the community is convinced or is shown that it can be done on a budget or cost effectively, they will put their energy towards achieving the requirement rather than resisting it."

"Industry training; building official training; communications and education about case studies of successful projects."

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



	%	Frequency
<b>Design impacts related to building form and exterior insulation</b>	22.22%	6
<b>Incremental cost increase</b>	14.81%	4
<b>Ensuring performance at completion</b>	11.11%	3
<b>Availability of appropriate building materials</b>	3.70%	1
<b>Availability of required expertise</b>	14.81%	4
<b>Design (availability of required expertise)</b>	3.70%	1
<b>I do not anticipate any challenges</b>	11.11%	3
<b>Other, please specify:</b>	18.52%	5
<b>Total</b>		27

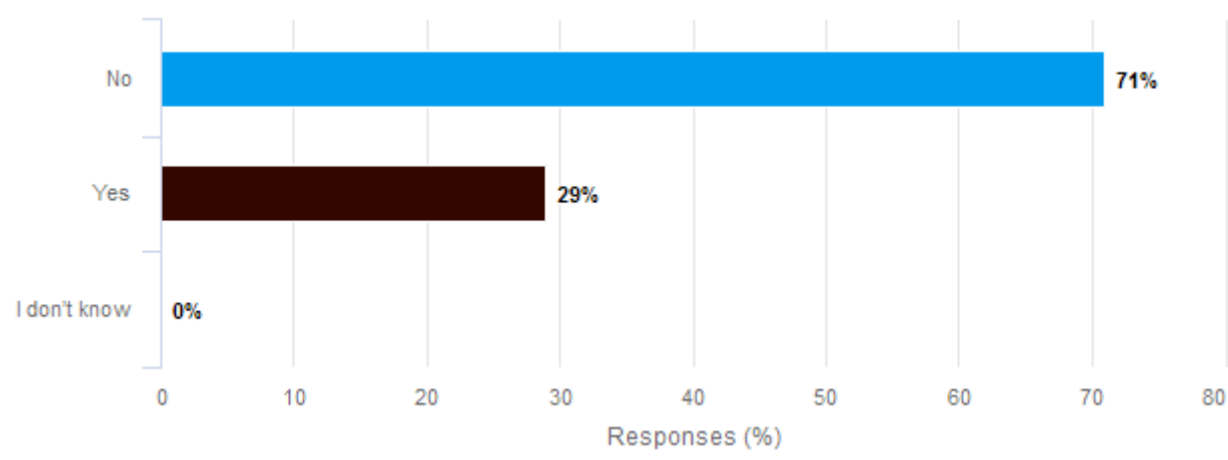
Other, please specify:

"Educating buyers of the cost increase to their purchase as a result of the increased energy and zero carbon step codes"

"Too short notice to implement by Jan 2024."

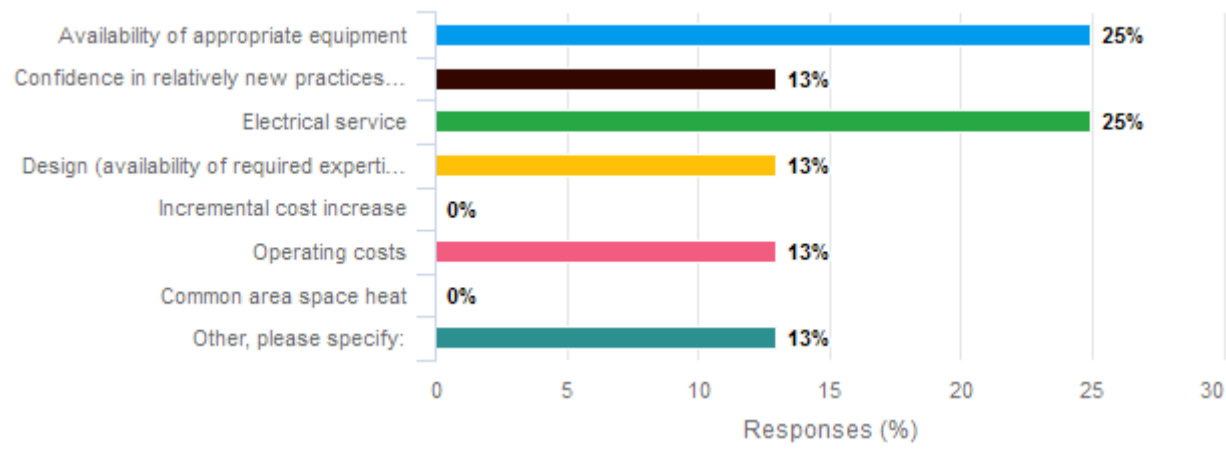
"first few projects will likely cost more"

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



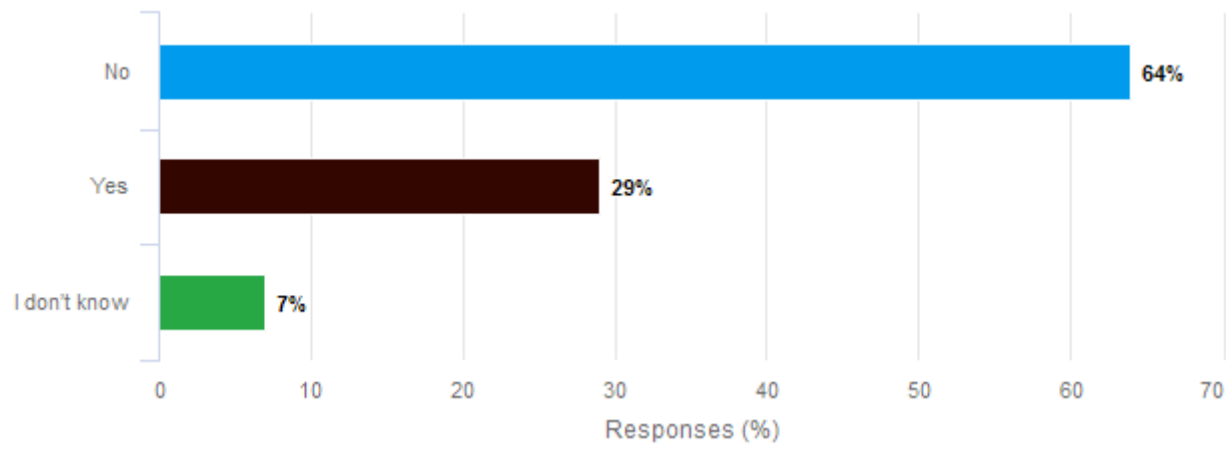
	%	Frequency
No	71.43%	10
Yes	28.57%	4
I don't know	0.00%	0
Total		14

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



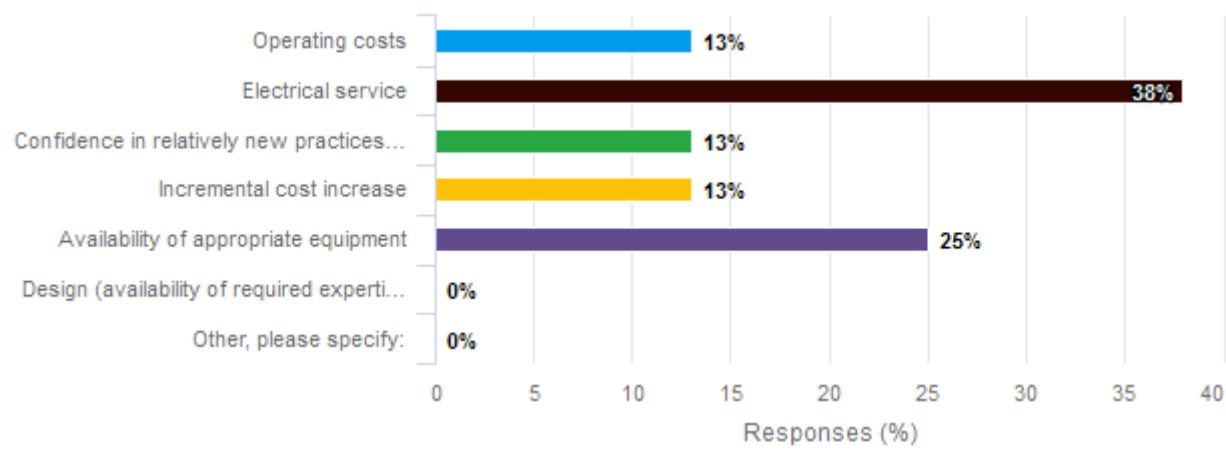
	%	Frequency
Availability of appropriate equipment	25.00%	2
Confidence in relatively new practices/equipment	12.50%	1
Electrical service	25.00%	2
Design (availability of required expertise)	12.50%	1
Incremental cost increase	0.00%	0
Operating costs	12.50%	1
Common area space heat	0.00%	0
Other, please specify:	12.50%	1
<b>Total</b>		<b>8</b>

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



	%	Frequency
<b>No</b>	64.29%	9
<b>Yes</b>	28.57%	4
<b>I don't know</b>	7.14%	1
<b>Total</b>		14

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



	%	Frequency
<b>Operating costs</b>	12.50%	1
<b>Electrical service</b>	37.50%	3
<b>Confidence in relatively new practices/equipment</b>	12.50%	1
<b>Incremental cost increase</b>	12.50%	1
<b>Availability of appropriate equipment</b>	25.00%	2
<b>Design (availability of required expertise)</b>	0.00%	0
<b>Other, please specify:</b>	0.00%	0
<b>Total</b>		8

Based on the below 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 new Part 3 buildings?

"Additional project costs associated with increased construction costs for building systems and additional time associated with constructing and testing to a higher standard which will ultimately be passed down to the consumer who are already stretched thin financially when purchasing a new home."

"Targeting Step 3 on 6-storey+ residential in a short period will be very challenging. There are lots of buildings at design that are under Step 2 + LCES from the current Green Buildings Policy that will not have their 2nd reading before Jan 1, 2024. The change to Step 3 will require redesign with significant impacts on shape and massing. I'd highly request postponing the Step 3 for 6-storey+ concrete buildings to End of 2024 in lieu of beginning of 2024."

"See Part 9 replies. Too fast, let things settle. Wait for embodied carbon considerations to be integrated in Vancouver."

"The implementation by Jan 1st 2024 is too short notice. We have designs that are well under way that won't get to second reading by December 31st, 2023. Having to start from scratch will cause a significant burden on the project and will delay much needed rental properties from coming to market."

"Too short of notice as they will have major impacts on envelope and mechanical systems design."

"The proposed code change doesn't consider positive effects of energy & cost savings that are achieved through connecting to Low carbon District energy systems. District energy systems offer a huge advantage in economies of scale and provide resiliency and synergies through combination of multiple loads. This proposed code change is set towards a discrete building-based systems which will cost more and offer less resilient infrastructure."

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

"Subsidies from all levels of government which will allow the amount of new housing that is needed to meet demand to be constructed in a manner that is economically feasible."

"I am a member of a reupdated [redacted] in BC. Concrete construction is not ready for Step 4 yet mainly on the Envelope side. The technologies are getting better but still far from achieving Step 4. I'd highly recommend reconsidering the dates (postponing) for Step 3 and Step 4 implementation on the concrete buildings."

"Postpone of the Step 3 concrete/6-storey + to 2025 to allow for more notice."

"Consideration for Low carbon District energy & allowance for a moderate target for buildings connecting to DE should be encouraged for wider adoption. This would provide a community level better energy use and efficiency, while promoting resiliency. Also reduces embodied carbon significantly in reducing the number of equipment's (heat pumps and boilers) used to serve redundancy."

"Consider the use of multiple compliance pathways (i.e. "step down" options allowing builders to trade off energy efficiency with low-carbon performance) to give builders more flexibility in transitioning to high-performance buildings."

"More design staff dedicated to zero carbon step code projects and simplified connection process for larger projects like what is available for smaller projects (Express Connection)"

"More training, industry sharing insight with one another, showcasing examples of projects that have achieved this already (zebx.org, etc.) and having a CoB permitting and inspection department that can support this important transition."

"Industry education and training. Organizations such as ZEIC are helping."