



# Educational Needs Assessment

Summary Report

This document was prepared by RDH Building Science Inc. in collaboration with the Vancouver Regional Construction Association.

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# BACKGROUND

As the largest construction association in BC, the VRCA has played a leadership role in the industry through its mission to “Educate, Advocate and Facilitate”<sup>1</sup>. To create a solid foundation for the VRCA’s continued work, an educational needs assessment was undertaken with research led by RDH Building Science. The goals of the needs assessment were two-fold: to consider how the VRCA could expand its education offerings to continue to serve emerging needs in the industry, and to share lessons and insights with other industry stakeholders. Specifically, the main objectives were to:

- ▶ provide a snapshot of the state of construction industry education in BC,
- ▶ identify and summarize industry trends and drivers that are expected to inform future educational needs and potential training gaps and opportunities, and
- ▶ review the VRCA’s current education offerings and provide information to guide new programming.

This report summarizes the research conducted, including key findings and examples of training that could provide ideas or models for future training development. Although post-secondary and trades education are touched on, the focus is on training for those already working in the industry.

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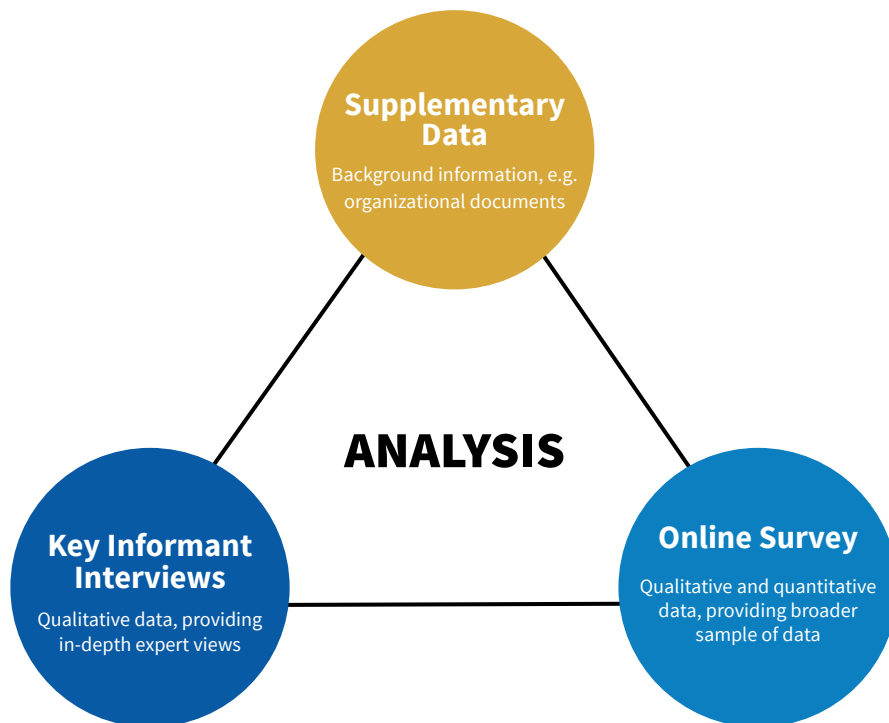
<sup>1</sup>VRCA, “The Future Starts Now”, available at <https://www.vrca.ca/wp-content/uploads/VRCA.171001.2017-2020-strategic-plan-summary.pdf>

# THE PROCESS

Research for the educational needs assessment included several strategies, designed to collect data as efficiently as possible from multiple sources. The main data sources that inform this report are:

1. the Education Perceptions and Needs Survey,
2. a series of in-depth key informant interviews, and
3. secondary data, including past research studies, internal VRCA data such as current and past course offerings, and publicly available information about education and training providers gathered to help identify gaps in local training as well as best practices from BC and other jurisdictions.

Each of these sources provided valuable insights, individually and considered in combination. Further information about the process and who participated in each step is outlined below.

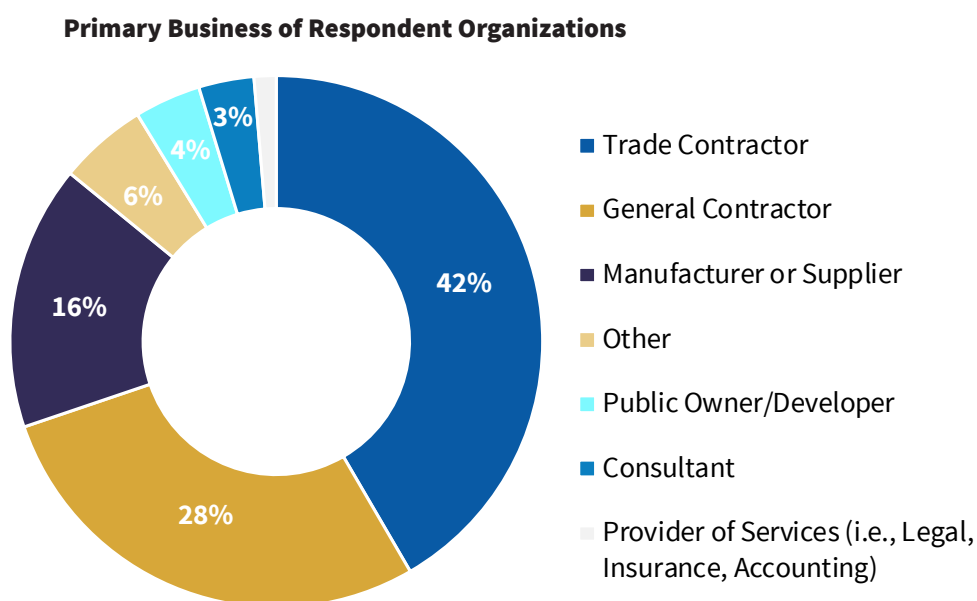


## Education Perceptions and Needs Survey

The Education Perceptions and Needs Survey was developed and distributed using the VRCA's mailing list (approx. 4000 recipients) and promoted through social media. Questions covered program-planning topics (e.g. attendance at VRCA courses) as well as topics of broader interest to the industry (e.g. perceived training gaps and barriers to training).

The survey was completed by 149 respondents, of whom 145 (97%) were VRCA members. The majority identified their organization's primary business as Trade Contractors or General Contractors, followed by Manufacturers or Suppliers (see figure below). Roughly half the respondents (46%) were from organizations of more than 100 employees, with the second most common size being 21-50 employees (25%).

The two occupational roles most frequently identified were Owner/President/VP/CEO (26%) and Project Manager (21%). However, positions were quite diverse, including accounting and administration, business development/sales, estimator, human resources, consultant, customer service, marketing and communications, safety officer, engineer, and 19 respondents (13%) who chose 'other'.



## Key Informant Interviews

To gain a broader understanding of industry trends and how they may influence education and training needs in BC, a series of key informant interviews were carried out using a semi-structured interview protocol. The protocol was designed to be flexible, to allow interviewees to comment on specific areas of expertise. Key informants were selected with the intention of speaking to a range of knowledgeable people from different professional backgrounds.

Twelve in-depth key informant interviews were conducted. Key informants are industry experts who can provide detailed qualitative insights to supplement and aid interpretation of other data sources. Collectively, they represent a variety of perspectives and areas of expertise, including architecture, engineering, building science, building code development and enforcement, general contracting, trades, research, and policy (see following table).

INTERVIEWEE NAME	ROLE(S) IN BUILDING INDUSTRY
James Bourget	Principal, RDH Building Science
Jeff Fisher	Vice President & Senior Policy Advisor, Urban Development Institute
Helen Goodland	Managing Principal, Brantwood Consulting
Michael Heeney	President & CEO, Surrey City Development Council
Jarrett Hutchinson	Director, Building Regulations, Building and Safety Standards Branch, BC Public Service
Loi Huynh	Project Director, Bird Construction
Robert Lashin	President, Houle Electric
Wilma Leung	Senior Manager, Technical Research & Education, BC Housing
Don Pedde	Senior Code Administrator, Building and Safety Standards Branch, BC Public Service
Harshan Radhakrishnan	Practice Advisor, Engineers and Geoscientists BC
Richard Shipway	Chair, VRCA General Contractors Council
John Straube	Principal, RDH Building Science and Associate Professor, University of Waterloo

## Supplementary Data

Several secondary sources were important to the analysis. Documentation from the VRCA, such as current and past course listings, course evaluations, etc., contributed to specific recommendations for future programming (see “*Application of Findings*” on page 16). A scan of other construction industry education/training providers was also completed to better understand what courses and programs are available and what initiatives are underway related to construction industry education in BC. Programs and courses outside BC were also considered to provide context. Finally, findings from past research were considered and incorporated into the analysis.



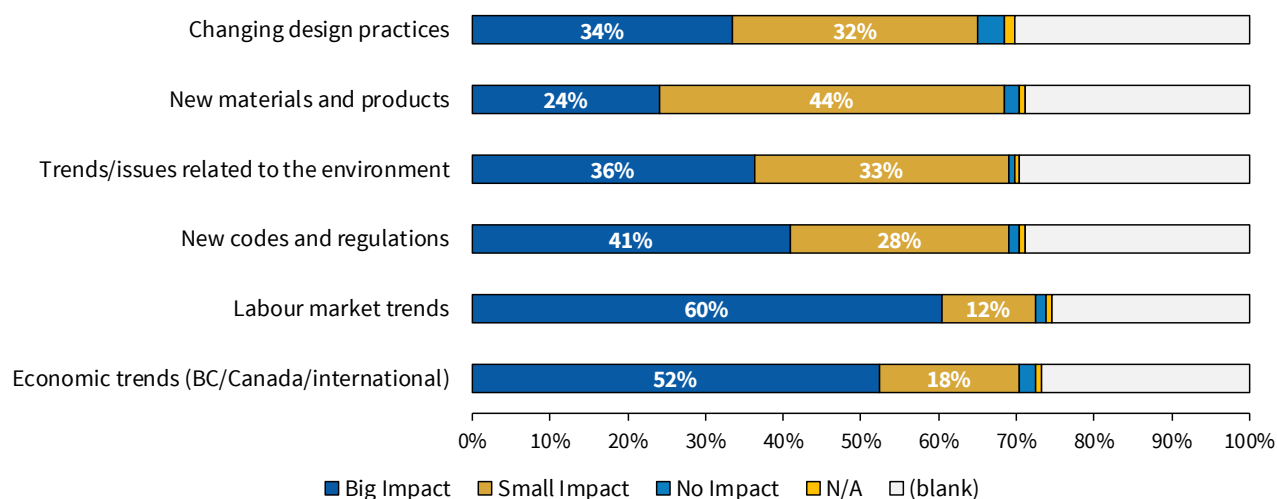
# THE RESULTS

Overall, BC is a leader in North America in promoting construction industry best practices. Not surprisingly, multiple avenues exist to access training in BC, both in terms of providers and training information portals; the latter includes BC Housing, topic-specific portals such as ZEBx, professional associations, and the Construction Industry Training Network. However, training must continue to adapt to emerging trends and respond to identified needs.

## Industry trends

Both the survey and key informant interviews addressed current and future trends and asked respondents about how training can address these trends. The survey asked respondents to rate the impact of 6 potential trends on industry training needs. All trends were seen as likely to be impactful by a majority (65-75%) of respondents. However, there was noticeable variation in the percentage expecting a small impact vs a large impact. Labour market trends stood out as a trend with the highest percentage of respondents expecting an impact (72%), and highest number expecting a big impact (60%). In comparison, environmental trends were expected to have a big impact by only 36% of respondents (see figure below).

**Trends Expected to Impact Education and Training Needs in the Next 10-25 Years**



Key informant interviewees largely confirmed the trends listed in the survey, adding a more nuanced perspective. Labour and skill shortages were clearly seen as a critical issue; shortages were mentioned across multiple categories, including skilled trades, labourers, architects, engineers, building officials, planners, consultants, general contractors, management, and energy modellers. However, most interviewees also described other trends and challenges as urgent. Energy efficiency and related issues, such as carbon reduction, electric vehicle (EV) charging, climate adaptation, etc., were a prominent theme. As well, several themes surfaced during interviews that were not included on the survey, including innovation and change management, increasing urban density, and the need for individual and community well-being to be supported by the built environment. In general, interviewees tended to take a system view of most issues, and frequently noted the importance of supporting collaboration between industry stakeholders.



### Labour and Skill Shortages

Labour and skill shortages were clearly seen as a critical issue; shortages were mentioned across multiple categories. Several discussed the need to recruit more effectively among women and other underrepresented groups, and to recognize the potential for workers to shift roles and industries mid-career. Both recruitment and retention were mentioned as challenges.



### Construction Industry Growth

Skill and labour shortages were clearly connected to an overall growth in new construction. Interviewees described the pace of construction as “booming”, leading to unrealistic timelines, rushed design processes, and high costs. The challenge of managing costs was brought up several times.



### Increasing Urban Density

Growth was also linked to increased urban density, which presents additional challenges such as traffic (a logistics issue in urban centres) and mixed-use development across North America “driv[ing] the need to better understand fire and sound separation between units.”



### Energy Efficiency And Environmental Regulations

There was general consensus that BC is undergoing a broad shift towards environmental building practices, which will require “different ways of doing things, different ways of thinking about things, certainly different skills and familiarity with different materials and different design processes.” Interviewees listed several areas of change, including energy efficiency, embodied energy, carbon reduction, electric vehicle (EV) charging, climate adaptation, integrated stormwater management, and water management more broadly. Several interviewees suggested that BC is leading Canada in terms of energy efficiency regulations, referring to the BC Energy Step Code and the City of Vancouver’s Zero Emissions Building plan.



### Change and Complexity in Codes and Regulations

In general, interviewees spoke positively about the underlying intent of codes and regulations. However, concern was expressed that “the industry has been getting hit with a number of policies on a wide range of fronts” and “regulations are becoming ... more convoluted and more complex.” Specific concerns included increased risk for contractors, time and effort spent on understanding multiple regulations, and reported instances of conflicting requirements.



### Innovation and Process Change

Conflicting views emerged on innovation and change. On one hand, as one interviewee observed, “we have seen a burst over 20 years of new materials and systems ... and it isn’t slowing down.” Other respondents mentioned a proliferation of product choices, new technologies such as BIM, and trends such as tall wood construction, prefabrication and off-site construction. On the other hand, several people called for greater innovation; one person commented that the construction industry is “one of the least innovative industries in the world.” Overall, change management and long-term, collaborative planning were seen as important for the industry.



### Meeting Human Needs

Several trends were related to human needs and the built environment. Providing sufficient affordable housing was a primary concern, and accessibility was also mentioned as a current and future need, partly based on an aging population. It was also suggested that design practices should support mental health and “build those buildings that can support us as a community” by encouraging integrated communities, providing trees and natural spaces, etc.

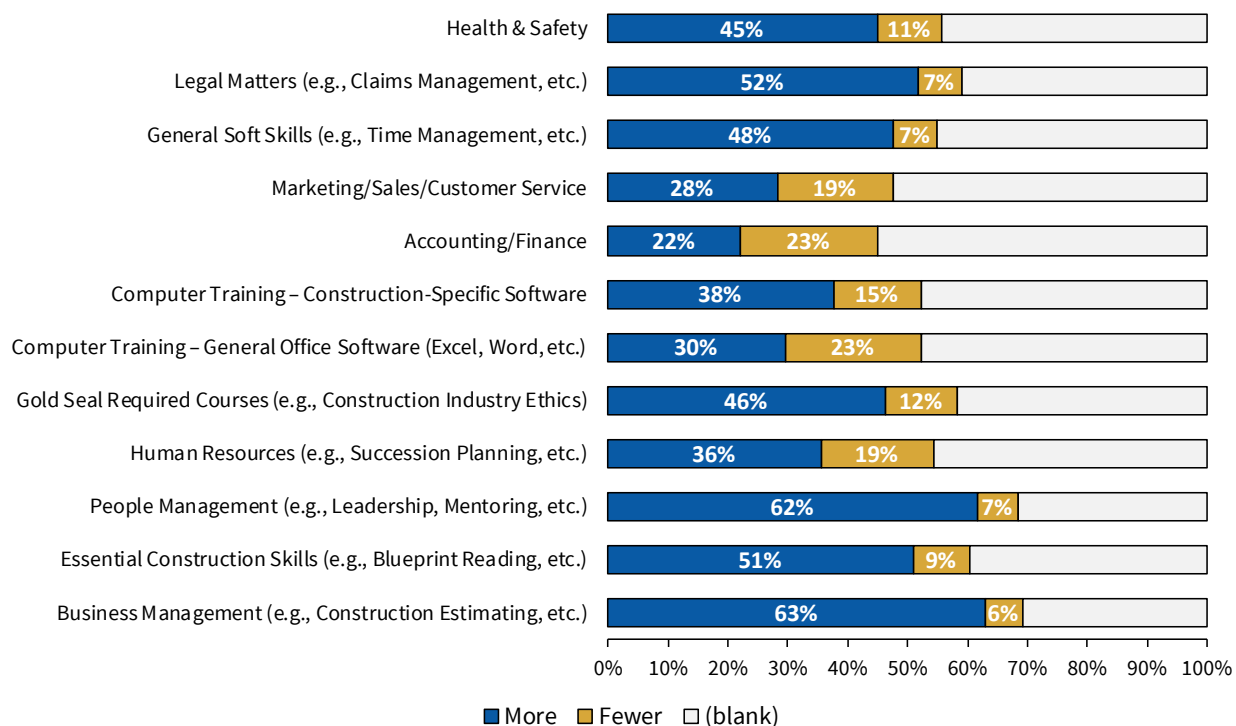
## High-Priority Training Topics

Training topics formed a key area of inquiry for the needs assessment. Several survey questions pertaining to VRCA programming are also interesting as an indication of broader industry concerns. For example, one question asked about general training areas already covered by VRCA courses that respondents would like to see more of in future programming. The top areas for expansion indicate an ongoing need to cover the basics: business management (63% interested in more offerings), people management (62% more), legal matters such as claims management (52% more), essential construction skills such as blueprint reading (51% more) and general soft skills such as time management (48% more).

This pattern was echoed in comments from several interviewees who expressed concern that ongoing fundamental training needs (e.g. fire safety) must not be forgotten as the industry responds to new demands. For example, one interviewee, commenting on a recent focus on energy efficiency, noted that “the problem ... is that buildings were already complicated: fire and life safety, structural sufficiency, especially here in the coast where we're in a high seismic region, the health requirements, the accessibility requirements, all of those are still just as important and as complicated as they always were.”

Related to this need for foundational skills and training, both survey respondents and interviewees expressed some concern about the general quality of skilled and unskilled labour. For example, survey respondents suggested that “the quality of worker[s] in the trades now is not nearly as high as it used to be” and called for “developing quality labour for the future to shrink the gap that is currently facing the industry today and for the short-term outlook.” This perspective echoes the Construction Industry Training Network’s finding that gaps exist “between what workers are certified to do, and what they actually can do”, particularly in relation to apprenticeship trades<sup>2</sup>.

**Respondent Preferences for General Course Topics**



<sup>2</sup>Construction Industry Training Network (2016), p. 6. See also See Doyle, John (2008). *A Major Renovation: Trades Training in British Columbia*. BC: Office of the Auditor General.

The survey also asked respondents to rate ideas for new courses. Interestingly, green building standards were a top choice, while Step Code courses were not prioritized. This result could potentially be due to survey design (which listed several potential Step Code options, perhaps “splitting the vote”). It could also be due to the high volume of online resources, workshops, etc., already available (see <https://energystepcode.ca/>). Other ideas with more than 50% of respondents expressing interest were BIM for PMs, lean construction, integrated project delivery, and negotiating specifications. Topics with 40-50% interest included cannabis legalization in the workplace, quality assurance/quality control/commissioning, the Vancouver Zero Emissions Building Plan, and building science principles.

Interviewees were also asked about training that would help the industry respond to current and anticipated trends and challenges. Many of the responses described characteristics of training (e.g. affordability) rather than topics, though there were also some topic suggestions. The areas of highest overlap between these suggestions and the preferred topics from the survey were:

- ▶ People management / leadership
- ▶ Green building standards
- ▶ Essential construction skills (with interviewees focusing on hands-on skills and training)
- ▶ General soft skills (including time management and change management)
- ▶ BIM (with BIM for PMs of particular interest to survey respondents)
- ▶ Integrated project delivery
- ▶ Quality assurance/control and commissioning
- ▶ Building science principles

Additional topic ideas included training on energy modeling and on newer materials and practices such as mass timber and modular construction.

## Barriers to Training

Results revealed a number of barriers to participation and system challenges for training and education in the construction industry. Interviewees echoed survey respondents in suggesting costs and lack of available time as significant barriers to participation. Concerns about costs are consistent with research in other jurisdictions; for example, one survey found that 21.6% of respondents did not receive any coverage of job-related seminars and workshops, and another 19.4% received only partial funding<sup>3</sup>. High construction costs in the Vancouver area may be adding additional real and perceived budget pressures that impact spending on training. One poignant survey response stated that “I pay for all my own training. I’m single and can barely make ends meet. It’s a choice between eating and being better educated to get a few extra dollars per hour.” Similarly, finding time was seen as a constant challenge. Scheduling can accommodate seasonal variations in availability to some degree (e.g. past VRCA surveys have found February to be the most preferred month). However, these windows are limited. One interviewee indicated that there is no ideal time for training, as slower periods tend to coincide with employee vacation times.

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<sup>3</sup>ASTTBC (2016). ‘Member Survey Results’. Available at [https://asttbc.org/services/publications/member\\_surveys/](https://asttbc.org/services/publications/member_surveys/)

### TOPICS SUGGESTED TO ADAPT TO INDUSTRY TRENDS - FROM SURVEY

- ▶ “More training on how to build and design buildings that meet a building code that will be challenging to meet with current building materials and practices.”
- ▶ “Passive House, green building methods, new codes to meet energy efficiency ”
- ▶ “Mass Timber, Modular Construction, IPD”
- ▶ “More training around quality control and surface repair and railing installers needs to be available.”
- ▶ “People management, influencing skills, collaborative project management, how to get work done through other people (how to delegate and drive work without doing it yourself)”

### TOPICS SUGGESTED TO ADAPT TO INDUSTRY TRENDS - FROM INTERVIEW

- ▶ Building science (general), hands-on/practical airtightness (trades)
- ▶ Trade-specific skills, inc. basics
- ▶ Foundational code knowledge - fire, structural sufficiency, health, accessibility
- ▶ New technologies and digital tools (as they emerge)
- ▶ BIM + Virtual Design and Construction
- ▶ Energy modeling (for specialist and non-specialist audiences, e.g. architects/engineers)
- ▶ Integrated Design Process
- ▶ Planning/sequencing (construction)
- ▶ Municipal processes
- ▶ Soft skills (interpersonal skills, leadership / management, change management)

Geography and availability of training in desired topic areas were also mentioned as barriers (see next page for topics that participants reported difficulty finding).

All of these barriers were seen as most significant for smaller companies. One interviewee stated that smaller contractors who want to access training feel that they are too “busy...just trying to stay in business.” Employer expectations and individual learner motivation were seen as factors that encouraged participation. It was suggested that that “if you’re keen to do training, you will find it.”

Interviewees also discussed larger system issues that impact or are impacted by training. Almost half of interviewees brought up the need for ongoing training as people continuously enter the industry, shift between roles, and adapt to new demands. For example, one commented that “If I were to say one key trend, it would be lifelong learning.” Building peer-to-peer connections was suggested to support a general culture of information sharing; however, several people also noted that over-reliance on volunteers to provide training can present challenges. Several interviewees emphasized a need for collaboration or coordination between different stakeholders (e.g., between different professional associations or between researchers and practitioners). It was suggested that available training can sometimes end up duplicating effort and creating unintended gaps.

***"If you're keen to do training,  
you will find it."***

## HIGH INTEREST TOPICS

Participants were interested in more courses in:

- 63%** Business management courses
- 62%** People management
- 52%** Legal matters
- 51%** Essential construction skills
- 48%** General soft skills, e.g. time management



### BEST MONTHS FOR TRAINING (IN ORDER)

1. February
2. January/  
November
3. March/October

### WORST MONTHS FOR TRAINING (IN ORDER)

1. June
2. July/  
August



## COURSES WITH MOST “VERY INTERESTED” / “SOME INTEREST” RESPONSES

### >50%

- ▶ Green Building Standards
- ▶ BIM for PMs
- ▶ Lean Construction
- ▶ Integrated Project Delivery
- ▶ Negotiating Material / Product Specifications

### 40-49%

- ▶ Cannabis Legalization and the Workplace
- ▶ Quality Assurance, Quality Control, and Commissioning
- ▶ Vancouver Zero Emissions Building Plan
- ▶ Building Science Principles

### 30-39%

- ▶ Bullying and Harassment
- ▶ Step Code Basics
- ▶ Step Code Requirements: Building Envelope
- ▶ Step Code Requirements: Metrics
- ▶ Step Code Requirements: Energy Modeling

## Beyond Formal Training

Although interest in training was high, participants also indicated that some trends will be difficult to address through training alone. Regarding labour and skills shortages, for example, one survey respondent noted that “plenty of training [is] available” and the “biggest problem is getting new people into the building trades.” As discussed in a 2016 Construction Industry Training Network report, labour shortages involve “complex and connected” factors, including demographic changes, a lack of new entrants and poor retention of entrants, complexity and size of construction projects, and wage disparities across geographic areas<sup>4</sup>.

Other responses emphasized a need for cross-sector collaboration to advocate for and implement broad industry change. For example, one interviewee stated that adapting to current needs “goes beyond training and is heavily depending on people's engagement and how we collaborate as an industry...[if] we continue to work the way we have as a fragmented industry, we can expect to see ongoing challenges”.

<sup>4</sup>Construction Industry Training Network (2016). Construction Industry Training Network's Construction Sector Consultations: Final Engagement Report. Available from <https://www.workbc.ca/>

### **Leadership/ People Management**

- ▶ Leadership for women
- ▶ Leadership training
- ▶ Course for management skills
- ▶ Policy invention and implementation
- ▶ Employee retention

### **Business Development/ Business Management**

- ▶ Business Development Strategies
- ▶ Proposal writing
- ▶ Financial management
- ▶ Business growth management
- ▶ Contract administration
- ▶ Subcontractor Management
- ▶ Intellectual property protection

### **Foreman Training**

- ▶ Health safety and responsibilities
- ▶ Excel training courses

### **Project Management**

- ▶ Project Management Essentials
- ▶ Microsoft Project
- ▶ Quality Assurance/Control Strategies
- ▶ Estimating
- ▶ Online take-off demonstrations
- ▶ Earthworks and heavy civil estimation

### **Technical/ Applied Topics**

- ▶ Understanding drawings & blueprints
- ▶ Training on low-voltage systems.
- ▶ "Smart Buildings"
- ▶ Surface repair courses
- ▶ Waste Management & Landfill Division
- ▶ Painting - Steel 5S Ishikawa
- ▶ More road building courses
- ▶ Understanding plumbing codes
- ▶ Hangers and fire codes for firestopping.
- ▶ Passive House, LEED, energy courses

### **Computer Software**

- ▶ BIM / 3D modelling / Data for LMFM
- ▶ Lean training / construction software
- ▶ Office 365 for Business

### **Health and Safety**

- ▶ Excavation/Shoring/Trenching Safety
- ▶ First-Aid
- ▶ Fall protection
- ▶ Equipment training, traffic control
- ▶ Health & Safety Responsibilities
- ▶ Train the Safety Trainer (BCCSA)

### **Soft Skills**

- ▶ Conflict resolution
- ▶ One-on-one, face-to-face communication
- ▶ Team building tactics
- ▶ Technical writing
- ▶ Time management skills
- ▶ Email management

# SUGGESTED SOLUTIONS & TRAINING FORMATS

Based on the findings of the needs assessment, there are many high-quality training opportunities available in BC. The majority of survey respondents (60%) felt that available training will provide the right skills and knowledge for the industry to successfully manage major industry trends such as changing codes and regulations, shifts in the labour market, and evolving design practices. However, there is plenty of room to develop new programming and improve access for a variety of audiences and topics.

As discussed above, time and geography were identified as significant barriers. BC is a large province with both dense urban areas and many more remote populations, creating unequal distribution of training opportunities. The pace of construction and related labour shortages mean that even when funds are available, time is limited for traveling to and completing training, even in urban centres. The strong need for convenience and access across geography and time led many participants to suggest online courses as a possible solution; however, there was also a strong need identified for hands-on training and the interpersonal interaction of in-person classes.

One way to address the in-person vs online debate is to ensure that comparable courses are offered in multiple formats. Another promising option would be to develop blended courses, i.e., courses which include both in-person and online components. Blended courses have been used in a wide variety of building industry training for some time (e.g. Wall et al., 2016<sup>5</sup> and Wu, Wen, Chen, and Hsu, 2016<sup>6</sup>). In BC, there have been a number of ventures into blended learning led by postsecondary institutions such as Camosun College and Thompson Rivers University<sup>7</sup>. Virtual experiences and live webcasts are also potential options for providing some in-person benefits (e.g., interactivity or social atmosphere) with online convenience.

Different formats such as online courses may also reduce training costs, if not directly then through reduced travel time and time off the job. Targeted discounts may also help to address this concern without sacrificing training quality. For example, certain courses could be offered with group discounts or a subscription rate (multiple workshops for one price) to smaller companies and individuals.



<sup>5</sup>Wall, John, Vian Ahmed, Alan Hurst, Harald Garrecht, Andreas Luckey, F. NcNamee, and A. Kanogul. "A Pan European Initiative to Formulate a Framework for Blended Learning Targeting Continuing Professional Development in the Construction Industry." (2006).

<sup>6</sup>Wu, Yun-Wu, Ming-Hui Wen, Ching-Ming Chen, and I-Ting Hsu. "An Integrated BIM and cost estimating blended learning model-acceptance differences between experts and novice." *Eurasia Journal of Mathematics, Science & Technology Education* 12, no. 5 (2016).

<sup>7</sup>Industry Training Authority (n.d.). "Innovation in Skilled Trades Training and Apprenticeship in BC: Inventory of Innovation."



There was a repeated call from survey respondents and interviewees to increase collaboration and knowledge-sharing across professional boundaries. For example, it was suggested that some courses could be designed deliberately to include a cross-section of participants. Several interviewees suggested that building officials are an important group to include in training, to address concerns that other participants may have about whether specific design and construction strategies will be approved for real-world projects. Ideas for creating and strengthening partnerships include:

- ▶ **Joint events or courses.** One interviewee suggested “a mini-conference” format, with a mix of discipline-specific workshops and shared plenaries or general sessions.
- ▶ **Applied research projects.** Interviewees described applied research and pilot programs as a way to build bridges between researchers and industry, develop new solutions and resources, and potentially encourage peer-to-peer discussion about “lessons learned.”
- ▶ **Reciprocal discounts.** As noted above, targeted discounts could be one way to address the cost of training. One way to target discounts could be to use them to encourage members of different associations to attend jointly developed or hosted training, providing greater opportunities for discussion across professional silos.

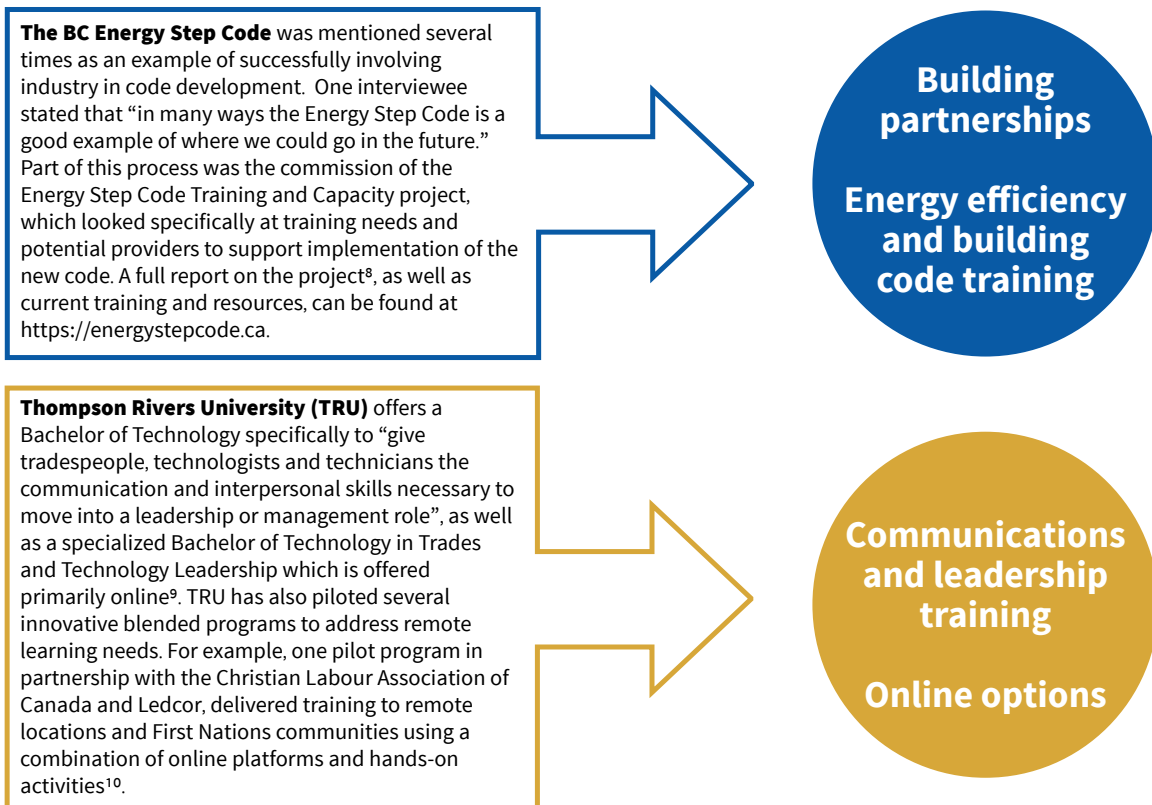
To some extent, each of these solutions is already being implemented. Increased collaboration between training providers could assist in better understanding which solutions work best for different topics and audiences. The next section provides some examples of existing programs and initiatives, within and outside of BC.

## Case Studies: From BC and Beyond

A comprehensive account of all construction-industry education and training, or even all continuing education providers, is beyond the scope of this assessment. Within BC, training is commonly provided by post-secondary institutions, professional and industry associations, unions, employers, and private trainers. Government agencies also provide some direct training through pilot programs, co-hosted special events, etc.

There are four construction associations in addition to the VRCA that provide local training programs: the Vancouver Island Construction Association (VICA), the Southern Interior Construction Association (SICA), the Northern Regional Construction Association (NRCA), and the B.C. Road Builders & Heavy Construction Association. Uniquely, SICA offers equipment training (e.g. forklift, boom lift, front end loader) and weekly safety training at its training centre.

There are also valuable lessons to be learned from other jurisdictions. The following examples provide a small sampling of training initiatives and opportunities, from within and beyond BC, that address identified trends or incorporate some aspect of the suggested solutions and formats discussed above.



<sup>8</sup>Whitelaw, Peter, Helen Goodland, and Karolina Pol (2017). *Energy Step Code Training and Capacity Project Summary Report*. Vancouver, BC: Province of BC Energy Step Code Council.

<sup>9</sup>See <https://www.tru.ca/distance/programs/technology/bachelor-of-technology.html>.

<sup>10</sup>Industry Training Authority (n.d.). “Innovation in Skilled Trades Training and Apprenticeship in BC: Inventory of Innovation.”

**The British Columbia Institute of Technology (BCIT)** provides hands-on training in zero energy and high-performance building skills in partnership with BC Housing, BC Hydro, and the City of Vancouver. Their High Performance Building Lab can be rented for other educators to use, and they are in the process of developing a “Lab-in-a-Box” to allow similar training activities to be set up in alternate locations<sup>11</sup>.

**The Architectural Institute of British Columbia (AIBC)** and **Engineers and Geoscientists BC (EGBC)** provide leadership and oversight for licensed professionals and have recently collaborated to produce Joint AIBC/EGBC Professional Practice Guidelines – Whole Building Energy Modelling Services in response to code developments and increased requirements for whole building energy modeling. Training has been rolled out by both associations to increase awareness and ensure understanding of the guidelines<sup>12</sup>.

Several Canadian associations have developed distinct learning streams, programs, or pathways that guide learners from one course to the next. For example, the **Toronto Construction Association’s Pathways** program is provided through the TCA’s education branch, **The Construction Institute of Canada (TCIC)**<sup>13</sup>. **The Construction Association of Nova Scotia** offers several modularized programs with components that can be purchased and taken together or individually<sup>14</sup>. Finally, the **Winnipeg Construction Association** has a Lean Construction Certificate program, as well as two unique programs for supervisors, “Building Supervisors for Tomorrow (BST)” and “Building Supervisors into Leaders (BSL)”<sup>15</sup>.

Another forward-thinking strategy is the use of dedicated training spaces to broadcast live training online: **The Newfoundland and Labrador Construction Association Centre of Excellence** states that “virtually all Centre of Excellence courses are available across the province or internationally through our distance learning platform” which “makes you feel like being there”<sup>16</sup>. The Construction Association of Nova Scotia similarly offers most of its in-house courses through their webcasting system CANS Connect<sup>17</sup>.

**Hands-on training**

**Energy efficiency**

**Building partnerships**

**Energy efficiency and building code training**

**Helping learners navigate through training**

**Time and geographic barriers**

**Online options**

<sup>11</sup>See <https://commons.bcit.ca/energy/research/high-performance-building-lab/>

<sup>12</sup>See <https://aibc.ca/2018/09/joint-aibc-egbc-professional-practice-guidelines-whole-building-energy-modelling-services-now-available/>

<sup>13</sup>See <https://www.tcaconnect.com/Education/Professional-Development.html>

<sup>14</sup>See <https://www.flipsnack.com/CANSflipbook/cans-2018-219-industry-education-training-course-calendar.html>

<sup>15</sup>See <https://www.mediaedgemagazines.com/the-winnipeg-construction-association-wca/wa8g/>

<sup>16</sup>See <http://www.nlca.ca/centre-of-excellence/>

<sup>17</sup>See <https://www.cans.ns.ca/education/cans-connect/>

## Application of Findings: Program Development at the VRCA

Education is a central aspect of the VRCA's work. Out of seven goals identified in the VRCA's 2017-2020 strategic plan, the first is to "Foster a culture of continuous learning across the industry by providing world class technical and non-technical education and training." The VRCA has traditionally offered courses in the areas of Business Development, Computer Skills, Construction Procurement, Leadership & Management, Legal Matters, and Safety. Both in-class and online options are available. The VRCA also offers a number of networking initiatives which serve a broad educational purpose; for example, the Construction Leadership Forum and U40 Network provide valuable formal and informal leadership training.

More recently, a new and important initiative is the establishment of the Zero Emissions Building Exchange (ZEBx). ZEBx is a partnership of the VRCA, the City of Vancouver, Passive House Canada, and the Open Green Building Society. Its function as a knowledge-exchange hub and "a one-stop source of information, education, programs and services for owners, consultants and contractors"<sup>20</sup> provides an opportunity to pilot new training approaches and topics. As well, ZEBx's connections with specific education and training stakeholders provide opportunities for building on existing programs and training initiatives to support a vibrant, engaged learning community. Stakeholders inside and outside of Canada include a range of post-secondary institutions, associations, and private businesses.

Within this context, a primary goal of the needs assessment was to suggest options for piloting new additions to the VRCA's existing program. To date, a number of new courses and providers have been scheduled to address identified high priority unmet needs.

- ▶ Planning for Foremen and Lean Project Delivery Bootcamp were scheduled and very quickly filled up. Additional sessions were subsequently booked to address the need. The second instance of Planning for Foremen also sold out, and registrations are underway for a third session in May 2019. The first Lean Delivery Bootcamp also sold out. Some feedback that the class was more introductory than anticipated suggests a need for additional advanced courses.
- ▶ Additional classes have been booked to reflect identified unmet needs but have not yet been completed. One class, titled Love Them or Lose Them, focusses on employee retention, a local hot topic given labour shortages. The other is entitled Future-Proof Your Workforce: Succession Planning. Both of these topics were also confirmed as industry needs at VRCA's recent U40 Mentorship Event.
- ▶ Another class scheduled for spring of 2019 is called Think Outside the Site. This course focusses on making prefabrication work successfully.

Pilot programming will continue to be rolled out over several months, with possible topics under consideration including mentorship, building value, LEED buildings, and leadership. The VRCA is also bringing on a new online content provider to address Building Information Modeling (BIM) needs. This provider offers on-demand courses, available 24/7/365 on BIM, along with BIM-related technology and leadership skills development. Further evaluation of pilot programming will be conducted in Spring 2019, providing additional data for program planning into the future.

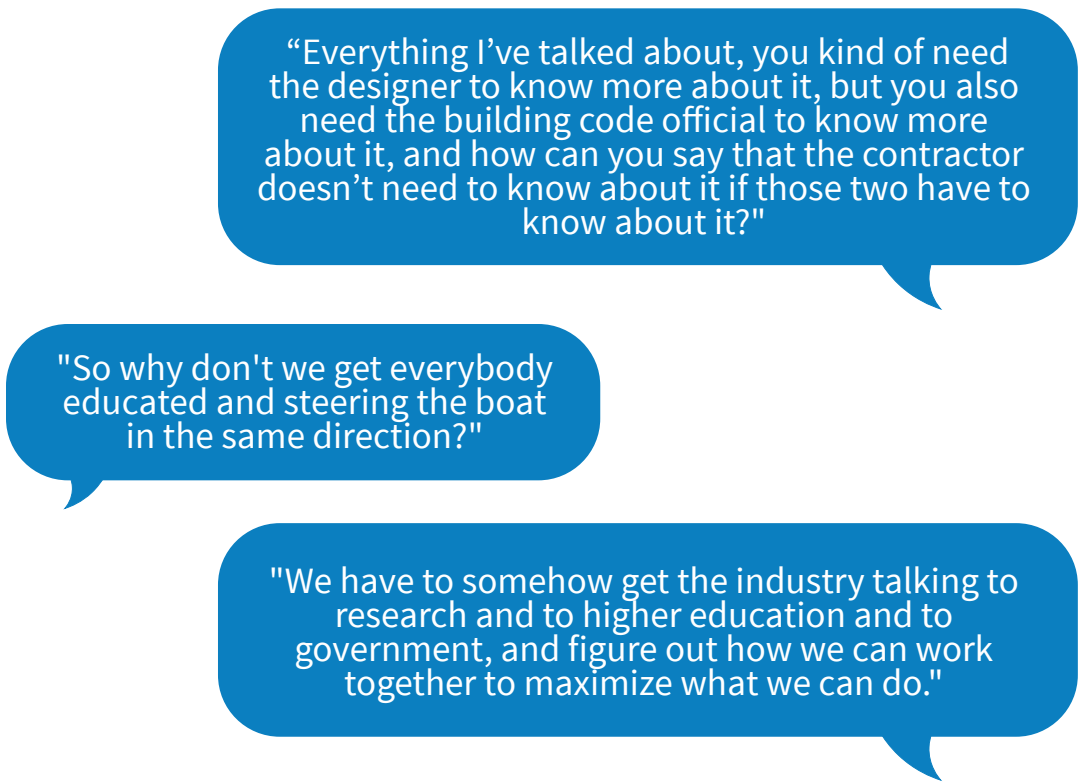
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<sup>20</sup>Fiona Famulak, quoted in Peter Caulfield, "Resources: Zero Emissions Building Exchange Opens," *Construction in Vancouver: VRCA News Feature*, July 2018.

# CONCLUSION

This report summarizes training needs for the construction industry in BC, based on findings from a multi-part educational needs assessment that included survey data, in-depth interviews, and review of secondary data such as past VRCA course information and past research from other organizations. Findings examine perceptions of trends affecting the industry, reported needs for specific training topics, barriers to training, and potential solutions. One recurrent theme from survey and interview responses was the need to support and expand collaboration within the industry—in design and construction processes (e.g. integrated project delivery), in training (e.g. to ensure different stakeholders have the same understanding of code requirements), and in finding and advocating for broad system solutions (e.g. addressing labour shortages). One interviewee even made the point that BC could benefit from greater regional partnerships, noting that different jurisdictions within the Cascadia region have overlapping concerns and could benefit from sharing lessons learned.

Information about local training needs is already being used to inform pilot programming at the VRCA, with positive results to date in terms of registrations and feedback. It is hoped that the perspectives in this summary report will also encourage and contribute to the ongoing conversation around education that is happening in BC's construction industry.



"Everything I've talked about, you kind of need the designer to know more about it, but you also need the building code official to know more about it, and how can you say that the contractor doesn't need to know about it if those two have to know about it?"

"So why don't we get everybody educated and steering the boat in the same direction?"

"We have to somehow get the industry talking to research and to higher education and to government, and figure out how we can work together to maximize what we can do."



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