

# Understanding the Residential Builder Sector in British Columbia

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# Understanding the residential builder sector in British Columbia

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## Introduction

To achieve the Upper Steps of the BC Energy Step Code, builders will need to adopt techniques and incorporate substantial changes in building design, layout, framing techniques, airtightness, system selection, and materials. While different training providers such as BC Housing, Canadian Home Builder Chapters and post-secondary educational institutions have launched and delivered a significant amount of education and training on the BC Energy Step Code to British Columbia's (BC) residential builders, the cumulative impact on the industry is unclear. The building sector is not homogenous and different builder segments will likely have different needs and preferences with respect to education and training. This report highlights the results from 11 qualitative interviews with builders, builder training providers and builder suppliers.

The interview objectives were to better understand:

- The residential building sector in BC and to identify different builder groups or segments in BC
- How builder training providers and suppliers break down the residential builder market in BC
- Strategies that are working effectively to provide training for the residential builder sector
- How training is delivered to builders, according to different segments
- Training and education opportunities and challenges for residential builders, training providers and suppliers

## Project Goal

The objective of this research project was to identify and formulate market segmentation approaches that would support more strategic outreach, education and training opportunities for different builder segments on high performance new construction, including sessions related to the BC Energy Step Code.

## Methodology

Two main market segmentation methods were used. The first method called demographic segmentation, separates markets based on factors including age, location, industry experience, level of education, type of home built, and others. Some of the advantages of this method are that it draws upon available secondary research and simple surveys. It also defines segments according to easily understood and readily observable characteristics with marked distinctions. However, this

method only provides limited information regarding the different motivations that drive activities of different residential builder groups [3].

For this reason, the Needs/Attitudes/Behaviors (NAB) segmentation method was also used. NAB segmentation method focuses upon needs, attitudes, and behaviors that change over time. The data collected to conduct the NAB segmentation focus upon potential needs, such as services desired. This method constitutes a strong foundation for new training development based on the benefits sought by target segments. It provides a deep understanding of identified segments, enabling the identification of numerous communications and targeting options. However, the results garnered from this type of research are generally complex and require a level of analysis and interpretation for actionable implementation [3].

For this research study, the data required for the market segmentation NAB method was collected through qualitative interviews. This approach was used to obtain the insights of builder training providers (further referred to as training providers), builders, and suppliers.

A total of 11 qualitative interviews were completed with training providers, builders, and suppliers between June 6 and July 20, 2018. Participants were emailed an invitation to participate in the interview that included an explanation of the study, the importance of their participation and a suggested time for meeting, either by phone or person.

Altogether, 8 training providers participated in 6 interviews. Questions sought information about, the type of training provided, type of builders who attend training, builders' preferences and communication strategies with builders.

In addition, 4 builders from different communities of British Columbia (BC) were interviewed, who conduct construction work in Kamloops, Langley, Abbotsford, Chilliwack, Harrison Hot springs, Hope, Surrey, Burnaby Maple Ridge, New Westminster, and Port Coquitlam. The interview framework for builders covered sections on the builders' profile, background questions about the company and training experiences, as well as education preferences.

The suppliers' interview framework was developed to obtain a different perspective on market segmentation and builders' training programs. One supplier was interviewed with the purpose of understanding the builder and trades clients, educational opportunities for builders and trades, and market segmentation.

This report documents the experience, observations, needs, attitudes and behavior of the interview participants and helped to identify key issues and recommendations.

## Background

### BC Energy Step Code

The Province of British Columbia has established a goal of achieving net-zero energy ready new residential construction by 2032. The Province defines a net-zero energy ready building as one that has been designed and built to a level of performance, such that it could, with the addition of renewable energy, generate enough onsite energy to meet its own energy needs [1].

To make progress towards the provincial goal, in 2008, the Province of British Columbia introduced energy efficiency as a BC Building Code (BCBC) requirement. Under the BCBC Builders had the option to take either a prescriptive or a performance approach to new construction. In a prescriptive approach, buildings must meet specific requirements for individual elements, rather than ensuring the building functions well as a system. The result can be a building that meets prescriptive requirements but does not perform as intended. The performance approach establishes a desired outcome, and allows the design and building team to decide how best to achieve the outcome, but there are no requirements regarding what materials or construction methods need to be used. The BCBC separates all buildings into two basic categories, part 3 and part 9.

The BC Energy Step Code, adopted to the BCBC in April 2017 and enacted as of December 2017, is an optional pathway in the BCBC that provides an incremental and consistent approach to achieving more energy-efficient buildings that go beyond the requirements of the BCBC. The BC Energy Step Code, establishes a series of measurable requirements for construction that communities may choose to adopt when ready. These requirements are grouped by a series of steps.

The steps are categorized into Lower and Upper Steps according to building types. To achieve Step 1, builders need

to use a whole-building energy model to calculate the energy use of the building and conduct an airtightness test, but the performance of the building only needs to be as good as the base BCBC requirements for energy efficiency. The purpose of Step 1 is to familiarize builders with a new way of measuring energy efficiency, although the actual construction of the building remains the same as conventional construction.



#### PART 3

Large and complex buildings. These buildings are four storeys and taller and greater than 600 m<sup>2</sup> in building area. This category includes larger apartment buildings, condos, shopping malls, office buildings, hospitals, care facilities, schools, churches, theatres, and restaurants [2].



#### PART 9

Houses and small buildings. These buildings are three storeys or less and have a building area or “footprint” no more than 600 m<sup>2</sup>. This category includes single-family homes, duplexes, townhomes, small apartment buildings, and small stores, offices, and industrial shops [2].

*Source: BC Energy Step Code, 2017*

To achieve the Lower Steps (i.e. Step 1-3), builders, professionals and trades can rely on conventional building designs with careful air-sealing practices, and incrementally incorporate some key elements in the design, building envelope, and equipment and systems. Builders and designers are advised to collaborate with an energy modeller to select the most cost-effective way to meet the requirements. These Lower Steps give builders new flexibility in how to achieve modest gains in efficiency – through improved envelopes and/or upgraded systems.

To achieve the Upper Steps, builders and designers will need to adopt a more integrated approach to building design. It is expected that by 2032, the BCBC will move toward the higher steps of the BC Energy Step Code as a minimum code requirement.

## Describing the residential builder sector in BC

### Licensed Residential Builders

Professional builders in BC must obtain a builder licence from BC Housing<sup>1</sup>. In 2017, there was a total of 7,831 Licensed Residential Builders in BC, which were distributed as follows: 70% in the Lower Mainland, 15% Southern Islands, 3% in the Kootenays, 9% in the Okanagan and 3% Central and Northern BC (Figure 1) [4].

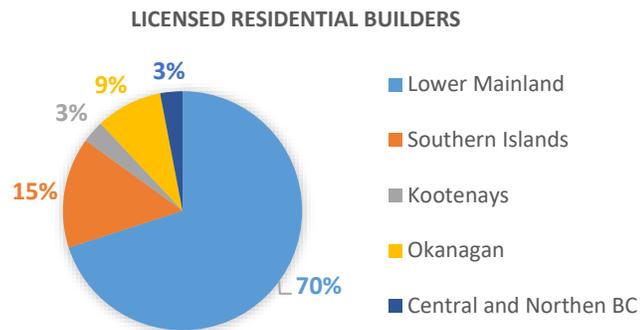


Figure 1. Licensed residential builders' distribution [5].

All Licensed Residential Builders in BC are required to take Continuing Professional Development (CPD) in order to maintain their license. Training accounts for a minimum of 20 of the 40 points builders will need to maintain or renew the residential builder licence. For CPD purposes, training can be formal or informal.

The formal training is a structured course or training session given by a recognized training provider. The training provider awards credit for a session after the builder pass a graded examination or assignment. Builders earn two CPD points for every hour of formal learning.

Informal training could include attending a conference, webinar or workshop that covers one or more of the competency areas set out by BC Housing.<sup>2</sup> It could also include a seminar provided by a manufacturer or supplier of goods or services. Builders earn one CPD point for every hour of informal training.

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<sup>1</sup> Under the *Homeowner Protection Act*, all new homes in BC must be registered prior to the issuance of building permits and housing starts. In addition to registration, single detached and multi-unit homes constructed by Licensed Residential Builders are required to be covered by home warranty insurance in BC.

<sup>2</sup> Construction management and supervision, construction technology, customer service and home warranty insurance, financial planning and budget management, legal issues, business planning and management, business ethics, relevant enactments.

## Registered New Homes

The number of registered new homes in BC reached 42,968 in 2017, including 29,883 homes in multi-unit buildings and 13,085 single detached homes (Figure 2). The total number of registered homes was up 3.7% from 2016, driven by growth in the multi-unit segment (5.8%), whereas single detached home registrations slightly declined (-0.8%). The annual number of registered new homes in 2017 was the highest recorded since 2002, as shown in the Figure 3 [5].

REGISTERED HOMES BY BUILDING TYPE IN 2017



Figure 2. Registered homes in BC by building type [5].

Approximately 83% of registered new homes in BC were in Metro Vancouver (61.4%), Capital Regional District (9.5%), Central Okanagan Regional District (6.8%) and Fraser Valley Regional District (5.3%) [5].

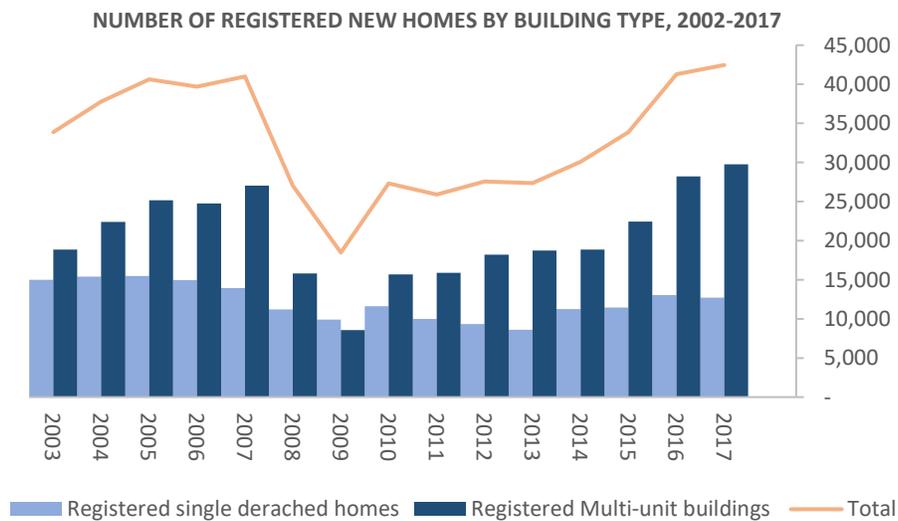


Figure 3. Number of registered new homes by building type, 2002-2017 [5].

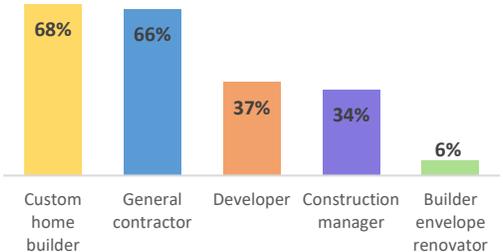
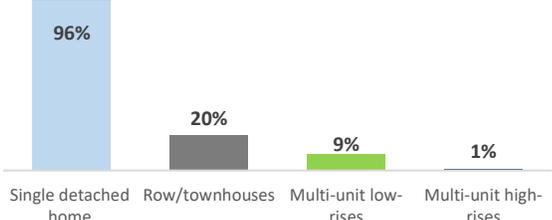
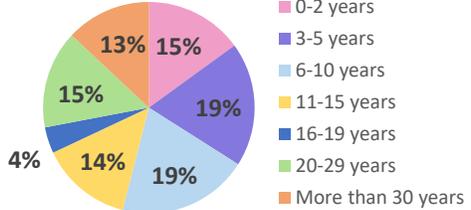
## Builder segmentation in BC

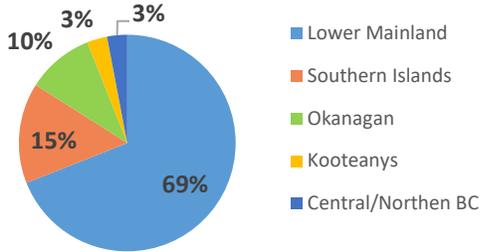
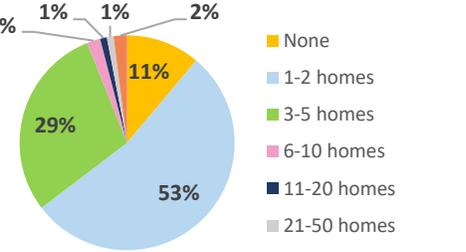
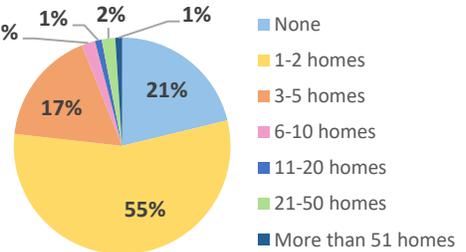
Segmentation is the process of dividing a given population into groups with similar needs and characteristics who are likely to show similar behavior. The best available information about the builder population in BC is found in the following reports:

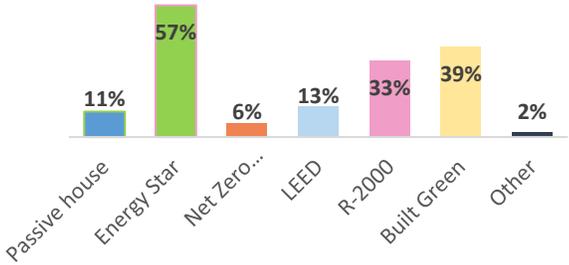
- BC Residential Building Statistics and Trends Report from BC Housing.

The reports provide information on a total of 12 different demographic characteristics on how residential builders in BC can be described. A summary of these characteristics and their specific results in 2017 is shown in table 1.

Table 1. Summary of Licensed Residential Builder Survey results

Characteristics	Results																
1. Type of Licensed Residential Builder	 <table border="1"> <thead> <tr> <th>Type of Licensed Residential Builder</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Custom home builder</td> <td>68%</td> </tr> <tr> <td>General contractor</td> <td>66%</td> </tr> <tr> <td>Developer</td> <td>37%</td> </tr> <tr> <td>Construction manager</td> <td>34%</td> </tr> <tr> <td>Builder envelope renovator</td> <td>6%</td> </tr> </tbody> </table>	Type of Licensed Residential Builder	Percentage	Custom home builder	68%	General contractor	66%	Developer	37%	Construction manager	34%	Builder envelope renovator	6%				
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2. Type of house	 <table border="1"> <thead> <tr> <th>Type of house</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Single detached home</td> <td>96%</td> </tr> <tr> <td>Row/townhouses</td> <td>20%</td> </tr> <tr> <td>Multi-unit low-rises</td> <td>9%</td> </tr> <tr> <td>Multi-unit high-rises</td> <td>1%</td> </tr> </tbody> </table>	Type of house	Percentage	Single detached home	96%	Row/townhouses	20%	Multi-unit low-rises	9%	Multi-unit high-rises	1%						
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3. Industry experience	 <table border="1"> <thead> <tr> <th>Industry experience</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>0-2 years</td> <td>15%</td> </tr> <tr> <td>3-5 years</td> <td>19%</td> </tr> <tr> <td>6-10 years</td> <td>19%</td> </tr> <tr> <td>11-15 years</td> <td>14%</td> </tr> <tr> <td>16-19 years</td> <td>4%</td> </tr> <tr> <td>20-29 years</td> <td>15%</td> </tr> <tr> <td>More than 30 years</td> <td>13%</td> </tr> </tbody> </table>	Industry experience	Percentage	0-2 years	15%	3-5 years	19%	6-10 years	19%	11-15 years	14%	16-19 years	4%	20-29 years	15%	More than 30 years	13%
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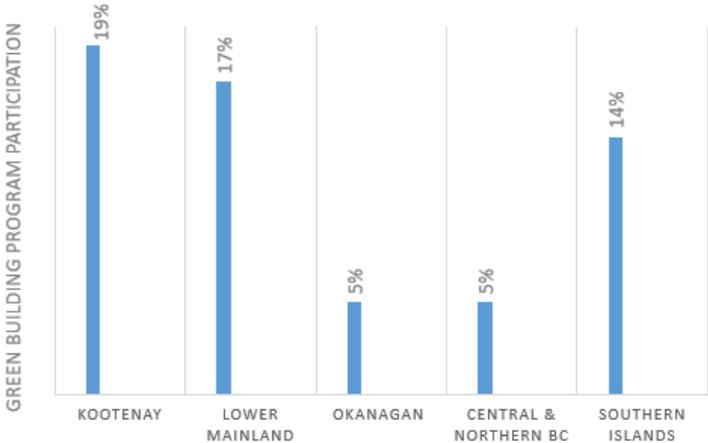
<p>4. Region</p>	 <p> <span style="color: blue;">■</span> Lower Mainland  <span style="color: orange;">■</span> Southern Islands  <span style="color: green;">■</span> Okanagan  <span style="color: yellow;">■</span> Kootenays  <span style="color: blue;">■</span> Central/Northern BC </p>
<p>5. Homes build or started building in past year</p>	 <p> <span style="color: yellow;">■</span> None  <span style="color: lightblue;">■</span> 1-2 homes  <span style="color: green;">■</span> 3-5 homes  <span style="color: pink;">■</span> 6-10 homes  <span style="color: darkblue;">■</span> 11-20 homes  <span style="color: grey;">■</span> 21-50 homes  <span style="color: orange;">■</span> More than 51 homes </p>
<p>6. Homes completed in past year</p>	 <p> <span style="color: lightblue;">■</span> None  <span style="color: yellow;">■</span> 1-2 homes  <span style="color: orange;">■</span> 3-5 homes  <span style="color: pink;">■</span> 6-10 homes  <span style="color: darkblue;">■</span> 11-20 homes  <span style="color: green;">■</span> 21-50 homes  <span style="color: blue;">■</span> More than 51 homes </p>
<p>7. Built a home meeting one of the steps of the BC Energy Step Code in past year</p>	<p style="text-align: center;"> <span style="color: blue;">11% YES</span>  <span style="color: green;">41% NO</span>  <span style="color: blue;">48% Have not heard about the BC Energy Step Code</span> </p>
<p>8. Worked with an energy advisors</p>	<p style="text-align: center;"> <span style="color: blue;">32% YES</span>  <span style="color: green;">68% NO</span> </p>

<p>9. Green building program participation</p>	 <table border="1"> <thead> <tr> <th>Program</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Passive house</td> <td>11%</td> </tr> <tr> <td>Energy Star</td> <td>57%</td> </tr> <tr> <td>Net Zero...</td> <td>6%</td> </tr> <tr> <td>LEED</td> <td>13%</td> </tr> <tr> <td>R-2000</td> <td>33%</td> </tr> <tr> <td>Built Green</td> <td>39%</td> </tr> <tr> <td>Other</td> <td>2%</td> </tr> </tbody> </table>	Program	Percentage	Passive house	11%	Energy Star	57%	Net Zero...	6%	LEED	13%	R-2000	33%	Built Green	39%	Other	2%
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<p>10. Likelihood of building homes in the next 2 years which incorporate Universal Housing</p>	<p><b>37% Likely</b>  <b>49% Neither likely or unlikely</b>  <b>15% Unlikely</b></p>																
<p>11. New residential construction activity predictions</p>	<p><b>36% Increase</b>  <b>53% Remain the same</b>  <b>11% Decrease</b></p>																
<p>12. Desire for more education and training by subject area</p>	<ul style="list-style-type: none"> <li>• Building codes (59%)</li> <li>• Construction technologies (59%)</li> <li>• Green building/Energy efficiency/ BC Energy Step Code (49%)</li> <li>• Construction management &amp; supervision (41%)</li> <li>• Legal issues on housing (36%)</li> <li>• Business planning and management (33%)</li> <li>• Financial planning (26%)</li> <li>• Occupational health &amp; safety (22%)</li> <li>• Customer service (20%)</li> <li>• Rapid damage assessment (19%)</li> <li>• Business ethics (15%)</li> <li>• Communications (14%)</li> <li>• Human resources planning (12%)</li> </ul>																

The data obtained from the Licenced Residential Builder Survey and from the BC Residential Building Statistics and Trends Report is very valuable to identify relevant information on different groups of builders.

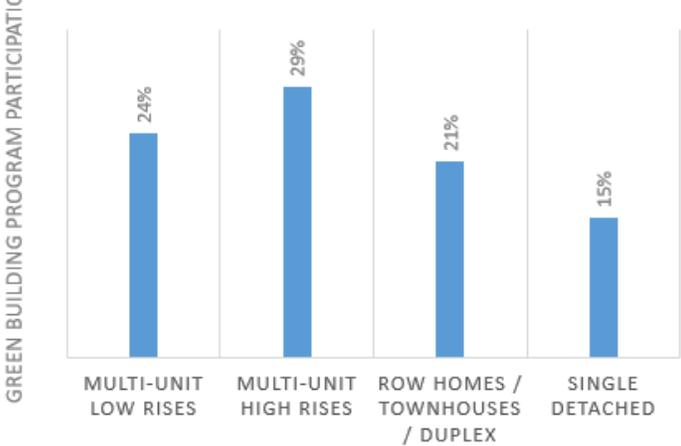
Okanagan and Central and Northern BC builders were the least likely to report green building program participation at 5%. Kootenay builders were most likely to participate in green building programs at 19%, followed by Lower Mainland (17%) and Southern Island builders (14%) (Figure 4) [5].

Figure 4. Green building program participation by region



Multi-unit high rise builders were most likely to report participation in a green building program (29%), followed by multi-unit low rise builders at 24% participation. Builders of single detached homes were the least likely segments at 15% followed by builders of row homes, townhouses and duplexes (21%) as shown in Figure 7.

Figure 5. Green building program participation by house type



**Builder segmentation in Other Jurisdictions**

Similarities and differences in builder segmentation with other jurisdictions were reviewed to identify gaps in the information collected from the residential builder industry in BC. Three different jurisdictions, including one Canadian province and two international associations, were compared with BC to support a better understanding of the residential builder market in BC and, to target training initiatives more effectively.

Differences in builder segmentation between BC and the Province of Ontario were identified from the builder impression survey 2016, performed by Ontario New Home Warranty Program, also known as Tarion, which is a regulator of Ontario’s new home building industry. In this survey,

builders were asked about core challenges, communication channel preferences and overall impression of the warranty provider [8].

Differences in builder segmentation between BC and the National Association of Homes Builders (NAHB) in the United States included the total number of employees in the company, annual revenue and tenure as NAHB. Similarities included builders by region of the country, type of house and houses built per year (Table 2).

The Central America Builders Association was also compared with BC, similar categories included type of house and homes completed in the past year. Differences in builder segmentation included international activity, time estimated to build a home, and annual construction budget.

Table 2. Summary of similarities and differences between BC and other jurisdictions.

Entity	Similarities between BC and other jurisdictions	Differences between BC and other jurisdictions
Tarion	New residential building activity	Core challenges for builders: <ul style="list-style-type: none"> <li>• Availability of skilled labour/tradespeople</li> <li>• Finding land to build on</li> <li>• Economy and market conditions</li> <li>• Government regulations</li> <li>• Increasing land cost and staying under budget</li> <li>• Financial challenges</li> <li>• Finding and qualifying buyers</li> </ul>
	Overall impression of warranty providers	Quality of skilled labour: <ul style="list-style-type: none"> <li>• Increase</li> <li>• Remain the same</li> <li>• Decrease</li> </ul>
		Communication Channel preferences: <ul style="list-style-type: none"> <li>• Online</li> <li>• In person</li> <li>• Telephone</li> <li>• Traditional mail</li> <li>• Email</li> </ul>
National Association of Homes Builders	Builders by region of the country	Total number of employees
	Houses built per year	Annual Revenue
	Type of house built	Tenure as NAHB
Central America Builders Association	Homes completed in past year	International activity
	Type of house built	Annual construction budget
		Time estimated to build a home

Implementing the categories from the reviewed jurisdictions in the BC Licenced Residential Builder Survey, would allow a better understanding of the residential builder sector in BC. If the mentioned

categories are implemented in the future, interesting findings could be obtained by correlating the existing categories of the BC Licenced Residential Survey with the new categories.

Associating the total number of employees with total number of houses built per year, would be useful to identify if the categories are correlated. Annual revenue, construction budget, time estimated to build a home, and international activity would provide additional demographic segmentation to the ones previously identified in the residential builder sector in BC. Also, knowing the core challenges and communication channel preferences would help to target training initiatives more effectively. During this research it was not found data about how other organizations are collecting information on builder education preferences and training participation behaviour. However, collecting information on this categories would also improve training in the residential sector in BC.

## Summary of findings

### Accessibility of Training

As part of the interview, builders and training providers were asked to give their perspective on training events they are offering or attending, including, location, style of education, duration and timing of training sessions. Also, interview participants were asked to define characteristics of a successful training session from their perspectives.

- Some similarities were found between training providers' perspective and builders preferences including:
  - Hands-on training: According to the interviewed training providers, hands-on training was identified as the most engaging educational style for builders. Three of the interviewed builders also mentioned hands-on training as the preferred style of education. However, according to the same interviewed builders there are not many hands-on training sessions available.
  - Timing: According to the interviewed training providers, the most popular time of the year to provide training is between September and March, which is the same for interviewed builders. The preferred time of the year to attend training according to interviewed builders is during fall, winter and spring due to less building activity. However, it must be considered that builders also attend training all year round in order to achieve the required number of CPD points.
  - Topics of interest: All of the interviewed builders agreed that the topic they are more interested about are building science and building codes. From the

interviewed training providers' perspective, building science was also considered as the topic builders are more enthusiastic about.

- Key elements of good training session: Interviewed builders and training providers agreed that having a good instructor is one of the most important elements of developing a good training session. Other preferences revealed by builder interviewees include shorter sessions and close proximity to public transit.
- According to the interviewed training providers, location was identified as one of the priorities for builders when deciding what training to attend. Nevertheless, one of the interviewed training providers mentioned that builders who are building beyond the code, are willing to travel to different locations in order to attend specific training courses. This finding was confirmed by interviewed builders, they reported they prefer to attend training in the communities where they build, but sometimes, they also travel for training events they are interested in.
- One of the interviewed builder mentioned that is hard to ask questions during webinar sessions.
- The implementation of technology during the training sessions was mentioned by one of the interviewed builders as a useful resource that can be implemented in future training sessions. However, only one of the interviewed training providers mentioned the use of technology in the training sessions.
- Two of the interviewed builders have found a lack of knowledge in trades particularly in air tightness and insulation.
- It is a challenge for the interviewed training providers to keep record on how many builders attend their training because, builders attend more than one training session with the same provider.

## Communication

Communication is a key element in both making training and education opportunities accessible to the residential builder sector, as well as to track ongoing engagement of builders on training and education initiatives. The following is a summary of key findings from the interviews on communication.

- According to the interviewed training providers, partnerships with local governments is an influential factor for reaching builders as they share the information of training sessions through their communication channels.

- Builders reported that it was useful to take away the slides as a reference tool and share the material with the rest of the company. It was mentioned by one interviewed builder that only 1 to 3 employees are able to attend training. Most of the interviewed builders indicated that they share the knowledge acquired during training through informal conversation and team meetings after training events, training materials they can share would support this process.

## Existing information gaps

Based on the key findings from builders and training providers' interviews, some existing information gaps were identified.

- According to the interviewed builders, energy efficiency is not an area that home buyers have much information on and therefore often do not prioritize.
- From the interviewed builders' perspective, there is a lack of knowledge in trades, especially in airtightness and insulation.
- One of the interviewed builders from the Kamloops mentioned a shortage of trades in the area, however, none of the builders from the Lower Mainland reported shortage of trades. Therefore, it is suggested to conduct research on shortage of trades outside The Lower Mainland.

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