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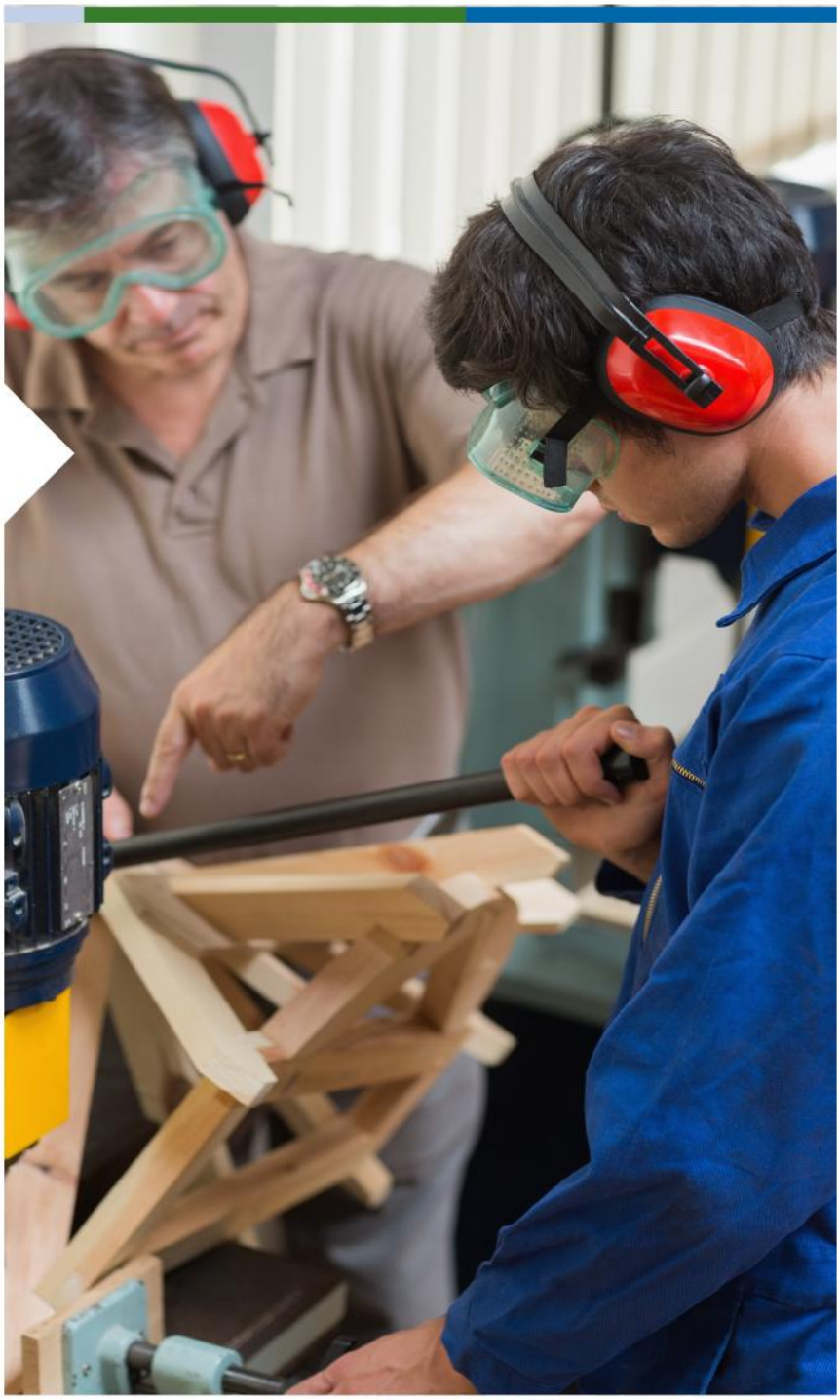

FINAL REPORT

Stakeholder Consultation for Development of Alternative Delivery Models for Residential Construction Apprenticeship Training

GLOBE ADVISORS
A division of the GLOBE Group

www.globeadvisors.ca

GLOBE Advisors
World Trade Centre
Suite 578 – 999 Canada Place
Vancouver, British Columbia
Canada V6C 3E1

Phone: **(604) 695-5001**
Toll Free: **(800) 274-6097**
(North America)

To **explore how GLOBE Advisors can assist** your organization **with its strategic objectives**, please contact:

Paul Shorthouse
Director Research & Strategic Planning
GLOBE Advisors
paul.shorthouse@globe.ca
1.604.695.5005

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Final Report

Prepared by:

GLOBE ADVISORS
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In partnership with:

Brantwood consulting
real estate • construction • infrastructure

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BRITISH COLUMBIA

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Executive Summary

Background

From March through May of 2013, GLOBE Advisors conducted research on behalf of the Canadian Home Builders' Association of BC (CHBA BC) and a number of industry stakeholders in order to develop a list of options for alternative training delivery as it relates to the needs of the residential construction sector in British Columbia.

The objectives of this project were to conduct research and consultation with industry stakeholders in order to document the ideal range, nature, and scope of residential construction training delivery models in the areas of pre-apprenticeship, apprenticeship and industry training, and continuous learning.

Secondary research and consultation with industry through in-depth interviews and a series of in-person and "virtual" focus groups fed in to a methodology for developing prioritized recommendations for a potential industry-led, organization which could be created to address some of the barriers / challenges highlighted in the study and, in turn, better support the needs of BC's residential construction industry.

This work builds on the *BC Residential Construction Industry Profile Study 2013* which was completed by GLOBE between January and April 2013.

Training Barriers & Possible Solutions

There are a number of barriers and challenges with respect to residential construction-related apprenticeship and training in BC. The key barriers identified through research for this project are listed in the table below, along with a number of potential solutions to overcoming these challenges.

Barrier / Challenge	Description of Barrier / Challenge	Possible Solutions
Lack of Pre-apprenticeship / Foundational Skills	Many youth looking to enter BC's construction workforce and/or related training programs have a lack of pre-apprenticeship and foundational skills.	• Job Portal and Training Information Website • Summer Camp Development • Training Transition Certification Programs (e.g., WoodLINKS) • Pre-loading Courses (into high school or other)
Limited Capacity for Mentorship / Training (employers)	There is a limited capacity for predominantly small business employers in BC's residential construction sector to bring on apprentices and trainees and provide appropriate mentorship and training.	• Apprentice Support Services • Mentoring Skills Program • Apprentice Share Program
Lack of Logbook Requirements and Supervision	There is a lack of logbook requirements and supervision that takes place on the job site that results in trainees developing a limited range of skill sets and competencies.	• Apprentice Share Program • Logbook Design and Implementation • Increase Transparency and Enforcement • Greater Instructor Oversight

Challenge / Barrier	Description of Challenge / Barrier	Possible Solutions
Access to Training Providers & Employers (apprentices)	It can be difficult for some individuals interested in apprenticeship training to find employers willing to sponsor them and, for some trades, local training providers do not have the capacity to provide the right training at the right time.	• Job portal and training information website • Industry Liaison • Communications Hub • Apprentice Support Services • Flexible Delivery / Scheduling • Develop Online Programs / Courses • Develop Mobile Training Programs • Addressing Waitlist Issue
Block Release Issues (delivery & scheduling)	There are numerous challenges with the traditional 4-year, block release structure for apprenticeship training in terms of employers being able to let apprentices return to school during busy periods.	• Develop Online Programs / Courses • Offer Evening / Weekend Classes • Seasonal (i.e., more technical training in winter) • More Front-loading • Shorter Blocks or 1-Day / Week • Modular Courses • Develop Mobile Training Programs
Structural Funding Issues	There are structural funding issues with the BC Industry Training Authority (ITA) with respect to minimum enrolment levels for apprentices.	• Address Institutional Funding Issues
Affordability Issues (employers & apprentices)	Affordability issues exist for small business employers with respect to indenturing apprentices and for apprentices seeking to attend school-based courses. There are difficulties with the current EI system in terms of access to, and timelines of, the compensation.	• Apprentice Support • Financial Assistance for Apprentices • (e.g., Student Loans, etc) • Training / Tax Incentives for Employers • Apprentice EI Top-ups / Income Adjustment
Lack of Pathways to Continuous Learning	There is a lack of clearly identified pathways for workers looking to undertake continuous learning and develop “master-ship” trade skills and business training.	• Job Portal and Training Information Website • CPD Education Requirements • Licensing Linked to CPD
Limited Capacity for Training Providers (institutions)	There is limited capacity for training providers to adjust program curriculums in-line with the needs of industry and to offer adequate training in relatively short time periods or blocks.	• Training Houses and Technology Showcases • Flexible Program Delivery and Scheduling • Challenges with Teaching Existing Program Curriculums • Instructor On-site / Industry Experience • Consensus Around Building Code Solutions

Prioritized Solutions to Barriers and Challenges

A ranking methodology was developed in order to organize and prioritize the barriers and challenges that were distilled from the research and then for identifying and examining potential solutions. The criteria for analysis allowed for the "scoring" of each opportunity area or possible solution and provided some guidance for prioritization for action. The ranking criteria are summarized as follows

- **Severity of the issue:** Each of the identified challenges was examined for the extent to which it is a roadblock to improved training accessibility, uptake, and qualification. This assessment was based upon opinions held by 1) the ITA, 2) the industry, and 3) training providers.
- **Potential role for an industry-led "skills centre**": Proposed solutions were assessed for the extent to which a potential as-yet undefined third-party agency or organization to take action, (using "skills centre" as a working title).
- **"Skills centre" impact:** Assuming that a proposed "skills centre" was able to implement the proposed solutions effectively, the impact of the implementation was assessed for their ability to resolve the challenge. For the purpose of this assessment, it was presumed that a "skills centre" would be able to implement all proposed solutions simultaneously and that it would be able to leverage any potential synergies.
- **Stakeholder support:** Assuming that a proposed solution is implemented effectively, the extent to which the solution would receive support from stakeholders was assessed. There are a number of important stakeholders which have regulatory, funding or other influential roles and without their support a proposed solution would likely fail. The relative importance of stakeholder groups in the change process was also factored in and weighted.
- **Costs:** For each proposed solution a qualitative assessment of both capital and operating costs was undertaken. It is anticipated that funding for a proposed "skills centre" will be derived, at least in part, from third party sponsors and funders (e.g. government and utilities). Therefore, solutions that could be delivered at the lowest costs and/or with the highest return on investment were the most desirable.
- **Timeframe:** The training issues facing the residential construction industry are pressing. The solutions were assessed for their ease and speed of implementation. Those with the shortest timeline to resolution were considered the most desirable.

The recommended activities and / or possible solutions were organized into three "tiers" of importance based on the likely scope, jurisdiction and capacity of an as-yet undefined industry-led organization or agency that could be created to support the needs of BC's residential construction industry. In summary, 11 activities or "opportunity areas" were prioritized for potential action under each of the three tiers as outlined below.

Tier 1 Activities – Recommended for Immediate Action

Tier 1 activities are those which are recommended for immediate action by a potential industry-led, third-party organization or agency in support of BC's residential construction sector. Criteria for activities that fall into the Tier 1 category include those which:

- Are designed to better understand and access BC's residential construction industry;
- Can help to establish information support for apprentices;
- Are within the scope of an independent non-governmental organization;
- Do not require regulatory approval;
- May be acted upon right away;
- Have a short-term timeframe (0-2 years); or
- Have capital and/or operating costs that are considered manageable.

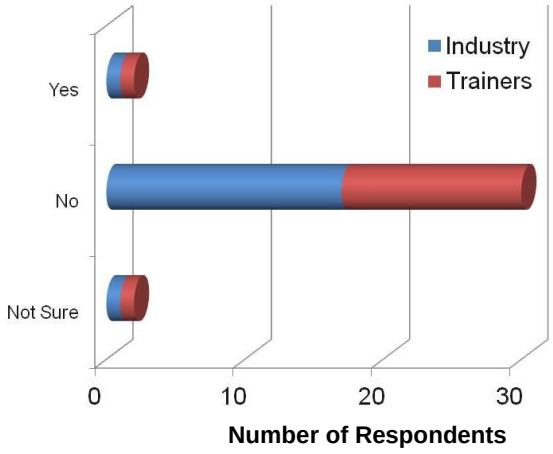
The objectives and key success factors for Tier 1 activities include:

- Promoting a “culture” of apprenticeship within the sector;
- Developing a cohesive industry “voice”;
- Providing for a liaison between industry (employers and apprentices), trainers, and regulators;
- Effective communications, marketing, and public outreach;
- Improved support for apprentices; and
- Confirming demand for programs and services.

Many of the challenges to residential construction apprenticeship and industry training in BC are either directly or indirectly related to a lack of communication across the industry and with key stakeholders (including the general public). BC’s residential construction industry is characterized by a large number of small businesses and sole-proprietors. Relatively few companies are members of industry associations and therefore few participate in the strategic conversations necessary to bring the industry together. Despite its important contribution to BC’s economy, BC’s residential construction industry sometimes struggles to be heard among the other sectors and it can be difficult to accurately gauge the industry’s position on important issues such as training.

The research shows that over the years there have been numerous efforts to drive apprenticeship training forward. Many of these initiatives are extremely well-developed, relevant and robust. To inform and adjust / update these programs and services and / or design new ones, it is important to first put in place strategies and solutions designed to establish a clear “voice”, greater industry cohesion, and industry engagement needs to be developed first. Certainly, the need for improved communication between apprentices, the various government departments and agencies (e.g., ITA, Service Canada, etc.), industry, and training providers was consistently identified during consultations for this project.

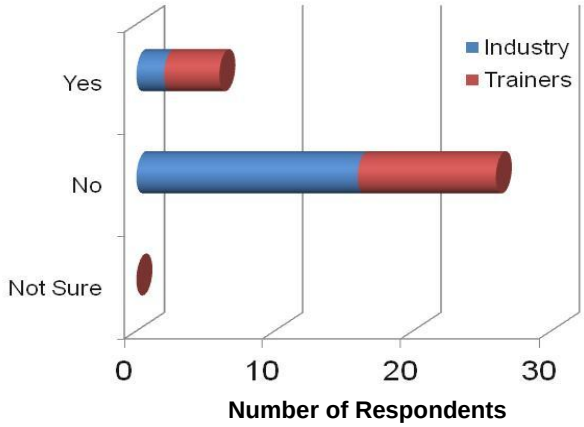
Not only are there communication challenges within the industry but there is also a pressing need for a concerted effort for the industry to connect directly and frequently with the general public. Homeowners who hire residential contractors need to appreciate the value of qualified trade workers and the need for regulation and enforcement.



Source: GLOBE Advisors virtual focus group findings

Figure: Do you think that BC’s residential construction industry effectively communicates the value of qualified trade workers to the public?

The research also revealed that the current apprenticeship system does not adequately support the needs of residential construction trainees. Examples from other jurisdictions suggest that a well-designed and well-funded apprentice support framework could go a long way toward improving employers' mentorship and training capacity; apprentices' access to training providers and employers; and training program affordability issues.



Source: GLOBE Advisors virtual focus group findings

Figure: Do you think that residential construction apprentices are sufficiently supported when engaging in workplace training and the current training and education system?

The three Tier 1 activities include the development of:

1. A communications hub to coalesce the voice of industry and act as a champion for the needs of BC's residential construction sector combined with an industry liaison role (support person and/or agency) to navigate between the numerous players and organizations;
2. A centralized online job portal and training information website to act as a centralized location for important resources; and
3. A framework designed to support both apprentices and employers with the apprenticeship process.

Figure: A communication hub focused on the needs of BC's residential construction industry could play an important role in connecting key stakeholders and coordinating available resources.

Tier 2 Activities – Recommended for Secondary Action

Tier 2 activities are those which are secondary to (or conditional upon the success of) Tier 1 actions and that can be undertaken by a potential industry-led third-party agency or organization. Criteria for activities that fall into the Tier 2 category include those which:

- May be conditional on the success of Tier 1 activities;
- Focus on developing and implementing services and/or programs;
- Are within the scope of an independent non-governmental organization;
- May require regulatory approval;
- Have a medium-term timeframe (2-3 years); and
- Have capital and/or operating costs that are considered manageable.

Tier 2 activities are focussed on the development of specific programs, services, and initiatives as determined by Tier 1 actions. The objectives and key success factors for Tier 2 activities include:

- Developing and delivering programs and services to support and promote industry training (for apprentices, employees, and employers) and fill identified gaps;
- Increasing the number of apprentices in BC's residential construction workforce and improving program completion rates; and
- Establishing representative and continuous industry feedback mechanisms.

The four Tier 2 activities include the development of:

1. A summer camp program for youth to improve public perceptions of vocational career paths and for developing important foundation skills;
2. A mentoring skills program and related resource toolkits for employers to improve the hands-on training experience on the job site;
3. An apprentice share program to help small residential construction businesses recruit apprentices and to provide trainees with a range of relevant work experiences; and
4. Flexible training delivery and scheduling that meets the needs of BC's residential construction sector, including blended delivery formats (e.g. a mix of classroom and "virtual") for certain trades (such as carpentry) where appropriate.

Tier 3 Activities – Recommended for Potential Future Action

Tier 3 activities are those which are recommended for possible action in the medium- or long-term by a potential industry-led agency or organization. Criteria for activities that fall into the Tier 3 category include those which:

- May be conditional on the success of Tier 2 items;
- May not be within the scope of an independent non-governmental organization as envisaged by the study stakeholders;
- Require regulatory approval or the implementation of new / other legislation;
- Have a long-term time frame (3+ years); or
- Have capital and/or operating costs that are significant or cannot be identified at this time.

The objectives and key success factors for Tier 3 activities include:

- Improving education quality;
- Outreach to high-schools and prospective apprenticeship entrants;
- Rounding out educational programs and services (e.g., reviewing pre-apprenticeship programs); and
- Programs and services to support enhanced licensing requirements.

The four Tier 3 activities include the development of:

1. Training transition certification programs that could be delivered within BC's high school education system and coordinated with (and recognized by) apprenticeship foundation programs to allow for exploratory opportunities for youth in the trades;
2. A workplace training experience management system (such as logbooks) that allow apprentices to track competencies in various training and skill development areas and allow employers to better gauge worker qualifications;
3. Continuing Professional Development (CPD) education requirements that could be linked to a builder licensing and certification scheme in order to raise overall quality within the industry; and
4. Training houses or full-scale "real-world" training projects and technology showcases that could provide education and hands-on learning opportunities by promoting the "house as a system" approach and integrating new technologies.

Training Capacity Assessment

In order to understand the barriers and opportunities to residential construction apprenticeship training in BC and the impact of the proposed solutions, it is necessary to first benchmark the training capacity within the industry, both in the workplace and in the classroom.

An assessment was undertaken based on the real and perceived gaps in education and training as they relate to the needs of BC's residential construction industry. These gaps were identified through consultation with industry, training providers and other key stakeholders as part of this study.

Workplace Training Capacity

About 80 per cent of an apprentice's training takes place in the workplace. However, BC's residential general and trade contracting companies are small (the vast majority have less than 10 employees). Home building and renovation project timelines are short compared to other types of construction.

Currently, there are few regulatory requirements for trade qualifications and homeowners generally do not ask for credentials prior to hiring a contractor. For many employers, investment in an apprentice is perceived as a costly and risky proposition and the industry has yet to establish a "culture" of apprenticeship.

A gap exists between the level of apprentice knowledge and expertise sought by employers and the capacity within BC's residential construction sector to provide the workplace skills training necessary to produce an adequately trained worker. In fact, employers consulted as part of this study felt that many apprentices do not have the right skills for the job, while apprentices stated that it was difficult to find an employer willing or able to provide training to the standards desired.

Classroom-based Training Capacity

Many of the challenges to residential construction apprenticeship training identified in this study were not new to the education and training providers. There have been numerous attempts over the years to adjust existing programs, develop new modules, and create alternative delivery formats in order to foster greater uptake and encourage program completion. Instructors have a good deal of experience with the various delivery and scheduling formats (virtual, weekend, evening, continuous intake, and more). They know which course formats are best suited to teaching particular trade skills, and how the course format and learning module sequencing can impact the quality of the learning experience and knowledge retention. There was general agreement that there were very few models that have not been attempted at some point.

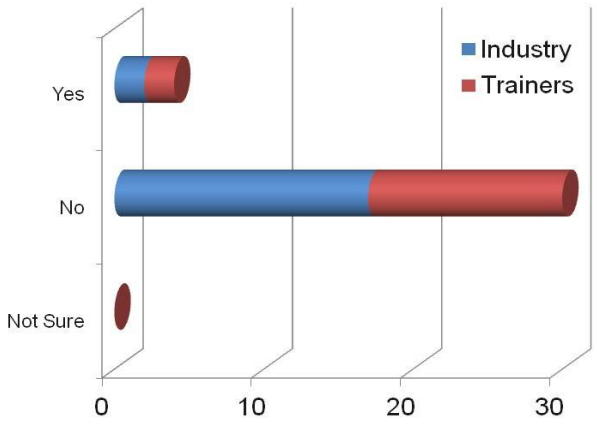
Nevertheless, there was a willingness to engage in discussion about alternative training scheduling, format, and delivery models. There was also appreciation of the characteristics of the residential construction sector and the potential for some unique issues related to training to arise.

The colleges that receive funding from the Industrial Training Authority (ITA BC) to deliver programs are under pressure to deliver programs faster and within tighter budgets and all instructors (from both public and private institutions) clearly stated that demonstrable demand needed to be verified before they could make changes to their programs. Also, colleges are frequently challenged by the fact that students register for courses but fail to show up. There were many examples provided where courses with full registration but few students may be cancelled because funding is based on the number of attending students.

Study research indicates that the current level of communication between the residential construction industry and training institutions is low. For example, most institutions have active program advisory committees comprised of industry representatives to provide input and guidance on training programs, instructors, and school administrators concurred that participation from residential construction companies was low. This impacts the training authorities' ability to confidently make changes to course content and the colleges' capacity to accurately forecast class attendance. New residential-specific programs have been developed in the past based on perceived demand, yet uptake has been low.

Before further investment is made in residential-specific programs, it was agreed by training providers that a clear understanding of commitment and participation is essential and barriers to attending classes (real and perceived) need to be resolved. The research suggests that the two over-arching roadblocks to training are:

1. Outside of the "regulated" trades (plumbers, gasfitters, electricians), **there are no regulations in BC which set standards and requirements for construction worker qualifications**. Unlike other jurisdictions, there is no licensing program for most builders, renovators, or trades in BC; and
2. There **is no industry voice dedicated to effectively communicating the value of training** to employers and the public.



Source: GLOBE virtual focus group findings

Figure: Does the residential construction industry communicate effectively with education / training providers?

In short, the capacity for colleges to provide alternative training delivery formats, grow capacity, and to add or modify courses is relatively high, especially for non-ITA funded programs (such as up-skilling courses, CPD courses, Gold Seal, etc.). The key challenges to classroom training that need to be addressed are highlighted below.

1. High-school leavers need to be able to secure trade apprenticeships in the residential construction industry in order to attend school.
2. Apprentices need support so they can attend, appreciate, and benefit from classroom instruction.
3. The residential industry as a whole needs to be able to clearly articulate its demands for training in a way that colleges can be assured of apprentices being present in the classroom to receive their training.

In Conclusion

Apprenticeship training as it relates to the needs of BC's residential construction industry suffers from a number of challenges that result in relatively low uptake of programs when compared with other construction sectors in the province. Many of these challenges are persistent and have been causing problems for some time. The most significant challenges and barriers to training include a lack of trade-related foundational skills with today's youth; training and capacity issues amongst small business employers; funding and affordability challenges; and a lack of demand for and pathways to ongoing education and learning within the sector.

Efforts to address these challenges have been hampered by the fact that outside of the "regulated" trades (plumbers, gas-fitters, electricians), there are no regulations in BC which set standards and requirements for construction worker qualifications. Also, there is no builder licensing program in BC, and that there is no industry voice dedicated to effectively communicating the value of training to employers and the public.

While many feel that apprenticeship training in the residential construction sector will only succeed through regulatory reform that includes establishing minimum skill requirements and the enforcement of such requirements, this report identifies a number of opportunity areas and possible solutions that may be undertaken in the short- and medium-term by a potential, as yet undefined, industry-led, third-party organization developed to support the needs of the residential sector.

The recommended activities could be rolled out as part of a three-phased approach that would allow for maximum return on investment and the highest potential for success (as illustrated in the Figure below). Phase 1 involves a focus on catalyzing a "culture" of apprenticeship training in residential construction; engagement with relevant industry players and stakeholders; coalescing the industry itself; better communication between all stakeholders including the public; and developing a coherent "voice" for BC's residential construction sector.

Phase 2 builds on the foundation of activities rolled out in Phase 1 in order to develop and implement a number of potential programs and services to support the training and education needs of BC's residential construction sector.

Finally, Phase 3 aims to solidify a culture for lifelong learning and a commitment to overall quality of education and training once relevant legislation is in place and industry support for training is defined and understood.

Helping BC's residential construction businesses appreciate the value of apprenticeship and occupational training and see the benefits of investing in apprentices will not happen overnight. It will require sustained commitment of time and resources, greater collaboration between key players, greater cohesion and engagement within the industry itself, and the dedication of all stakeholder groups to overcoming the barriers and to driving the opportunities forward. While the path to success is long, the findings in this study suggest that time for action could not be better.

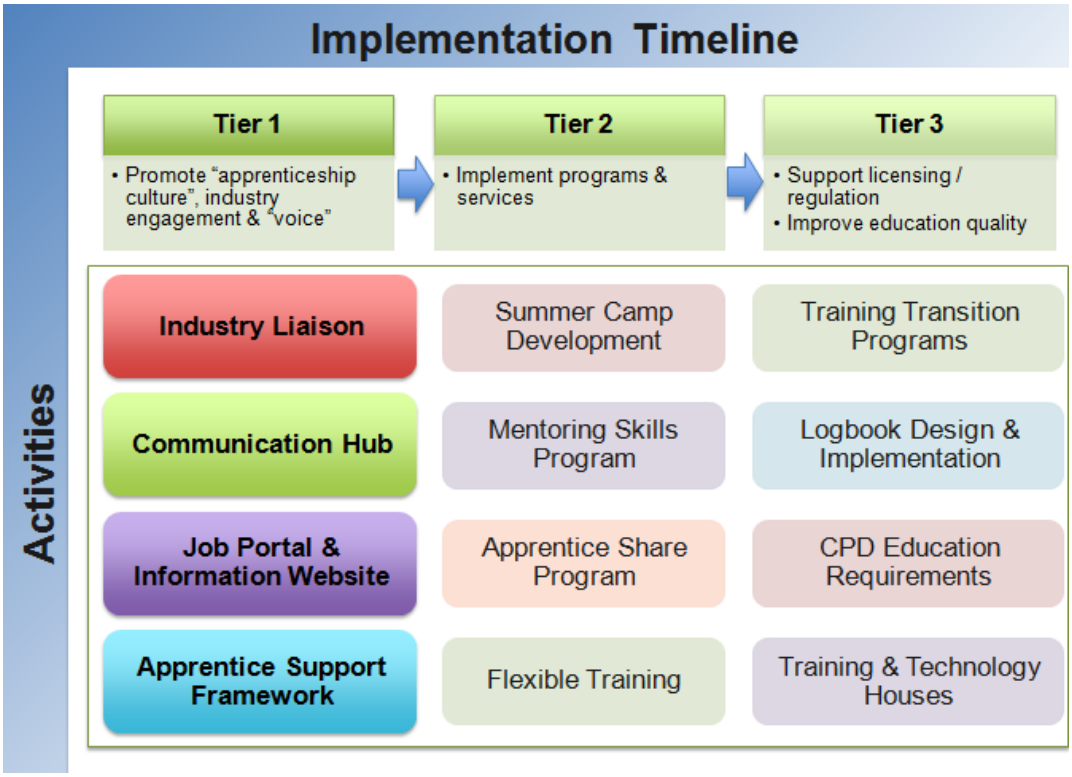


Figure: Prioritized activity implementation timeline.

Introduction

The residential construction industry in British Columbia plays a significant role within the province's economy. The sector can help to grow BC's skilled workforce through apprenticeship and trades training while also providing durable, healthy, and energy efficient homes.

At the same time, BC's residential construction industry is changing quickly and the trade training and certification system needs to be equally dynamic and flexible in order to make sure that the right skills are in the right place at the right time. The make-up of the province's trade training programs (how they are structured, what they include, how long they take, and so on) must meet the needs of employers, customers, and trainees alike.

About this Project

During the first five months of 2013, GLOBE Advisors conducted research on behalf of the Canadian Home Builders' Association of BC (CHBA BC) and a number of industry stakeholders (see Appendix A) in order to develop a list of options for alternative training delivery as it relates to the needs of the residential construction sector in BC.

The activities conducted as part of this project build on GLOBE Advisors' BC *Residential Construction Industry Profile Study 2013* and further validate the findings from that earlier study (see full Project Methodology in Appendix B). In addition to the extensive secondary and primary research activities conducted as part of the earlier study, the consultations for this project involved:

- Conducting 20 in-depth interviews with private companies, industry associations and organizations, public and private training providers, and the Industry Training Authority (ITA);
- Facilitating two in-person focus groups that engaged industry and training providers on training opportunities and challenges as they relate to BC's residential construction industry; and
- Hosting two "virtual focus groups" or interactive webinars which reached out to a wider audience of industry, training providers, and apprentices across the province to further validate the identified opportunities and challenges with respect to apprenticeship and training.

Earlier research findings identified four important areas as part of an education and training framework (as illustrated in Figure 1). While each of these areas has distinct challenges, there are also a number of potential solutions to addressing these challenges.

Building on the findings of the first study, the objectives of this project were to:

1. Conduct targeted research and consultation with industry stakeholders in order to document the ideal range, nature, and scope of residential construction training delivery models

2. Explore in greater detail the opportunity areas that could potentially address existing barriers and challenges to training in the areas of pre-apprenticeship, apprenticeship and industry training, and continuous learning.

Opportunity areas identified in this study were considered in the context of activities, initiatives and solutions that might fall under the direct control of a potential industry-led, third-party agency or organization designed to support the needs of BC's residential construction industry.

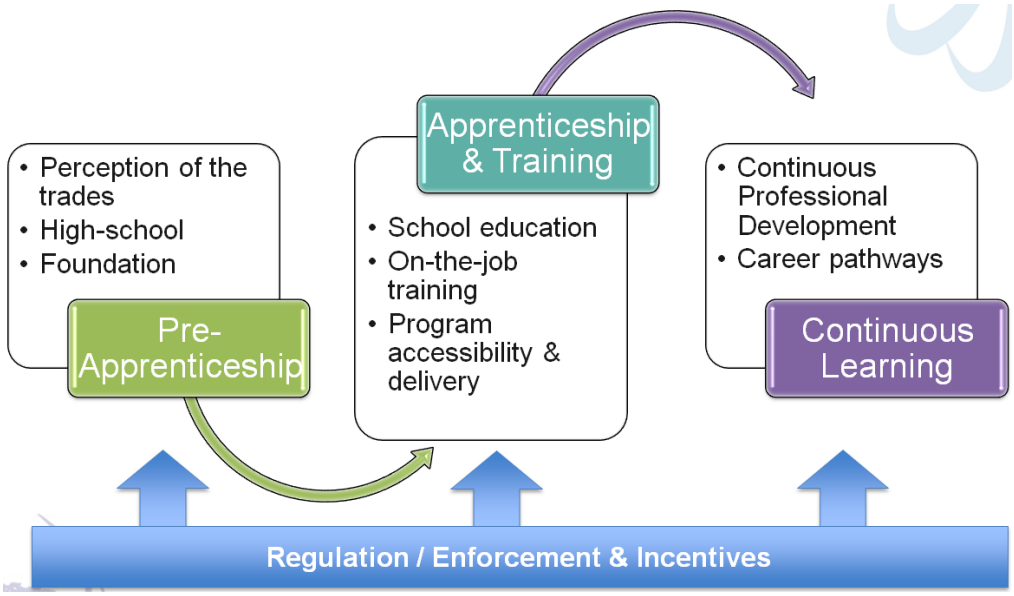


Figure 1: Education and training framework for BC's residential construction industry.

Consequently, while regulation, enforcement, and incentives are arguably the most powerful means to addressing many of the structural challenges that exist and may be required for driving more effective apprenticeship and industry training within BC's residential construction sector, they are outside the scope of such an agency and ***are not*** covered in detail in this analysis.

That being said, an industry-led, third-party agency will have a role to play with respect to advocacy and for coalescing the voice of industry on some of these issues – aspects that ***are*** examined in detail as part of this analysis.

About this Report

This Final Report provides:

- An overview of the key barriers and challenges that were identified as relevant to apprenticeship and training as it relates to the needs of BC's residential construction industry;
- An overview of possible solutions to addressing each of the barriers / challenges to training;
- An assessment of the training capacity that exists in BC with respect to the residential construction industry; and
- An assessment of the proposed solutions and a list of prioritized recommendations based on the likely scope, jurisdiction and capacity of an as-yet undefined industry-led organization or agency that could be created to support the needs of BC's residential construction industry.

Overview of Training Barriers & Challenges

The *BC Residential Construction Industry Profile Study 2013* identified a number of important barriers and challenges with respect to apprenticeship and training. The key barriers and challenges are summarized in Figure 2 below (in no particular order), followed by a more detailed description along with supporting quotes from the consultation phases.

Barrier / Challenge	Description of Barrier / Challenge
Lack of Pre-apprenticeship / Foundational Skills	Many youth looking to enter BC's construction workforce and/or related training programs have a lack of pre-apprenticeship and foundational skills.
Limited Capacity for Mentorship / Training (employers)	There is a limited capacity for predominantly small business employers in BC's residential construction sector to bring on apprentices and trainees and provide appropriate mentorship and training.
Lack of Logbook Requirements and Supervision	There is a lack of logbook requirements and supervision that takes place on the job site that results in trainees developing a limited range of skill sets and competencies.
Access to Training Providers & Employers (apprentices)	Challenges for individuals interested in apprenticeship training to find employers willing to sponsor them and, in some case, local training providers with capacity.
Block Release Issues (delivery & scheduling)	There are numerous challenges with the traditional 4-year, block release structure for apprenticeship training in terms of employers being able to let apprentices return to school during busy periods.
Structural Funding Issues	There are structural funding issues with the BC Industry Training Authority (ITA) with respect to minimum enrolment levels for apprentices.
Affordability Issues (employers & apprentices)	Affordability challenges exist for small business employers with respect to indenturing apprentices and for apprentices in terms of attending their technical training (particularly in-line with the current EI system).
Lack of Pathways to Continuous Learning	There is a lack of clearly identified pathways for workers looking to undertake continuous learning and develop "master-ship" trade skills and business training.
Limited Capacity for Training Providers (institutions)	There is limited capacity for training providers to adjust program curriculums in-line with the needs of industry and to offer adequate training in relatively short time periods or blocks.

Figure 2: Barriers and challenges to residential construction training in BC.

Lack of Pre-apprenticeship / Foundational Skills

It was suggested by employers that some youth coming out of high school would do better in the construction workforce if they had a better understanding of what was involved and developed stronger math, English, and life skills before they entered the workplace and/or more formalized apprenticeship training. Preparatory exposure to the trades, more hands-on learning, and pre-apprenticeship training may be helpful in terms of addressing some of the issues.

"Many high schools no longer offer shop classes, resulting in less exposure for many students. If you want to take carpentry, you need to find a high school that offers it."

Burnaby Focus Group

"There should be a generic pre-apprenticeship program to introduce youth to the trades with a program structure that lends credibility to the apprentice from beginning to end."

Surrey Focus Group

Some employers felt that having minimum qualifications or pre-requisites before entering apprenticeship programs would be a good idea. For example, apprentices spend a lot of time on safety and some of this could be learned before getting into Level 1, potentially as "Work Safe BC" modules in high school. Pre-apprenticeship type programs or vocational courses taught in high school could offer other practical training such as WHMIS and First Aid, as well as basic tools including the air gun ticket, traffic flagging, confined space training, fall restraint, and numeracy (e.g., imperial versus metric measurements).

"At the moment, first year (Level 1) of apprenticeship programs focus a great deal of time on developing skills that could be pre-requisites – including areas such as math, physics / science, and safety. Front-loading more of this into high school or preparatory-courses could free up a lot of time in Level 1 for other more relevant curriculum topics."

Interview with Training Provider

Another systemic challenge results from the high degree of commitment expected from youth right from the beginning of trade programs based on relatively little experience and information. Apprentices have very few options to "shop around", explore their aptitudes and interests, and try out different foundational courses in order to become better aware of the available program options. This can result in high dropout rates because the apprentices change their minds as they get further into the programs and decide it is not for them. Well-designed "discover apprenticeship" type programs for youth might help to address this issue.

Limited Capacity for Mentorship / Training (employers)

The majority of residential construction companies are small (many are sole operators and most have less than five employees). Many employers consider it an added liability to take on workers and apprentices as training requires an investment of their time and resources and has inherent additional risks.

Some feel that the low apprenticeship completion rates in the residential construction sector are largely due to a lack of stable employers in terms of their capacity to commit to training an apprentice over a traditional four-year program due to the cyclical nature of the industry. Some business owners are themselves not necessarily qualified and are therefore legally ineligible to take on an apprentice unless they have a certified journeyperson on staff. On the other end of the spectrum, some are busy enough throughout the year that they have difficulty allowing an apprentice to return to school for in-class training.

There are other companies that operate completely outside of the apprenticeship training system, doing very little work themselves and hiring sub-contractor teams that have minimum training and experience in order to win projects by "under-cutting" the more qualified competition in price. This brings with it serious quality assurance issues, as well as added risks and liabilities for developers and homeowners.

"There is a training gap in the home building sector that is filled by tradespeople participating outside of the 'official' [apprenticeship training] system but they get all the jobs because they underbid everyone else who has their ticket."

Surrey Focus Group

In addition, seasonality has a large impact on the residential industry, particularly in colder regions of the province where work tends to slow down considerably in the winter and ramp up throughout the spring and summer months. Employers in more northern communities (homebuilders in particular) are often reluctant to bring on apprentices for fear of having to pay them through the winter months, even if they are not working.

While many companies stated that they often "hire for attitude and train for skill", some companies choose not to train apprentices on more than one set of tasks (e.g., foundation, forming, etc.) as they are afraid of "training their competition" in case they leave and become independent sub-contractors. Regardless, there is a need to provide better on-the-job experience, mentorship, and supervision for many apprentices working in the field today. There is also a need for greater capacity within the residential industry as a whole for brining on apprentices.

Lack of Logbook Requirements and Supervision

The idea of requiring greater tracking and transparency through log or record books was a consistent theme during consultation (i.e., how apprentices log their hours or record their competencies in different areas based on the work performed on the job). This would require that someone be supervising and verifying the work being done on-site by the apprentice (by a qualified journeyperson, employer, instructor, etc.).

In BC, only a handful of trades are required to use log books or record books to track hours and requirements in different competencies – particularly those in the resource-based trades, predominantly for safety reasons. At the present time, the ITA does not specify the amount of work that must be completed within a specific range of areas (except within a limited number of trades such as welders and heavy-duty mechanics).

In some provinces in Canada (e.g., Alberta), all apprentices are required to maintain record books that are collected by training institutions and sent to regional offices within the provincial government to be verified and returned to the apprentices.

In BC, because a range of on-the-job training experience is not required, many residential construction apprentices receive only limited exposure to the full scope of their trades and many receive minimal direct supervision from qualified journeypersons. Depending on the range of projects and activities a company is involved with, an apprentice may spend many months if not longer on a very limited range of responsibilities and task. Some feel that without a requirement to ensure apprentices are receiving a broader set of experiences during their programs, many certified journeypersons who have gone through traditional 4-year Red Seal programs do not possess the full scope of their trades and are, in turn, less valuable to the industry as a whole.

"Quality control is seriously lacking in the residential construction industry; to get quality into buildings, you need to have hands-on training."

Burnaby Focus Group

While requiring apprentices and employers to track competencies and/or hours in the full range of categories may be a challenge given the nature of work done by the generally small-sized companies in residential construction, having some way to track and account for the experiences that were gained during training would benefit both apprentices and employers in the long-term.

In addition, the tracking of hours and/or competencies for apprentices in many residential construction trades is not overly transparent and issues with accountability exist. Accountability for the apprentice lies with the trainer / employer and, at present, it's up to the employer and apprentice to gain and track experiences in different areas of the apprentice's training program.

Many feel that there needs to be more regulation and enforcement around signing off on required hours by employers in order to ensure that the process is transparent and accountable – even the creation of an "Ethics Committee" within the ITA to provide oversight in this area was suggested. In fact, many professions have a "Code of Conduct", and this may be a first step to articulating the value of workplace training within the homebuilding industry.

Access to Training Providers & Employers (apprentices)

It can be a challenge for apprentices to find employers in the residential construction sector. Trainees may lose their jobs during their apprenticeship programs for a variety of reasons and end-up relying on their networks and connections (including previous work mates, instructors, etc.) to find new employment opportunities. Many have to go out to job sites in search of work in order to continue with their programs. It can be even more of a challenge for those looking to start their apprenticeship programs since they don't have the established connections to get hired on in the first place. Access to training providers for people living in more rural and remote communities is another challenge in terms of having the required minimum number of students, as well as instructors, for running classes.

The current waitlist system was also flagged as an issue. At present, it is possible for one apprentice to be registered on multiple waitlists at schools around the province. As such, waitlists are often artificially inflated and trainees from outside the region can take spots in apprenticeship programs away from locally-based individuals. This is particularly a challenge for more rural communities with smaller populations where access to local institutions is important in order for them to avoid having to incur added costs from moving with the risk they won't return to their communities afterwards.

Block Release Issues (delivery & scheduling)

"Block release" training has proven to be an issue for the residential construction sector. Depending on the current state of the economy and the available work in residential construction, it can often be difficult for employers to let apprentices go back to the classroom for training. Alternatively, apprentices can get stalled out and are unable to find an employer to take them on when work is slow. As such, flexibility in terms of program delivery was consistently identified as important to apprenticeship program success.

> **"Block release training is a challenge. Trainees often don't want to stop working in order to return to school so they continuously defer going back to the classroom. Many eventually drop out of their programs."**
>
> ***Interview with Training Provider***

Structural Funding Issues

There are structural considerations and challenges when it comes to program delivery and access. Many training providers won't run programs unless they have a certain minimum number of participants registered – a challenge in-line with the ITA's requirements for minimum enrolment levels to receive full funding for a program.

With private colleges, the ITA has taken away the minimum threshold of 12 students for a class size of 16 and as a result, no funding is provided for any seat that goes empty and classes are often cancelled. The more specialized the program or the more rural the location, the harder it might be to get the required minimum enrolment.

This is less of an issue in some other Canadian provinces. In Alberta for example, training providers need a minimum of 12 students to run a class. Once a class has been scheduled, even if 10 drop out by class time, the program will still be funded and run in order to provide access to training for those who need it – which is especially important for smaller centers. This also helps to maintain training capacity.

Affordability Issues (employers & apprentices)

From an apprentice's perspective, affordability and funding are enormous issues. Unlike in other education streams, students in trade training programs are not eligible for funding through student loans. Students are expected to go on Employment Insurance (EI) when attending school for 6 to 8 weeks. The EI application and approval process however has become a real challenge.

The federal government recently downsized from 122 processing offices to 22, which has caused a backlog of applications and a slowdown on the processing of claims – with the average apprentice having to wait a minimum of 2 weeks and often more than 4 weeks to get EI funding. Some have had to wait longer than 6 months.

Without funding, students (particularly those without financial support from family or partners) cannot afford to go back to school without working for 6-8 weeks. As a result, even programs with waitlists end up with "no shows" and classes end up being cancelled.

In addition, apprentices now have to apply for EI one month before they start school and have to make an appointment with a case manager at a Provincial Employment Centre in order to be approved. It can often be a 4-week wait to get such an appointment. As such, there are some who feel that apprentices should receive a "training allowance" rather than have to apply for EI since students are not in fact unemployed.

> **"A huge issue is EI. Students are expected to go on EI when they're in school. But now they are all coming with no money in their pockets because the government is making it so hard to apply and get approval."**
>
> ***Surrey Focus Group***

For some apprentices, particularly those that work predominantly on ICI projects and are indentured by a third-party organization (e.g., the Joint Trades Society for finishing trades and the TTTA for trowel trades), a small fee is garnished from their hourly wage, which goes into a savings account to top up EI and/or grants during the weeks of training. However, this is usually not enough to have a large impact.

From an employer's perspective, many feel that there needs to be greater incentives (e.g., tax breaks) put in place for employers in order to allow them to hire and training apprentices. This would allow employers to focus on the training aspects of bringing on apprentices as it requires an investment of their valuable time.

> **"Apprentices cost too much money for me when I'm up against a builder that gets guys on minimum wage."**
>
> ***Burnaby Focus Group***

> **"If the government provided more incentives to train apprentices, then it would be a driver of the industry."**
>
> ***Interview with Training Provider***

Retention is another issue for employers, with many providing financial incentives, such as Employment Insurance (EI) top-ups, in order to keep their best workers. Companies often end up paying above the average industry wage in order to avoid losing workers to competition in other sectors – which can be a real challenge for smaller companies.

Lack of Pathways to Continuous Learning

At the moment, the pathways to continuous learning and professional development for workers and trades in residential construction are somewhat limited. The current system trains people to get their first job but does not provide for much of a focus on continuous learning or on pathways to career development.

> **"Most people won't take a continuing education course unless it is to get a job, keep a job, or make more money."**
>
> ***Burnaby Focus Group***

> **"A master tradesperson program would fill the need for a channel for people to keep moving up. Right now, trade programs are essentially a one-stop-shop."**
>
> ***Interview with Industry Association / Organization***

While the Canadian Construction Association's Gold Seal and CHBA BC's programs provide construction management skills for those looking to run successful businesses, there is no institute in BC for master-level education in the trades (unlike in Europe for example).

Advanced-level, "master-ship" designations may also help in raising the professional image and countering negative perceptions of the industry. At the moment, there are limited options to build towards higher education where someone could, for example, start out as an electrician apprentice and eventually obtain a university degree in engineering through an established education pathway. This, in turn, could raise the profile for the industry as a whole, attract a new demographic into the trades, and provide goals and targets for apprentices and workers to strive toward as part of their careers.

Limited Capacity for Training Providers (institutions)

There is some concern that apprenticeship programs are not being updated regularly enough in terms of addressing the need for emerging skills and new technologies – particularly in-line with changes to building codes in the province. Others stated that parts of the program curriculum being taught is outdated and is taking up valuable instruction time when it's not relevant to the needs of the industry in BC and the work that is done on work sites – although others recognized the importance of having training that may be recognized inter-provincially through the Red Seal certification.

In addition, some feel apprenticeship programs don't go far enough in terms of their technical training. As an example, it was noted that instructors are currently having to "force-feed" their Level 2 plumbers hydronic heating over five days when it should take closer to two weeks for students to grasp the important technical components required for working with this specialized technology. It is the theory component that was identified as taking up the majority of the time and there is fear that a short learning time frame translates into a short retention rate.

> **"We need guys who know this stuff throughout their lives, not just those who can regurgitate the information onto a piece of paper after 6 weeks."**
>
> ***Burnaby Focus Group***

The investment in terms of the technical training time for many construction apprenticeship programs totals approximately 24 weeks overall, which is relatively small for someone who might work in the industry for 30 years. Many felt that designating more time for school so that apprenticeship programs can effectively prepare trainees in all aspects of housing systems and in-line with the needs of employers would be highly beneficial.

> **"The training period for many construction apprentices is too short – BC is one of the worst provinces for pushing people through which can hurt a lot of small businesses."**
>
> ***Burnaby Focus Group***

Some institutions such as BCIT and Kwantlen Polytechnic University have requested through their Articulation Committees that additional funding be provided in order to extend the weeks of technical training in the classroom for apprenticeship programs including Carpentry, Electrical, and Plumbing.

These issues result in instructors – many of whom are bound by collective agreements – being limited in capacity and resources for teaching expanded and updated curriculums.

Possible Solutions to Barriers & Challenges

In order to examine and help prioritize the opportunities and potential solutions to overcoming some of the identified barriers and challenges, a methodology and set of ranking criteria were developed. The ranking criteria allowed for the "scoring" of each opportunity area or possible solution and provided some guidance for prioritization. The ranking criteria are summarized in the points below.

- **Severity of the issue:** each of the identified challenges was examined for the extent to which it is a roadblock to improved training accessibility, uptake, and qualification. This assessment was based upon opinions held by 1) the ITA, 2) the industry, and 3) training providers. Each challenge was scored "High", "Medium", 'Low" and therefore solutions associated with resolving these challenges were given an appropriate weighting. Thus, a solution that addressed a "high" challenge would be afforded high priority. A score of "None" was given to challenges which were perceptual only.

- **Potential role for a "skills centre**": proposed solutions were assessed for the extent to which a potential as-yet undefined third party agency or organization to take action, (using "skills centre" as a working title). Three criteria were used to assess the role of a "skills centre" as described below.
    - ***Direct Action –*** it was determined that a skills centre would be able to play a direct leadership-level role in resolving the challenge via the implementation of programs and services. Solutions that could be directly delivered by a "skills centre", and where the "skills centre" could affect meaningful change, were given high priority.
    - ***Indirect / Supporting –*** it was determined that a skills centre would be able to play an indirect or supporting role in resolving the challenge via collaboration with other organizations or via advocacy. Solutions that could only, at best, be supported a "skills centre", and where the ability of a "skills centre" to affect change was only modest, were given low priority.
    - ***None –*** Solutions in which a "skills centre" could neither play a role nor could affect change were noted, but discounted from further analysis.

- **"Skills centre" impact:** assuming that a proposed "skills centre" was able to implement the proposed solutions effectively, the impact of the implementation was assessed for their ability to resolve the challenge. For the purpose of this assessment, it was presumed that a "skills centre" would be able to implement all proposed solutions simultaneously and that it would be able to leverage any potential synergies. The impact of a "skills centre" on addressing a challenge or barrier was scored based on a high, medium, and low impact assessment as described below.
    - ***High*** – A "skills centre" could resolve the issue without external support, within a modest / manageable budget and short-medium term timeframe.
    - ***Medium*** – A "skills centre" could resolve the issue but would need external support, a large budget and / or the issue would take a long time to resolve.
    - ***Low*** – A "skills" centre could only play a supporting role in resolving the issue, the issue cannot be resolved without regulatory intervention, and/or the issue would take a very long time to resolve.

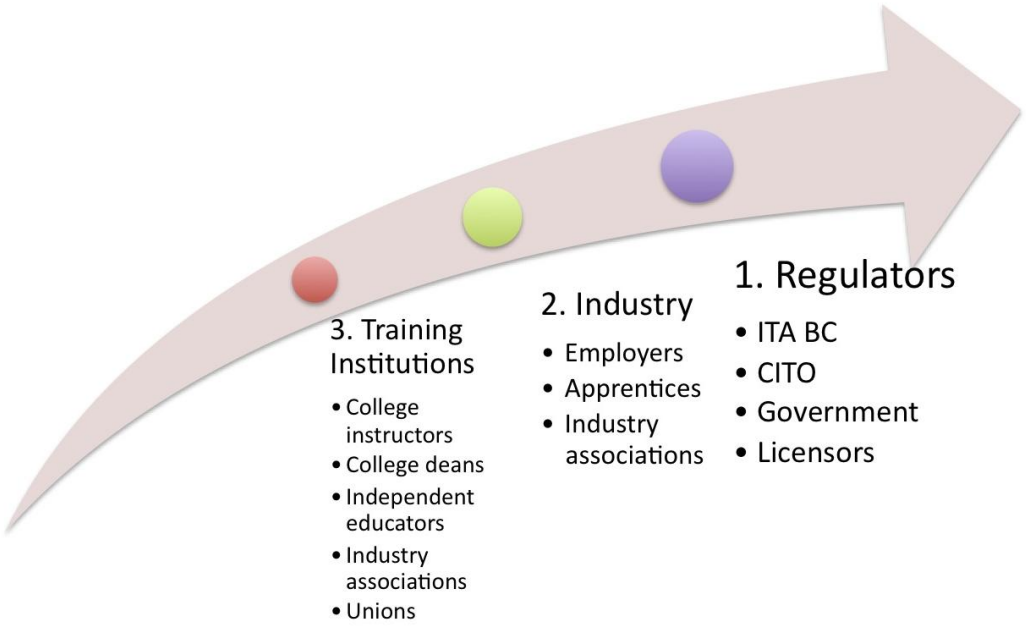


Figure 3: Relative importance of stakeholder groups in the change process.

- **Stakeholder support:** assuming that a proposed solution is implemented effectively, the extent to which the solution would receive support from stakeholders was assessed. There are a number of important stakeholders which have regulatory, funding or other influential roles and without their support a proposed solution would likely fail. This assessment was based upon opinions held by 1) the ITA, 2) the industry, and 3) training providers. Each solution was scored "High", "Medium", 'Low" based on the degree of support it would receive from each of the groups of stakeholders. A score of "none" was allocated when stakeholders had no opinion either way. The success of some solutions was not considered conditional upon the support of stakeholders and these were noted as "Not applicable". The relative importance of stakeholder groups in the change process was also factored in and weighted. The opinions of regulators being given the heaviest weight, followed by the opinions of industry and then training providers (as illustrated in Figure 3).

- **Costs:** for each proposed solution a qualitative assessment of both capital and operating costs was undertaken. It is anticipated that funding for a proposed "skills centre" will be derived, at least in part, from third party sponsors and funders (e.g. government and utilities). Therefore solutions that could be delivered at the lowest costs and / or with the highest return on investment were the most desirable. Each solution was scored "High", "Medium", 'Low" and those with lower capital and operating costs were given higher priority.

- **Timeframe:** the training issues facing the residential construction industry are pressing. The solutions were assessed for their ease and speed of implementation. Those with the shortest timeline to resolution were considered the most desirable. Each solution was scored as follows:
    - ***Short*** – Considered easy to address in the immediate term (0-2 years).
    - ***Medium*** – Considered achievable over the next 1-3 years.
    - ***Long/Ongoing*** – Considered achievable in the longer term (3+ years).
    - ***Ongoing*** – Requires continuous investment of resources (time or funding).

Each barrier or challenge was examined in-line with the identified opportunity areas and potential solutions based on the ranking criteria and "scoring" outlined above. The activities or possible solutions were ranked into three "tiers" based on the priority for action that might be undertaken by a potential industry-led, third-party organization or agency that would be brought forward in order to support the needs of BC's residential construction industry.

- **Tier 1 activities:** are ones that are recommended for immediate action. Tier 1 activities warranted more detailed analysis.
- **Tier 2 activities:** are considered secondary actions and would require greater investment of resources, further research. Some Tier 2 activities were conditional upon the completion of Tier 1 activities first. Tier 2 activities warranted more detailed analysis.
- **Tier 3 activities:** have much longer time horizons either because the investment of time and resources are high or they depend on regulation and/or other initiatives to be in place beforehand. Tier 3 activities were noted for action in the future but no detailed analysis was conducted as part of this study.
- **No action:** a number of possible solutions or opportunity areas were categorized as requiring "no action at this time", again because expected investment levels would be prohibitive and / or they are outside of industry's direct control and would become more of role for an industry advocate.

The results from this analysis are illustrated in the detailed tables in Appendix C and summarized under each barrier / challenge below.

Lack of Pre-apprenticeship / Foundational Skills

A range of opportunities and potential solutions exist for addressing the lack of pre-apprenticeship / foundational skills required for youth looking to enter the trades. Online job portals and information training websites are tools that would allow youth and others interested in taking on apprenticeship programs to learn more about the opportunities and potentially connect with employers who might be willing to sponsor them.

An opportunity was identified for developing an experiential learning program that would encourage youth (at the K-12 levels) to develop construction-related skills, work with their hands, develop understanding of basic mechanical concepts, etc. Front-loading apprenticeship program information into high schools or through other programs is another option (possibly even establishing pre-requisites for some courses). This could potentially take the form of a construction summer camp to be supported through a municipal parks and recreation department as one example.

A unique program in BC developed by industry, secondary, and post-secondary schools and approved by Ministry of Education also presents an interesting model of an opportunity to front-load some of the foundational skills into high school programs. The WoodLINKS program has developed "transition agreements" with post-secondary institutions across the province to provide skills training and certification to students who are then exempt from introductory courses in college or receive preferred entry into trade programs.

Possible Solutions	Priority Ranking
Job Portal and Training Information Website	**Tier 1 priority**
Summer Camp Development	**Tier 2 priority**
Training Transition Certification Programs (e.g., WoodLINKS)	**Tier 3 priority**
Pre-loading Courses (into high school or other)	**No action at this time**

Limited Capacity for Mentorship / Training (employers)

An apprentice support service or framework could provide supervision to apprentices on the job site and ensure they are receiving adequate training.

Another possible solution for addressing the limited capacity for employers to provide mentorship and training to their apprentices includes developing a mentorship "coaching" or skills program and/or a toolkit with training resources and information that highlight the benefits of bringing on an apprentice.

Apprentice share programs, when designed effectively, can also help to overcome issues with apprenticeship delivery, particularly the challenge that many SMEs in the residential construction sector face in terms of their limited time and resources for taking on apprentices on a full-time and their abilities to offer their trainees with full range of work experience in-line with the competencies important for apprenticeship program learning.

Possible Solutions	Priority Ranking
Apprentice Support Services	**Tier 1 priority**
Mentoring Skills Program	**Tier 2 priority**
Apprentice Share Program	**Tier 2 priority**

Lack of Logbook Requirements and Supervision

There is an opportunity to have a third-party organization or "skills centre" oversee and supervise the quality and range of experiences acquired by apprentices in the workplace, as well as look after the tracking (and enforcement) of required job site hours.

The industry is familiar with the concept of logbooks. Designing and administering a comprehensive yet easy-to-use logbook or record book for apprentices working in the residential construction industry that breaks out activities by learning outcomes / competencies could allow for more transparent tracking of hours and provide value to trainees and employers alike. This could also provide a foundation for more "modularized" training.

A level of detail similar to that which has been adopted with respect to "Employer Declaration Forms" (for example with the Residential Framing Technician) could provide a suitable level of detail and act as a "skills passport" that links directly to the Occupational Analysis Charts (OACs).

In addition, having the post-secondary institutions and training providers provide greater oversight into the process may help to better track the apprentices' reporting of hours and help to ensure that they are receiving a range of quality experiences under the guidance of a qualified mentor / trainer.

Possible Solutions	Priority Ranking
Apprentice Share Program	**Tier 2 priority**
Logbook Design and Implementation	**Tier 3** – conditional on support from industry
Increase Transparency and Enforcement	**No action at this time** – advocacy only
Greater Instructor Oversight	**No action at this time**

Access to Training Providers and Employers (apprentices)

It was suggested that there needs to be closer linkages between employers and available apprentices (e.g., through instructor testimonials, information about how to hire an apprentice and what is involved, etc.). This could be served via an online job posting board and/or information portal linking training providers and apprentices with employers.

A benefit to the industry would be having a designated liaison as a point of reference and a feedback loop to assist apprentices in connecting with employers and vice-versa.

Flexible program delivery and scheduling is another key to providing greater accessibility for apprentices in all parts of the province. Making courses more accessible through online and blended learning options can be helpful for overcoming these challenges. However, it was pointed out that internet access and online learning does not work for everyone so this is not a viable option in all cases. Mobile training has also been used in the province with mixed success.

Finally, addressing the artificially inflated waitlist issues described earlier in the barriers section could help to open up room at local institutions and increase accessibility province-wide.

Possible Solutions	Priority Ranking
Job portal and training information website	**Tier 1 priority**
Industry Liaison	**Tier 1 priority**
Communications Hub	**Tier 1 priority**
Apprentice Support Services	**Tier 1 priority**
Flexible Delivery / Scheduling	**Tier 2 priority** – once communications/industry liaison have established clear value
Develop Online Programs / Courses	**No action at this time** - programs exist or easily prepared based on demand
Develop Mobile Training Programs	**No action at this time**
Addressing Waitlist Issue	**No action at this time** – advocacy only

Block Release Issues (delivery & scheduling)

Addressing the block release issues in many ways comes down to offering innovative delivery formats for apprenticeship program curricula and technical training and providing more flexibility in terms of scheduling.

For example, trainees could attend school for one or two years at the start of their training prior to entering the workplace. With basic skills acquired, they can then be sent out into the field to work for a couple of years for hands-on work experience, followed by more schooling. In colder parts of the province where work tends to slow in the winter, having trainees complete more of the classroom / theory in the off-season could be an opportunity.

Possible Solutions	Priority Ranking
Develop Online Programs / Courses	**No action at this time** - programs exist or easily prepared based on demand
Offer Evening / Weekend Classes	**No action at this time** - programs exist or easily prepared based on demand
Seasonal (i.e., more technical training in winter)	N**o action at this time** - programs exist or easily prepared based on demand
More Front-loading	**No action at this time** - programs exist or easily prepared based on demand
Shorter Blocks or 1-Day / Week	**No action at this time** - programs exist or easily prepared based on demand
Modular Courses	**No action at this time** - programs exist or easily prepared based on demand
Develop Mobile Training Programs	**No action at this time**

Structural Funding Issues

While structural funding issues can create challenges for program accessibility, delivery, and scheduling, action in this area would involve an advocacy role with respect to coordinating a “voice” for the residential construction industry in order to highlight the needs and bring forward opportunities for addressing program funding issues.

Possible Solutions	Priority Ranking
Address Institutional Funding Issues	**No action at this time** – advocacy only

Affordability Issues (employers & apprentices)

From a student's perspective, addressing the challenges with EI, providing a structure that allows for EI top-ups, and potentially promoting some form of "training allowance" for apprentices in place of EI are additional areas where an advocacy role could be played. There is also an opportunity for greater apprentice support with EI in terms of providing assistance with the application process.

Providing access to loans could put less financial burden on apprentices when they are back in school for their technical training, potentially encouraging higher return and program completion rates.

It was suggested that employers also need to be given some sort of incentive to train apprentices in order to overcome the added liabilities to training and upfront investment required by business owners and/or their journeypersons. This could include some form of increased tax incentive for employers and/or income adjustments offered to trainees in the residential sector to ensure that employers can better afford to indenture and retain apprentices throughout their programs.

Possible Solutions	Priority Ranking
Apprentice Support	**Tier 1 priority**
Financial Assistance for Apprentices (e.g., Student Loans, etc)	**No action at this time** – advocacy only
Training / Tax Incentives for Employers	**No action at this time** – advocacy only
Apprentice EI Top-ups / Income Adjustment	**No action at this time** – advocacy only

Lack of Pathways to Continuous Learning

It was suggested that more training should exist throughout relevant apprenticeship programs to help trainees become successful in developing their careers moving forward. This could offer new opportunities for laddering and pathways to occupations such as engineers and technologists, to a more "master" crafts-person, or to business ownership. To make the industry attractive to a broader spectrum of young workers, it needs to demonstrate a clear path to opportunities in construction management, entrepreneurship, mastership of a trade, advanced technical training, diplomas and degrees, and pathways to ongoing professional development.

Opportunities exist to build greater industry awareness for the education / training opportunities by developing and promoting a customized web portal that would act as a "one-stop-shop" for continuous learning and online courses related to the needs of the residential construction sector. This could be leveraged further should a requirement come in that would link licensing to continuous professional development requirements.

At the same time, it was noted that laddering and building career pathways to ongoing learning only work when the apprenticeship system is well-recognized and valued by residential construction industry. As such, it will be essential in the first instance to build greater participation within the system amongst employers and apprentices.

Possible Solutions	Priority Ranking
Job Portal and Training Information Website	**Tier 1 priority**
CPD Education Requirements	**Tier 3 priority**
Licensing Linked to CPD	**No action at this time** – conditional on amendments to *Homeowner Protection Act*

Limited Capacity for Training Providers (institutions)

Overcoming some of the institutional challenges for training providers in terms of access to up-to-date training materials and technologies could be improved through experiences such as having apprentices and instructors work together to build "training houses".

The idea of running an up-to-date, possibly publicly and privately funded, technology "showrooms" for apprentices at school could give trainees continued exposure to new technologies and ensure students and instructors are familiar with the newest products and materials when they encounter them in the marketplace.

More flexible program / course delivery formats and scheduling could allow for a refocusing on important learning outcomes by shifting portions of classroom time to blended learning formats for example. This, in turn, could free up valuable instructor resources and allow them to focus on the most essential components of program curriculum.

It was also suggested that giving instructors time out in the field and on the work site would be helpful to ensure better alignment between the needs of industry and current program teachings. Having an industry liaison could also help with establishing consensus around building code solutions.

Possible Solutions	Priority Ranking
Training Houses and Technology Showcases	**Tier 3 priority**
Flexible Program Delivery and Scheduling	**No action at this time** – need to build demand for training first
Challenges with Teaching Existing Program Curriculums	**No action at this time** – need to build demand for training first
Instructor On-site / Industry Experience	**No action at this time** – need to build demand for training first
Consensus Around Building Code Solutions	**No action at this time** – need to build demand for training first

Detailed Overview of the Prioritized Activities

Based on the assessment of each possible solution in relation to the identified training barriers and challenges, 11 activities or "opportunity areas" were prioritized for potential action under each of the three tiers as outlined below.

Tier 1 Activities – Recommended for Immediate Action

- Industry liaison and communications hub
- Job portal and training information website
- Apprentice support framework

Tier 2 Activities – Recommended for Secondary Action

- Summer camp development
- Mentoring skills program
- Apprentice share program
- Flexible training delivery and scheduling

Tier 3 Activities – Recommended for Potential Future Action

- Training transition certification programs
- Logbook design and implementation
- CPD education requirements
- Training houses and technology showcases

Results from secondary research and feedback from the consultation process are presented under each opportunity area below, including sources to more information from secondary research and a SWOT analysis for the activities ranked as Tier 1 and 2 priorities.

In addition, Appendix D provides an assessment of mobile training labs as this was an area of particular interest with the project steering committee members, although following a more detailed analysis, the activity falls outside of the three tiers into the category of "no action at this time".

Tier 1 Activities – Recommended for Immediate Action

Tier 1 activities are those which are recommended for immediate action by a potential industry-led, third-party agency or organization in support of BC's residential construction sector. Criteria for activities that fall into the Tier 1 category include those which:

- Are designed to better understand and access the residential construction industry;
- Help to establish information support for apprentices;
- Are within the scope of an independent non-governmental organization;
- Do not require regulatory approval;
- May be acted upon right away;
- Have a short-term timeframe (0-2 years); and
- Have capital and/or operating costs that are considered manageable.

The underlying objectives and key success factors for Tier 1 activities include:

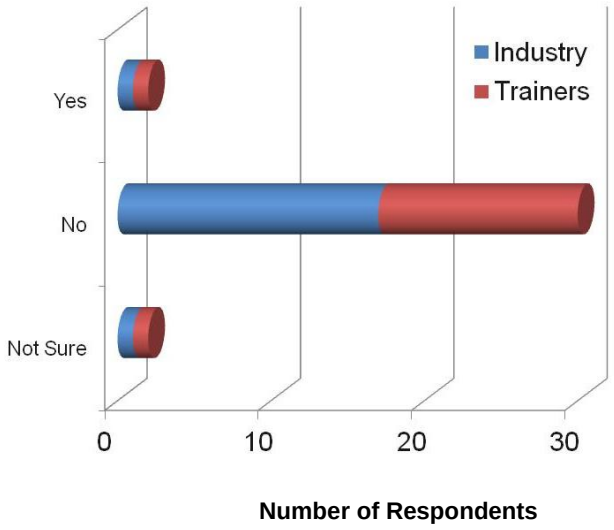
- Promoting a "culture" of apprenticeship within the sector;
- Developing a cohesive industry "voice";
- Providing for a liaison between industry (employers and apprentices), trainers, and regulators;
- Communications, marketing, and public outreach;
- Improved support for apprentices; and
- Confirming demand for programs and services.

The three key activities include developing an industry liaison and communications hub; developing a job portal and/or information website; and developing an apprentice support framework. Each of these three activities is described in greater detail below, along with information gathered through secondary research and consultation.

Industry Liaison and Communications Hub

Many of the challenges with respect to apprenticeship and industry training as they relate to BC's residential construction industry can be tied back to a need for better communication and coordination of important resources. Certainly the need for improved communication between apprentices, the ITA, industry, and training providers was consistently identified during consultations for this project.

There is also a need for greater communication between industry and the general public – particularly when it comes to articulating the value of hiring qualified trades with homeowners and the need for greater regulation and enforcement. As illustrated in Figure 4, results from the virtual focus groups show that participants clearly do not feel that industry does an effective job communicating with the public.



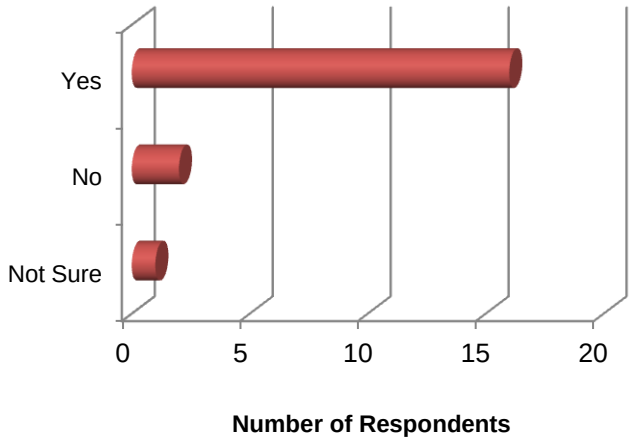
Source: GLOBE Advisors virtual focus group findings

Figure 4: Do you think that BC's residential construction industry effectively communicates the value of qualified trade workers to the public?

As such, an industry liaison and a related third-party agency that could take on the role of a communications hub was identified as beneficial to industry, particularly in terms of addressing challenges related to the apprentice's access to training providers and employers and the sharing of information between key stakeholder groups as illustrated in Figure 5.

Figure 5: A communication hub focused on the needs of BC's residential construction industry could play an important role in connecting key stakeholders and coordinating available resources.

More than 8 out of 10 participants in the industry-based virtual focus group felt that there is a need for better managing the information flow between the ITA, employers, apprentices, and training providers (see Figure 6).



Source: GLOBE Advisors virtual focus group findings

Figure 6: Is there a need for better support managing information flow and communications between the ITA, employers, and apprentices / trainers?

An industry liaison could act as a *resource coordinator* in order to:

- Maintain an industry training information website and employment portal;
- Maintain training resources on a residential-specific information website.
- Connect employers with apprentices and training providers;
- Assist employers with registering apprentices;
- Provide work site monitoring and oversight; and/or
- Coordinate industry support for program and curriculum updates.

In Alberta for example, regional offices throughout the province work with training providers. Each office has a liaison which represents / works with each school and meets regularly with apprentices and staff and will connect employers with apprentices.

From a program development side, an industry liaison that could help coordinate feedback from industry to the ITA on the need for updates as part of Occupational Needs Analyses would be helpful. While many training providers have Program Advisory Committees (PACs) for their trades with residential industry representation, the PACs will often only meet once or twice a year (if that) and there is limited coordination between schools in terms of bringing forward suggested program changes to the ITA.

In addition, there are several apprenticeship programs developed by the former Residential Construction Industry Training Organization (RCITO) that are currently with the ITA and will not become designated trades until demand and support for these programs can be clearly articulated by industry.

The industry liaison could also play an important *support and advocacy role* with respect to:

- Promoting career opportunities in BC's residential construction industry;
- Promoting program flexibility, accessibility, and a range of delivery options;
- Addressing waitlist issues;
- Advocating for regulation and licensing; and
- Advocating for funding and incentives (e.g., student loans, employer training/tax incentives, etc.).

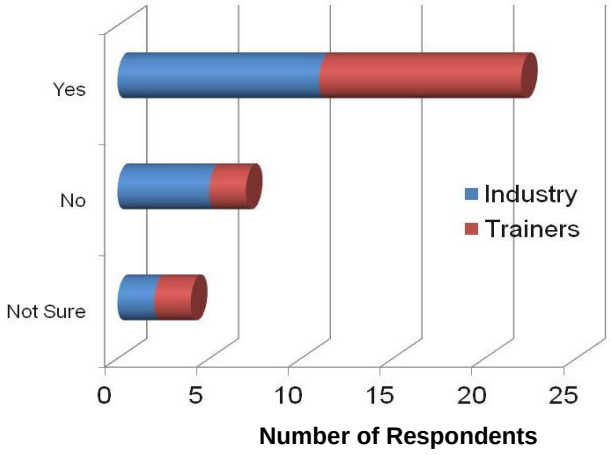
While some identified CHBA BC, CITO, and other industry associations as providing a voice for the residential industry, most felt that there is no organization currently undertaking the role effectively for the industry as a whole.

> **"The residential sector doesn't really understand what it wants when it comes to training and qualified trades – it lacks a clear 'voice' to articulate demand within the industry."**
>
> ***Training Provider Interview***

In addition to public / homeowner education on the value of trade qualifications, there is a role for an industry liaison to encourage employer buy-in with apprenticeship training and continuing professional development, as well as for better promoting the value and benefits for working in the residential sector.

> **"Someone needs to go around to residential construction employers and explain why they need to train their people. The larger commercial and/or union shops get it and you can see it in the quality of their work."**
>
> ***Training Provider Interview***

Results from the virtual focus groups show that participants support the idea of an agency dedicated to promoting the opportunities for BC's residential construction industry (see Figure 7). The actual scope of activities would depend on budget, capacity, and the involvement of key stakeholder groups in supporting such a role.



Source: GLOBE Advisors virtual focus group findings

Figure 7: Is there a role for an agency dedicated to promoting BC's residential construction industry?

Some virtual focus group participants felt that the best way to communicate to the broader residential industry as a whole is through a centralized website, through active involvement of higher level leadership from training providers and training authorities, through targeted email message distribution, and through HPO's licensed builder registrations.

The following SWOT analysis in Figure 8 was undertaken based on research and considerations for possible action on developing an industry liaison and communications hub to serve the needs of the residential construction industry in BC.

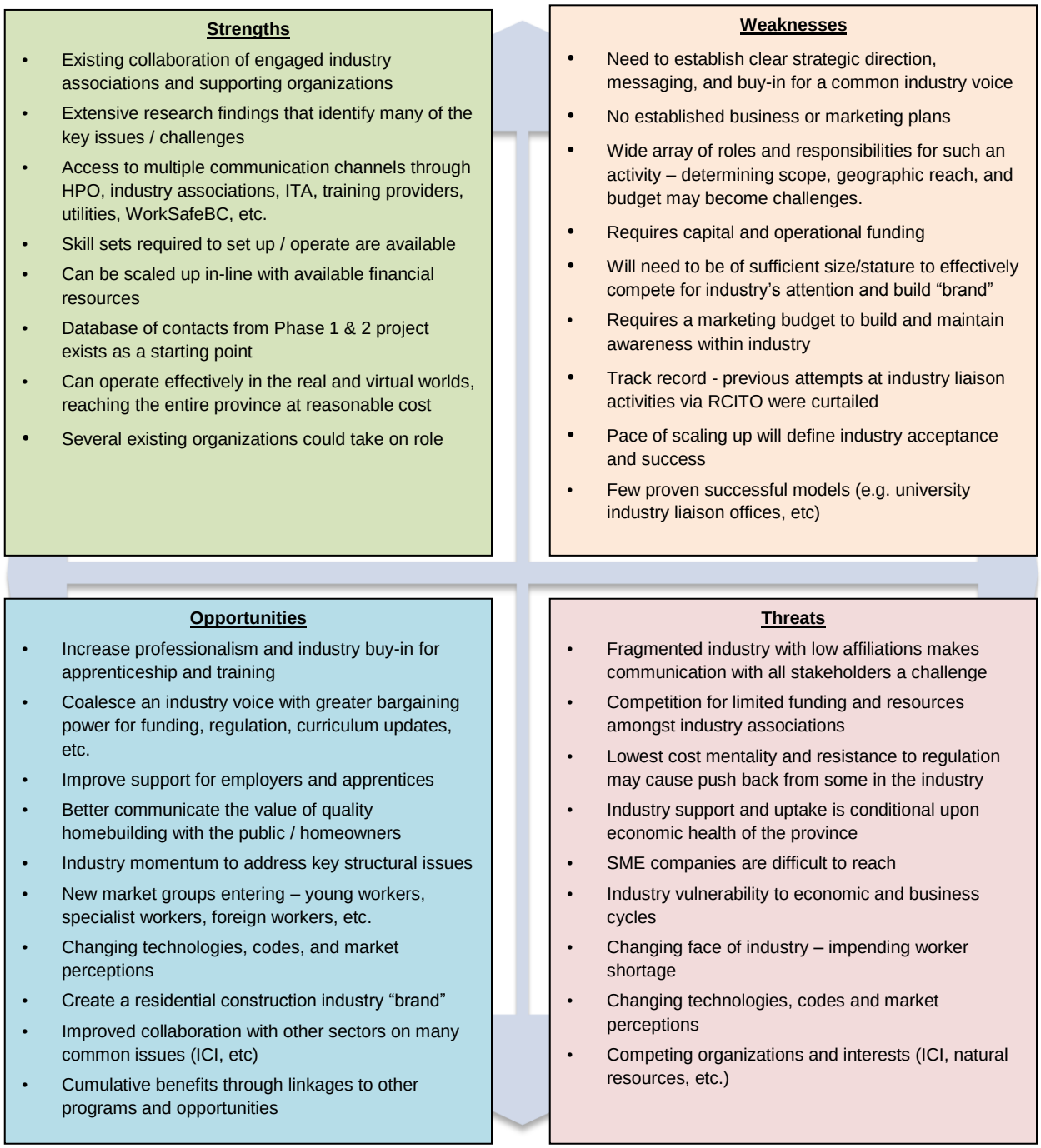


Figure 8: SWOT analysis for developing an industry liaison and communications hub.

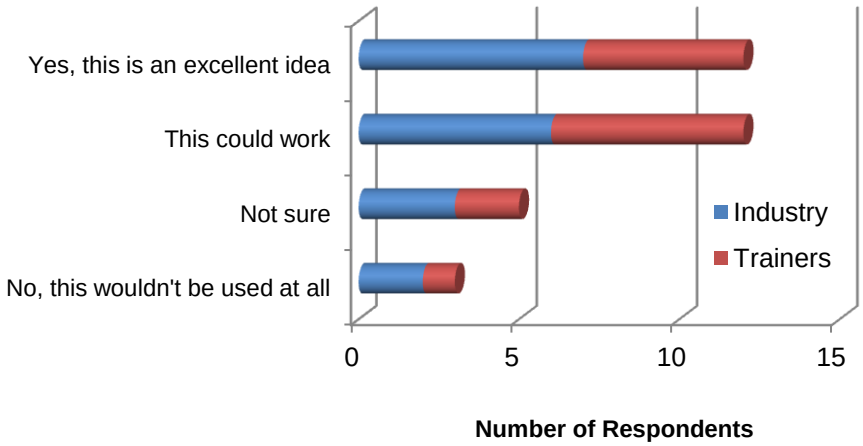
Job Portal & Training Information Website

An online employment and information portal can serve as an important tool for addressing challenges and barriers related to the lack of pre-apprenticeship and foundational skills; an apprentice's access to training providers and employers; and for the lack of pathways to continuous learning.

Such a tool can support a range of initiatives including as a delivery agent for programs, courses, and training curricula; as a job board for connecting employers with apprentices; and as a forum for industry to share knowledge and best practices.

This is not a novel concept by any means and there are a number of existing examples that could be leveraged and/or improved upon in order to build a possible "one-stop-shop" or umbrella website for information serving the needs of BC's residential construction sector. It could be particularly useful to apprentices if it was introduced to the students during their training.

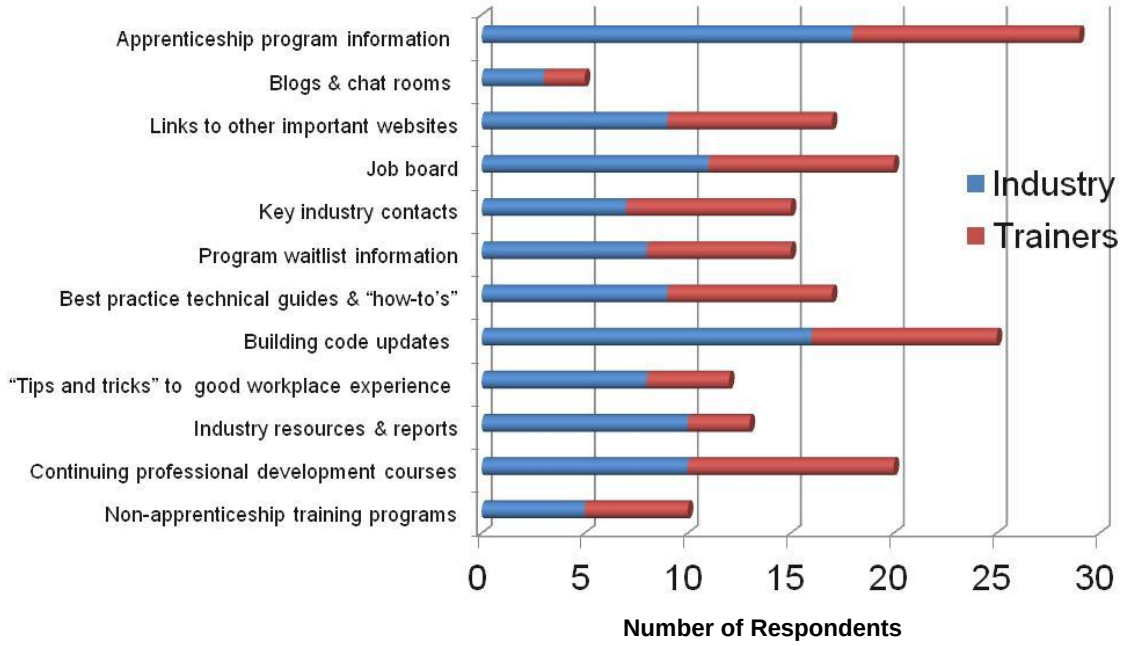
Results from the virtual focus groups suggest that a "one-stop-shop" training and information website would add value to BC's residential construction industry (see Figure 9).



Source: GLOBE Advisors virtual focus group findings

Figure 9: Do you see value in a "one-stop-shop" residential construction-specific training and information website that centralized information on training?

The features of highest interest for a potential "one-stop-shop" training and information website include apprenticeship program information, building code updates, a job board, CPD courses, links to other important websites, and industry "best practice" guides (Figure 10).



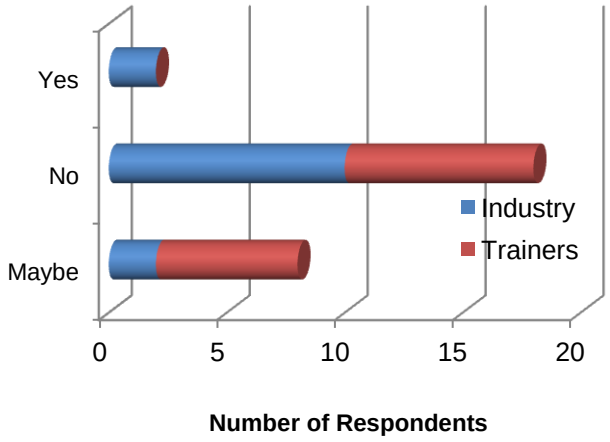
Source: GLOBE Advisors virtual focus group findings

Figure 10: What features should a "one-stop-shop" residential construction-specific training and information website contain?

The virtual focus group findings suggest that industry's support of features such as blogs and chat rooms would be relatively low. However, there may be opportunities for generating two-way conversations through other forms of social media and embedded tools such as You Tube and Twitter. Using such a website to support potential sponsorship or indenturing activities as part of an apprentice share program is also an opportunity.

> **"There would be benefit to an umbrella website that links important resources together for industry. It could be combined with marketing around the quality assurance or certification, which would make it easier for everyone."**
>
> ***Burnaby Focus Group***

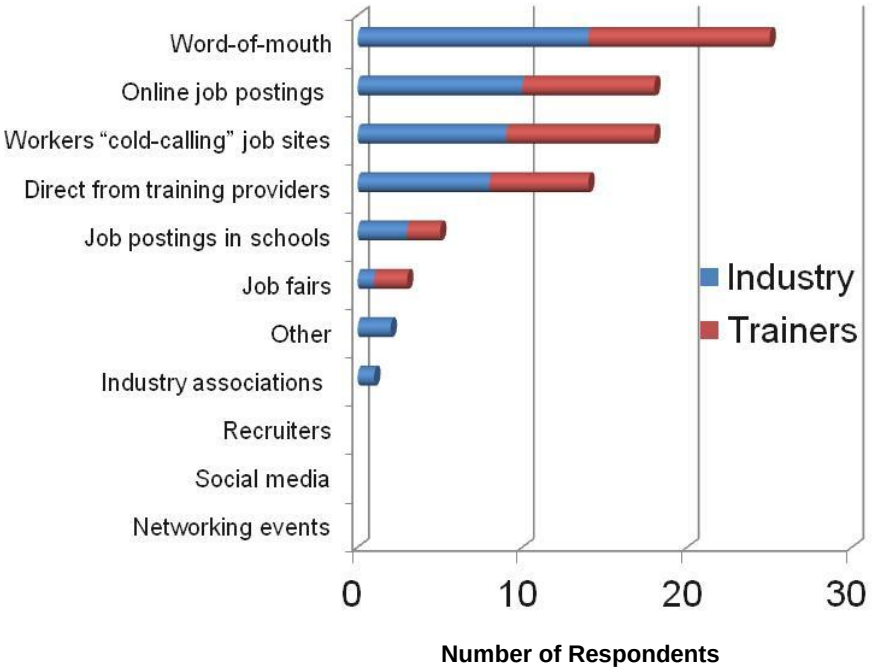
While industry and training providers seem to support the concept of an umbrella website and job portal, funding such an initiative might prove to be a challenge. Participants from the virtual focus groups felt industry would be reluctant to financially support such an initiative, as illustrated in Figure 11. At the same time, if enough value can be demonstrated through such a website, a potential public-private partnership funding model might work where government and industry associations can come together to better support the needs of the sector.



Source: GLOBE Advisors virtual focus group findings

Figure 11: Do you think companies might be willing to directly or indirectly (via subscription or membership / association dues) pay for a "one-stop-shop" training and information website?

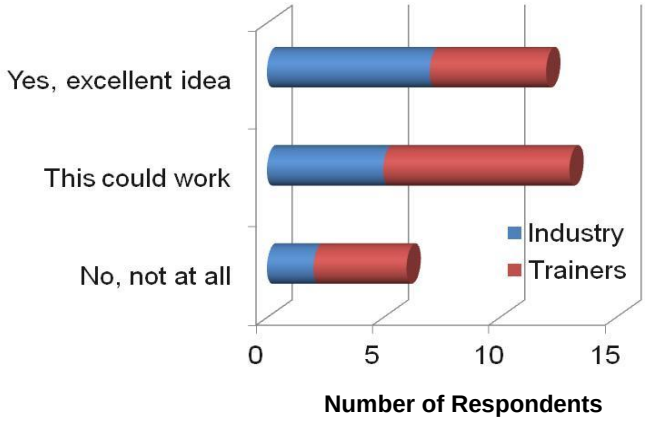
While word-of-mouth and "cold calling" job sites are common ways that residential construction employers in BC connect with their workers and apprentices, the virtual focus group results suggest that online job boards are commonly used by some in the industry (see Figure 12 below).



Source: GLOBE Advisors virtual focus group findings

Figure 12: How do residential employers find their workers / apprentices?

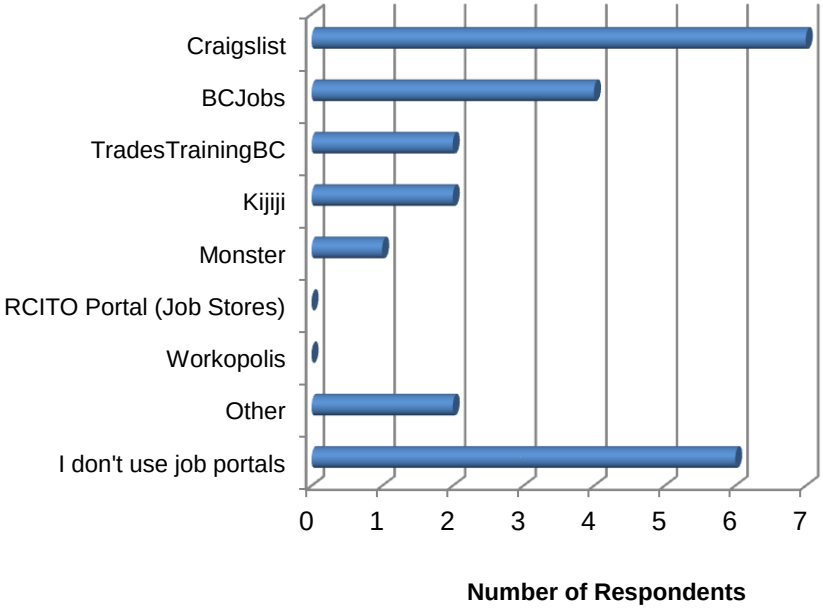
This was supported further when participants were asked directly whether they thought residential employers and apprentices would use an online job board. The results from research suggest that if it is properly designed and effectively marketed to potential users, an online job board could add value to the industry (see Figure 13).



Source: GLOBE Advisors virtual focus group findings

Figure 13: Do you think that employers / apprentices would use a well-structured, online residential construction-specific job board if one was created?

Specific websites that have been used by industry include Craigslist, TradesTrainingBC, BCJobs.ca, Kijiji, and Monster among others (see Figure 14). At the same time, few of these are construction specific and none have a residential focus.



Source: GLOBE Advisors virtual focus group findings

Figure 14: Which of the following job portals have you ever used to find suitable, skilled jobs and/or workers for projects in residential construction?

The table below provides examples of existing information websites with job boards and includes an overview of the services that these websites offer.

Website	Job Board	Professional Development Courses	Apprenticeship / Foundation Program	Connection to ITOs	Youth Programs	Financial Assistance	International Student Information/	Curriculum Content	Employer Specific Information
Angies List	No	No	No	No	No	No	No	No	No
Apprentice BC	✓✓	No	No	No	No	No	No	No	No
Avia Employment Services	No	No	No	No	No	No	✓✓✓	No	✓✓✓
BC Campus	No	No	✓✓	No	No	No	No	✓✓	No
BC Construction Industry Training Organization	No	No	No	✓✓	No	✓✓✓	No	No	✓✓
BC Federation of Labour	✓✓	✓	No	No	No	No	No	No	No
BCJobs.ca	✓✓	No	No	No	No	No	No	No	No
Canadian Apprenticeship Forum	No	No	✓✓	No	No	No	No	No	✓
Craigslist	✓✓	✓✓	No	No	No	No	No	No	No
Discover Trades	No	No	✓✓	✓✓	✓✓✓	No	No	No	No
Education planner	No	No	✓✓	No	No	No	No	No	No
Foreign Skilled Workers BC	No	No	No	No	No	No	No	No	✓
HardHats BC	No	No	✓✓	No	No	No	No	✓✓	No
Industry Training Association (ITA)	No	No	✓✓	✓✓	✓✓	✓✓	No	✓✓	✓✓
JobMatch	No	No	No	No	No	No	No	No	No
Kijiji	✓✓	✓✓	No	No	No	No	No	No	No
RCITO	✓✓✓	No	No	No	No	No	No	No	✓✓✓
RTO	No	No	✓✓	✓✓	✓	✓	No	No	✓
Skilled Trades Employment Program	No	No	No	No	No	No	No	No	No
T.R.A.D.E.S BC	No	No	No	No	No	No	No	No	No
Trades Training BC	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	No	No	No
Worksafe BC	No	No	No	✓✓	No	No	✓	No	✓✓

✓✓✓	Activity exists with substantial or entirely residential content
✓✓	Activity exists with some residential content
✓	Activity exists but no residential content

It will be important to consider the end users or target audiences of any website or online portal developed in order to effectively design, market, and promote the tool. Business and marketing plans should also be developed ahead of taking on such an initiative.

The following SWOT analysis in Figure 15 was undertaken based on research and considerations for possible action on developing a customized job and/or training information web portal to serve the needs of the residential construction industry in BC.

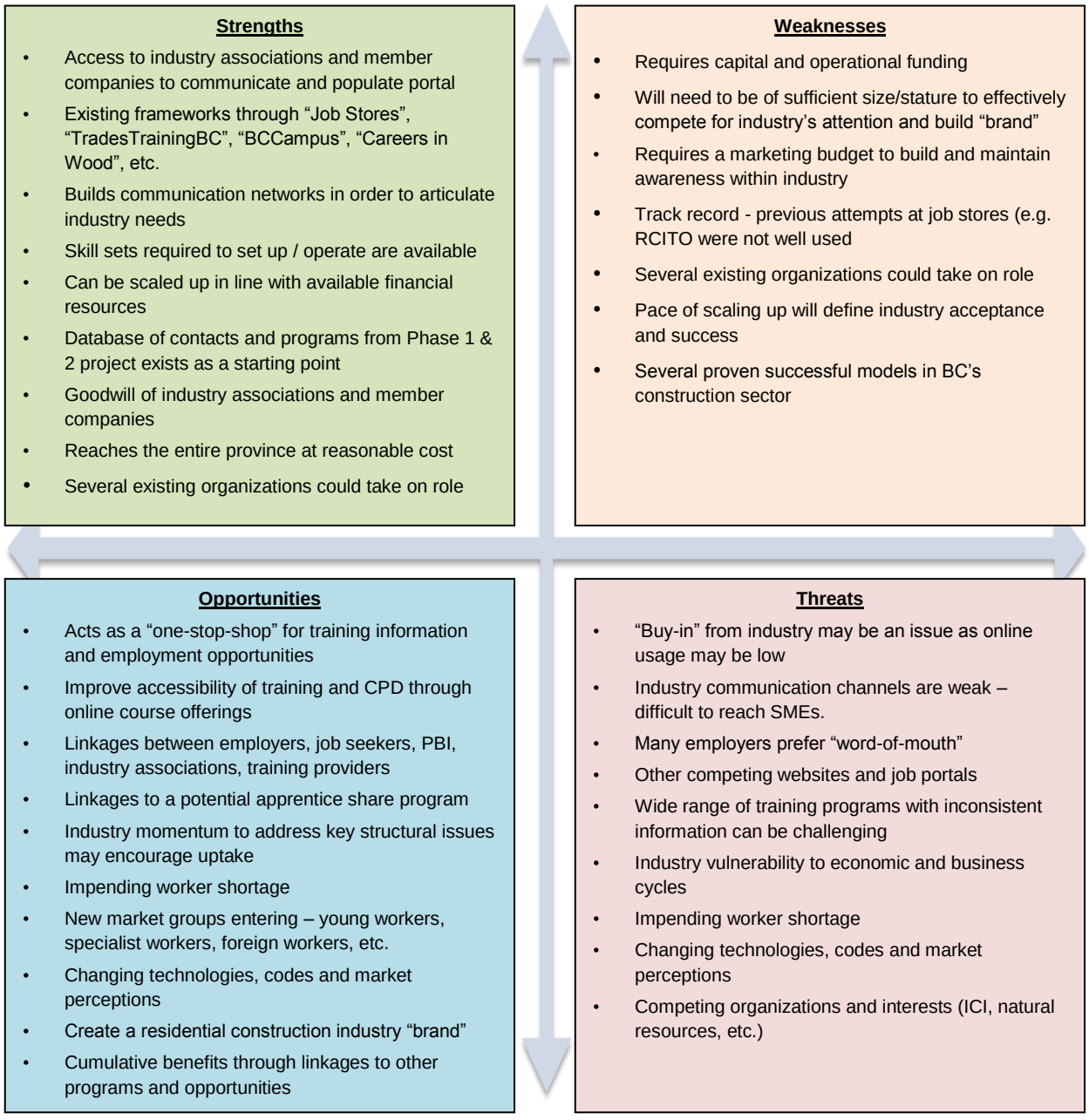
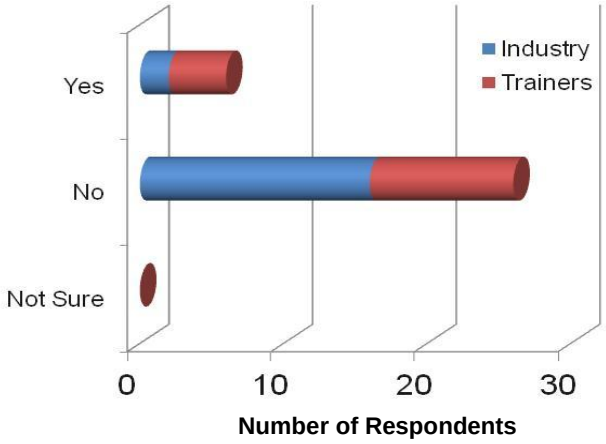


Figure 15: SWOT analysis for developing a job portal and training information website.

Apprentice Support Framework

Consultations as part of this research identified that the current apprenticeship system does not adequately support the needs of trainees. As illustrated in Figure 16, results from the virtual focus groups show that an overwhelming majority of both participants from the industry and training provider sessions feel that apprentices are not receiving adequate support during their school training (question posed to training providers) or in the workplace (question posed to industry).



Source: GLOBE Advisors virtual focus group findings

Figure 16: Do you think that residential construction apprentices are sufficiently supported when engaging in workplace training and the current training and education system?

An effectively designed apprentice support framework could go a long way toward addressing issues such as the limited capacity for employer mentorship and training; the apprentice's access to training providers and employers; and with issues related to affordability.

> **"Apprentices would benefit greatly from an industry liaison – the current self-serve system can be a real challenge. Support should ensure that employers are providing good experiences and appropriate supervision."**
>
> ***Interview with Training Provider***

An apprentice support framework might provide solutions that include helping apprentices address their financial struggles by assisting with grant applications and/or the EI process; helping to connect apprentices with employers / sponsors; and providing support with respect to developing career pathways and navigating the existing education and training system. There are also opportunities for providing monitoring and supervision to ensure that apprentices are gaining well-rounded experiences while working on various projects.

The ITA's 2013/14 Work Plan identifies an initiative to develop apprentice "coaches" to support all apprenticeship programs in BC. Five apprentice coaches are to be in place by the end of June 2013 with a total of 20 over the next 2-5 years. At the same time, the structure of this service and scope of activities (i.e., industry specific, region specific, etc.) have yet to be defined – although responsibilities will be similar to those of the previous apprentice counsellors through ITAC.

It should be noted that the new ITA apprentice coaches will unlikely be focused specifically on the needs of the residential construction industry in BC. Having additional support in place that recognizes the specific needs of the residential sector while complementing and leveraging the ITA apprentice coaches could deliver additional value and help to improve employer and trainee "buy-in" to the overall apprenticeship training system in BC.

> **"There needs to be some monitoring of employers to ensure that they are able to actually take on and handle an apprentice."**
>
> ***Interview with Training Provider***

It will be important that whatever support is developed includes multiple methods and channels for communication (e.g., in-person, email, social media, etc.). This is particularly important as apprentices in the residential sector can be very mobile and difficult to track as they move to various job sites or between companies over the course of their programs.

The following SWOT analysis in Figure 17 was undertaken based on research and considerations for possible action on developing an apprentice support framework to serve the needs of the residential construction industry in BC.

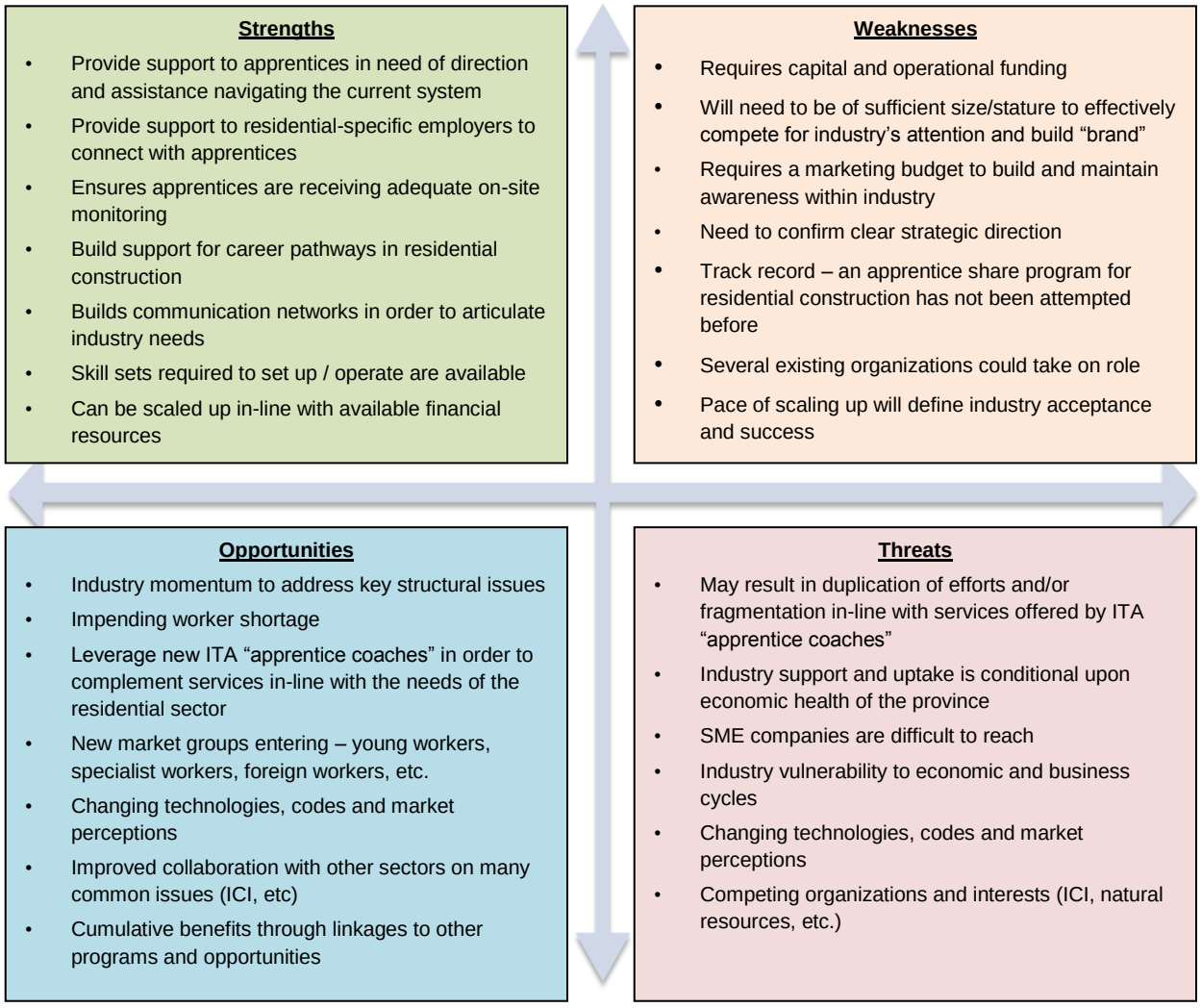


Figure 17: SWOT analysis for developing an apprentice support framework.

Tier 2 Activities – Recommended for Secondary Action

Tier 2 activities are those which are recommended for more secondary action by a potential industry-led third-party agency or organization in support of BC's residential construction sector. Criteria for activities that fall into the Tier 2 category include those which:

- May be conditional on the success of Tier 1 activities;
- Focus on developing and implementing services and/or programs;
- Are within the scope of an independent non-governmental organization;
- May require regulatory approval;
- Have a medium-term timeframe (2-3 years); and
- Have capital and/or operating costs that are considered manageable.

The underlying objectives and key success factors for Tier 2 activities include:

- Developing and delivering programs and services to support and promote industry training (for apprentices, employees, and employers) and fill identified gaps;
- Improve apprentice numbers and program completion rates; and
- Establish industry feedback mechanisms.

The four key activities include developing construction summer camps; developing a mentoring skills program; developing an apprentice share program; and developing more flexible program delivery and scheduling (including potential blended learning approaches). Each of these four activities is described in greater detail below, along with information gathered through secondary research and consultation.

Construction Summer Camps

The development of construction summer camps for youth is one opportunity area that was identified as a potential way to improve the public's perception for working in the trades while at the same time offering youth trade-related foundational skills.

At the moment, there is a distinct absence of construction-themed summer camps for kids aged 5-17 in British Columbia. Although there are over 200 summer camps provided annually across the province, none are designed to introduce youth to the construction industry.[1]

In other regions of Canada, as well as in some US states, governments, labour unions, and other industry associations have developed construction summer camps for children of all ages. Most of these camps are a long-standing tradition in the community and have great presence and popularity both with the kids themselves and the parents.

These programs could provide BC with a detailed framework on which to base future construction summer camps for the province. Research for this study suggests a few common themes amongst existing construction summer camp programs across North America, as described in Figure 18 below.

[1] http://www.mysummercamps.com/camps/british-columbia-summer-camps.html, http://www.ourkids.net/education-camps.php

In addition, there have been construction programs developed for youth, including “HardHats” and the “ACE IT” programs, which have materials and content that could be adapted to a summer camp style format to some degree.

Features	Overview
Target Age	Grades K-9 [2]
Camp Duration	Day Camps: 9am-4:30pm, 5 days a week for 1-2 weeks.
Instruction	Professionals/institution instructors
Primary Source of Funding / Sponsorship	Building, Contracting, and other Industry Associations.
Curriculum	The use of light tools and equipment, workshop safety, education for parents, field trips to job sites, problem solving, team work, technologies and materials, and building fundamentals

Figure 18: Common characteristics for construction summer camps across North America.

A few examples of existing construction summer camps across North America are presented in the table on the following page.

The following SWOT analysis in Figure 19 was undertaken based on research and considerations for possible action on developing construction summer camps to serve the needs of the residential construction industry in BC.

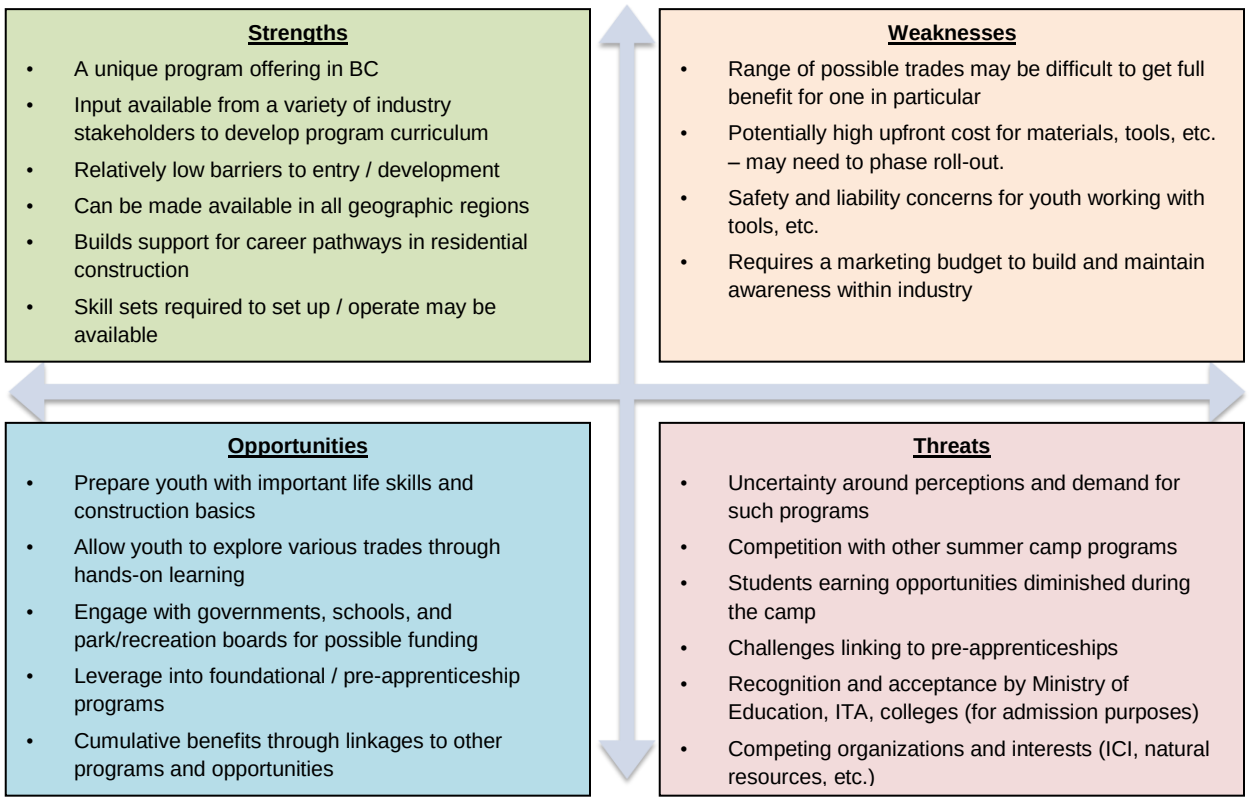


Figure 19: SWOT analysis for developing construction summer camps.

[2] An exception is the program in Portland, Oregon, which is designed for youth ages 16-21 to introduce them to the construction industry.

Program	Ages	Organization	Sponsors	Website
Skills Work!® [3] (Ontario)	12-13 (grades 7-8)	Skills Compétences Canada Ontario®	HydroOne, Government of Ontario	The *Skills Work!*® Camp is a week-long summer day camp that provides students going into grades 7 and 8 with an opportunity to explore careers in skilled trades and technologies. As they build, fix, design and create, campers learn about careers in transportation, construction, manufacturing, communication, and services.
Youth Under Construction Summer Camp [4] (Newfoundland & Labrador)	10-13 (junior high school students, grades 5-8)	Carpenters Millwrights College	Atlantic Canada Regional Council of Carpenters, Millwrights and Allied Workers	Under a safe construction environment, kids are taught fun, hands-on construction projects by carpentry instructors. Personal protective equipment, and all tools and materials are provided.
Three-Week Summer Construction Camp [5] (Oregon)	16-21	Northwest College of Construction	Home Builders Association of Metropolitan Portland, Associated General Contractors, Associated Builders and Contractors	Young adults contemplating jobs in the 'real world' of construction will greatly benefit from this hands-on experience. Industry professionals will lead discussions and field trips to active job sites. Upon completion students will earn / obtain a solid overview of 9 construction career paths; flagging certification; first aid / CPR training and certification; and light equipment experience.
Summer Camp Programs [6] (New Jersey)	Different programs suited for various ages	Construction Industry Advancement Program	New Jersey Asphalt Pavement Association, Utility and Transportation Contractors Association, Associated General Contractors of New Jersey	CIAP of NJ created two unique summer camps, Construction Camps and the Future Civil Engineers Camp, to introduce students of all ages to the exciting world of construction careers. Camp activities include: hands-on activities and exploration; field trips to the union training centers; and special programs all from participating union trades featuring carpenters, construction labourers, and the operating engineers.
Construction Kids [7] (New York)	5-9 (grades K-4)	Construction Kids	Self-funded	*ConstructionKids* introduces little builders to a broad range of materials and tools. We study the natural and man-made world around us, while learning to work individually as well as part of a team. Kids work on individual and group projects with real tools and materials that are scaled and selected for small hands. Creativity and problem solving are fostered.

[3] See: http://www.skillsontario.com/index.php/en/programs/summer-camps
[4] See: http://www.cmcnl.ca/programs-and-courses/youth-under-construction/
[5] See: http://www.nwcoc.com/?page_id=2791
[6] See: http://72.29.7.114/camp.asp
[7] See: http://constructionkids.com/index.html

Mentoring Skills Program

The employer of an apprentice has a great deal of the responsibility for training apprentices – particularly since up to 80 percent of competencies for some trades are developed on the job site. As such, it is essential that employers / trainers develop effective mentorship skills.

> **"You can't have quality construction without a trained tradesperson to begin with."**
>
> ***Surrey Focus Group***

A mentoring skills program could take many forms. From the T.R.A.D.E.S. BC website, a number of mentoring and training guidelines are put forward as helpful tips for the mentor.[8] These include:

- **INVEST** - Invest in the future of your company and your future workforce.
- **TEAMWORK** - Involve your apprentice(s) and journeyperson(s) / trainers in all aspects of the training process.
- **COMMIT** - Foster a workplace committed to training. Educate your staff on the value of training apprentices and recognize excellence in training.
- **TAKE ACTION** - Get involved and be informed on what is happening with apprenticeship training in BC. Also have input into trades advisory committee's through the ITA and College.
- **PRODUCE** - Meaningful training will affect productivity costs. You need to allow sufficient time for training.
- **MOTIVATE** - Foster team work and demonstrate a good work ethic. Give your trainers authority around apprentices training. Your employees are your greatest asset.
- **INVOLVE** - Show the apprentice your business. Take time to show him or her around the worksite. Explain the nature of your business and how the apprentice fits into the "bigger picture".
- **INFORM** - Have regular staff meetings which include the journeyperson and apprentice. Keep everyone informed of business expectations, quality control and productivity.
- **MONITOR** - Provide informal and formal monitoring. Informal monitoring is daily observation and feedback. Formal performance reviews should include the apprentice, supervisor/trainer and should be documented in the apprenticeship record book.
- **MENTOR** - Consider assigning a mentor so the apprentice always has access to a qualified competent journeyperson that he/she can go to anytime for guidance and instruction.
- **SHARE** - Consider sharing the apprentice with another employer who offers work experience in areas you can't, to provide a comprehensive apprenticeship experience.
- **DEVELOP** - Develop a detailed training plan with training objectives and timelines.

As described earlier, the ITA is developing a "coaching" program that will also include support for employers / trainers. The plan is to have 20 representatives across the province of BC to serve the needs of industry.

BCIT, Okanagan College, and others have offered 60-hour apprenticeship "challenge" courses designed for employers who may wish to send their senior staff (or themselves) which would then allow them to become certified journeypersons and take on apprentices.

[8] http://www.tradesbc.org/toolkit/mentoring.htm

In some other provinces, schools have developed specific mentorship related training programs. For example, the Blue Seal Program offered by the Northern Alberta Institute of Technology (NAIT) offers businesses a "Supervisory Development Certificate" program.[9]

> **"Quality control is seriously lacking in the industry. To get quality into the buildings, you need to have hands-on training."**
>
> ***Interview with Training Provider***

In addition to programs, resource toolkits are a helpful way to educate trainers on mentorship best practices and inform business owners on the value of hiring apprentices. One toolkit example includes the "Workplace Mentoring Toolkit" that was developed by the Government of Nova Scotia, Apprenticeship Nova Scotia, and the province's Industry Training Authority.[10]

The Construction Sector Council has a Mentorship Program with materials that provide information and tools to help employers implement successful mentoring programs.[11] The guide incorporates best practices for the construction industry and includes information and resources on program planning, program preparation, training, support and monitoring, and evaluation and adjustment.

The following SWOT analysis in Figure 20 was undertaken based on research and considerations for possible action on developing a mentoring skills program and/or resource toolkit to serve the needs of the residential construction industry in BC.

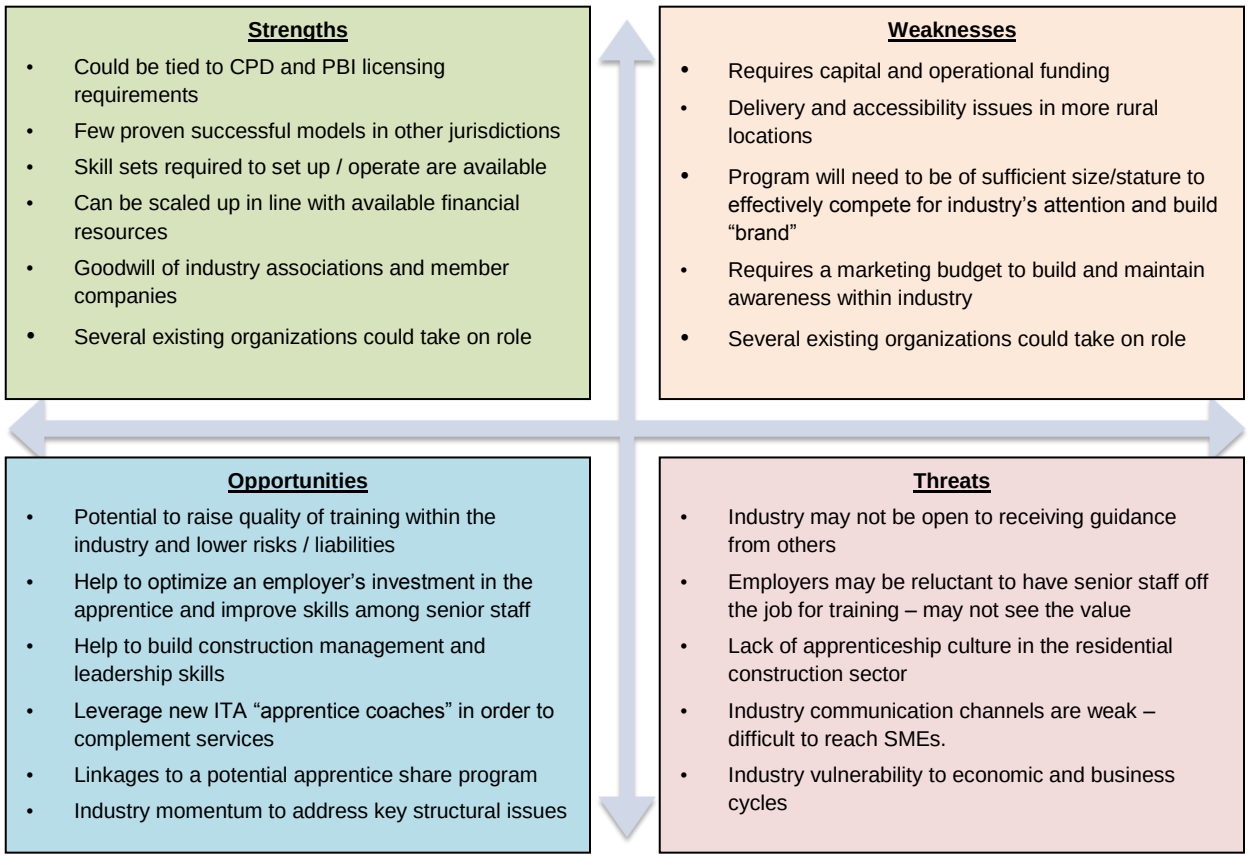


Figure 20: SWOT analysis for developing a mentoring skills program and/or resource toolkits for trainers.

[9] http://www.nait.ca/program_home_16881.htm
[10] http://apprenticeship.nscc.ca/mentoring/Mentoring.Resource.Toolkit.pdf
[11] http://www.csc-ca.org/en/products/mentorship-program

Apprentice Share Program

As mentioned earlier, apprentice share programs (also referred to as group training and/or apprentice labour pools) when designed effectively, can help to overcome issues with apprenticeship delivery, particularly the challenge that many SMEs in the residential sector face in terms of their limited time, resources, and capacity for taking on apprentices full-time, as well as their abilities to offer the full range of work experience opportunities to their trainees.

Apprentices that go through their entire trade programs and gain the full breadth of experience and skills in their trades are more qualified to work on a variety of projects and are more valued by employers. As such, these journey persons are much more employable going forward.

There are several successful examples of models that are working in other parts of the world. A couple of examples are listed below.

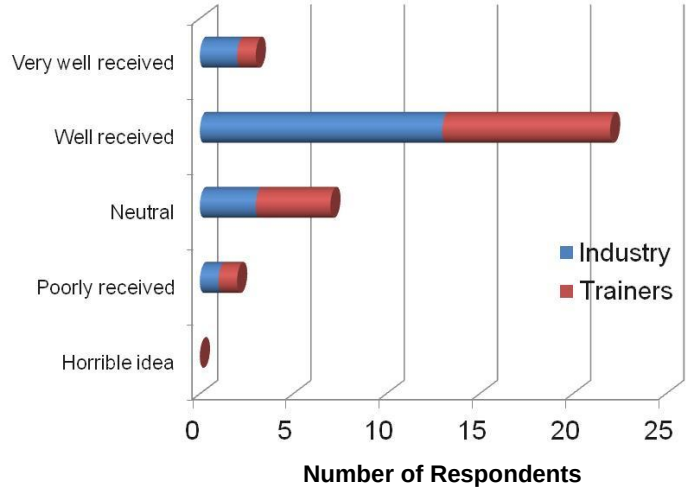
Program: Shared Apprenticeship Scheme [12]	**Program:** National Apprenticeship Programs [13]
Lead Organization: CITB UK	**Lead Organization**: Group Training Australia
Location (HQ): Norfolk, England	**Location (HQ)**: Sydney, Australia
Geographic Reach: Lancashire, Merseyside, and Wales	**Geographic Reach**: Australia
Description: Ten Shared Apprenticeship Schemes are being developed, which will see 500 extra apprentices joining the UK's construction industry workforce every year. The Shared Apprenticeship Scheme allows apprentices to complete a full apprenticeship programme by working with a number of different employers, to gain the skill sets they require to become qualified. An apprentice who completes the full three-year apprenticeship will pick up an NVQ Level 3 in their chosen trade. Currently, around 90 percent of apprentices who complete the three years have secured full-time employment in their chosen trade.[14] The scheme is being rolled out by CITB following successful pilots is serving the regions of Lancashire, Merseyside and Wales.	**Description**: Group Training Australia Limited (GTA) is the national association representing a network of around 150 group training organizations (GTOs) located throughout metropolitan, regional, and remote areas of Australia. Collectively the national network of group training organizations employs around 35,000 apprentices and trainees and over 100,000 businesses have used a group training organization to manage the employment of their apprentices and trainees. The GTO arranges and monitors the on and off-the-job training and takes responsibility for all paperwork including wages, superannuation and other employee benefits. The GTO ensures the quality and quantity of the apprentices' and trainees' employment training and experience by rotating where necessary from business to business.

In BC, many private training providers, industry associations, unions, and not-for-profit organizations take on the role of indenturing and managing apprentices and are quite successful at it. Examples of such organizations include the Trades Trowel Training Association, Pacific Vocational College, the Roofing Contractors Association of BC, the Finishing Trades Institute (organized under DC38 Joint Trades Society), the Independent Contractors and Businesses Association of BC (ICBA BC), and the International Brotherhood of Electrical Workers (IBEW) Local 213.

The apprentices sponsored by these organizations however tend to work in the institutional, commercial, and industrial (ICI) sectors, due partly to a more recognized cultural of apprenticeship as well as the larger capacity of companies in these sectors to bring on apprentices due to being larger in size and/or having projects with longer timelines.

[12] See: http://www.citb.co.uk/en-GB/CITB-Apprenticeships/Shared-Apprenticeship-Scheme/
[13] See: http://www.grouptraining.com.au/
[14] See: http://www.citb.co.uk/en-GB/CITB-Apprenticeships/Shared-Apprenticeship-Scheme/

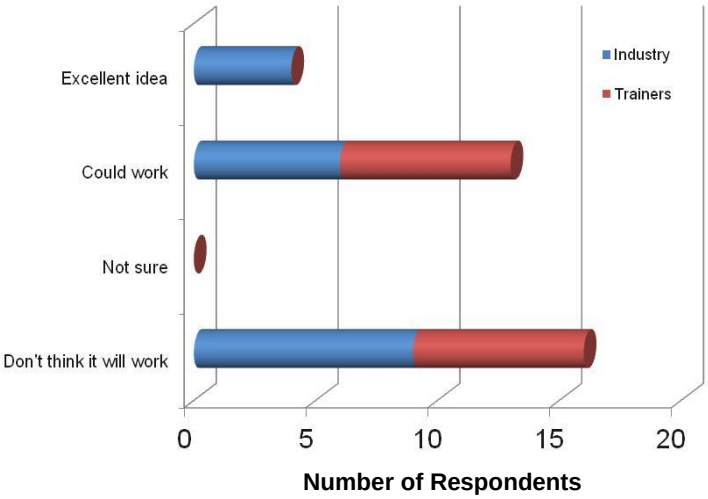
The idea of an apprentice share program was repeatedly suggested during the consultation phases as an opportunity for the residential construction sector. Indeed, the idea was relatively well-received from those who participated in the virtual focus group sessions (see Figure 21). Participants identified all key residential trades as suitable for an apprentice share program, including carpentry, heating and HVAC, plumbing, electrical, and finishing trades.



Source: GLOBE Advisors virtual focus group findings

Figure 21: How well would the idea of an apprentice labour pool be received by homebuilders and renovators?

Despite their support for the idea of an apprentice share program for BC's residential construction sector, participants in the virtual focus groups were somewhat hesitant and/or reluctant to support the idea of an agency designed to indenture and manage a labour pool (see Figure 22).



Source: GLOBE Advisors virtual focus group findings

Figure 22: What do you think of the idea for a "training centre" to take on the role of indenturing and managing an apprenticeship labour pool for the residential construction sector?

This could be the result of previous failed attempts, such as the one by the Residential Construction Industry Training Organization (RCITO) that was interested in developing such a program a few years ago but never received support from the ITA.

Concerns from the ITA include the ability of an organization to effectively monitor apprentices that tend to be mobile in nature, making them hard to track. An organization looking to become a recognized sponsor of apprentices must be able to effectively administer and manage a complex structure of journeypersons and apprentices and provide suitable training oversight.

In addition, some in industry are concerned that such a model would not work because residential construction companies are worried about losing their workers to the competition. There's the mentality that once a company has spent time training an apprentice a certain way, they are more efficient at their work and don't want to give him or her up to others in the industry. It could be a particular challenge at the sub-contractor level due to stiff competition.

Others countered that employers should not worry about "poaching" from the competition or about losing their trainees as a good company will always find ways of keeping their best workers. Such a model also provides employers with a suitable way to let apprentices go if they are not productive.

> **"There is a need to fill the gaps for absences and compensate for busy times so an apprentice share program or an alliance would do a good job of that."**
>
> ***Burnaby Focus Group***

The following SWOT analysis in Figure 23 was undertaken based on research and considerations for possible action on developing an apprentice-share program to serve the needs of the residential construction industry in BC.

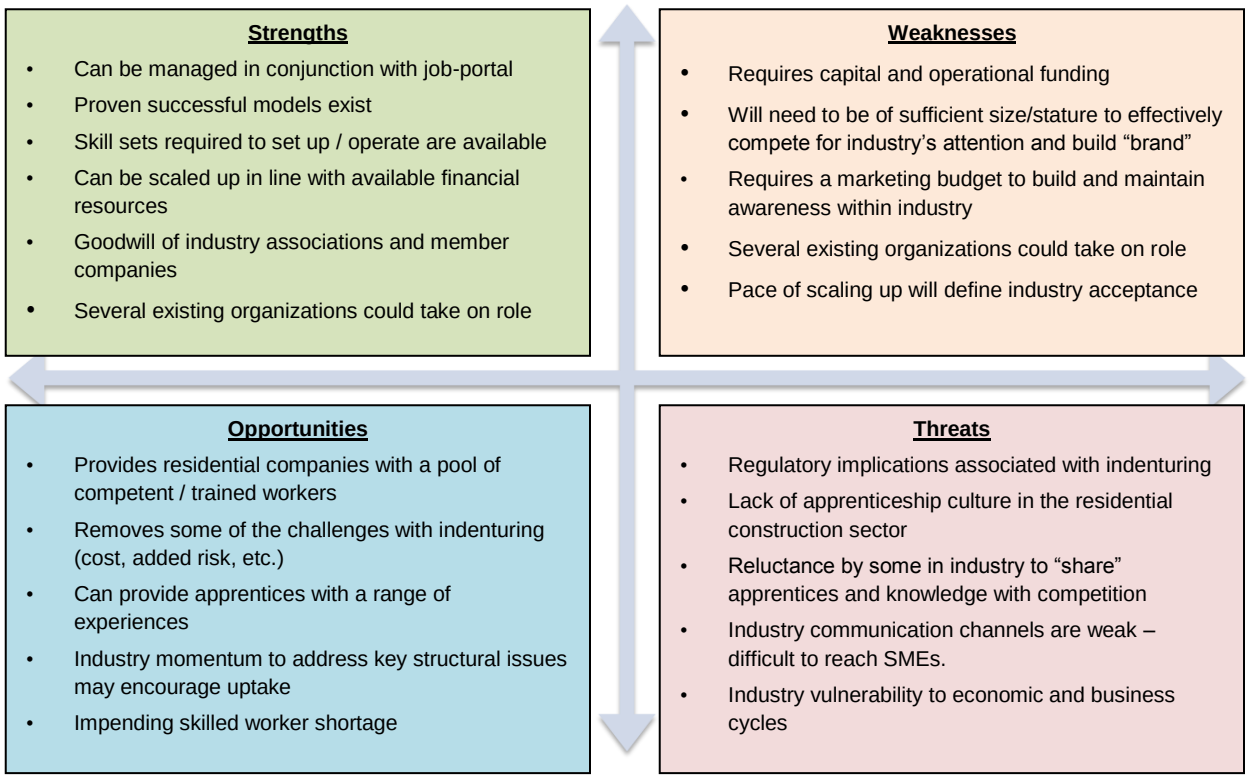
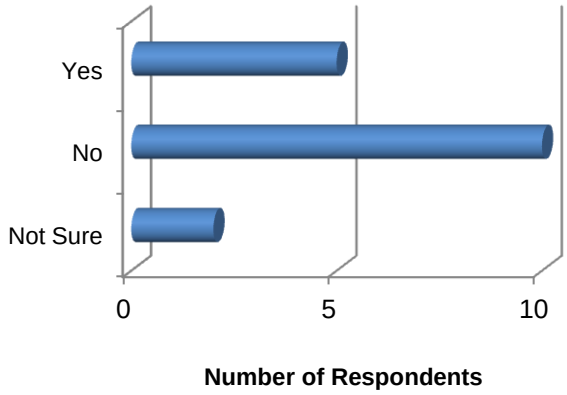


Figure 23: SWOT analysis for developing an apprentice share program.

Flexible Program Scheduling & Delivery

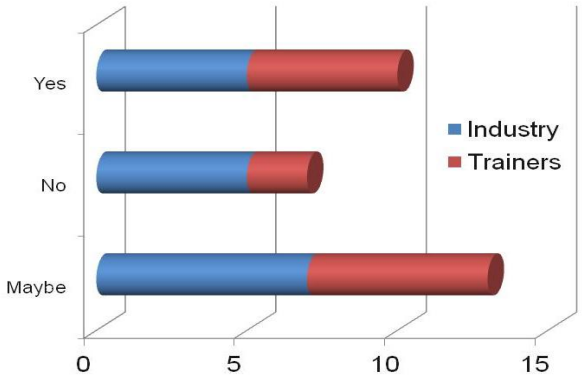
Challenges with program scheduling were raised repeatedly during the consultation activities for this project, particularly as they relate to the traditional 4-year, “block release” training format and accessibility to training programs in more rural locations throughout the province. At the same time, many of those from industry who participated in the virtual focus group did not feel that the traditional block release format created challenges for their companies with respect to bringing on apprentices (see Figure 24).



Source: GLOBE Advisors virtual focus group findings

Figure 24: Does the traditional, 4-year, block release model create challenges for your company with respect to brining on apprentices?

However, some of the participants in the virtual focus group sessions felt that more flexible scheduling of programs could increase completion rates for residential apprentices (question posed to training providers) or make it easier for employers to allow students to go back to school (question posed to industry) (see Figure 25).



Source: GLOBE Advisors virtual focus group findings

Figure 25: Do you think that offering more flexible scheduling for some apprenticeship programs would increase enrolment or completion rates for apprentices?

Flexible Training Scheduling

Multiple formats do exist for more flexible program scheduling and innovative approaches may be required to ensure they adequately meet the needs of the residential construction industry. Some of the "alternative" scheduling formats include:

- Breaking "blocks" into shorter periods of training (e.g., break an 8-week block into two 4-week blocks);
- Continuous part-time training (e.g., 4 days in the workplace, 1 day in classroom per week, which wold equal 60-80 weeks per block);
- Hybrid programs that comprise some online and some in-classroom training (also referred to as "blended learning" formats);
- Four days per week in the classroom with 1 day off (still using the traditional block system);
- Shorter blocks such as 16 weeks of evening classes or in 2 week segments every 6 months to coordinate with seasonality, work flow, etc.; and
- Weekend classes (e.g., 20 weekends of training per block).

In Alberta, NAIT offers an "Open Exit" program that allows apprentices to work harder upfront in order to finish their programs before the 8- or 12-week timeline. This method of training allows the apprentice to return to work or family earlier, helping to reduce financial or personal stress.[15]

Algonquin College in Ontario is taking a similar approach by breaking down its Cabinet Maker Red Seal program into its skill set base and allowing flexible entry and exit for apprentices and laddering into other programs such as their 2-year diploma in cabinet making, their part-time certificate program, their commercial wood-working program, and their graduate certificate in specialized wood-working – programs where the skill sets overlap.

At the moment, very few public training providers offer evening and weekend courses. Kwantlen Polytechnic University and North Island College are two examples that do, but for their welding trade programs only that are in high demand. On the other hand, many private training providers do provide classes in evenings / weekends, perhaps to fill in the gap from the other institutions. Examples include:

- **Trowel Trades Training Association**
  Cement Mason, Levels 1-3: Tuesday, Wednesday, Thursday evenings and three Saturdays
- **BC Wall & Ceiling Association**
  Wall & Ceiling Installer Program: Thursday nights, plus all day Friday and Saturday
- **Pacific Vocational College**
  Gas-fitting Level B: 2 nights a week, plus full-day session on Saturdays and Sundays
- **Piping Industry Apprenticeship Board**
  Level C Welding: 2-8pm, Mondays-Fridays

Some suggested during consultation that more part-time courses offered in the evening could help improve the system by freeing up trades and apprentices to work in the daytime. While apprentices and instructors can find it challenging to go to class in the evenings after a long day of work, some training providers that do offer evening classes have found that both apprentices and instructors appreciate being able to work during the day and have an income while attending school.

[15] http://www.nait.ca/80969.htm

Most training providers that were consulted suggest that the capacity exists for accessing shop facilities, classrooms, and instructors on more flexible schedules (although issues with collective agreements could be raised in some instances). Training providers are also willing to provide courses in any format and under almost any schedule (e.g., evenings, weekends, 4-day weeks, etc.) so long as there is demand from employers and apprentices for such programs.

However, at the moment, the issue seems to lie more firmly on the lack of demand for apprenticeship training for many residential-related programs (e.g., Carpentry and Heating Technicians), due partly to the lack of apprenticeship culture in the sector and the lack of any regulation that requires workers on residential construction job sites to be "ticketed" and/or licensed for their trade or occupation.

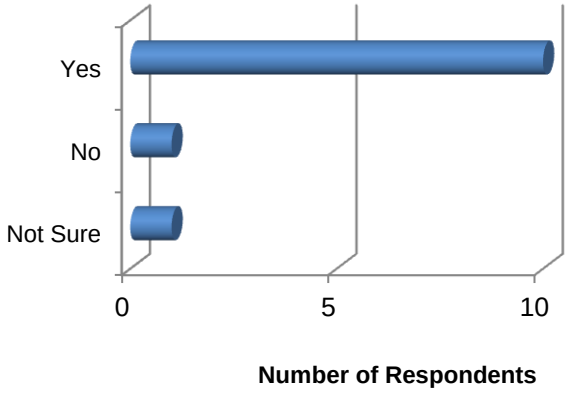
There is also the fear with some training providers and with those in industry that breaking up the traditional block release format can make it difficult for apprentices to learn effectively. Many feel that the block release format stimulates a commitment to education and training, which gives the apprentice a mental space to learn. Deviating from this structure can have an impact on the quality of learning and knowledge retention may drop. In addition, breaking up the block release structure may create challenges for instructor retention if they are not employed on a full-time basis and for apprentices when it comes to the EI process.

> **"You need to be really clear about what barriers that are being addressed with alternative scheduling and delivery – it doesn't help the apprentices if the quality of the learning experience is compromised."**
>
> ***Training Provider Interview***

Flexible Training Delivery

In terms of more flexible training delivery, offering components to apprenticeship programs and course curriculum using online formats or through video modules has become quite common and has proven successful for many trades – particularly as the younger generation is increasingly technology savvy. Blended learning offers opportunities for apprentices to learn some of their teachings online and then spend time in the classroom and in the shop with instructors practicing what they've learned.

The vast majority of training providers who participated in the virtual focus group for this study felt that elements of apprenticeship training should be offered online or via video modules (see Figure 26).



Source: GLOBE Advisors virtual focus group findings

Figure 26: Should elements of apprenticeship training be offered online or via video?

Trade programs and/or courses that were identified by the training provider focus group participants as having potential for being delivered effectively using online or video teaching methods included:

- Core math;
- Building code;
- Certain newer technologies such as hydronics;
- Painting;
- Refrigeration mechanic; and
- Electrical.

Pacific Vocational College, for example, has developed a successful approach by video recording some of its lectures. Instructors are still available to answer questions but it allows them to focus on those who need the attention most, an approach which has been well-received.

Thompson Rivers University is trialing its video conferencing (ITV) labs with big screens and cameras in the classrooms in order to run two hour evening classes focused on upgrading for carpentry theory. While it still requires students to attend class in person, it offers more flexibility in terms of location.

Training providers in Ontario and Alberta have also been experimenting with a blended learning format. Instructors at Algonquin College are filming their lectures ahead of time and sharing the content online. The Southern Alberta Institute of Technology (SAIT) is experimenting with a similar model where apprentices work online for the first one or two months and then the final month is spent in the classroom (the actual format varies by trade). SAIT was the first institution to bring on this model and are experimenting with welding, plumbing, electrical, and machinist trades. Students are in class approximately 4 weeks instead of 8 weeks.

More online and blended learning can be very trade-specific and can reduce in-class time by requiring online completion of some aspects before students come to class. Motivating apprentices on the other hand to complete assignments online and ahead of class time can be a real challenge. Some who were consulted also cautioned that online training is difficult to monitor and that face-to-face time is still essential.

The ITA developed a very interesting model for apprenticeship training called E-PPRENTICE that used a blended learning approach. The E-PPRENTICE program was based on the Provincial Flexible Learning Mode (PFLM) utilizing online study, mentoring, and traditional face-to-face training methods to deliver technical training based on a multi-level, two-component structure (see Figure 27).

The program consists of two components. During the first three months (component 1), the apprentice remains at work and accesses media-rich online content and videos when and where it is convenient. The workplace is also utilized during this component as the apprentice performs real tasks (workplace assignments) appropriate to provincial and national outcomes under the guidance of a qualified mentor.

During component 2, the apprentice attends their training institution (approximately one or two weeks) to review theory, complete knowledge evaluations, further develop practical skills, and then complete competency-based evaluations (counterpart to the workplace assignments) to ensure they are able to perform all of the required tasks. The amount of time an apprentice spends at their college and away from the workplace may be reduced to as little as one week.

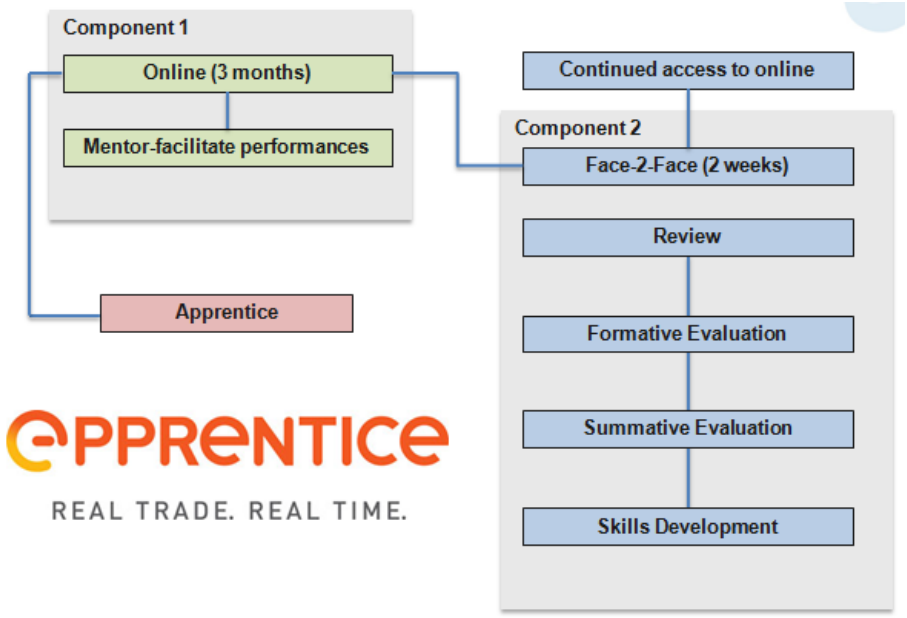


Figure 27: Flow diagram representing the structure of ITA's online E-PPRENTICE program in BC.

The E-PPRENTICE program was funded and sponsored by the ITA and BC Campus[16] was responsible for leading and coordinating the initiative on the ITA's behalf. Funding for E-PPRENTICE was originally secured by ITA from the BC-Canada LMA which supports investment in labour market programs. Funding was awarded for automotive service and auto collision repair technician through Vancouver Community College, professional cook through Camosun College, and welding through the Piping Industry College of BC. First enrolments took place in 2009-2010.

The programs were very expensive to develop – in the range of $600,000 per program. Further funding for additional E-PPRENTICE program development had been negotiated by the ITA from the federal Pan Canadian Innovation Initiative dependent on the continued availability of the LMA funds.[17]

However, in April 2010, the ITA determined that additional E-PPRENTICE programs would not be eligible for funding under the BC-Canada Labour Market Agreement (LMA) and decided to suspend future development of the initiative until alternate funding sources could be secured and new strategies for flexible learning could be developed. As a result of the ITA decision to wind down E-PPRENTICE, BC Campus is winding down its current phase of activity.

Despite the hiatus on new programs, Camosun College's E-PPRENTICE Flexible Learning for Professional Cook Training received the Association of Canadian Community Colleges' Gold Program Excellence Award in June 2012.

> **"The most powerful thing about this program is the integration of practical and technical training that connects geographically dispersed learners in the workplace with master teachers at Camosun."** [18]
>
> ***Camosun College Newsletter***

[16] BCCampus is the official ITA-powered e-learning coordinator for professional trades. More here: http://www.bccampus.ca/e-learning-for-professional-trades/
17 http://www.bccampus.ca/the-future-of-flexible-trades-training/
[18] http://camosun.ca/ccr/news/2012/jun/e-pprentice.html

While the Welder program is relatively intensive in the use of training equipment, consultation with the Piping Industry College of BC suggests the model worked well for the trade and industry was generally very supportive to the blended learning approach.

The ITA considers that the model is still workable and could be built out over a number of years (e.g., creating 5 videos in year one, 30 in year two, etc.). In fact, the Carpentry apprenticeship program was identified by the ITA as having potential for this style of blended learning up to Level 3. However, employer buy-in is critical to ensure success of such a model as the employer is essentially expected to replace some of the shop time and must be able to offer the range of activities required for training.

Residential-Specific Training

There continues to be mixed support from industry and training providers when it comes to developing residential-specific programs. Some feel that going residential-specific with certain programs such as carpentry training is closing the door on broader career opportunities. There is also a fear that fracturing training can cause a state of chaos within the industry and lead to greater fragmentation within the trades. Mobility and the ability to work on a variety of projects is important, especially in more rural areas.

In addition, more specialized programs become harder to fill and hence, riskier in terms of receiving funding from the provincial government / ITA. This has been an issue for programs such as the Residential Framing Technician. Under the ITA, there are a minimum number of registered apprentices per year required to run programs (i.e., 200 apprentices / year for a Level-4 program).

While the value of residential-specific training may exist, the challenge of going through ITA approvals can be significant. Instead of pursuing entire programs, a few key "supplementary" skills might be an option. The Fenestration Association of BC for example is currently developing a 2-3 week course specific for residential window installation as an "add-on" certification beyond the Level 1 for Glaziers.

There are also technical training standards that are over and above Red Seal. BCIT is currently working on "laddering" strategies with a Diploma in Trades Training (Carpentry, Electrical, etc.) that requires 110 credits for completion. BCIT is also looking at new bridging strategies for courses / activities such as estimating, construction management.

Another example from the ICI sector is the SSPC – Society for Protective Coatings which governs the Coatings Application Specialist (CAS) certification for industrial painters. Clients write CAS training qualifications into bidding documents. This means that contractors have to stay current on their skills so there are continuing education and journey person upgrading requirements. Training providers have suggested they can offer any courses through continuing education so long as there is sufficient uptake.

While many recognize that there is a need for residential-specific programs, particularly for businesses focused primarily on this sector in locations where the complexities of residential projects are increasing, developing these programs and determining the appropriate delivery and scheduling aspects comes secondary to establishing industry support and demand for such programs. As such, this activity comes secondary to those that were highlighted as Tier 1 priorities.

The following SWOT analysis in Figure 28 was undertaken based on research and considerations for developing more flexible apprenticeship program delivery and scheduling to better serve the needs of the residential construction industry in BC.

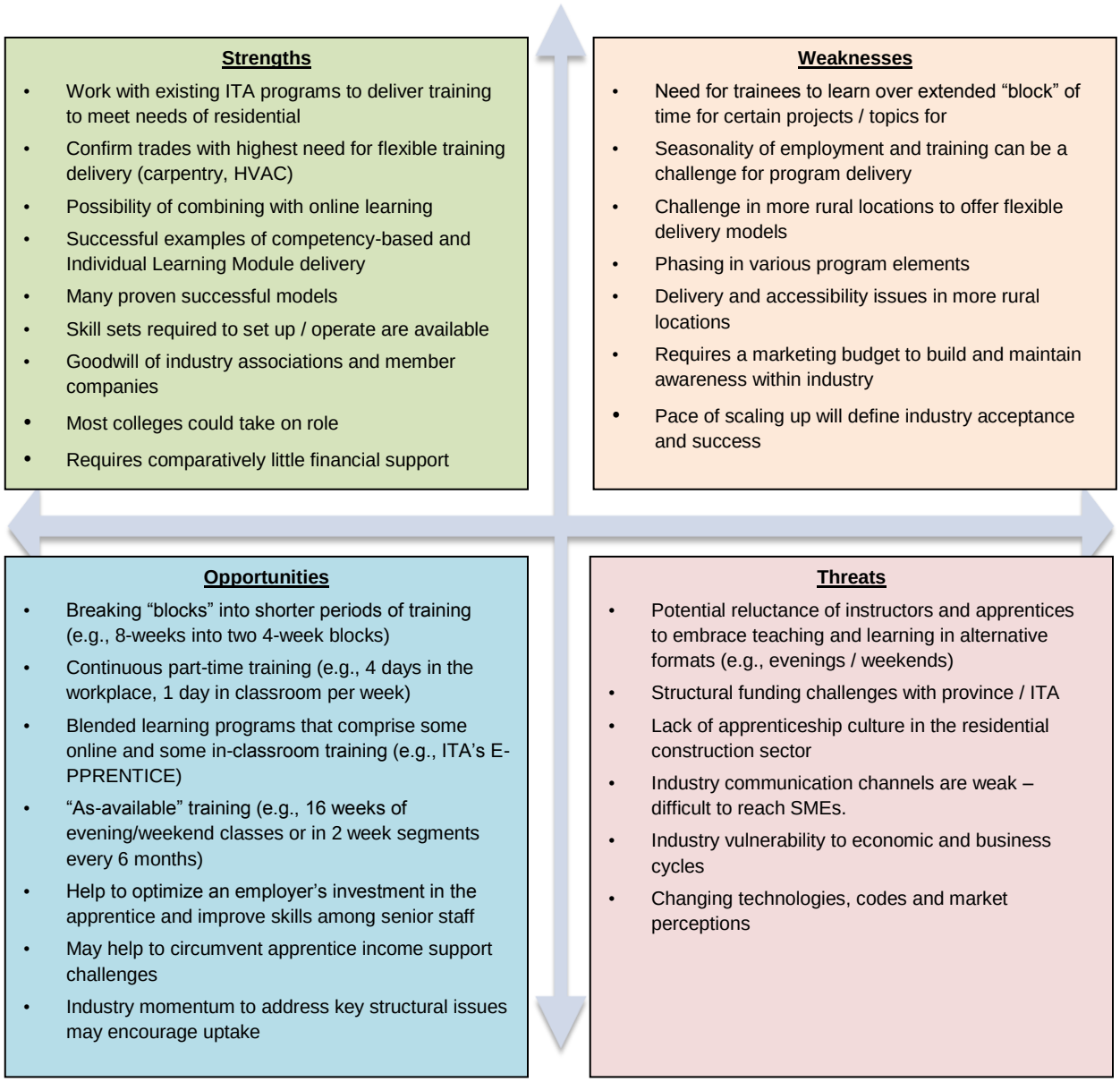


Figure 28: SWOT analysis for developing more flexible apprenticeship program delivery and scheduling in BC.

Tier 3 Activities – Recommended for Potential Future Action

Tier 3 activities are those which are recommended for no action in the short- or medium-terms by a potential industry-led, third-party agency or organization dedicated to supporting BC's residential construction sector. Criteria for activities that fall into the Tier 3 category include those which:

- May be conditional on the success of Tier 2 items;
- May not be within the scope of an independent non-governmental organization;
- Require regulatory approval or the implementation of other legislation;
- Have a long-term time frame (3+ years); and
- Have capital and/or operating costs that are significant or cannot be identified at this time.

The underlying objectives and key success factors for Tier 3 activities include:

- Improving education quality;
- Outreach to high-schools and prospective apprenticeship entrants;
- Rounding out educational programs and services (e.g., reviewing pre-apprenticeship programs); and
- Programs and services to support enhanced licensing requirements.

The four key activities include developing training transition certification programs; the design and implementation of greater logbook requirements; developing greater continuing professional development (CPD) education requirements; and developing training houses and technology showcases. Each of these four activities is described in greater detail below, along with information gathered through secondary research and consultation.

Logbook Design and Implementation

For most residential construction-related trades at the moment, the ITA in BC only requires sponsors to submit a 1-page "Work-based Training Hours Report", which essentially only tracks the total hours on the job by an apprentice and must be signed off by a journeyperson.[19] Trades involved in more industrial type projects in BC (e.g., welding and heavy-duty mechanic) do require more details reporting of hours by activity.

Some province's still require more detailed documents that record hours for specific trades. In Newfoundland and Labrador for example, logbooks are a pre-requisite to proceed through an apprenticeship program.[20] Alberta also requires apprentices to complete a "record book" as part of their training program. [21]

Developing a "log book" or "record book" for apprentices working in BC's residential construction industry that is broken out by section and signed off by the employer / trainer could help to ensure an apprentice's experiences are recognized and would allow employers a better sense of a worker's competencies. This

[19] http://www.itabc.ca/sites/default/files/docs/apply/forms/CS005.3%20Work-Based%20Training%20Report.pdf
[20] http://www.aes.gov.nl.ca/app/registration/logbook.html
[21] http://www.sait.ca/programs-and-courses/apprenticeships-and-trades/apprenticeships/additional-information/the-apprentice-system-of-training.php

already occurs within some trades (particularly for resource-based and energy-related trades such as power-line technicians where safety is a serious concern), there has to be a commitment by the employer / trainer to provide oversight throughout the training.

While logbooks will vary significantly from program to program, a properly designed book should allow an apprentice to track the successful completion of learning outcomes (either in terms of the number of hours or using a competency-based method) related to a specific activity / task at a specific location and date. Using a more detailed tracking system for recording hours and/or competency tied to specific learning outcomes may in fact better enable a more "modularized" training approach and/or sub-tickets within existing apprenticeship training programs.

Using a competency-based apprenticeship record book over hours may actually allow students to accelerate their learning by accounting for previously learned skills / knowledge, allowing them to progress at their own pace, and allowing them to concentrate on skills they require. Red Deer College Welding Department for example has been providing its technical training for welders using a competency-based delivery model for over 10 years.[22]

The T.R.A.D.E.S. BC website provides some useful information on the importance of and design considerations for the apprenticeship record book.[23] The BC Association for Crane Safety also has a good example of an online logbook that could be implemented in order to help track hours.

Another option is to consider using "Employer Declaration Forms" (e.g., such as the one developed by RCITO for the Residential Framing Technician) as a basis for such documents. These forms are not too onerous but still provide a suitable level of detail that links directly to the Occupational Analysis Charts (OACs).

While good in principle, a revised way of recording work site activities does create challenges – particularly for smaller companies focused on residential construction who may not have the capacity for directly overseeing the hours (although in theory, apprentices should always be directly supervised by a journeyperson). Another challenge that exists with respect to the tracking and verification of hours has to do with mobility of workers – particularly if they are spending time working with different companies in multiple locations throughout their apprenticeship experience.

Because redesigning and implementing a logbook or record book for residential construction trades is outside of the direct control of a potential third-party agency or organization, this activity has been assigned a Tier 3 priority.

That being said, there may be an advocacy role in terms of coordinating industry support for such an initiative that could then be brought forward to government and the ITA. For this to happen, industry must recognize it as valuable and be willing to provide the required supervision and tracking.

Training Transition Certification Programs

In the face of a critical shortage of skilled personnel entering the wood manufacturing industry, WoodLINKS USA was established in 1998 as a partnership between industry and education.[24] WoodLINKS is an industry driven, secondary and post-secondary woodworking partnership program, helping to build and maintain a strong, skilled workforce so that wood products manufacturers in North America can remain competitive in today's challenging economic environment.

[22] http://www.cluteinstitute.com/proceedings/2013HIPapers/Article%20264.pdf
[23] http://www.tradesbc.org/toolkit/record.htm
[24] http://www.woodlinksusa.org/

The long-term intent of WoodLINKS USA is to provide the wood industry with the necessary skilled workers to remain competitive at the entry and middle management levels. WoodLINKS USA encourages a cooperative, big-brother approach between the woodworking industry and the education system. With 64 sites in 16 states, WoodLINKS USA teachers reach thousands of students every day.

WoodLINKS USA is the most complete educational support organization for the wood industry in the United States. Each year over 10,000 students a year come to understand the personally and financially rewarding careers available to them in the wood industry.

In British Columbia, the WoodLINKS Wood Products Manufacturing Education and Certification program (through Wood Manufacturing Council) was developed by industry, secondary, and post-secondary schools and is approved by the BC Ministry of Education.[25] The WoodLINKS program was pilot tested in 16 BC schools during the September 1997 and 1998 school years, and subsequently received approval from the BC Ministry of Education for use in all BC high schools. The program is now offered annually in over 70 schools across Canada that are presently certifying students. This includes some schools in British Columbia, Saskatchewan, Ontario, New Brunswick and Yukon. WoodLINKS itself is a BC-registered, non-profit society whose mandate is to recruit and prepare quality young people for entry-level work in the wood products manufacturing industry and/or entry into wood-related college and university programs.

The WoodLINKS curriculum was built using a DACUM process with industry. The curriculum currently consists of 2 courses, representing approximately 240 hours of instruction in total. Curriculum content focuses on career exploration and basic skills in wood species identification, manufacturing processes, use of technology, product design, marketing and business skills. Assessment tools were developed to match the WoodLINKS curriculum. Schools can offer the WoodLINKS curriculum as stand-alone elective courses or embedded within existing courses, e.g., Woodworking 11/12, Construction 11/12, etc.

A certification process was also developed with industry representatives setting the standard for achieving certification. The certification indicates students have met the industry standard for entry-level employment in wood products processing. Certification consists of a 3 part assessment: an evaluation by the WoodLINKS teacher, a written test set by WoodLINKS or WMC and a Practical Skills Checklist. A student must score 70 percent overall to be certified.

High school teachers can certify students to an industry standard and transition agreements with post-secondary institutions and training providers provide certified students with exemption from introductory courses and/or preferred entry into trade programs. Transition agreements are updated annually and distributed to high school career counsellors and teachers throughout BC. Currently, transition agreements exist with six post-secondary institutes in BC, including BCIT, the College of New Caledonia, the Emily Carr Institute of ART + DESIGN; the Kootenay School of the Arts, the University of British Columbia; and the University College of the Cariboo.

Developing a training transition certificate program that would be unique to the residential construction industry could add value to the sector while addressing the challenge with youth that lack foundational and pre-apprenticeship skills. However, because such a program requires longer timelines and significant support from industry, training providers, and government this activity has been assigned a Tier 3 priority. To be successful, it would also be beneficial to have greater employer buy-in to the apprenticeship system for residential construction to ensure youth entering such a program would have solid opportunities for continuing their learning as an apprentice.

[25] http://www.woodlinks.com/home.html

CPD Education Requirements

The complexity of residential and light construction has risen over the last decade. As a result, there is a need more expertise and a better ability to communicate between contractors and trades. At the same time, a mentality exists where the "cheapest" bid always wins. This does not support workers that have greater levels of experience and training, nor does it support cross-collaboration between companies and trades. In turn, building quality suffers.

> **"From the builder's perspective, their hands are tied for self-regulation because they won't get any more for the product that they sell because they've hired a journeyman, it just means the builder has to pay $30 / hour instead of $16 / hour for the really good unlicensed guy."**
>
> ***Surrey Focus Group***

> **"Ultimately, we are businessmen. We can have as many certifications as we want but if we can't sell it then it doesn't work for us. This is where regulation comes into play to force this on consumers."**
>
> ***Interview with Industry***

While some spend a great deal of time developing their knowledge through research, continuing professional development (CPD) and training in order to adapt to the changes in building code, energy regulations, and emerging technologies, many in the industry have not embraced the need for CPD. Instead, many find out through error when the building code changes.

> **"People won't take a continuing education course unless it is to get a job, keep a job or make more money."**
>
> ***Burnaby Focus Group***

At the same time, many building inspectors are uncertified and are not necessarily up-to-date on technology and equipment installation best practices.

As such, there is a need for a proper pathway for workers in the residential sector to go back and learn about emerging technologies. This is increasingly important for the general contractor onsite who is responsible of overall quality control, the coordination of sub-trades, and adherence to building code standards such as building envelope performance.

While many during consultation pushed for greater regulation around licensing linked to CPD and/or the need to bring back compulsory trades in BC, there are opportunities in the near-term for promoting the value of CPD within the residential sector.

> **"Regulation is the most important thing. There are so many fly-by-night operations, which creates huge competition for the legitimate guys. The unqualified workers are only doing more damage to the situation and they are hurting our reputation."**
>
> ***Burnaby Focus Group***

"Contractors need to be trained. All you have to do is fill in a piece of paper at City Hall and then you're a contractor. There is no business training or presentation of qualifications, and both of these things need to be mandated."

Burnaby Focus Group

"There is little buy-in from residential construction stakeholders [for CPD training] and little value given to certification and qualification. Of course, there should be credentials and this is where the buy-in will come from but this has to be regulated or driven by someone from our end."

Surrey Focus Group

In-line with more flexible course delivery and formats using online learning, there may be opportunities for making training available through multi-media. This could include developing video modules as instructional tools, such as building envelope best practices, code updates, and for tutorials on emerging technologies. These could be made readily available through mobile devices (e.g., tablets and smart phones) which would then be accessible on the job site for general contractors, construction crews, and sub-trades.

There is also an important public / homeowner education piece tied to raising the value of hiring qualified homebuilders, renovators, and contractors which could, in turn, increase demand for more CPD-related certifications.

Because improving CPD education requirements is partly a regulatory issue and partly a longer-term investment in raising industry and the public's awareness around the value of ongoing education and training, this activity has been categorized as a Tier 3 priority.

Training Houses and Technology Showcases

Training houses are an additional opportunity that when effectively used in the apprenticeship program sequence, can be highly beneficial tools for education and hands-on learning. These initiatives can also be used as technology showcases for learning and educational purposes with students and the public at large.

Examples of these learning activities do exist across the province. As part of its Level 1 and 2 Carpentry Foundation program, students at Thompson Rivers University build a house as part of an annual project. The house is later raffled off to raise money for various charities. At Okanagan College, students in the Carpentry Foundation Program (formerly the Residential Framing Technician Program) work out of shipping containers to build community-based projects and houses through initiatives, such as "Habitat for Humanity", in order to meet a real world need.

Developing training house programs and technology showcases as part of residential-related trade training programs does add real value to the sector and addresses some of the challenges around mentoring and supervision on a real worksite, allowing for "house as a system" approach to be integrated at an early stage in a student's learning. However, because such initiatives require significant resources and funding support, this activity has been assigned a Tier 3 priority.

Training Capacity Assessment

Providers of classroom-based apprenticeship education and training to the BC construction industry predominately comprise public and private colleges, industry associations, labour unions, and independent education and training service providers. However, for some construction trades, over 80 percent of an apprentice's training occurs in the workplace under the direction of a qualified journeyperson.

In order to understand the barriers and opportunities to alternate training uptake and delivery, it is therefore necessary to assess training capacity within the industry, both in the workplace and in the classroom.

The following assessment is based on an analysis of the real and perceived gaps in education and training as they relate to the needs of BC's residential construction industry. These gaps were identified through consultation with industry, training providers, and other key stakeholders during this study. A gap analysis based on the feedback received from the online survey of builders and contractors that was carried out as part of the *BC Residential Construction Industry Profile Study 2013* was also included in this assessment (see Appendix E for the more detailed results from this analysis).

Workplace Training Capacity

The quality and accessibility of workplace training for apprentices is predicated upon the availability of qualified journey people within the apprentice's company and the willingness and aptitude of those senior workers to be able to mentor the apprentice on the full range of necessary skills. There are some colleges in other jurisdictions (e.g., Nova Scotia Community College) that offer mentorship training programs for journey people before they take on their first apprentice.

However, for such courses to be successful in BC, employers first need to sufficiently appreciate the value of apprenticeship training to retain qualified workers (or be qualified themselves) and be able to spend enough time mentoring the apprentice on a well-rounded range of experiences. It should also be noted that several BC colleges (e.g., BCIT) offer apprenticeship Challenge programs for seasoned trades people who want to get their Certificate of Qualification which will then enable them to take on an apprentice.

Because residential general contracting and trade companies are small, project timelines are short, and there are few regulatory requirements for trade qualifications, investing in an apprentice is perceived as a costly and risky proposition and the industry has yet to establish a "culture" of apprenticeship. As a result, the current capacity within BC's residential construction sector to provide workplace skills training is low. (See solutions to "Limited Capacity for Mentorship / Training").

Classroom-based Training Capacity

The much publicized course "waitlist" challenge (whereby apprentices may have to wait up to two years to enter a program) is largely restricted to the apprentices related to the natural resource sector (industrial electricians, heavy equipment mechanics, welders, etc). In fact, the trade training programs that are applicable to residential construction, such as Residential Framing Technician and Heating Technician, are rarely filled up.

For some residential-relevant programs, the lack of participation in the courses has caused cancellations and the ITA to "inactivate" some of the apprenticeship programs that were designed by RCITO (in particular, the Building Envelope Technician and the Log Builder).

Consultation with training providers reveals that there is capacity within the established institutions to deliver ITA-sanctioned programs and courses via a number of different formats and using a range of scheduling options. Most of the training institutions in BC currently offer a range of delivery formats such online, pre-videoed classes, and/or blended learning formats for a wide range of trade training programs.

Instructors have a good deal of experience with the various delivery and scheduling formats, which trade skills are best suited to particular course formats, and how the course format and sequencing impact the quality of the learning experience and knowledge retention. However, the colleges that receive funding from ITA to deliver programs are under some pressure to deliver programs faster and within tighter budgets.

> **"Training is controlled by the ITA, as is funding and available training hours and we are in a shrinking mode."**
>
> ***Training Provider - Surrey Focus Group***

> **"The training period for apprentices is too short, and BC is one of the worst provinces for pushing people through…this can hurt a lot of small businesses."**
>
> ***Training Provider - Burnaby Focus Group***

The training providers welcome a stronger voice from industry to help them articulate their current challenges to training authorities. Unfortunately, the residential construction industry does not have a sufficiently strong "voice" to effectively advocate for the quality of training it needs.

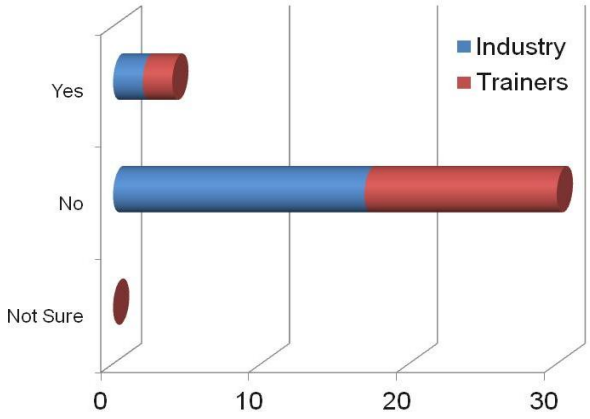
> **"The [class] time constraints are such that we have difficulty delivering the minimum curriculum as it is let alone adding any value to the program."**
>
> ***Training Provider - Surrey Focus Group***

Several colleges across Canada (including some in BC) operate mobile training units that can bring training facilities to students in more rural and remote locations. However, these units are extremely costly to build and operate and given that residential construction is largely an urban / suburban activity, the benefits of these units to advancing residential-specific training are few.

Institutions are also receptive to modifying existing program format and content, or even developing new courses, so long as demand can be clearly demonstrated. Certainly, the research suggests that some technical training curriculum is old and needs to be updated to include for all the latest developments in technology, practices, methods, materials, and machinery.

> **"The basic educational system for millwork in general is out of date, and focuses on 'perfect shop conditions' only."**
>
> ***Interview with Industry***

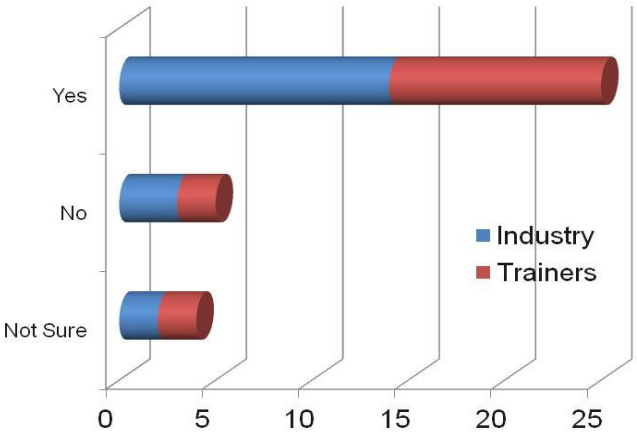
The research indicates that the current level of communication between industry and training institutions is low (see Figure 29) which impacts the training authorities' ability to confidently make changes to course content and the colleges' capacity to accurately forecast class attendance. This is particularly problematic for new courses because there are no regulations which stipulate qualified workers (e.g., a builder licensing program), a lack of an industry voice dedicated to effectively communicate the value of training to employers (e.g., qualifications, designations, etc.).



Source: GLOBE virtual focus group findings

Figure 29: Does the residential construction industry communicate effectively with education / training providers?

It is also important to note that course content is approved by ITA, but dictated by industry. As described in the previous section, the residential construction industry would benefit significantly from a cohesive voice (see Figure 30) that would articulate the desired learning outcomes, coordinate consensus-based solutions (e.g., building code interpretations) and liaise between training authorities, regulators, training providers and, importantly, the general public.



Source: GLOBE virtual focus group findings

Figure 30: Do you think that BC's residential construction industry needs a collective voice?

"There needs to be a message where we can confidently say we will support the apprentices when they go through training with funding and with a secure job at the end and throughout."

Surrey Focus Group

"What I guess would be best is all organizations and associations voice together and step forward to collectively face the enormous challenge."

Surrey Focus Group

In summary, the capacity for colleges to deliver training is relatively high. The key challenges to classroom training that need to be addressed are:

1. High-school leavers need to be able to secure trade apprenticeships in the residential construction industry in order to attend school (see solutions to "Lack of Pre-apprenticeship / Foundational Skills");

2. Apprentices need support so they can attend, appreciate, and benefit from classroom instruction. In particular, the current income support system through Employment Insurance for apprentices while they attend school, which is difficult to access and slow to process, often prevents students from registering for courses or causes them to withdraw at the last minute (see solutions to "Affordability Issues").

3. The residential industry as a whole needs to be able to clearly articulate its demands for training in a way that colleges can be assured of apprentices being present in the classroom to receive their training (see solutions to "Access to Training Providers and Employers" which identifies the need for a training information website and job portal, communications hub, and industry liaison).

Conclusions

Apprenticeship training as it relates to the needs of BC's residential construction industry suffers from a number of challenges that result in relatively low uptake of programs when compared with other construction sectors in the province. Some of these challenges and barriers to training include a lack of trade-related foundational skills with today's youth; training and capacity issues amongst small business employers; funding and affordability challenges; and a lack of demand for and pathways to ongoing education and learning within the sector.

While many feel that apprenticeship training in the residential construction sector will only succeed through regulatory reform that includes establishing minimum skill requirements and the enforcement of such requirements, this report identifies a number of opportunity areas and possible solutions that may be undertaken in the short- and medium-term by a potential industry-led, third-party organization developed to support the needs of the residential sector.

These activities could be rolled out as part of a three-phased approach that would allow for maximum benefit and the highest potential for success (as illustrated in Figure 31). Phase 1 involves a focus on further developing the "culture" of apprenticeship training in residential construction; engagement with relevant industry players across the board; better communication between all stakeholders including the public and homeowners; and developing a coherent "voice" for BC's residential construction sector.

Potential Phase 1 activities include establishing a centralized communications hub and industry liaison; developing an information and training website and job portal; and putting in place a support framework to further assist both apprentices and employers during the training process.

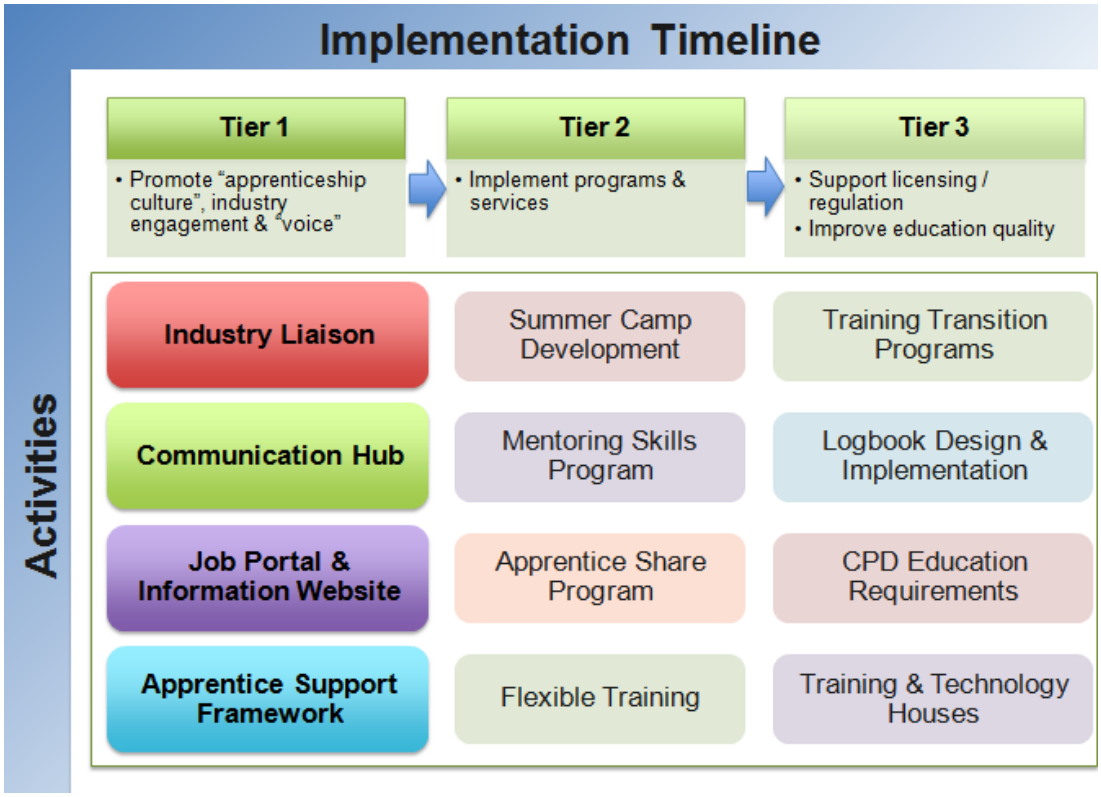


Figure 31: Prioritized activity implementation timeline.

Phase 2 builds on the foundation of activities rolled out in the first phase in order to develop and implement a number of potential programs and services to better support the needs of BC's residential construction sector. Initiatives might include developing a construction summer camp in order to engage youth and raise the public's perception about careers in the trades; establishing mentoring skills and apprentice share programs; and looking to develop more flexible delivery and scheduling of residential-related trades training programs to fit with the unique needs and characteristics of the residential sector.

Finally, in Phase 3, once improved legislation is in place and greater support from industry exists, a focus on increasing the culture for lifelong learning and the overall quality of education and training can be addressed. This might include the development and implementation of more detailed log books to track apprentice experiences and competencies; working with high schools, training providers, and industry to engage youth through more "training house" programs and by developing a training transition certificate program specifically for the residential construction sector; and focusing on greater development of continuing education and professional development programs linked to the licensing of builders and, potentially, renovators.

Research suggests that training providers have the capacity to offer more apprenticeship training in-line with the needs of the residential construction sector. However, **e**ducation to support the evolution toward greater professionalism and quality in homebuilding will require a guaranteed student uptake from residential employers at market pricing if government, the ITA, and training providers are to devote the millions of dollars required for developing enhanced programs in support of the sector.

Shifting the overall culture of the residential construction sector toward one that values apprenticeship and occupational training and appreciates the related benefits will not happen overnight. Rather, it will require investment of time and resources, greater collaboration between key players, and a commitment from stakeholder groups to overcoming the barriers and to driving the opportunities forward. While the path to success is long, the time for action could not be better.

Appendices

Appendix A: Project Steering Committee Member Organizations

- BC Building Trades
- BC Government – Ministry of Energy, Mines & Natural Gas
- BC Government – Ministry of Jobs, Tourism & Skills Training
- BC Hydro
- BC Safety Authority
- Building Policy
- Canadian Home Builders' Association BC
- Canadian Institute of Plumbing & Heating (CIPH)
- Electrical Contractors Association of BC
- Fortis BC
- Homeowner Protection Office / BC Housing
- Independent Contractors Business Association
- Industry Training Authority (ITA)
- International Brotherhood of Electrical Workers (IBEW) Local 213
- Jomi Construction
- Mechanical Contractors Association of BC
- Professional Builders' Institute of BC (PBIBC)
- Roofing Contractors Association of BC
- Thermal Environmental Comfort Association (TECA)
- Thompson Rivers University
- WorkSafe BC

Appendix B: Project Methodology

Research activities for this project included:

- A **review of secondary publications and resources** related to the residential construction apprenticeship and industry training;
- A **training capacity assessment and gap analysis** of available training programs and courses in-line with real and perceived gaps identified during industry consultation;
- **In-depth interviews** with residential construction industry, training providers, and other stakeholders;
- Two **in-person focus groups** designed to consult with industry and training providers in order to validate the short-listed opportunity areas with respect to improved apprenticeship and training delivery; and
- Two **virtual focus groups**, set up as interactive webinars, which reached out to a wider audience of industry, training providers, and apprentices across the province to further validate the identified opportunities and challenges with respect to apprenticeship and training.

These research activities are described in more detail below.

Secondary Source Review

A review of secondary publications, websites, and online resources related to the residential building construction industry in British Columbia was conducted and included a thorough examination of industry activities and related trades training and apprenticeship programs in-line with the identified opportunity areas.

The search was conducted using online databases and website search, as well as post-secondary institutional, trades and apprenticeship training, and government websites. The area of focus for the research was on the residential building construction industry in BC and included the following activities:

- Identifying recent trends, anticipated changes, opportunities, and challenges related to apprenticeship and industry training delivery and scheduling as it relates to the needs of BC's residential construction industry;
- Documenting all relevant apprenticeship / trades training and certification programs and courses; and
- Reviewing readily available resources (reports, websites, written guides / materials, etc.).

This literature review also identified various training delivery models that exist in North America and internationally, as well as the strengths and weaknesses of each as they relate to the development of a potential alternative delivery model in BC.

Training Capacity Assessment & Gap Analysis

The GLOBE team undertook an assessment of the internal training capacity of industry and of the post-secondary institutions in the province in order to better understand the barriers and opportunities to alternative training model uptake and delivery and to identify any existing gaps and issues.

This work was based on the Occupational-Trades Training spreadsheet that was developed by GLOBE during Project 1 of this study, crossed checked with information from the ITA, other industry training organizations (e.g., CHBA BC, HPO, etc.), and feedback received through Project 1's primary research activities (i.e., the industry survey, interviews, and focus groups).

In-Depth Interviews

Between April 10, 2013, and April 30, 2013, the GLOBE project team conducted a series of in-depth interviews with 18 key industry stakeholders. The interviews targeted key industry stakeholders, primarily from public and private trades training providers, but also included the Industry Training Authority (ITA), industry associations and organizations, and owners of contracting businesses.

The interviews, which ranged in duration from between 20 minutes and 1 hour, provided an up-to-date snapshot of the training opportunities and key issues, the dynamics for the residential construction industry, and were used to fill any identified gaps in information.

In-person Focus Groups

During the last week of April 22nd, 2013, GLOBE Advisors organized a two focus groups that served as a "deep dive" to further examining and validate the short-listed training opportunity areas relevant to the residential construction industry in British Columbia.

Working with CHBA BC and GVHBA, GLOBE hosted the two focus groups in the following geographic locations on the corresponding dates:

- Burnaby – April 22, 2013
- Surrey – April 23, 2013

The focus groups brought together a total of 26 individuals, including business owners, general contractors and trades, industry associations, college deans and instructors, apprentices, and other key stakeholders in the industry. The sessions were designed to explore opportunities and challenges for residential construction apprenticeship and training in BC including skill and sector cross-over, career path development, and new training delivery models.

Approximately 2 hours in length each, the focus group sessions consisted of a 15 minute introduction and presentation of the Project 1 findings, followed immediately by a 1 hour and 45 minute dialogue session facilitated by the GLOBE Advisors project team members.

Virtual Focus Groups

The GLOBE project team organized two virtual focus groups (as interactive webinars) in order to validate the short-listed industry training working models and opportunity areas, their relevance to the residential construction industry in BC, and the recommendations for a potential "skills centre" framework. The webinars targeted employers, training providers, apprentices/trainees, and other stakeholders that are active in the residential construction industry in British Columbia.

The webinar software that GLOBE has a license to (*Adobe Connect*) allowed for very interactive discussions, guided by a PowerPoint presentation, including using customized polling / surveys of participants that allowed them to provide comments to the GLOBE project team in real-time in order to gain their valuable feedback on issues and recommendations throughout the presentation.

The webinars consisted of a 60-minute presentation which shared some of the high-level findings from Project 1 research and an overview of the opportunity areas along with a participant “input” using a highly relevant set of questions and structured “polls”. Rigorous guidelines were developed for the webinar, with the explicit goal of keeping them focused on validating the potential working models, opportunity areas, and helping to shape the recommendations related to developing a potential “skills centre” for residential construction training in BC. The webinar platform was pre-tested with Steering Committee members prior to the actual meetings in order to ensure that the time frame and the high relevance of the questions were maintained.

The sessions targeted training providers and industry in two separate online sessions which took place on April 25, 2013 and April 26, 2013, respectively. In total, 36 individuals took part in the meetings. The GLOBE project team was also available throughout the process to address questions, comments, or concerns that the industry stakeholders raised and reached out to participants following the presentation to gather additional input / feedback.

Refer to Appendix F for the findings from the virtual focus group sessions.

Appendix C: BC Residential Construction Training Opportunities Analysis – Prioritization Matrix

1. Lack of Pre-Apprenticeship – Foundational Skills

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake, and qualification			Role for "Skills Centre"	Extent to which action by "skills centre" will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Job portal and training information website	Medium	High - Training providers would like such a website	High - Industry using job portals already / Most	Direct Action	High	Supported by ITA	Highest ranked among training providers	Highest ranked among training providers	Medium	Medium	Short	Yes - Tier 1 priority
Summer Camp Development	no data	Medium	Medium	Direct Action	Medium	no data	Medium	Medium	Low	Low	Short	Yes - Tier 2 priority
Training Transition Certification Programs (e.g., WoodLINKS)	no data	Medium	Medium	Indirect action/support	Medium	no data	Medium	Medium	n/a	n/a	Medium	Tier 3 priority
Pre-loading Courses (into high school or other)	no data	Medium	Medium	Support/advocacy	Marginal	no data	Need to engage with MoED	n/a	n/a	n/a	Long	Not at this time

2. Limited Capacity for Mentorship / Training (employers)

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake, and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Apprentice Support Services (NEW)	Medium	High	High	Direct	High	Medium	High	High	Medium	Medium	Short	Yes - Tier 1 priority
Mentoring Skills Program	neutral	Medium	Medium	Direct	Medium	neutral	High	Low	Medium	Medium	Short	Yes - Tier 2 priority
Apprentice Share Program	No data	Medium	Medium	Direct	Medium	Not encouraged	High - but need more data	High - but need more data	Medium	Medium	Long	Yes - Tier 2 priority

3. Lack of Logbook Requirements and Supervision

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake, and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Review Logbook Design	Low	Medium	Medium	Indirect/support	Medium	Low	Medium	Medium	Medium	Medium	Long	Tier 3 - conditional on support from industry
Increase Transparency and Enforcement	Low	Medium	Medium	Indirect/support	Medium	Low	Medium	Medium	Medium	Medium	Long	Not at this time
Apprentice Share Program	See 2. Limited Capacity for Mentorship / Training (employers)											
Greater Instructor Oversight	Low	Low	Low	Indirect/support	Low	Low	Low	Low	Low	Medium	Long	Not at this time

4. Access to Training Providers and Employers (apprentices)

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake, and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Job portal and training information	See 1. Lack of Pre-Apprenticeship / Foundational Skills											
Industry liaison	High	High	High	Direct	High	Medium	Medium	Medium	Medium	Medium	Medium	Yes - Tier 1 priority
Communications Hub	Medium	High	High	Direct	High	Medium	Medium	Medium	Medium	Medium	Medium	Yes - Tier 1 priority
Apprentice Support Services	See 2. Limited Capacity for Mentorship / Training (employers)											
Flexible Delivery / Scheduling	Low	Medium	Medium - wide range	Indirect / supporting	Medium	Low	Medium	Medium - wide range	n/a	n/a	Ongoing	Yes - Tier 2 priority (once communications/industry liaison have established clear value)
Residential specific training (NEW)	Low	Medium - wide range	Medium - wide range	Direct - via communication	Medium	Low	Medium - wide range	Medium - wide range	n/a	n/a	Ongoing	Yes - Tier 2 priority (once communications/industry liaison have established clear value)
Arguments against residential specific training (NEW)	Low	Medium - wide range	Medium - wide range	Direct - via communication	Medium	Low	Medium - wide range	Medium - wide range	N/a	n/a	Ongoing	Yes - tier 2 priority (once communications/industry liaison have established clear value)
Develop Online Programs / Courses	Neutral	Medium	Medium	Indirect / supporting	Low	Neutral	Medium	Medium	n/a	n/a	n/a	Not at this time - Programs exist or easily prepared based on demand
Addressing Waitlist Issue	neutral	Medium	Medium	Indirect / supporting	Low	neutral	Medium	Medium	n/a	n/a	n/a	Not at this time
Develop Mobile Training Programs	Neutral	Low	Low	Indirect / supporting	Low	neutral	Low	Low	High	High	n/a	Not at this time

5. Block Release Issues

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Develop Online Programs / Courses	See 4. Access to Training Providers and Employers (apprentices)											
Offer Evening / Weekend Classes	Neutral	Medium - programs exist or easily prepared	Medium	Indirect/supporting	Low - until value of training has been clearly established	Neutral	Medium	Medium	n/a	n/a	n/a	No - Programs exist or easily prepared based on industry demand
Seasonal (winter vs. summer)	Neutral	Medium	Medium	Indirect/supporting	Low - until value of training has been clearly established	Neutral	Medium	Medium	n/a	n/a	n/a	No - Programs exist or easily prepared based on industry demand
More Front-loading	Neutral	Medium	Medium	Indirect/supporting	Low - until value of training has been clearly established	Neutral	Medium	Medium	n/a	n/a	n/a	No - Programs exist or easily prepared based on industry demand
Shorter Blocks or 1-Day / Week	Neutral	Low	Medium	Indirect/supporting	Low - until value of training has been clearly established	Neutral	Low	Medium	n/a	n/a	n/a	No - Programs exist or easily prepared based on industry demand
Modular courses (NEW)	Neutral	Low	Medium	Indirect/supporting	Low - until value of training has been clearly established	Neutral	Low	Medium	n/a	n/a	n/a	No - Programs exist or easily prepared based on industry demand

6. Structural Funding Issues

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Institutional Funding Issues	neutral	High	Medium	indirect/supporting	Low	neutral	High	Medium	n/a	n/a	n/a	No action beyond an advocacy role

7. Affordability Issues (employers and apprentices)

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Apprentice Support Services	See 2. Limited Capacity for Mentorship / Training (employers)											
Financial Assistance for Apprentices (e.g. Student Loans, etc)	High	High	high	Indirect/supporting	Low - advocacy role	Medium	High	high	n/a	n/a	long	No action beyond an advocacy role
Training / Tax Incentives for Employers	Neutral	Medium	Medium	Indirect/supporting	Low - advocacy role	no data	Medium	Medium	n/a	n/a	long	No action beyond an advocacy role
Apprentice EI Top-ups / Income Adjustment	Neutral	Medium	Low - EI may not be optimal income assistance vehicle	Indirect/supporting	Low - advocacy role	no data	Medium	Low	n/a	n/a	long	No action beyond an advocacy role

8. Lack of Pathways to Continuous Learning

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Job Portal and Training Information Website	See 1. Lack of Pre-Apprenticeship / Foundational Skills											
CPD Education Requirements (NEW)	Medium	High	High	Direct - centre could develop and deliver courses	Low	Medium	High	High	n/a	n/a	n/a	Tier 3
Licensing Linked to CPD	Medium	High	High	Indirect/supporting	Low	Medium	High	High	n/a	n/a	n/a	No - conditional on amendments to Homeowner Protection Act

9. Limited Capacity for Training Providers (institutions)

Possible Solutions	Severity of issue - to what extent is the issue a roadblock to improved accessibility, uptake and qualification			Role for "Skills Centre"	Extent to which action by skills centre will impact/resolve the issue	Extent to which the proposed action is supported			Capital cost	Operating cost	Timeline to Resolution	Proceed to detailed analysis (include rationale)
	ITA	Trainers	Industry			ITA	Trainers	Industry				
Challenges to Current School Training (NEW)	Neutral	High	Medium	Indirect/supporting	Low	Neutral	High	Medium	n/a	n/a	long	No action at this time - need to build demand for training first
Instructor On-site / Industry Experience	no data	Low	Medium	indirect/supporting	low	no data	Low	Medium	n/a	n/a	Long	No action at this time - need to build demand for training first
Training Houses and Technology Showcases	no data	High	High	indirect/supporting	Medium	no data	High	High	High	High	Long	Tier 3 priority
Flexible Program Delivery and Scheduling	no data	Medium	Low	indirect/supporting	low	no data	Medium	Low	n/a	n/a	Long	No action at this time - need to build demand for training first
Consensus Around Building Code Solutions	no data	Medium	High	indirect/supporting	Medium	no data	Medium	Medium	n/a	n/a	Long	No action at this time - need to build demand for training first

Appendix D: Assessment of Mobile Training Trailers

Running programs through mobile trades training trailers are a way to open up accessibility and program delivery. Mobile training units are in operation at a number of colleges across Canada – with two in British Columbia.

The ITA trailer through the Nicola Valley Institute of Technology (NVIT) was set up for six trades including welding, electrical, plumbing, machining, and pipefitting / steam-fitting.

Thompson Rivers University (TRU) and BC School District #73 in Kamloops operate a second mobile training lab that is designed to help improve access to skills training in the trades for rural and First Nations communities across the interior of British Columbia. The Thompson Interior Mobile Training Trailer[26] is part of an ongoing effort by the school district and the university to create seamless transition opportunities for students to move from secondary to post-secondary education.

The mobile trades training lab, which cost approximately $1.5-$1.8 million to build, is housed in a 53-foot trailer unit that expands into a 1,000 square foot training facility. Designed to be highly flexible, it has the capacity to provide up to 12 training stations for trades including welding, electrical, plumbing / pipefitting, refrigeration mechanic, heavy duty mechanic, and millwright trades.

Outside of BC, Red River College (RRC)[27] in Manitoba operates two $1.5 million mobile training labs (paid for in part through Western Economic Diversification funds), which it considers to be the backbone of a training initiative to deliver quality applied learning throughout the province.

Each lab consists of a 53-foot trailer with pop-out sides that can quickly transform into a 950 square-foot training facility. Diesel generators supply the necessary power to operate electrical equipment, as well as lighting, heating and air conditioning. Supply trailers can connect to the mobile lab, increasing the total facility space to almost 2,000 square feet.

The portability of the training labs allows the college to deliver up to eight nationally-recognized trade training programs including automotive service technician, carpentry, electrical, machining, pipefitting, plumbing, welding, and industrial mechanics. When the trailer gets out in the field, it is usually set up to focus on four key trades at a time.

RRC's model differs from training trailers in BC in that the college leases out the shop-ready space to interested third parties, which include specific communities or private companies that are willing to take on the training aspect. The programs that are run out of the trailers are often used to build community structures. However, the trailers are not designed for full apprenticeship program training, but rather as an "introduction to trades". The system allows two graduates from the intro course that was offered in a rural area to access the next level of training on one of RRC's campuses.

[26] http://inside.tru.ca/2007/10/05/school-district-and-university-unveil-mobile-trades-training-lab/
[27] Red River College's Mobile Training Labs brochure: http://www.rrc.ca/files/File/coned/Mobile-Training-Labs-brochurenew.pdf. A CBC video segment featuring RRC's mobile training labs http://www.youtube.com/watch?v=H_FrSLlrORw.

Other provinces including Alberta and Saskatchewan have abandoned their trailers due to a variety of reasons including the high operational costs. Operational funding is a huge and ongoing challenge for training providers. To operate the training on a cost-recovery basis makes it too expensive – there needs to be some form of consistent government subsidization under the current model.

In addition to being expensive to build and operate, the trailer systems weigh in excessive of 88,000 pounds empty. Although TRU has re-fitted its trailer to bring the weight down to 66,000 pounds, the trailers tend to be too heavy to access many of smaller communities for much of the year due to road restrictions. Because of the stress from travel, the shelf-life of these trailers tends to be only 10 years on average.

Training providers are often challenged to find committed instructors who are willing to work in more remote locations under regular salaries when they could be making more working for industry.

Logistics can also be a challenge depending on where the small communities are relative to bigger centres. There is a need to provide facilities such as washrooms, break rooms, and accommodations for instructors. As such, a second trailer is often required for support and to haul in additional equipment. And since the trailer does not have a permanent home, there is also an issue with respect to equipment storage when it is not being used.

With respect to residential-related trades training, carpentry is not well-suited to mobile trailers due to dust contaminating grease and mechanical systems that create fire hazards. On the other hand, it was suggested that programs such as Heating Technician, Geothermal Technician, and Building Envelope Technician would be suitable for mobile training.

There are other ways to offer community-based education which does not involve the huge upfront and operational costs of mobile training labs. Alternative models include an initiative by North Island College, Okanagan College, and TRU to put together a 24-foot cargo trailer full of equipment for up to 16 students that can be then be towed by the instructor's vehicle. These trailers are safe and self-contained at a cost of only $50,000-60,000. However, there still needs to be a space available to set-up the equipment for the duration of the training. An "RV" style 5th-wheel trailer with sleeping quarters is a second option that could work.

Finally, exploring options for delivering mobile training in more rural communities using customized "training vehicles" or trucks that would include all of the standard equipment used by homebuilders / renovators could be an alternative worth further examination.

While mobile units such as those at TRU and NVIT are designed to increase capacity and accessibility for students in rural areas to training programs and link training with community-based projects and emerging industries, the high cost and long list of other challenges, combined with the fact that they are not designed to specifically address the needs of the residential construction industry, are the reasons that this activity was prioritized for "no action at this time".

Appendix E: Training Capacity Assessment

Comment from Industry Survey	Real or Perceived Gap?	Analysis
(A) Lack of Transferable Skills		
• We are still looking for **refrigeration** people as well as **plumbers and duct-cleaning operators.**	**Real**	• Currently, there are no cross-trade credits between the Refrigeration and Air Conditioning Mechanic program and the Plumbing program. • Also the Refrigeration and Air Conditioning Mechanic program does not discuss duct-cleaning operators explicitly. • According to the CSC, Refrigeration and Air Conditioning Mechanics are concentrated in the non-residential building construction and maintenance work. Employment requirements rise steadily across the scenario period. • As for the residential component of Refrigeration and Air Conditioning programs, residential construction or applications are only discussed when going over condensers, compressors, and evaporators. Even then, residential applications are not a focus as the curriculum discusses Commercial and Industrial applications as well. • In Ontario, a "Residential" Refrigeration and Air Conditioning Mechanic program has been developed, which includes 5,000 hours rather than 9,000 hours for the traditional Red Seal program – which may be a consideration for BC.
• Lack of skilled trades with knowledge in **geothermal**.	**Real**	• There is only a cross-trade credit of Level 1 between Geothermal and Plumbing, Sheet Metal, or Refrigeration. Level 1 is the broadest level of study in the IP program – no geothermal-specific knowledge is gained. • While a geothermal technician program was developed in BC by RCITO, the **ITA** does not recognize any private training facilities that train geothermal technicians. • **TradesTrainingBC** does not have a Geothermal apprentice-training schedule. • **Delta Geothermal** (Based in BC) is founding private training CGC courses due to start in Spring of 2013 depending on demand. http://deltageothermal.com/index.php?option=com_content&view=article&id=52&Itemid=56 • There are also a few geothermal training courses throughout Canada: http://flemingcollege.ca/news/fleming-college-launches-unique-geothermal-drilling-certificate-program/ http://www.bullercentre.com/businesses/workshops/cgd/
• The attitude of "close is good enough" is more the norm. **Basic skills**, plumb, level, and square **are not there**. Attitudes need to change, higher standards, and professionalism is lacking. • A **larger variety of training**, it would be able to gain a little knowledge in other trades to compliment ones trade. And it would also be handy to gain some **extra skills such as welding or operating machinery**. • **Other skills** should be involved in the technical training such as welding, operating equipment such as forklifts, and safety like fall protection.	**Both**	• Many training providers in BC are already stretched thin in terms of capacity for teaching new curriculum under existing 6-week training blocks. • Articulation Committees across the province have been requesting additional training weeks for programs including Carpentry, Electrical, and Plumbing. • There is a need for more common core courses to establish important foundational and cross-trade skills early on in the apprenticeship programs. • BCIT has been contemplating a 2 day orientation for all incoming apprentices to include items such as how to conduct yourself on a job site, dealing with substance abuse issues, recycling, etc. • There is a potential for developing more online and blended learning which may free up valuable class time and allow instructors to incorporate and focus on emerging technologies and/or expand curriculums to some degree.

• **Heating contractors should be licensed like plumbers**, electricians, wall installers, septic field installers, etc.	**Real**	• There is no licensing for Heating Technicians in BC – there is only a Certification of Qualification.
• Not enough **fully trained plumbers** who are also **fully trained heating technicians.**	**Real**	• There are no cross-trade credits between the Plumbing and Heating Technician trades. If an apprentice wanted to do both, they would have to go through the program twice even though there is much overlap in the curriculum.
• It would be helpful if all trades were provided with a course on "**house as a system**" and training on how each trade impacts the other i.e.: electricians rarely understand the importance of air, weather and vapour barriers and the problems that can occur if the barriers are damaged and not repaired.	**Real**	• There is a need for this type of training in all trades – should be in the entry level as a general course for all trades to promote a more integrated approach. • Electricians should cover Vapour Barriers (LINE 1) in their technical training according to the Program Outline. However, the importance of weatherization and repairing broken barriers are not covered in the Electrician program.
• Some of the **missing skills are related to interpersonal issues** including peer-to-peer relationships and people management. • A class on **answering the phone** and **replying to emails** in a timely manner! • Life skills for the apprentices **show up on time**! Call if you can't make it! Take some initiative! Lack of problem solving skills and thinking outside the box. • Apprenticeships are not just about "technical" training; they should also encompass the teaching of skills necessary for **lifelong learning and producing a quality of work** that befits a tradesman.	**Both**	• Several trades (such as Sheet Metal Workers) do have a curriculum that contains designated time for interpersonal skills. However, the sections are short and there is not nearly enough time or depth spent on the interpersonal skills that are required in the workplace. Still a discrepancy between what the institution provides and what the workplace demands. Quality differentials. • Greater education and learning on career pathways and professionalism in all residential-related trades would be helpful.
• Make **pre-requisites** in math, science and English mandatory for apprentices to better support their success.	**Both**	• English and math are a high school completion requirement and are required for enrollment at many post-secondary institutions. However, these courses in high school are not rigorous and science is not a requirement. Pre-requisites also vary between institutions and trade programs thus not guaranteeing consistency across apprentices.
(B) Inadequacies of Apprentices' Practical Skill Sets		
• **Sheet metal install** in residential projects requires **no formal training** or proper install or design.	**Both**	• There is formal training and according to the sheet metal curriculum by the ITA, the last component (GAC: H) of Level 2 is designated to interior and exterior wall and panel systems and installation. • However, sheet metal is not a "regulated" trade and as such no qualifications are required for residential unless specified in contract documents.
• **Installations were done incorrectly**; installers did not give "user friendly" instructions to consumers, little or no after service when problems inevitably occurred.	**Real**	• There is nothing in the Program Outlines (i.e. for Heating Technicians or Refrigeration and Air Conditioning Mechanics) that go over how to give customers "user-friendly" instructions or how to teach their customers how to use their new furnace or A/C system, for example. There is also no requirement for follow-up.
• Many of the gas fitters coming out of school have done **little or no gas work.**	**Both**	• There is gas work done during technical training in school, however, according to the ITA Program Outline, the composite mark for Level 3 is 80% theory and only 20% practical – this most likely does not fit the practical experience requirement that many employers expect for apprentices.
• Many HVAC contractors do not know how to determine **Energy Star-qualified** heat pump and ventilation systems.	**Real**	• Although Heating Technicians and Refrigeration and Air Conditioning Mechanics do spend time on technical training on energy efficient appliances (such as boilers, furnaces, gas fireplaces), efficiency consumption factors, and Energy Star and as other ratings, they do not spend time on heat pumps or ventilation systems which are (or soon will be) required by code.
• **Geothermal and solar trades** seem to be poorly trained	**Real**	• These are relatively new technologies and demand in BC remains low due to low energy costs. • Solar PV/Thermal courses have been offered by various training providers in BC (some as diploma and continuing education programs) but have been discontinued due to low demand. • As such, the programs have not been fully developed and standards are lacking due to their lack of funding as a result of not enough "bums in seats."

(B1) Inadequacies in Relation to Technological Knowledge		
• The company my clients wanted to use was new to the business and couldn't afford qualified crews to assemble the **pre-made panels or floor systems** – discrepancies in knowledge of technologies! This should be taught in school.	**Real**	• There is curriculum under Carpentry that discusses how to describe installing pre-cast and pre-stressed panels, and manufactured wall form panels. • This comment applies to all the comments made about apprenticeship programs using a static, outdated curriculum and not incorporating new, emerging technologies into an ever-developing curriculum due in part to compressed timelines and budgets.
• **New technologies and certification** must be added to the apprenticeship curriculum and licensing. We have unskilled and untrained individuals working on new technologies of which they have no knowledge. • Newer technologies require installers from **several trades** or one individual with skills that include several trades. • **Reps** should come in and give example of how best to apply the product before we apprentices start doing it ourselves. When it comes to new products, the **class videos only help so much**.	**Real**	• Curriculum in the technical training institutions has been the same for many years although some updates do happen roughly every 5 years – the piping trades do try to stay on top of technologies, but it is admittedly not as responsive as industry would like. • There are also funding issues getting new equipment into shops, etc.
(B2) Inadequacies in Relation to Safety and Building Code Standards		
• More time should be spent on **code requirements** and expectations of inspections departments so that work is preformed to an approvable standard.	**Both**	• ITA curriculum does cover building codes, regulations, and standards such as ASHRAE, NFPA, RCABC, NBC, CSA, TABB, and ULC etc. This is usually covered in Levels 2 and 3. How much emphasis is placed on these items depends on the trade and the instructor and can vary widely. • Also, BCBEC, BCIT (continuing studies), and CHBA all run code courses. • It is true that *municipal regulations* vary across the province and these can change regularly. These are not taught in class. • There can also be a lack of consensus among municipal inspectors on standard interpretations of the BC Building Code (e.g. venting locations, heat pump locations, airtightness testing, lateral bracing, Energy Star climate zones, etc are all regionally specific and may be interpreted differently). • This can cause confusion and inconsistency amongst industry and apprentices.
• Apprenticeship programs need to expand their services to include specific **construction clean up for steep and flat roofs** and the **removal of materials safely** off site.	**Both**	• For Residential Steep Roofers, Level 1 discusses Site Conditions, Job Hazard Analysis, and Workplace Conduct. • Also, Level 1 discusses WHMIS regulations for use, storage and disposal of materials (does not say whether or not this is practiced hands-on). • The program may not go into enough depth in these areas for the needs of industry.
• Residential contractors do not focus on the technical training required to perform work **safely**. • We (the apprentices) need more safety information.	**Perceived**	• WorkSafe requirements are that all journey people and apprentices have the necessary safety training. • HPO does not say on their website what their safety requirements are for licensing. • All contractors that perform regulated work with elevating devices, electrical, gas work, boilers; amusement devices and passenger ropeways must be licensed by **BCSA**. • Due to the stringent licensing regulations and rules when it comes to safety standards, there should really be no reason for unsafe work habits. • A larger question is the extent to which building inspectors check on journey person tickets / qualifications when they do site visits – perceived unsafe work habits may stem from lack of enforcement of qualifications on site.

(C) Common Employer Misconceptions		
• I have had to spend thousands of dollars **training journeyman** refrigeration mechanics, sheet metal workers, gas fitters and plumbers in geothermal, hydronic, and solar hot service and installations. • The effort, time/money loss put into an apprentice only to **lose those individuals** to jobs outside the industry.	**Both**	• It can be a significant investment of time and resources for small businesses active in the residential construction industry to invest in training. • The return on investment in training may not be adequately understood and/or realized. http://www.itabc.ca/hiring-apprentices/apprenticeship-basics • ITA is maybe not effectively conveying the "benefits and value of training apprentices" to employers in BC. • Also an issue of "training the competition" – there is not a loyalty guarantee when signing on to become a sponsor.
• Have a **'job board'** for employers who are looking to find a labourer to start in a trade. This job board would list applicants with no experience or pre-apprenticeship experience. Maybe list their local city.	**Both**	• While on-line and physical job boards do exist, they are not currently well-used and could be better promoted within the residential industry. http://www.bcconstructionjobstores.com/ http://apprenticebc.ca/
(D) Outdated Curriculum Issues		
• Some **technical training curriculum is old** with outdated methods still being taught. • The basic educational system for **millwork** in general is out of date, and focuses on "perfect shop conditions" only. • A general **carpenter's ticket** is outdated by 30+ years. • More up to date **training**. • Provide current and updated training in specialized and quickly emerging technologies. • Update the **textbooks** • Keep up to date with **practices** used in the workplace	**Real**	• This comment was made a total of seven times by all of the three types of people surveyed (business owners, employees, trainees). • There is definitely a consensus that suggests the curriculum needs to be updated to compensate for all the latest developments in technology, practices, methods, materials, and machinery, etc.
(E) Issues in Relation to Program Duration/Length		
• **Sheet metal worker** for example needs to be a longer course (**10 weeks per term**) to facilitate a broader base of knowledge of the trade.	**Real**	• Normative statement (i.e. a matter of opinion). • However, this seems very similar to the "out of date curriculum" opinions and it's still valuable. • Suggests that there may be need for more diverse experiences to be acquired prior to achieving a journeyperson qualification. • This may reference the role of on-site supervision, need for log books, need for better enforcement and supervision of log books, etc. • Several training providers have raised the issue of extending the number of weeks for training for certain trades through their Articulation Committees and the Provincial Government / ITA have yet to approve funding in most cases.
• The trades' school portion of the apprentice programs **longer by minimum 1 week** to allow a slightly slower pace for persons with learning challenges. • Longer course time is needed – **it is too rushed** now that we are doing hydronic heating.	**Real**	
• Electrical apprenticeship should be **5 years not 4.**	**Real**	

(F) Issues in Relation to Program Accessibility		

• Make apprenticeship training more **accessible online and in outlying areas**.
• More incentives for those from **rural areas** that have to travel to and stay in larger centers to take the courses.
• There is hardly any trades training in the Kootenays.
	Perceived	• All of the public institutions below provide training in 10+ trades.
		  ○ TRU (Kamloops),
		  ○ College of New Caledonia (Prince George, Fort St. John, Quesnel, Fraser Lake, Mackenzie)
		  ○ Northern Lights College (Dawson Creek)
		  ○ Okanagan College (Kelowna, Penticton, Salmon Arm, Vernon)
		  ○ Selkirk College (Nelson)
		  ○ North Island College (Comox, Port Alberni)
		  ○ Vancouver Island University (Cowichan, Powell River)
		  ○ Northwest Community College (Masset, Terrace, Smithers)
		  ○ College of the Rockies (Gold Creek)
		
		Response to the Kootenays: http://www.jtst.gov.bc.ca/regionalworkforcetables/docs/resourcepkg/kootenay/Section_5_Industry_Training_Initiatives_Kootenay.pdf

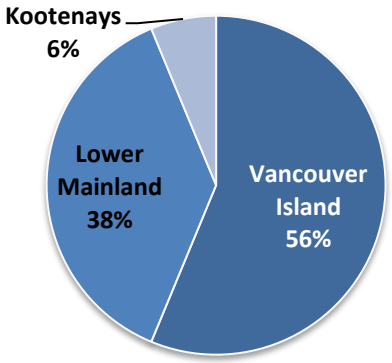
• Maybe look at training in **offseason** for the north (winter).	**Real**	• This will always be an issue for Northern BC's residential sector. • Changes to scheduling in the winter would have to be based on demand from industry and apprentices. • Schools need to be sufficiently flexible to accommodate seasonal needs.
• A **night or weekend course** that **covers the basics** of residential construction. • Provide the training at **night school** at the apprentices' cost that way if they want the training they will take it and use it. • **Continuing education** or night classes for specialty training.	**Both**	• Weekend and night courses do exist both in private and public training providers. • BCIT holds weekend and night courses for many trades throughout the year. http://www.bcit.ca/pts/trades.shtml • Although their website is out of date, the Trowel Trades Training Association (TTTA) also provides night classes for the Cement Mason program. http://www.ttta.ca/index_files/Page2697.htm • Night and weekend courses *do exist*, however, they might not be the introductory, basic skills courses for residential construction that are demanded.
• **Continuing education** after receiving your Red Seal is limited and with a career that is always evolving, so should be our education. • Currently only **two management programs** recognize trades training (BCIT and TRU). Being able to graduate to a **master-level** or have more bridging opportunities to related professions would make trades training more attractive.	**Real**	• There are a many continuing education programs – however at BC institutions such as Camosun College, there are only a few continuing education certificate programs specifically for the trades and they only provide individual several week-long courses that are trade-specific. http://camosun.ca/ce/trades.html#473S • Many private trainers and industry associations such as CHBA BC offer courses for builders, renovators, and the industry at large. • However, the overall demand for CPD programs by BC's residential construction sector is relatively low due to a lack of requirements to pursue such training. • Plans to potential make changes to the Homeowner Protection Act to require continuing education linked to builder licensing could have a large impact on driving this forward. • There are continuing trade programs in institutions *outside* of BC: http://www.nait.ca/66230.htm http://public.assiniboine.net/Portals/0/Documents/pdfs/continuing-studies/Brandon_Guide_Winter_2013.pdf

Appendix F: Results from the Virtual Focus Groups

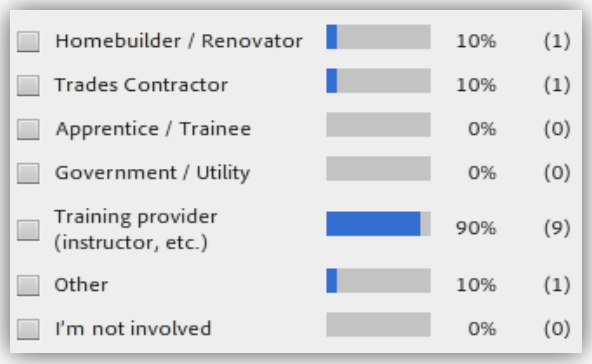
Training Provider Session – April 25th, 2013

Participant Profile

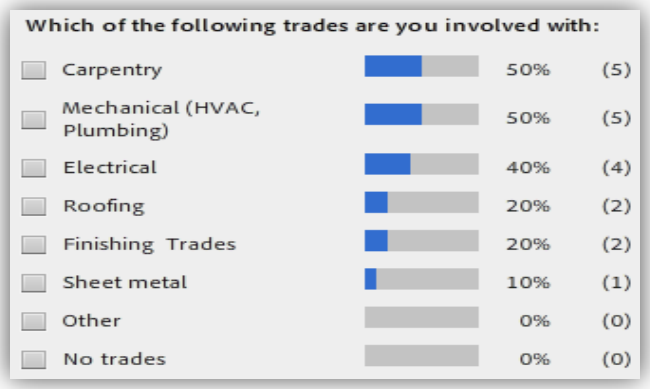
- 16 individuals participated in the online meeting from the following organizations:
    - BC Institute of Technology
    - Camosun College
    - Constructive Home Solutions
    - Eminata Group
    - Fenestration Association of BC
    - Industry Training Authority (ITA)
    - Install BC
    - North Island College
    - Selkirk College
    - Vancouver Island University
- Participants were from 3 geographic regions in BC.



- Participants were predominantly training providers.

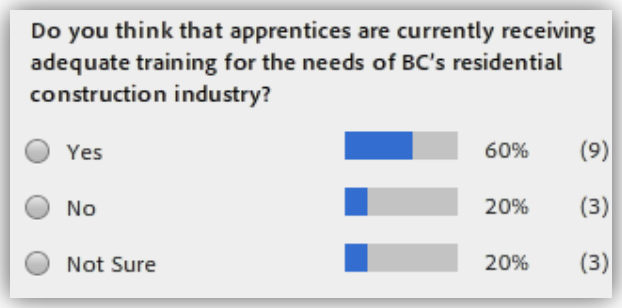


- The trades represented by participants were predominantly carpentry, mechanical, and electrical.

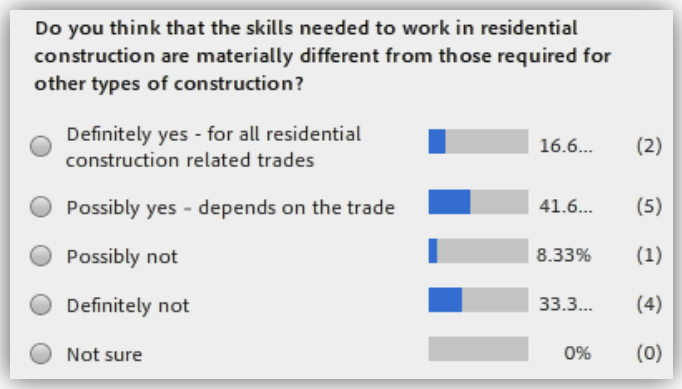


Apprenticeship Training for the Residential Construction Industry

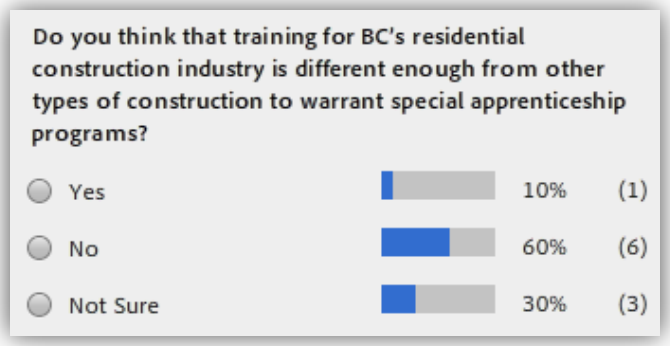
- The majority of participants felt that apprentices are currently receiving adequate training for the needs of BC's residential construction industry.



- The majority felt that the skills needed to work in residential construction are somewhat different from those for other types of construction projects.

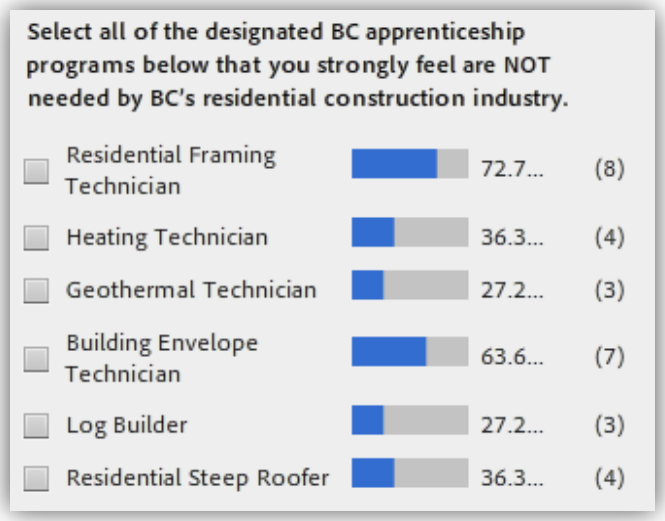


- The majority felt that residential construction is not different enough from other types of construction to warrant specialized apprenticeship program.

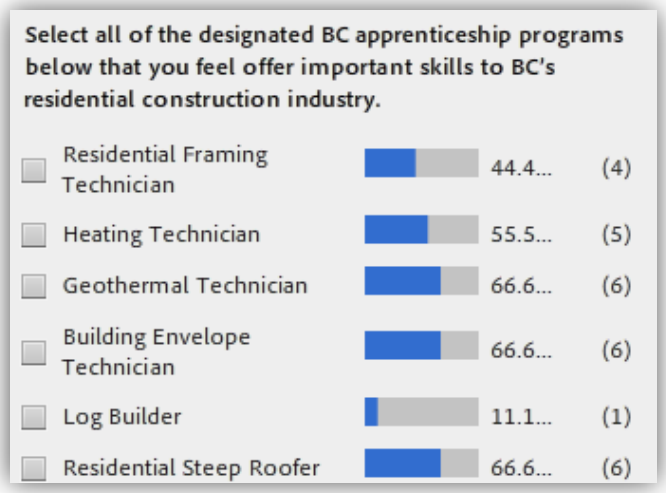


- The trades that were identified by participants considered most unique to residential that may require specialized training include building envelop, carpentry/framing, solar thermal.

- Of the designated residential-specific apprenticeship programs, participants felt that the Residential Framing Technician and the Building Envelope Technician were not needed by the industry.



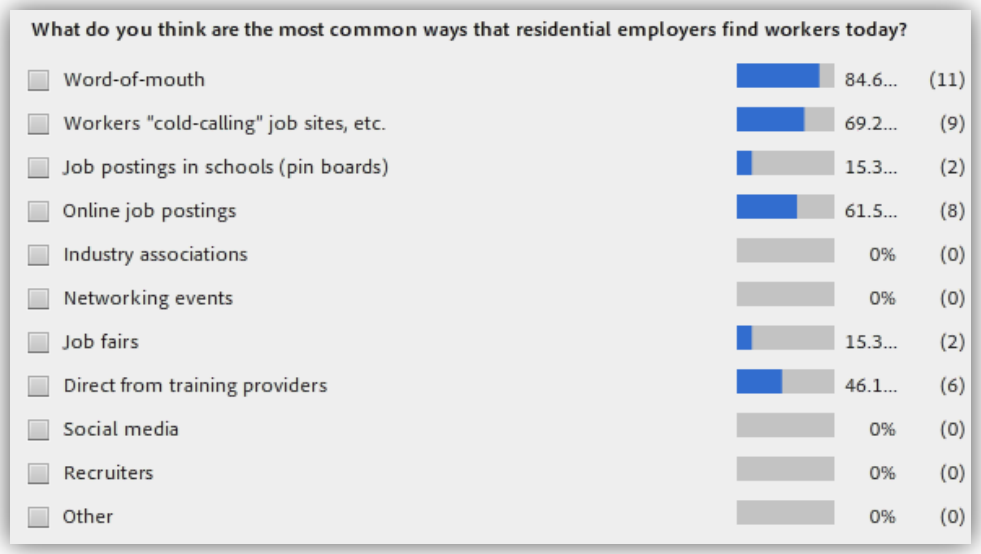
- On the other hand, participants felt that most residential-specific apprenticeship programs, with the exception of the Log Builder, offered important skills to the industry.



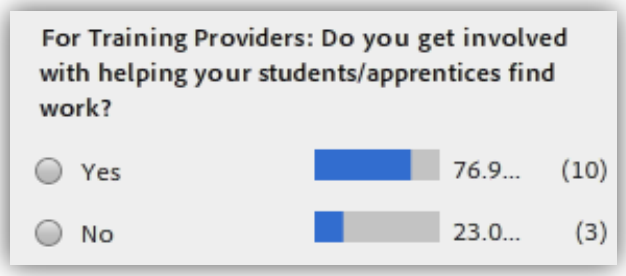
- Some participants cautioned against having residential-specific programs for fear of "fracturing" the training programs and industry as a whole. It was stated that it is important that apprentices be able to work outside of the residential sector because it opens up their ability to work on larger projects with potentially higher pay.

Job Portal & Training Information Website

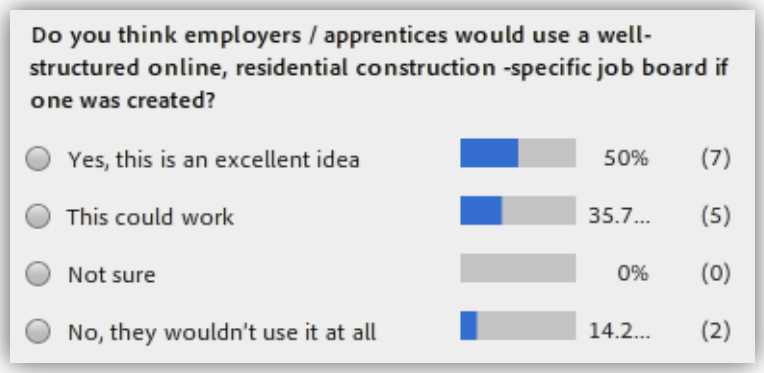
- The most common ways that residential employers connect with their workers is word-of-mouth, followed by workers "cold-calling" on the job site and online job postings.



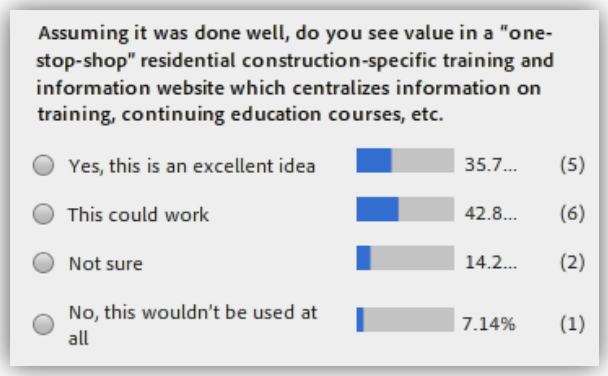
- The vast majority of training providers help their students/apprentices find work.



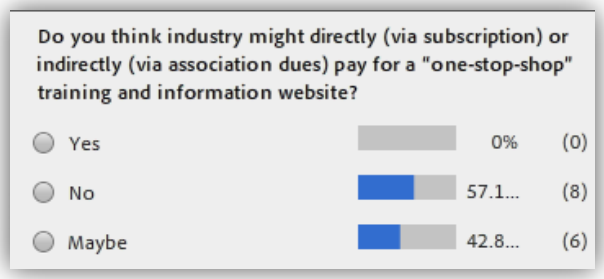
- The majority of participants felt that a well-structured, online job board would be useful.



- The majority of participants felt that a “one-stop-shop” training and information website would add value to the residential construction industry.



- The majority of participants felt that industry would not be willing to financially support a “one-stop-shop” training and information website should one be developed.

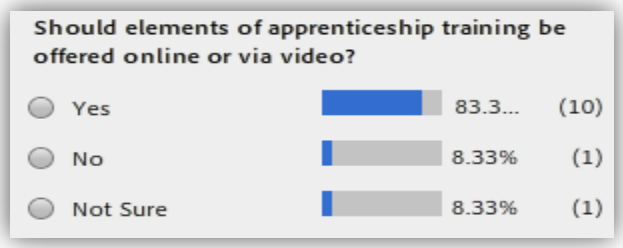


- The features best supported for a “one-stop-shop” website include apprenticeship program information, CPD courses, building code updates, and a job board.

Flexible Program Delivery & Scheduling

- Participants were mixed about whether or not more flexible scheduling would increase enrolment or completion rates for residential apprentices.

- The vast majority of participants felt that elements of apprenticeship training should be offered online or via video.



- Trade programs or courses which were identified as having potential for being delivered effectively using online or video teaching included:

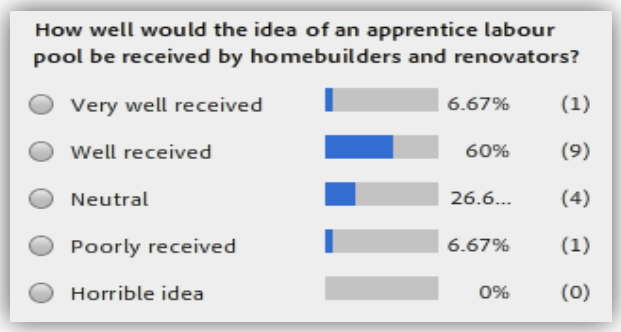
    - Core math;
    - Building code;
    - New technologies;
    - Painting;
    - Hydronics;
    - Refrigeration mechanic; and
    - Electrical.

- Some cautioned that online training is very difficult to monitor and that face-to-face time is still essential.

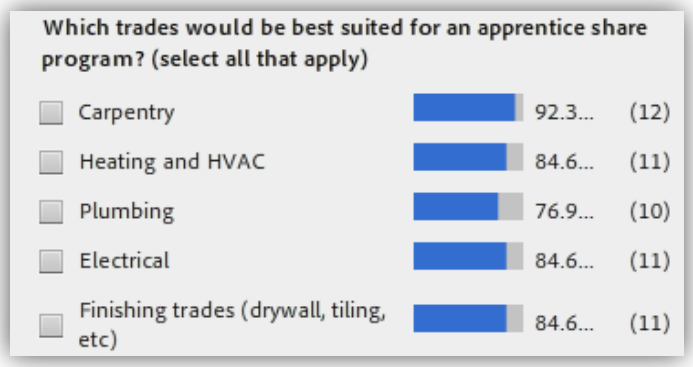
- Others suggested that part-time courses in the evening would help improve the system and free up tradespeople and allow them to work in the daytime.

Apprentice Share

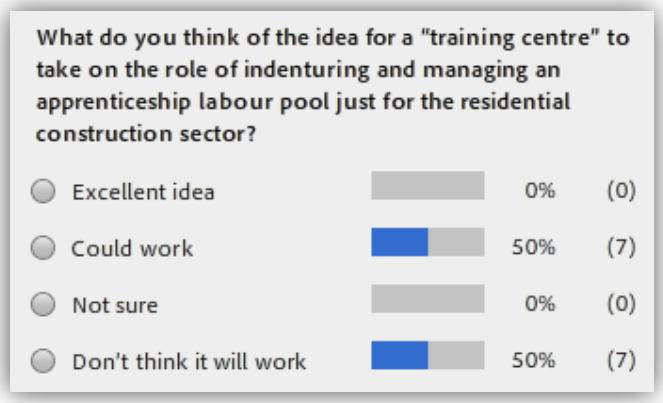
- The majority of participants felt that an apprentice labour pool would be well-received by the homebuilder and renovator community**.**



- Participants felt that all trades would be suitable for an apprentice share program.

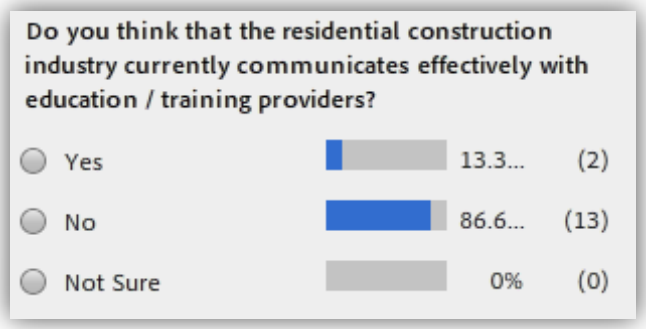


- When asked about the role of a third-party agency sponsoring and managing an apprentice labour pool, participants were cautious or skeptical.

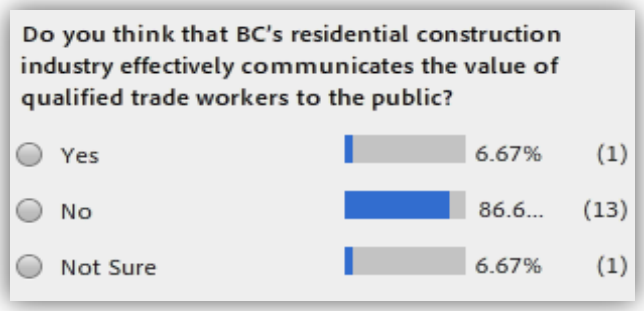


Communications & Industry "Voice"

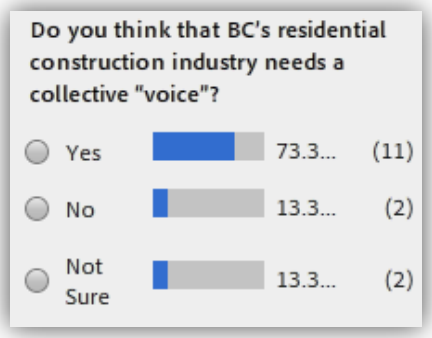
- The vast majority of participants felt that the residential construction industry does not communicate effectively with education and training providers.



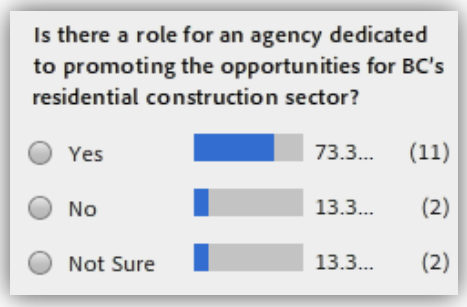
- The vast majority of participants also felt that the residential construction industry does not communicate effectively with the public at large.



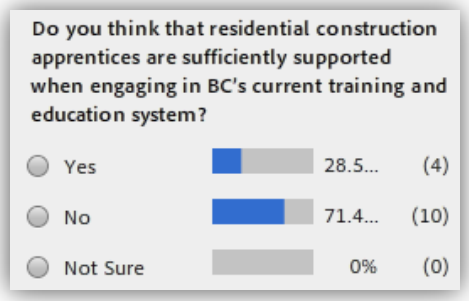
- The majority of participants felt that BC's residential construction industry needs a collective "voice" to communicate its needs with the government, training providers, and the public at large.



- The majority felt that there is a role for an agency dedicated to promoting the opportunities for BC's residential construction sector.



- The majority also felt that apprentices are not sufficiently supported while engaging in BC's training and education system.

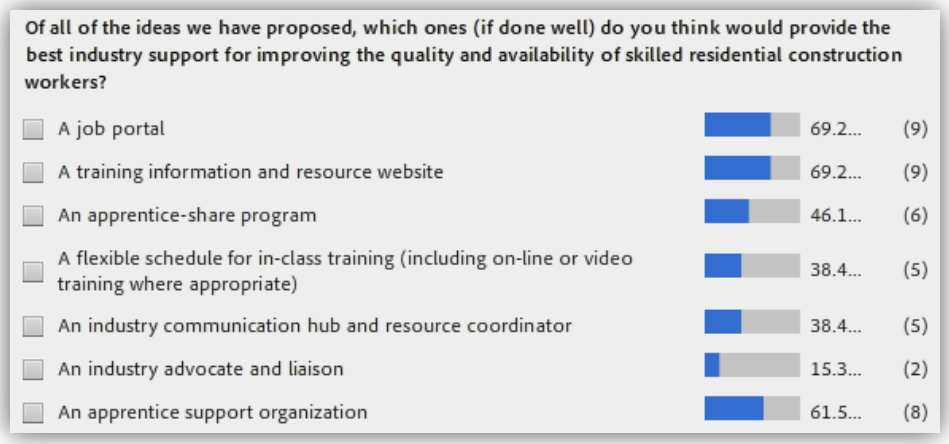


- Organizations that were identified as currently providing an effective voice for the residential industry as a whole included the ITA, CHBA BC, CITO, and a variety of other trade-specific associations (i.e., MCA, TECA, CIPH).

- Some participants felt that the best way to communicate to the broader residential industry as a whole is through training provider websites, active involvement of higher level leadership from training providers and training authorities, through targeted email message distribution, and through HPO's licensed builder registrations.

In Summary

- Of all the opportunity areas put forward during the virtual focus group session, participants were most supportive of a job portal and training and information website, as well as an organization dedicated to greater apprentice support.



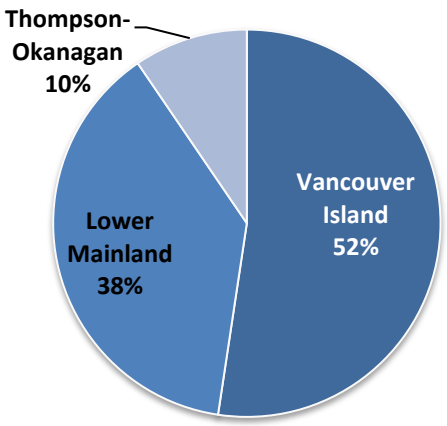
- Participants highlighted funding as a challenge, as well as a need for more pre-apprenticeship "explorer" type programs and for building skills such as math and English. Greater apprentice oversight on the job and an organization to indenture apprentices were also highlighted as important.

Industry Session – April 26th, 2013

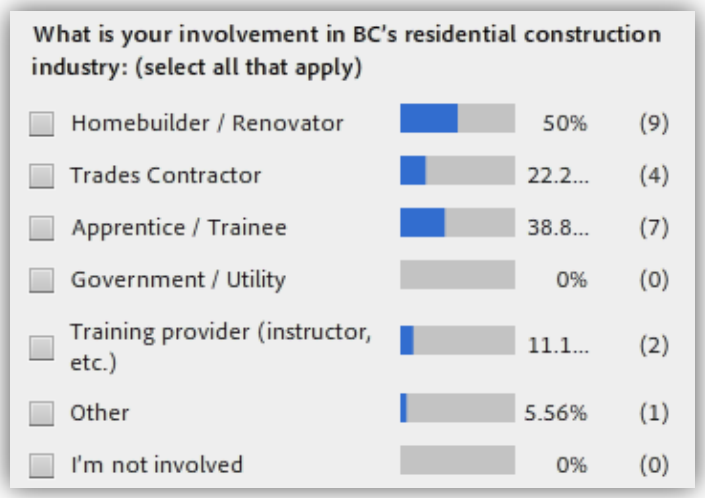
Participant Profile

- 21 individuals participated in the online meeting. 8 out of 21 participants worked only on residential projects.

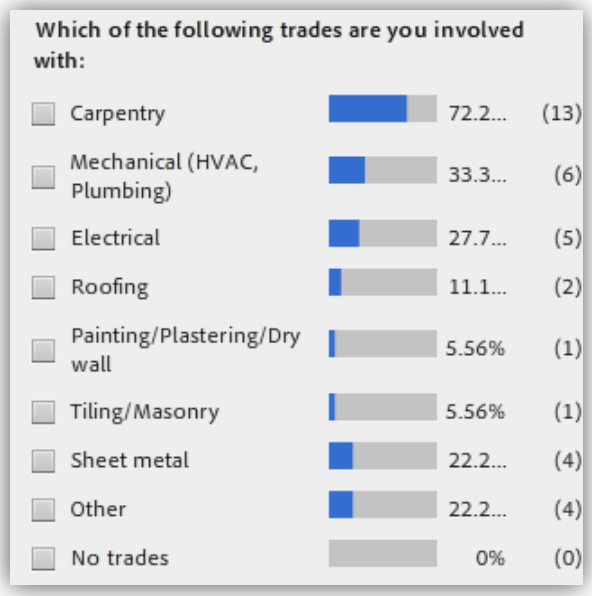
- Participants were from 3 geographic regions in BC.



- Participants were predominantly homebuilders / renovators. A number of apprentices also participated in the session.



- The trades represented by participants were predominantly carpentry, as well as some mechanical, electrical, and sheet metal.



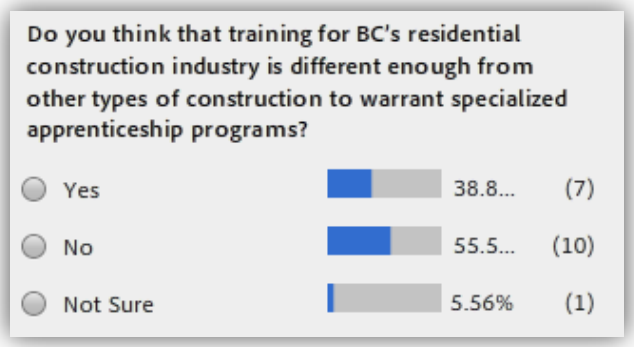
Apprenticeship Training for the Residential Construction Industry

- Most of the participants' companies hire apprentices.

- The majority of participants felt that apprentices are currently receiving adequate training for the needs of BC's residential construction industry.

- The majority felt that the skills needed to work in residential construction are somewhat different from those for other types of construction projects.

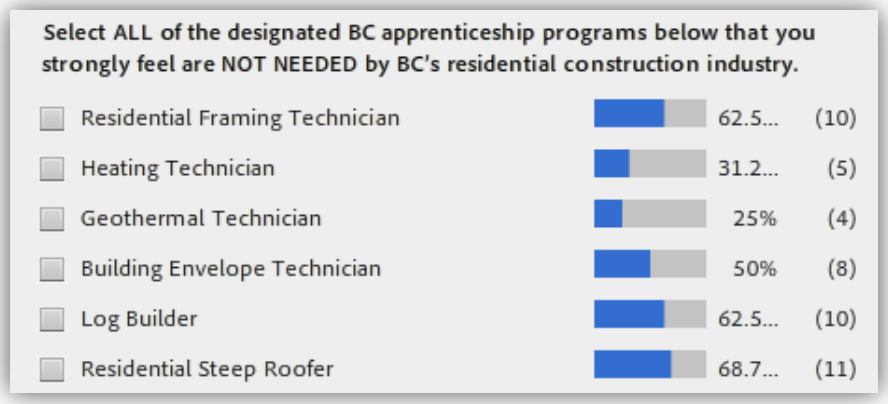
- The majority felt that residential construction is not different enough from other types of construction to warrant specialized apprenticeship program.



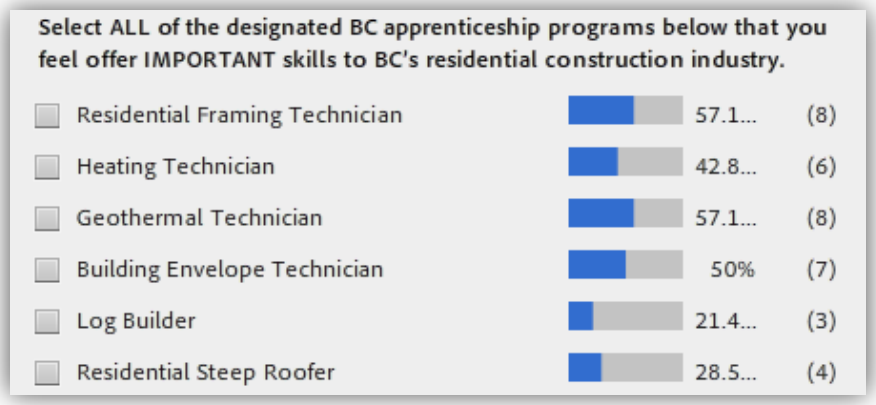
- The trades that were identified by participants as being most unique to residential and, as such, may require specialized training include ventilation and heating, electrical, sheet metal, and carpentry.

- Only one out of three (32 percent) felt that making apprenticeship training in BC residential-specific would be a good thing for their company. Whether or not a company was only involved in residential projects did not seem to affect the responses to this question.

- Of the designated residential-specific apprenticeship programs, the majority of participants felt that the Residential Framing Technician, Residential Steep Roofer, and Log Builder programs were not needed by the industry.

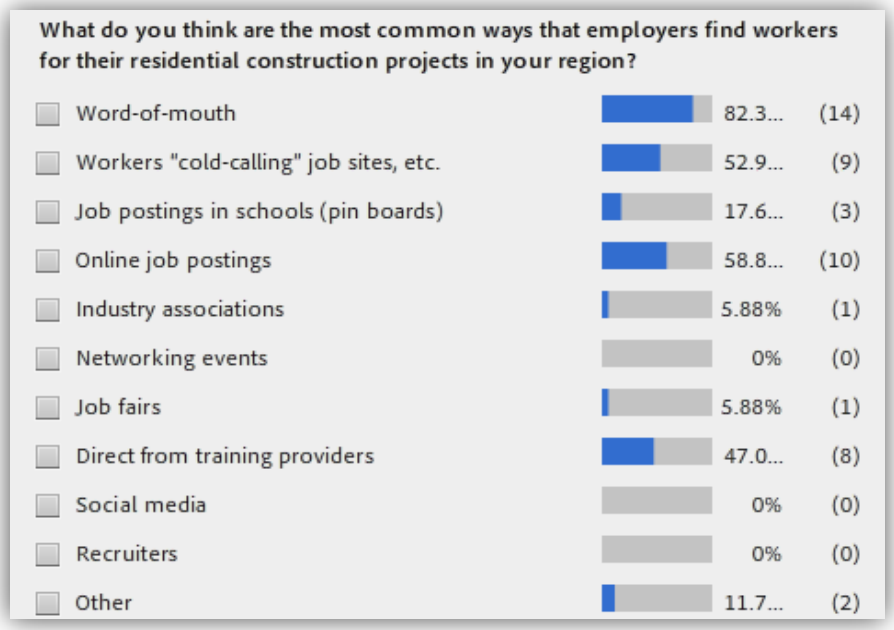


- The majority of participants felt that the Residential Framing Technician and Geothermal Technician did offer important skills to the industry.

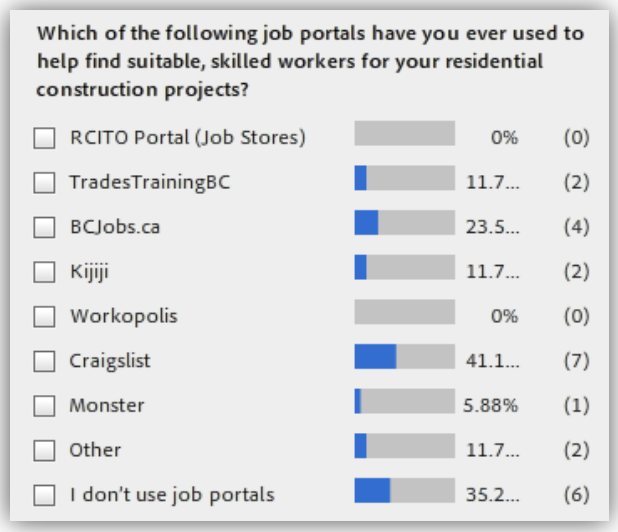


Job Portal & Training Information Website

- The most common ways that residential employers connect with their workers is word-of-mouth, followed by online job postings and workers “cold-calling” on the job site.



- While some participants stated that they don’t use job portals, Craigslist and BCJobs.ca were the two most popular for those who do.



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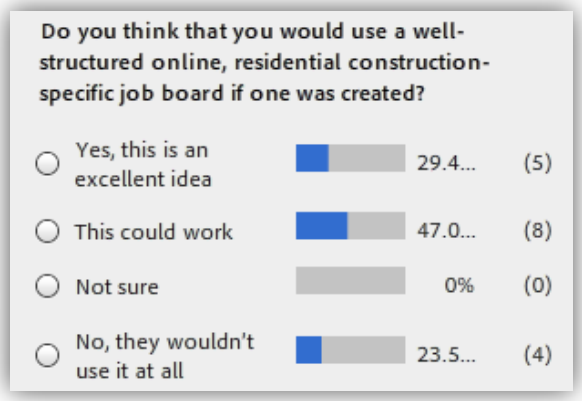
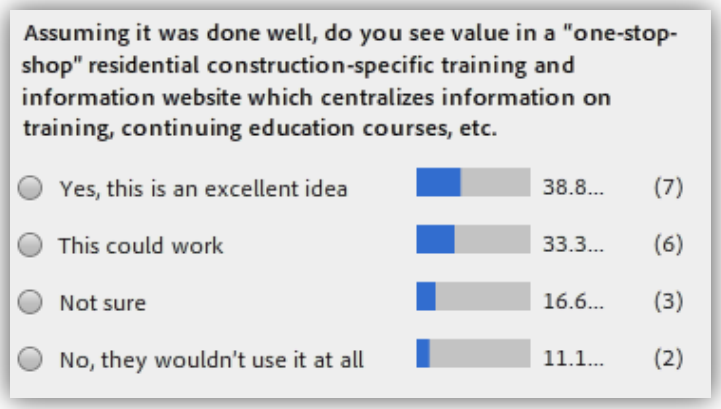


- The majority of participants felt that a “one-stop-shop” training and information website would add value to the residential construction industry.



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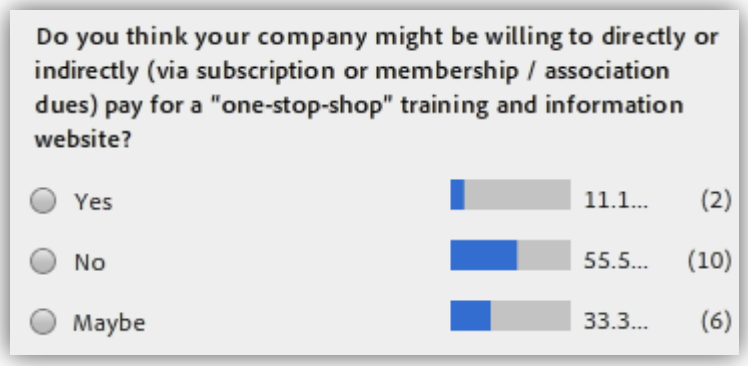
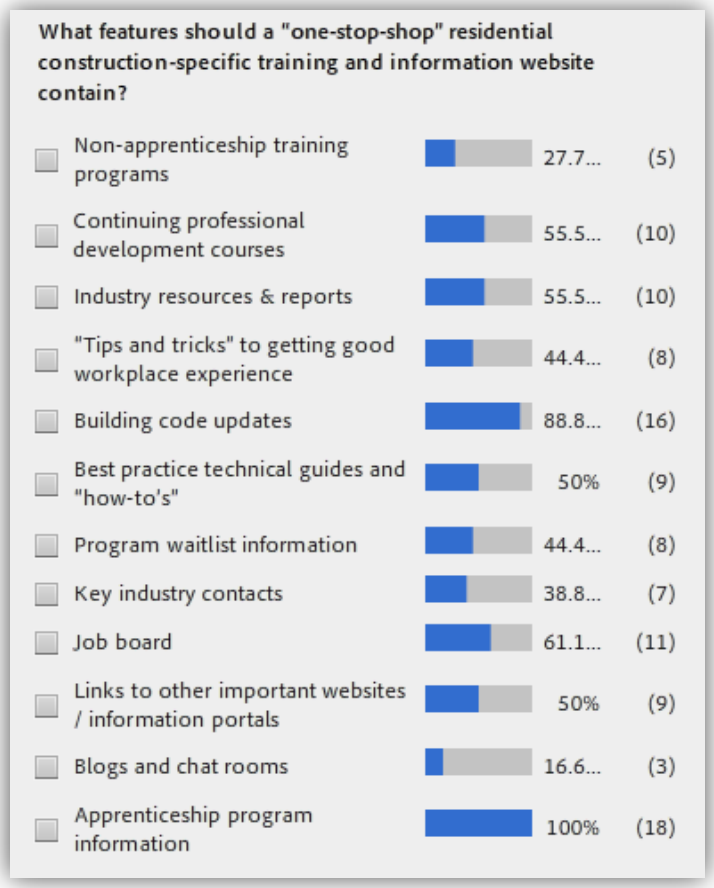


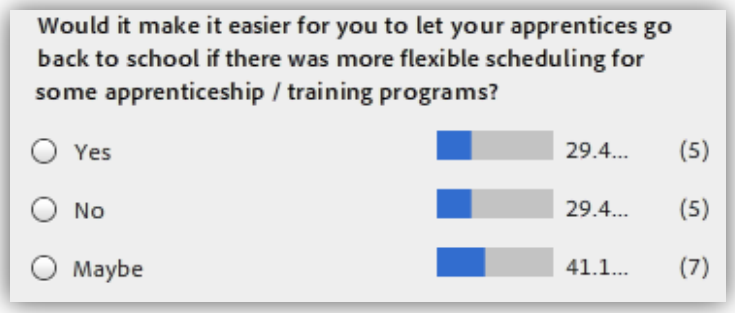
- The features best supported for a “one-stop-shop” website include apprenticeship program information, building code updates, a job board, CPD courses, and industry resources / reports.



Flexible Program Delivery & Scheduling

- The majority of participants did not feel that the traditional, 4-year, block release model created challenges for their companies with respect to brining on apprentices.

- Participants were mixed about whether or not more flexible program / course scheduling would make it easier to let apprentices go back to school.



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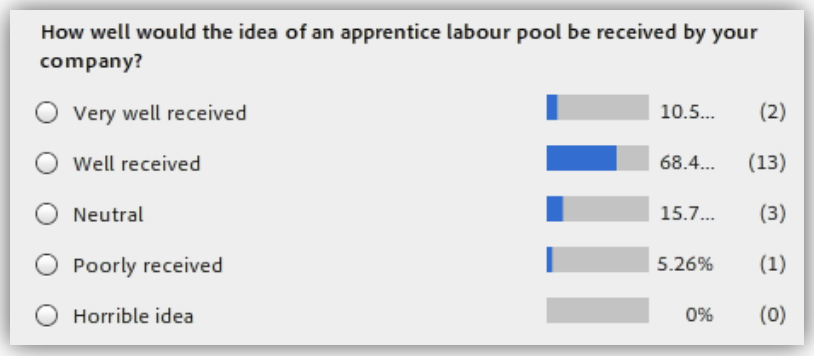
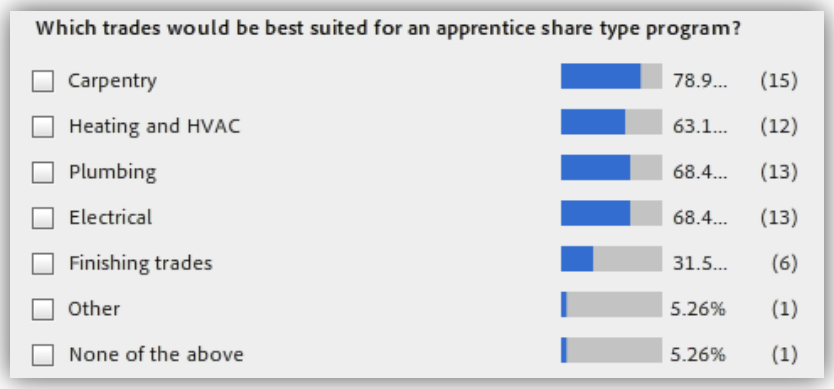
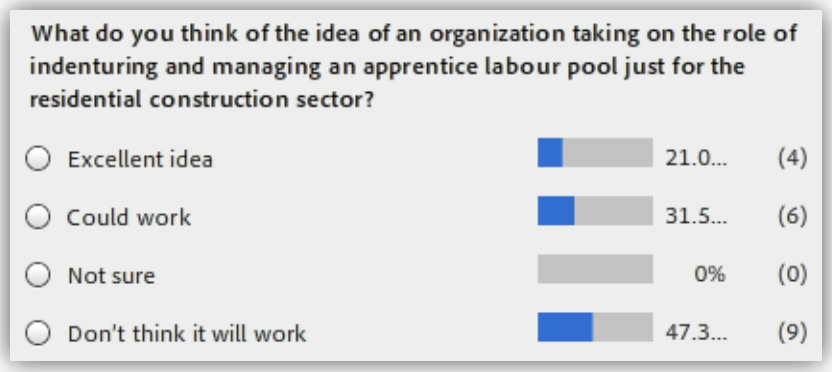


- Participants felt that all trades would be suitable for an apprentice share program.

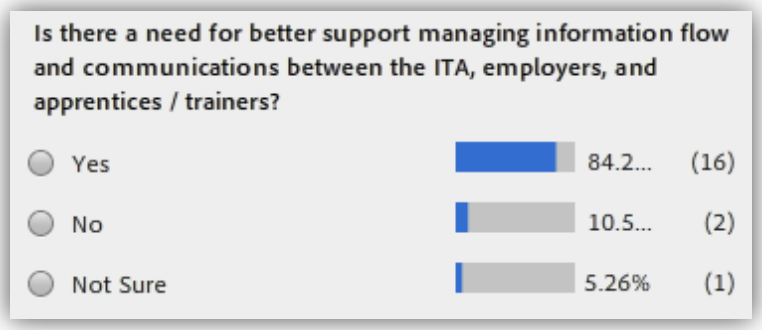


- When asked about the role of a third-party agency sponsoring and managing an apprentice labour pool, most participants were either cautious or skeptical.

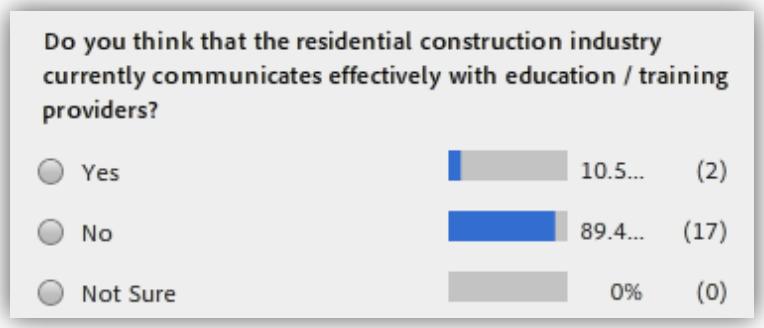


Communications & Industry "Voice"

- The vast majority of participants felt that there is a need for better support with managing information flow between the ITA, employers, and apprentices / trainers.



- The vast majority of participants felt that the residential construction industry does not communicate effectively with education and training providers.



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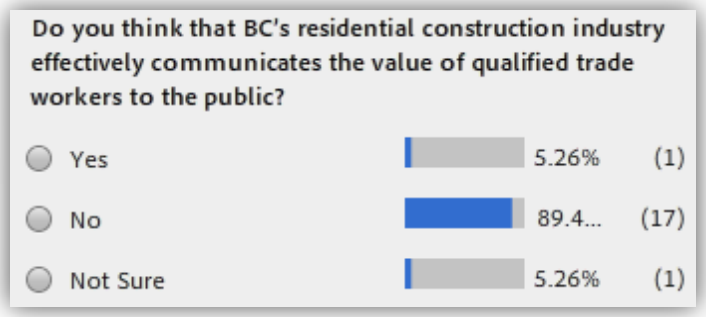
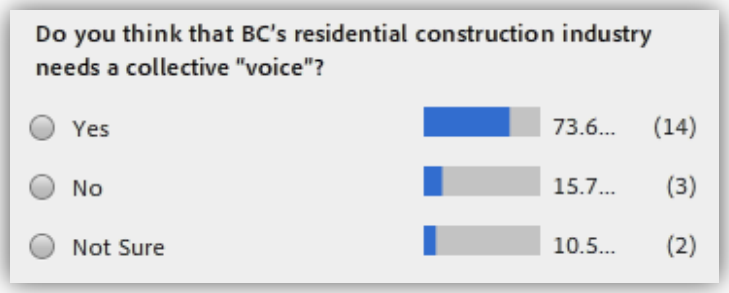


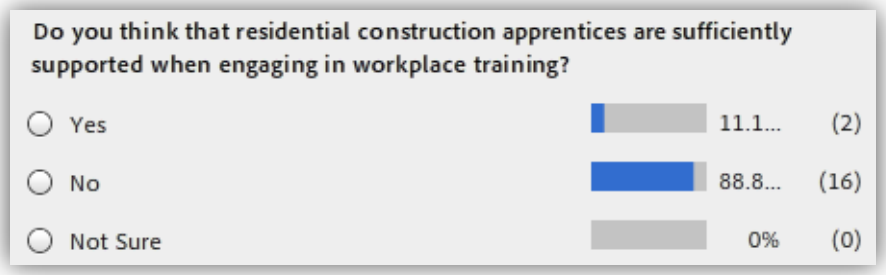
- The majority of participants felt that BC's residential construction industry needs a collective "voice" to communicate its needs with the government, training providers, and the public at large.



- The majority did not feel that RCITO played an important advocacy role for the residential construction industry that is no longer being met.

- The majority felt that there is a role for an agency dedicated to promoting the opportunities for BC's residential construction sector.

- The majority also felt that apprentices are not sufficiently supported while engaging in BC's training and education system.

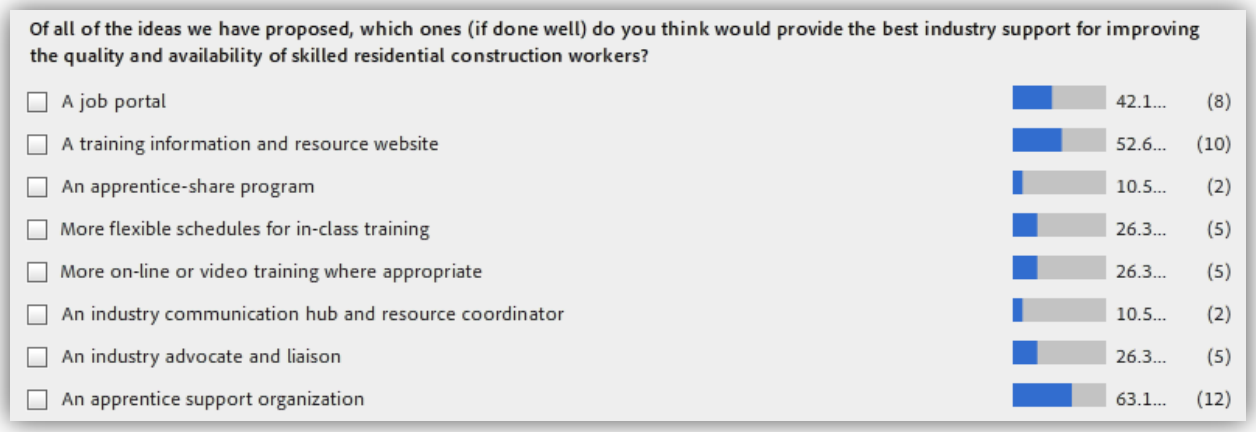


- While one individual identified the CHBA as providing a voice for the residential industry, most felt that there is no organization currently undertaking the role effectively for the industry as a whole.

- Some participants felt that the best way to communicate to the broader residential industry as a whole is through a centralized website and via email.

In Summary

- Of all the opportunity areas put forward during the virtual focus group session, participants were most supportive of an apprentice support organization, as well as a job portal and training and information website.



- Participants highlighted the need for further apprentice support with completing EI applications. Others highlighted a need for greater apprentice oversight / monitoring on the job and a need to bring back compulsory trades training. One also felt that Service Canada needs to be more supportive.

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GLOBE Advisors
World Trade Centre
Suite 578 – 999 Canada Place
Vancouver, British Columbia
Canada V6C 3E1

Phone: **(604) 695-5001**
Toll Free: **(800) 274-6097**
(North America)

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Paul Shorthouse
Director Research & Strategic Planning
GLOBE Advisors
paul.shorthouse@globe.ca
1.604.695.5005

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