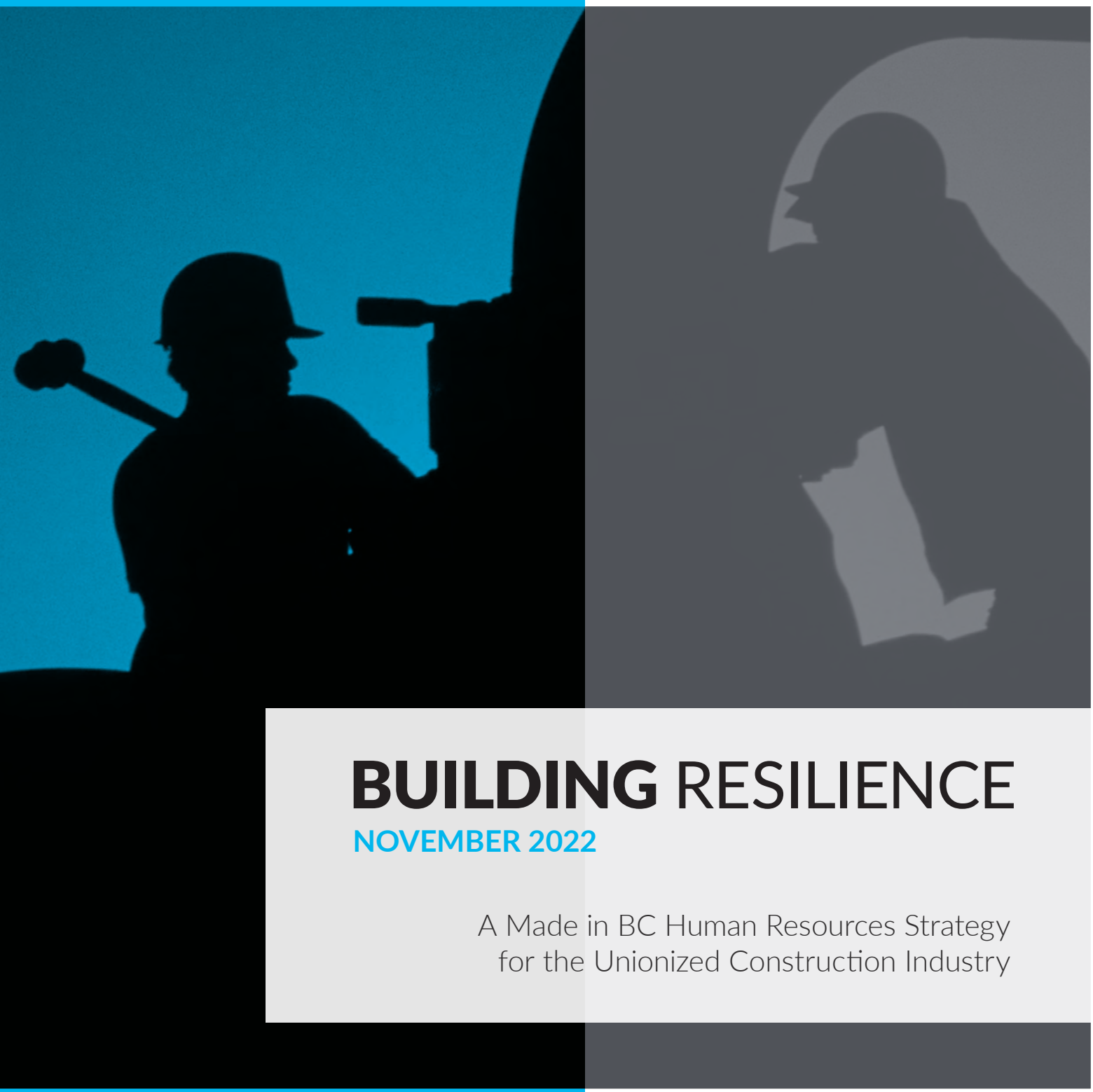
BC CONSTRUCTION EMPLOYERS BUILDING RELATIONSHIPS

CONSTRUCTION LABOUR RELATIONS ASSOCIATION OF BC



BUILDING RESILIENCE

NOVEMBER 2022

A Made in BC Human Resources Strategy
for the Unionized Construction Industry

Canada

BRITISH COLUMBIA

Funding provided through the Canada-British Columbia Labour Market Development Agreement.

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Disclaimer

The views and opinions expressed in this report are those of its author(s) and not the official policy or position of the Province of British Columbia.

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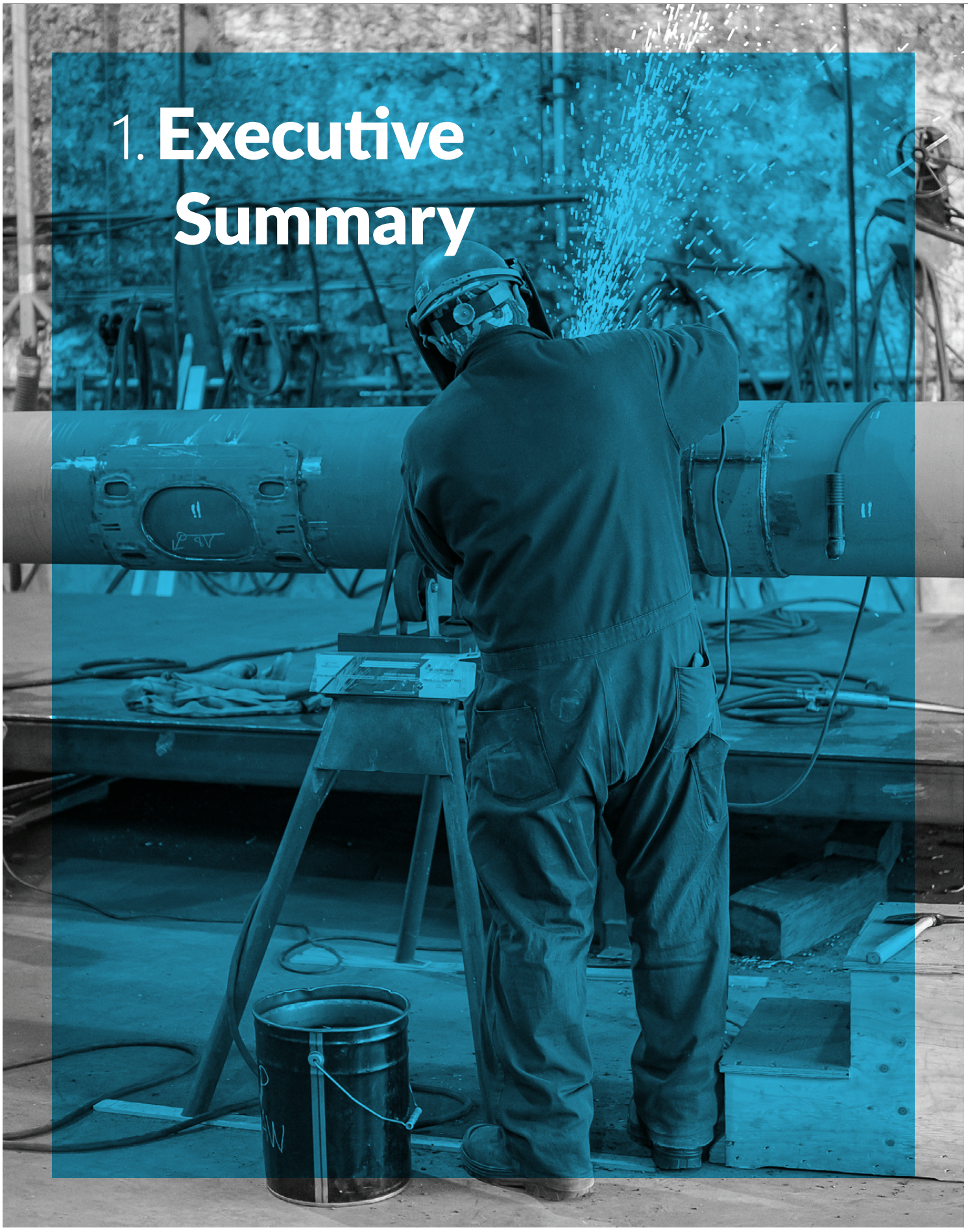


1. Executive Summary

Background and Purpose

A Project Governance Committee comprised of representatives from the Construction Labour Relations Association, BC Building Trades, BC Infrastructure Benefits, unions, employers, post-secondary institutions, the Industry Training Authority, and the Province of British Columbia (ex officio) was formed to develop a comprehensive human resource strategy to address provincial labour market challenges in the unionized construction industry in BC.

A two-phased approach was followed to develop the human resource strategy. In Phase 1, the Project Governance Committee engaged MNP to undertake a labour market study to identify current and emerging workforce development challenges and opportunities in the unionized construction industry in BC. In Phase 2, the Governance Committee engaged StoneCoast Group, in association with MNP, to build on the findings from Phase 1 and identify strategies to support the unionized construction industry in addressing labour market challenges arising from COVID-19.

Methodology

A combination of primary research, secondary research and administrative data were used for the study. In Phase 1 primary research activities included gathering information on the current workforce from unions, current and anticipated demand from employers and conducting interviews with industry participants to gather information on recruitment, retention, skill requirements and equity, diversity, and inclusion. Secondary research was used to gather information on factors that influence the choice to enter construction trades, the outlook for non-residential construction, representation of under-represented groups in the construction trades and barriers to inclusion of under-represented groups. Administrative data were used for apprenticeship registrations and completions for union sponsors in the unionized construction sector.

In Phase 2 primary research activities included gathering information through key informant interviews and focus groups on labour market barriers and challenges and suggestions for addressing them. Secondary research took the form of a literature review to identify strategies being employed in BC and other parts of Canada to address similar challenges and identify best practices.

Defining the Unionized Construction Sector

25 UNIONS

250-300 EMPLOYERS

44% OF TRADESPEOPLE IN THE NON-RESIDENTIAL CONSTRUCTION SECTOR

The unionized construction sector was defined as a sub-component of the non-residential construction sector that uses a workforce drawn from unions with a unionized collective agreement.

In 2021 there were 25 unions and between 250 and 300 employers* active in the sector. The unionized workforce accounted for 44 percent of tradespeople in the non-residential construction sector.

* Employers that were identified to operate exclusively in the residential construction sector, shipbuilding, road building and manufacturing were excluded. Also excluded were employers that were identified as primarily providing services in the energy sector not related to construction or maintenance.

Phase 1: Labour Market Information

Current State

In 2021 there were estimated to be between 34,000 and 35,000 tradespeople in the unionized construction sector. There is some indication that demand increased between 2017 and 2021 and employers interviewed reported varied experiences accessing labour through the unions. Short term work of a day or two was reported to be the most challenging to fill. There was also some indication that there are regional differences in availability with Northern BC and remote areas cited as being challenging to source labour from.

Forecast of Labour Market 2022 to 2032

Between 2022 and 2027 demand in the unionized construction industry is forecast to grow due to investments in industrial, commercial, and institutional buildings. As these projects wrap up between 2025 and 2027 demand in the unionized sector was forecast to moderate through 2032.

Figure 1 summarizes the supply and demand forecasts by trade in the unionized construction sector. Fourteen of the eighteen trade groups were expected to experience labour shortages over the forecast period. The most severe shortages were forecast to be among operating engineers, millwrights, welders, concrete finishers and plasterers and floor layers. Shortages in operating engineers, millwrights, welders, and concrete finishers and plasterers trades are forecast in the overall construction sector as well.

Figure 1: Summary of Supply and Demand by Trade, 2022 to 2032

Areas for Consideration

Phase 1 identified ten areas related to recruitment and retention, training and/or technology for consideration in the development of the human resource strategy.

- **The COVID-19 pandemic has resulted in several short-term impacts for the unionized construction sector.** Such impacts include a rise in early retirements among older workers, which may add to the forecast labour shortages, delays to project timelines, and increased costs. Additionally, the training and certification of apprentices may be delayed as the sector recovers from the slow down (e.g., stoppages in training delivery and reduced class sizes) caused by the pandemic. It remains unclear what effects the pandemic will have on attraction and retention in the industry over the longer term.
- **Consideration should be given to ensuring apprentices develop skills across the full scope of their respective trades.** Training providers noted that despite fulfilling the work-based hours requirements, some apprentices do not have sufficient experience across the scope of the trade to pass the Red Seal exam successfully. The rise of specialization within the trades and the busy nature of some employers were two reasons cited for the insufficient exposure to the full scope of trade for some apprentices.
- **Friends and family have a significant influence on the decision to enter trades.** It is well documented in both the literature and the primary research that friends and family play a key role in the decision of individuals to enter the trades. Those who have prior exposure to the trades or union environment through a friend or family member were more likely to pursue training in that trade or join a union.
- **The availability and stability of employment opportunities are important for attraction and retention.** Primary research indicated that people often gravitate towards trades that are currently and expected to continue to be in high demand. This is particularly relevant for the construction trades in the wake of COVID-19 as construction activity continued throughout the pandemic, and careers in the construction sector are now regarded as "pandemic-proof". Unions reported that providing long-term ongoing employment is also an important factor in the retention of workers.
- **Broadening recruitment efforts to target workers in other sectors. At present most recruitment efforts are directed at workers within the construction sector.** Reaching out to workers in other sectors, including those most affected by the pandemic, could increase the pool of available labour.
- **Strategies targeting high school students, including developing workforce readiness skills, should be considered.** Several unions reported focusing their recruitment efforts on experienced workers and most new members come from the within the construction sector. One union interviewee reported preferring not to recruit youth straight out of high school, citing safety concerns. Targeting this demographic while also equipping them with the necessary workforce readiness skills may be effective in attracting new entrants.
- **The increased adoption of technology in the industry may affect both attraction and retention.** The required skill set to enter and advance in the trades will evolve as technology is further integrated. Technology adoption may also hasten the exit of older workers from the workforce while simultaneously attracting younger workers. Similarly, the impact of technology on the physical strength required in specific trades could lower barriers to recruitment for some groups, including from under-represented groups, such as women, and increase the length of time older workers can continue working.

- **Barriers to entry and advancement in the trades continue to exist for equity-seeking groups.** Specific barriers include access to affordable childcare for women, cultural differences and language barriers for new Canadians, and geographic challenges and under-representation for Indigenous peoples. These barriers, and others, keep representation among these groups low.
- **There is some indication that there may be a negative perception of union membership among some groups.** Union membership has decreased across industries including the construction industry. Interviewees suggested that unions are perceived negatively among some groups which can hinder attraction efforts. A better understanding of how union membership is perceived among target groups could aid in the development of strategies to counter negative perceptions and increase attraction.
- **Opportunities for cross-utilization of tradespeople should be considered.** There are a few skills which are transferable across several trade groups (e.g., welding, piping). Cross-training on high-demand tasks could support retention and improve access to labour by providing ongoing employment opportunities for workers during periods when their primary trade is experiencing decreased demand.

Phase 2: Human Resource Strategy

In Phase 2 the areas for consideration were prioritized based on input from employers and unions. Recruitment and retention and the associated considerations were consistently rated as the highest priority, followed by training and technology.

Recruitment and Retention

There was consensus that recruitment efforts need to be broadened and focus on under-represented groups (e.g., women, youth, Indigenous peoples and minorities). Themes that emerged from the key informant interviews and focus groups were:

- There are barriers to entry in the unionized construction industry for members of equity-seeking groups (e.g., bullying, harassment, and discrimination) that keep the representation of specific populations low.
- To broaden recruitment efforts beyond the construction sector interviewees suggested that a consistent awareness and marketing campaign could be employed to raise the profile of the industry among target audiences.
- To combat misconceptions about union membership interviewees suggested engaging in outreach to parents, families, and youth on the benefits of a career in the trades.
- The availability and stability of employment opportunities are key factors in attraction and retention of workers in the industry. As a result, trades that are in high demand receive more interest from potential recruits.

Training

There was consensus that training in the unionized sector is generally good and that strategies related to training should be focused on three areas:

- Targeting high school students and developing their workforce readiness skills.
- Ensuring apprentices receive experience in the full scope of their trade.
- Exploring opportunities for cross-utilization of trades people. Interviewees noted that cross-utilization of tradespeople may provide greater employment stability, support retention, and help address labour shortages. However, there was some concern about how this could be implemented without negative impacts on the overall workforce.

Technology

There was consensus that technology should be used to augment labour, rather than as a replacement for labour. Themes that emerged from the key informant interviews and focus groups were:

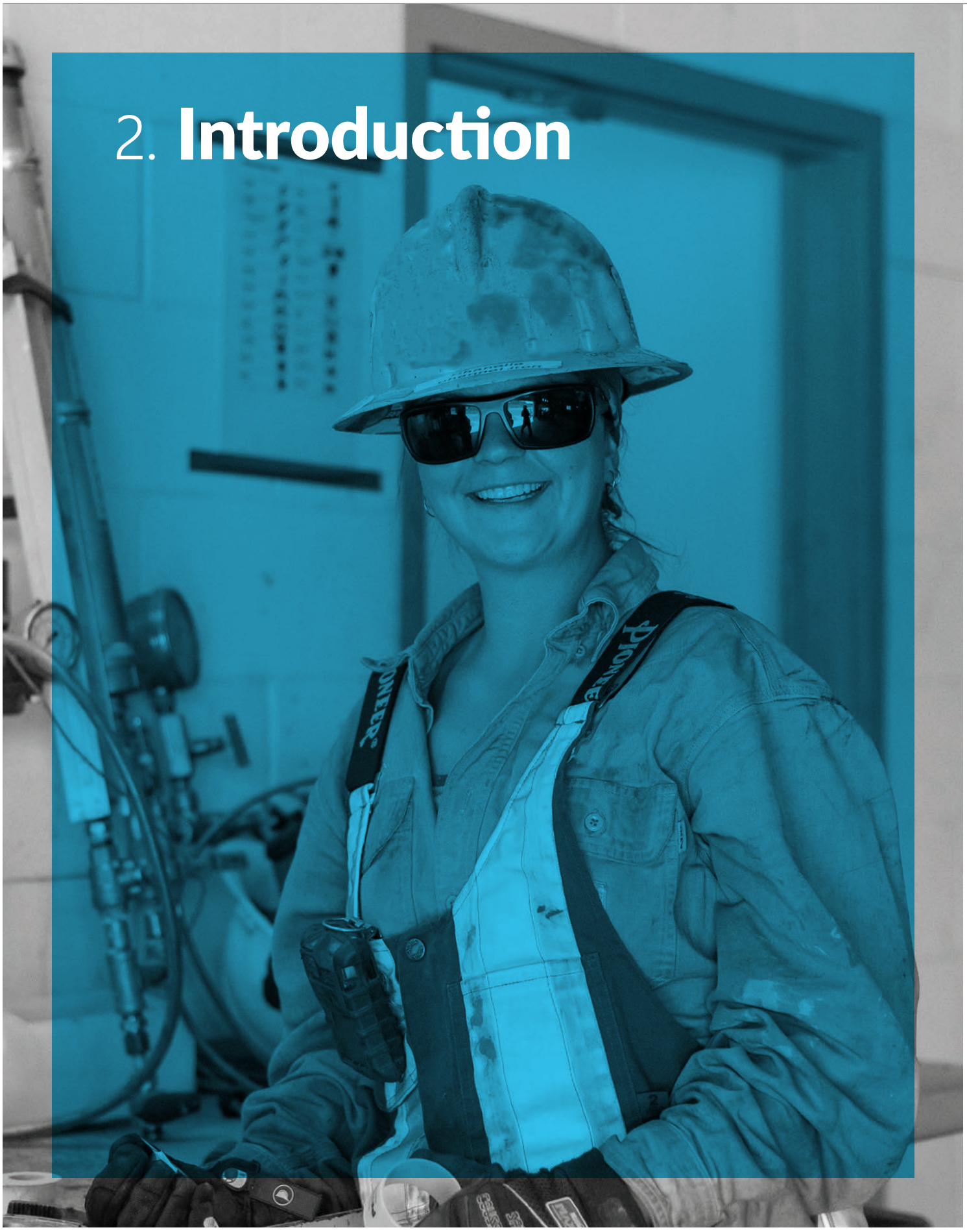
- Interviewees identified that the increased adoption of technology will likely affect repetitive tasks, which could improve the attractiveness of roles.
- Implementing technologies aimed at improving working conditions and decision making could help address labour shortages through productivity improvements and the shifting of skills from physical strength to cognitive ability.
- Increases in technology adoption may improve the attractiveness of the industry for youth and members of under-represented groups. It may also help older workers to remain in the industry.

Action Plan

Table 1 summarizes the identified strategies for addressing labour market challenges in the unionized construction industry.

Table 1: Strategies for Addressing Labour Market Challenges by Theme.

TOPIC THEME	STRATEGIES	PRIORITY LEVEL HIGH	MED	LOW
Recruitment & Retention	Establish the Unionized Construction Industry as a Leader in Environmental, Social, and Governance Goals	✓		
	Create a Workplace Culture that is Inclusive and Welcoming	✓		
	Use Immigration Channels to Support Recruitment	✓		
	Increase Recruitment through Access and Accommodation for Women in Trades	✓		
	Develop a Coordinated Approach to Outreach		✓	
	Increase Flexibility in the Utilization of the Workforce		✓	
Training	Gain a Clear Understanding of Member Competencies Through Technology and Tracking Tools		✓	
	Explore Innovative Ways to Offset Training Costs in the Skilled Trades			✓
	Identify Where Secondment Opportunities Can be Provided		✓	
	Mandate that Employers Invest a Certain Number of Training and Work Hours into Each Level of Apprenticeship		✓	
	Increase Youth Exposure to Trades and Improving Their Workforce Readiness Skills	✓		
Technology	Establish a Unionized Construction Industry Technology Working Group	✓		
	Implement Technologies to Improve the Dispatching and Hiring Process	✓		
	Employ Technologies to Share Demand and Forecast Information	✓		
Other	Retain Lessons Learned from COVID-19			✓



2. Introduction

Background and Purpose

The COVID-19 pandemic and subsequent public health orders led to the disruption of activity across many BC industries, including the construction industry.

While construction activity was deemed an essential service by the provincial government in March 2020,[1] guidelines such as limiting the number of workers allowed on a work site, physical distancing requirements, and increased safety measures led to several changes to how construction sites and organizations operate. These changes have important implications for the existing and future labour force.

A Project Governance Committee comprised of representatives from the Construction Labour Relations Association ("CLR"), BC Building Trades ("BCBT"), BC Infrastructure Benefits ("BCIB"), unions, employers, post-secondary institutions, the Industry Training Authority BC ("ITA") and the Province of BC (ex officio) was formed to develop a comprehensive human resource strategy to address provincial labour market challenges in the unionized construction industry in BC through the Sector Labour Market Partnership program.

To develop the provincial human resource strategy, a two-phased approach was followed. In the first phase, the Project Governance Committee engaged MNP LLP ("MNP") to undertake a labour market study to identify current and emerging workforce development challenges and opportunities in the unionized construction industry in BC. The LMI Study (sections 3-8 of this report) was finished in March 2022.

Phase 2 was led by StoneCoast Group in association with MNP and leveraged the findings of the LMI Study to develop short-term (6-12 months), medium-term (12-24 months), and long-term (24+ months) strategies to support the unionized construction industry in addressing labour market challenges arising from COVID-19. The HR Strategy (sections 9-10 of this report) was completed in July 2022.

2 Government of British Columbia, "Province Takes Unprecedented Steps to Support COVID-19 Response," March 26, 2020, https://news.gov.bc.ca/releases/2020PSSG0020-000568.

Scope

The scope of the Phase 1 LMI Study encompassed:

- Developing a definition of the unionized construction sector in BC.
- Developing a profile of the size and demographics of the unionized workforce by trade in 2021.
- Developing estimates of the demand and supply for unionized labour between 2021 and 2032.
- Assessing how technology is affecting the skills requirements and demand for construction trades.
- Identifying attraction and retention trends in the unionized construction sector and how COVID-19 has impacted them.
- Assessing training capacity, access to training and preferred modalities/delivery formats.

The scope of the Phase 2 HR Strategy encompassed:

- Conducting a literature review of existing strategies and programs which could be used by the unionized construction industry.
- Identifying key barriers and challenges to recruitment and retention, training, and technology.
- Prioritizing the areas for consideration identified in the LMI Study.
- Identifying strategies to address labour market challenges by conducting industry consultations.
- Identifying initiatives and barriers related to equity, diversity, and inclusion.

Approach

MNP conducted Phase 1 of the study between July 2021 and January 2022. In carrying out Phase 1, MNP completed the following activities:

- Developed a methodology for forecasting labour supply and demand in the unionized construction sector.
- Gathered and reviewed relevant secondary sources of information.
- Developed, tested, and administered surveys for employers and in-scope unions.
- Received and validated data collected through the surveys of employers and unions.
- Interviewed employers, unions, training institutions and organizations representing under-represented groups.
- Developed estimates of the current unionized construction sector workforce by occupation.
- Developed demand and supply forecasts by occupation for the period 2022 to 2032.
- Synthesized the findings of the research into draft and final reports.

Approach (cont.)

Phase 2 was conducted between February 2022 and July 2022. In carrying out Phase 2 StoneCoast Group and MNP completed the following activities:

- Conducted focus groups with employers and union representatives to gather information on priorities and potential strategies.
- Conducted key informant interviews with sector participants to identify potential strategies.
- Conducted a high-level jurisdictional scan to identify strategies being used in other regions and sectors that may be applicable to the unionized construction sector.
- Conducted a review of best practices based on publicly available materials
- Conducted a focus group to review the identified strategies with sector participants and gathered feedback.
- Synthesized the findings of Phase 2 into draft and final reports.

Structure of the Report

The remainder of the report is structured as follows:

- Section 3 contains a description of the methodology used in conducting the study.
- Section 4 contains an overview of the unionized construction sector in BC.
- Section 5 contains the estimates of supply and demand for the period 2022 to 2032.
- Section 6 describes the impacts of COVID-19 on the unionized construction sector.
- Section 7 describes trends in participation, recruitment, retention, and barriers to inclusion for under-represented groups.
- Section 8 contains a summary of the Phase 1 LMI findings.
- Section 9 contains the Phase 2 HR Strategy
- Section 10 summarizes the identified strategies, timeframes, responsibilities, and resourcing contained in the HR Strategy.
- Appendices A through I provide supporting information on data sources, the approach used to develop the estimates and additional information.

3. Methodology

Phase 1 Approach

Figure 2 outlines the approach used to undertake the Phase 1 LMI study. The first step was to conduct a series of key informant interviews with members of the Project Governance Committee to gather information on the key considerations, data sources and trends in the sector. We then conducted a literature review to gather information on factors that affect attraction and retention in the construction sector, trends in technology and participation of equity-seeking groups. The information gathered through the key informant interviews and from the literature review was used to develop the methodology used for the study and design the research tools. Once the methodology was approved, we conducted primary research to gather information from sector participants. The research findings were then synthesized to develop estimates of the supply and demand for trades in the unionized construction sector and identify factors influencing attraction and retention and skill requirements.

Figure 2: Approach to Conducting the Phase 1 LMI Study

> ***The information gathered through the key informant interviews and from the literature review was used to develop the methodology used for the study and design the research tools.***

Data Sources

The data used in the study included both quantitative and qualitative information gathered from primary, secondary, and administrative sources.

Primary Research

Primary research was conducted to gather information on the number of people employed in each occupation, demographics, vacancies, and recruitment in the unionized construction sector. Primary research activities included:

- A survey of unionized construction sector employers that was conducted between October 2021 and January 2022. Information on and invitations to complete the survey were sent to approximately 300 members of CLR throughout BC by CLR. Responses were received from 92 employers.
- A data collection template was circulated to the 25 unions in the BC unionized construction sector. For the 22 unions that are represented by BC Building Trades ("BCBT"), information on and invitations to complete the data template were sent by BCBT. For each of the three unions that are not represented by BCBT, information and invitations to complete template were sent by MNP. Complete responses were received from ten unions while an additional two unions submitted partial responses. To supplement this outreach, MNP partnered with BCIB to access information from an additional six unions who authorized BCIB to share previously collected data with us.[2]
- Interviews were conducted with 63 stakeholders (i.e., employers, unions, training institutions and under-represented groups) between October 2021 and December 2021 to gather information on factors affecting the current workforce and expectations about future supply and demand of tradespeople. Information on and invitations to participate in interviews were sent by MNP.

Appendix B provides details on the sample design and invitations to participate in the study.

2 For unions that only shared information previously collected from BCIB, the following information was not obtained: the years of experience for each member, the age distribution of members, historical and current hours of work dispatched, the identification of trades with excessive demand, distribution of work by sector, the approximate number of members working outside of BC and their hours and the number and hours of workers from out-of-province working with the respective union.

Secondary Research

A review of relevant published information from government sources, research organizations, industry groups and peer reviewed journals was conducted. Our review focused on the following themes in the context of the BC and Canadian construction sectors:

- Labour market projections for construction trades and the construction sector.
- Attraction and retention within the construction sector.
- Trends in participation in construction trades for under-represented groups.
- Skill gaps and trends influencing the skill requirements by occupation.
- Trends in technology that are expected to impact skill requirements and labour demand.
- Changes in the building code that may impact skills requirements.
- Skills and aptitudes required for job longevity, including transferrable skills.

Where applicable (e.g., attraction and retention, and participation) our literature review included materials specific to the unionized construction sector.

Administrative Data

Administrative data on apprenticeship registrations, completions, and demographics for sponsors in the unionized construction sector was provided by the ITA.

Limitations

The findings presented here are subject to the following limitations:

- Research was conducted between October 2021 and December 2021. At that time vaccine mandates were being introduced and it was uncertain how long they would be in place and the extent to which construction work sites would be included. Changes in these mandates or the emergence of new variants that prolong restrictions could result in further delays in apprenticeship completion or additional exits from the industry beyond what was accounted for in the estimates.
- There was limited information on future demand by region provided by employers and the information that was provided by region was only for a small number of trades. As a result, we were unable to develop estimates by region for the unionized construction sector.
- Information was received from unions representing approximately 95 percent of the unionized workforce; however, fewer than half provided complete information. In addition, there was no information provided on the supply of ironworkers, and occupations related to landscaping, elevator constructor mechanics and camp workers. This affected our ability to develop a complete demographic profile of the sector and we were unable to develop estimates of the size of the unionized workforce for trades which data were not supplied for.
- Some tradespeople have multiple certifications and discussions with union participants indicated that some members belong to multiple unions and members may also work in the non-unionized construction sector. There is no information on the number of people who belong to multiple unions or have multiple certifications. Consequently, the estimates of supply represent counts of those working within each trade in the unionized construction sector, not unique individuals. The number of unique individuals in the unionized construction may be less than the sum of union members.

Phase 2 Approach

Figure 2 outlines the approach used by StoneCoast Group and MNP to develop the HR Strategy.

- From the Phase 1 LMI Study came a set of areas for consideration in the HR Strategy. These areas focused on recruitment and retention, training, and technology. MNP and StoneCoast Group began data collection by convening two focus groups (one with unions and one with employers) to prioritize the areas for consideration and identify additional considerations.
- Following the prioritization exercise, participants were asked to share their thoughts on possible strategies, barriers, or other considerations to help address the priority areas. Following the focus groups, key informant interviews were conducted to identify strategies and industry challenges. The primary research activities were supplemented with secondary research into existing strategies and best practices to solve labour force challenges.
- A validation session was convened with interviewees and focus group attendees during which the research findings were shared, and prioritized strategies, actions and tactics confirmed.

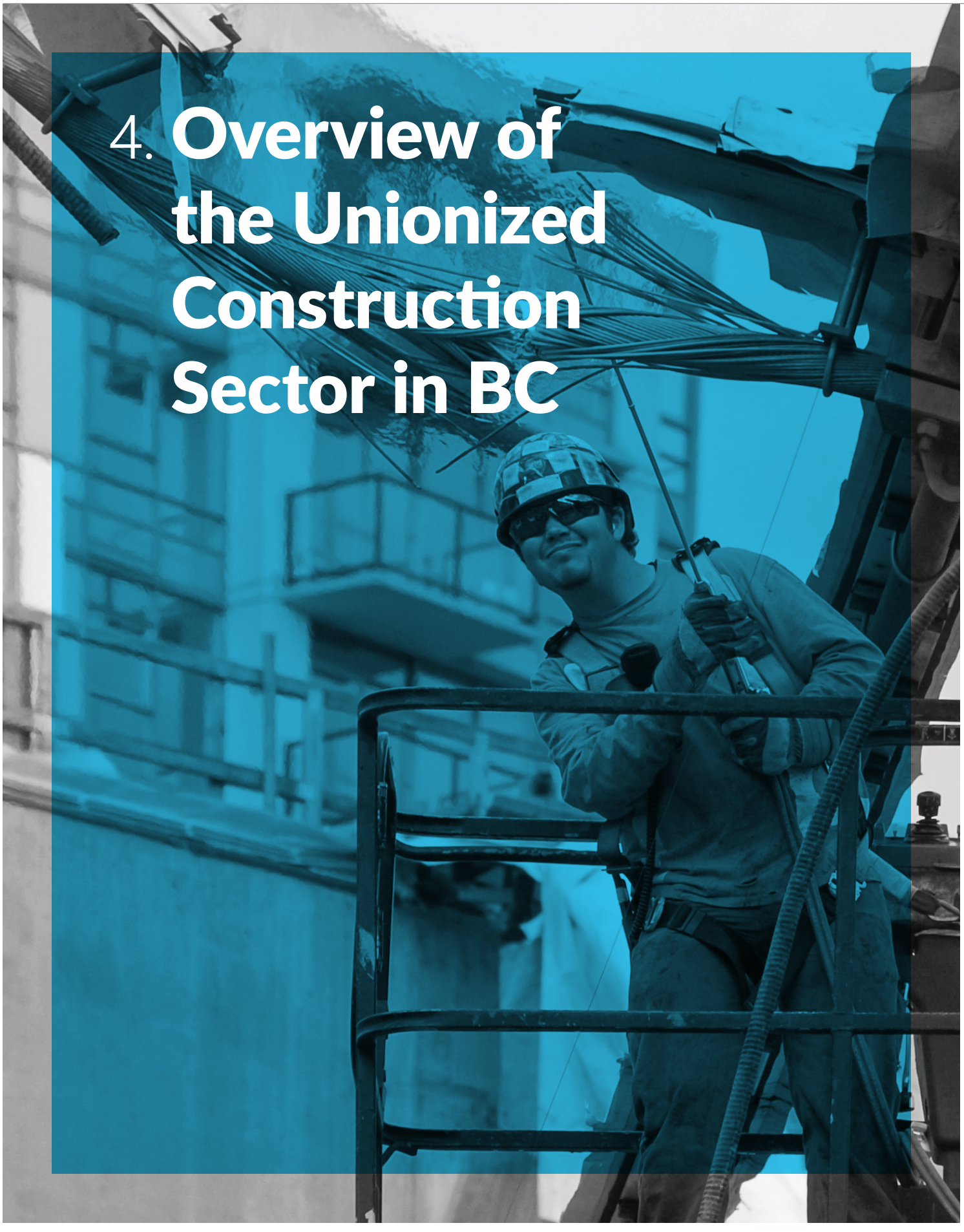
"Appendix H - Stakeholder Engagement Info" on page 136 provides a summary of stakeholder engagement activities.

Figure 3: Three-Step Approach to Phase 1:

The first step in Phase 2 began with a kick-off meeting with the Project Governance Committee to review and agree on the approach. Work During this step included the development of a work plan and timeline, along with the planning of two focus groups and the preparation of Key Informant Interview (KII) questions.

The second step in Phase 2 focused on collecting data to inform the strategy. This included facilitating two focus groups, conducting KII's, and convening an industry validation session. Secondary Research in the form of a literature review was also conducted. The data collection process allowed for prioritization of strategic areas of focus and gathering information and input on barriers, challenges, strategies, and actions.

The third step in Phase 2 involved combining all analyzed data, finalizing the strategic recommendations, and compiling the HR Strategy for approval by the Governance Committee.



4. Overview of the Unionized Construction Sector in BC

Description of the Unionized Construction Sector in BC

The construction sector in BC includes both residential construction and non-residential construction. Residential construction is related to the construction of buildings for private occupancy. Between 2016 and 2019 residential construction accounted for just over half of construction and maintenance investment and almost two-thirds of construction employment in BC[3].

Non-residential construction includes construction of commercial, industrial, and institutional buildings, as well as heavy and civil engineering projects such as transportation infrastructure and dams. Between 2016 and 2019 non-residential construction accounted for just under half of investment in construction and maintenance investment and one-third of construction employment in BC[4].

Through discussions with the Project Governance Committee, the unionized construction sector was defined as a sub-component of the non-residential construction sector that uses a workforce drawn from unions with a unionized collective agreement.

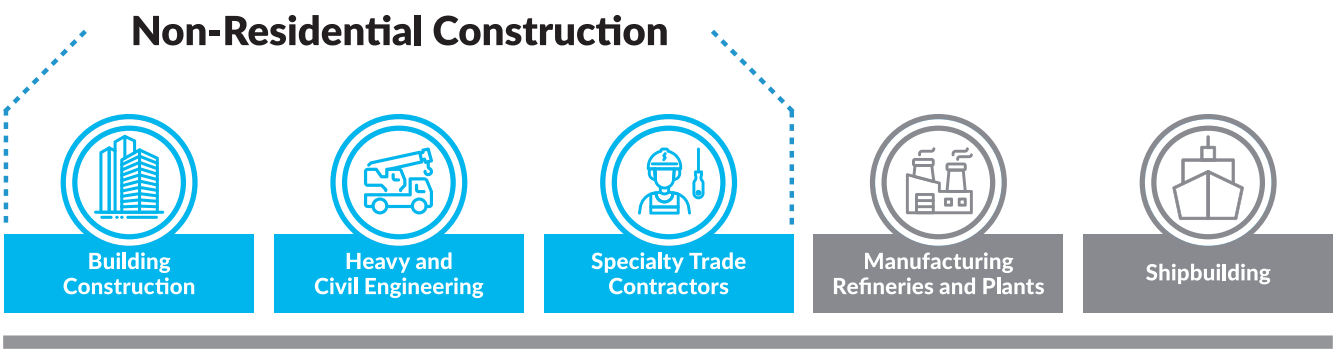
Employers in the unionized construction sector include general contractors and engineering, procurement and construction contractors providing services related to construction and maintenance of non-residential buildings and heavy and civil engineering projects, as well as specialty trade contractors. Unions in the unionized construction sector are those representing tradespeople covered by collective agreements with contractors providing non-residential construction and maintenance services.

Defining Unionized

Unionized refers to a workplace covered by a collective agreement that requires the employer to utilize only workers provided by the union for specific positions. In a unionized setting, if the union is unable to provide the requested workers within a specified period the employer may hire workers from outside the union. Excluded from the unionized construction sector are workplaces covered by collective agreements which allow employers to hire employees at their discretion.

Figure 4 shows the industries that employ the unionized construction sector workforce in BC.

Figure 4: Industries Employing the Unionized Construction Sector Workforce



3 BuildForce Canada, "Construction Forecasts Data Series," 2021.

4 Ibid.

Employers

There were estimated to be between 250 and 300 employers operating in the unionized construction sector in 2021.[5] Figure 5 shows the distribution by type of construction reported by respondents to the Employer Survey. Most employers (approximately 78 percent) reported providing services related to construction of commercial, industrial, and institutional buildings.

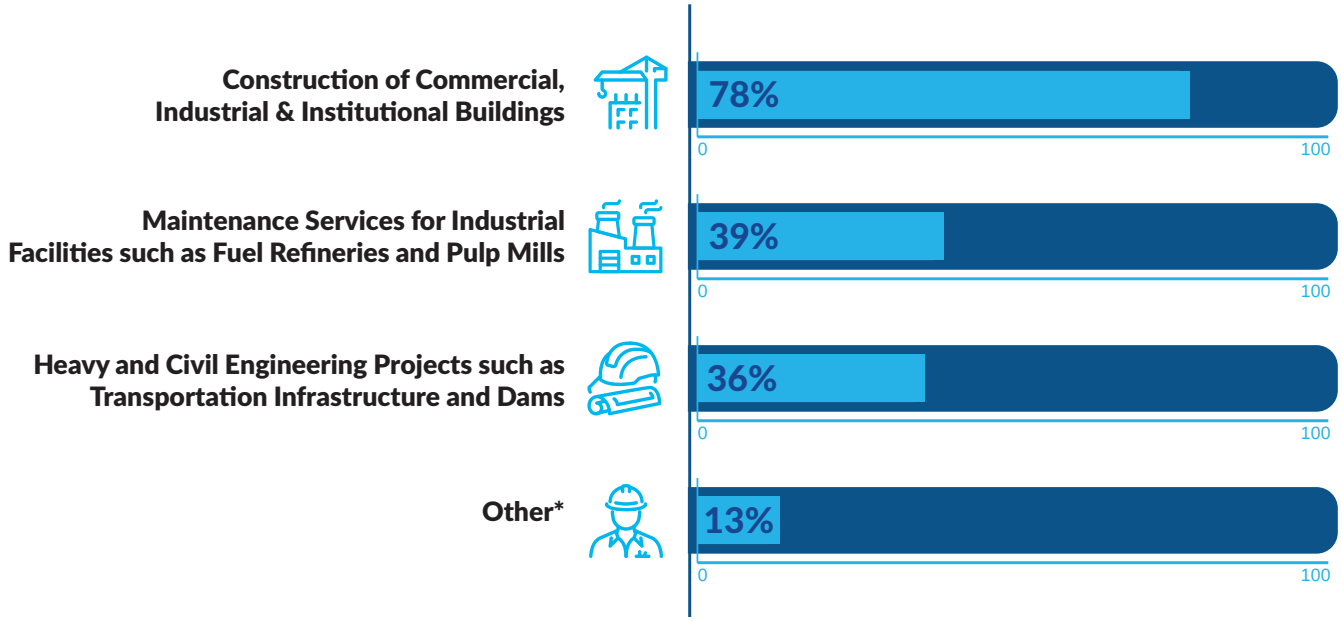
Approximately 39 percent reported providing maintenance services for industrial facilities, 36 percent reported being involved in construction of heavy and civil engineering projects and 13 percent reported providing services related to marine construction, ship repairs and/or other repairs and maintenance services. Approximately 27 percent of employers reported also providing services in the residential construction sector.

How the Unionized Sector Fits into the BC Construction Sector

In 2021 there were approximately 19,000 businesses providing services in BC's non-residential construction sector. Of this approximately 16,000 were specialty trade contractors that provide services in both the residential and non-residential sectors.* Employers in the unionized construction sector were estimated to account for approximately 1.3 percent of businesses and between 11 percent and 18 percent of revenues in the non-residential construction sector.

Source: *Statistics Canada. Table 33-10-0493-01 Canadian Business Counts, with employees, December 2021

Figure 5: Distribution of Employers by Type of Non-Residential Construction[6] **



*Other includes services related to marine construction, telecommunication, ship repairs and other repairs and maintenance services in addition to one of the identified construction or maintenance services.

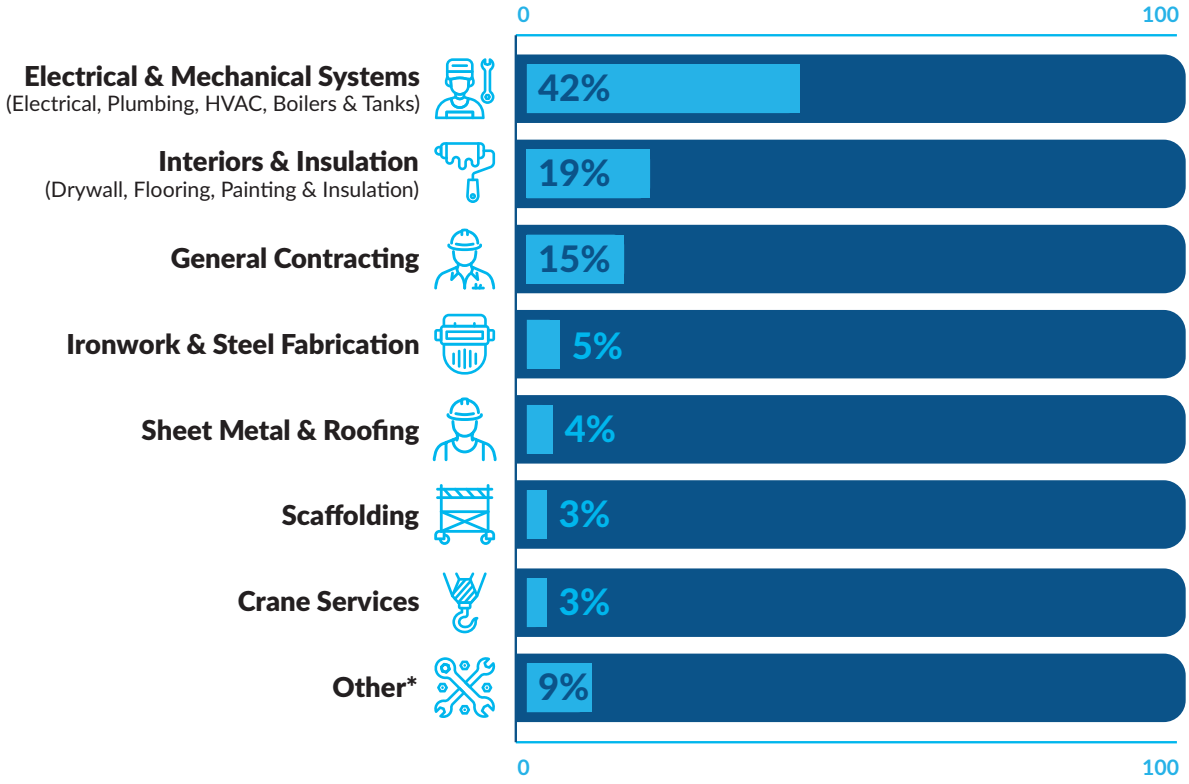
**Employers may provide services in more than one type of non-residential construction.

5 The number of employers in the unionized construction sector was estimated based on the CLR membership list, collective agreements for in-scope unions filed with the Labour Relations Board and published membership lists for SMACNA. Employers that were identified to operate exclusively in the residential construction sector, shipbuilding, road building and manufacturing were excluded. Also excluded were employers that were identified as primarily providing services in the energy sector not related to construction or maintenance.

6 Employer Survey

Figure 6 shows the types of services provided by employers in the unionized construction sector. Approximately 42 percent provide electrical and mechanical services, 19 percent provide interiors and insulation, and 15 percent provide general contracting services such as site excavation and prep and/or a selection of other services. Other services provided include ironwork and steel fabrication (5 percent), sheet metal and roofing (4 percent), scaffolding (3 percent) and crane services (3 percent), as well as masonry, pile driving and landscaping.

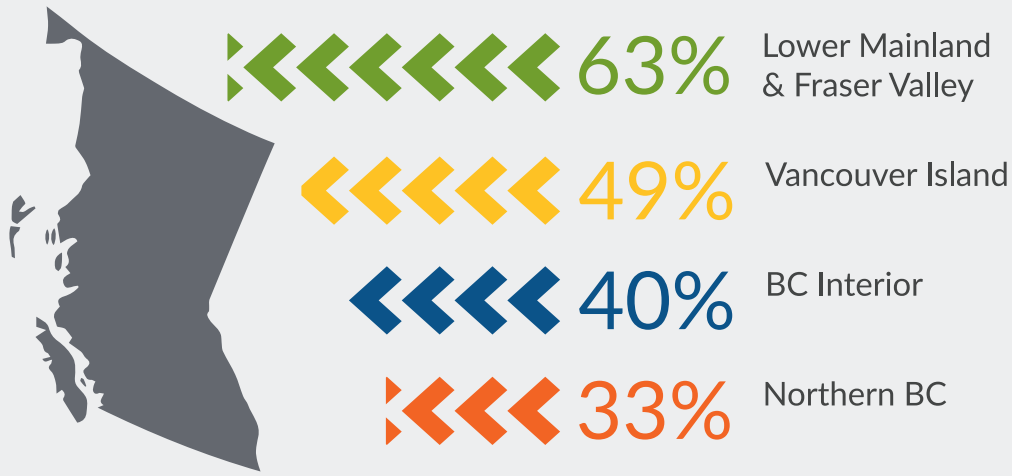
Figure 6: **Types of Services Provided**[7]



7 Based on list of employers identified as operating in the unionized construction sector.

More than 40 percent of employers that responded to the Employer Survey reported providing services in more than one region. As shown in Figure 7, the majority (approximately 63 percent) of employers reported providing services in the Lower Mainland and Fraser Valley, 49 percent reported providing services on Vancouver Island, 40 percent reported providing services in the Interior and 33 percent reported providing services in Northern BC.

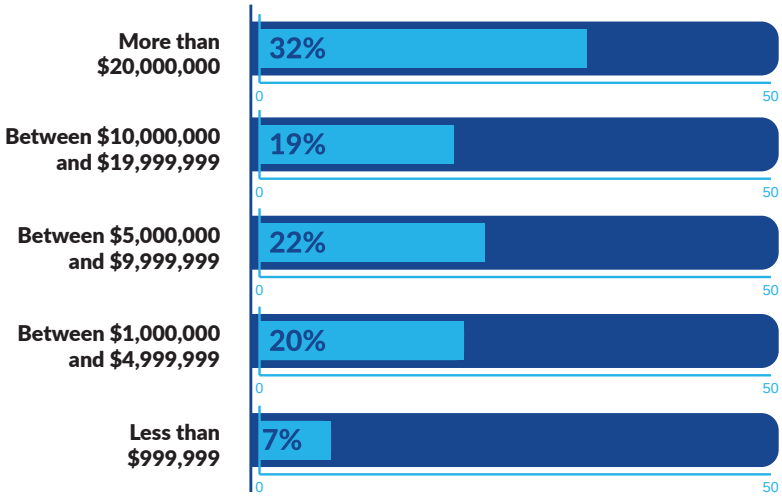
Figure 7: Distribution of Regions in Which Employers Provide Services*[8]



Please note that this represents the count of employers providing services in each region, not the volume of services provided. Employers may provide services in more than one region.

Employers in the unionized construction sector include a mix of small, medium, and large businesses. Figure 8 shows the distribution of businesses by estimated revenue range. More than 50 percent of employers were estimated to have revenues greater than $10 million. Approximately 42 percent were estimated to have revenues between $1 million and $10 million and 7 percent were estimated to have revenues less than $1 million.

Figure 8: Estimated Revenue Distribution of Employers[9]



8 Employer Survey

9 Distribution derived from the Employer Survey, construction industry benchmarks and publicly available information on companies identified to be operating in the unionized construction sector.

Workforce

The workforce in the unionized construction sector is comprised of management, professionals, administrative employees, and tradespeople. Management, professionals, and administrative employees are typically permanent employees of their employer. Tradespeople are provided through the unions and may be assigned to a specific employer on an on-going basis or for a specific project.

Unionized Workforce

There are 25 unions participating in the unionized construction sector in BC. These include the 22 unions that are affiliated with the BCBT and 3 unions that are not affiliated with BCBT. Appendix D provides a list of unions in the sector.

How the Unionized Workforce Fits into BC's Non-residential Construction Workforce

According to Buildforce estimates, in 2021 there were approximately 108,000 people employed in BC's nonresidential construction sector. Of these 73 percent were tradespeople. In 2021 there were estimated to be between 34,000 and 35,000 tradespeople in the unionized construction workforce. This suggests that the unionized workforce accounts for approximately 44 percent of tradespeople and 32 percent of the total workforce in the nonresidential construction sector in BC.

Source: Buildforce, 2021 and MNP Estimates

Trades

The unions represent 37 trades commonly employed in construction. Table 2 provides a list of the trades along with the associated NOC Codes and whether they are a Red Seal Trade.

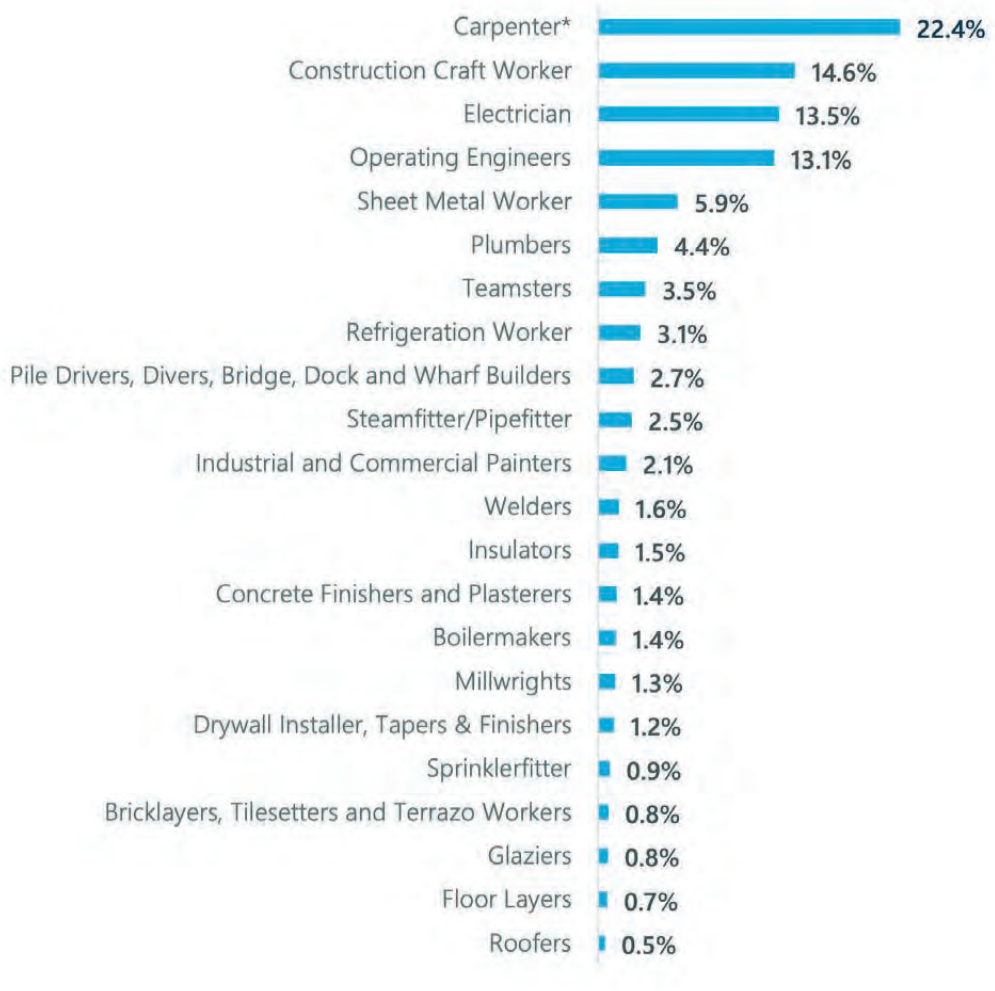
Table 2: Trades in the Unionized Construction Sector

CATEGORY	COMMON TRADE NAME	NOC CODE	RED SEAL
Metal forming, shaping and erecting trades	Sheet Metal Worker	7233	✓
	Boilermakers	7234	✓
	Ironworkers	7236	✓
	Welders	7237	✓
Electricians, plumbers, and carpenters	Electricians	7241 and 7242	✓
	Plumbers	7251	✓
	Steamfitters, Pipefitters and Sprinkler System Installers	7252	✓
	Carpenters	7271	✓
Masonry and plastering trades	Bricklayer	7281	✓
	Concrete Finishers/Cement Masons	7282	✓
	Tilesetters and Terrazzo Workers	7283	✓
	Plasterers, Drywall Installers and Finishers and Lathers	7284	✓
Mechanics and heavy equipment operators	Construction Millwrights and Industrial Mechanics	7311	✓
	Heating, Refrigeration and Air Conditioning Mechanics	7313	✓
	Elevator Constructors and Mechanics	7318	
	Operating Engineers	7371 and 7521	✓
	Pile Drivers, Divers, Bridge, Dock, and Wharf Builders	7371, 7521 and 7384	
Occupations related to landscaping	Landscape Architects	2152	
	Landscape and Horticulture Technicians and Specialists	2225	✓
	Landscaping and Grounds Maintenance Labourers	8612	
Material handlers, trade helpers, labourers, and camp workers	Teamsters	7452	
	Construction Craft Workers Mason Tenders Scaffolders	7611	
	Camp Workers	6322	✓
Other trades	Roofers	7291	✓
	Glaziers	7292	✓
	Insulators	7293	✓
	Painters and Decorators (except interior decorators)	7294	✓
	Floor Layers	7295	✓

Source: Red Seal Program

In 2021, there were estimated to be between 34,000 and 35,000 tradespeople in the unionized construction workforce.[10] Figure 9 provides the distribution of the workforce by trade. Carpenters were the largest trade group accounting for approximately 22.4 percent of the workforce. Construction craft workers were the next largest group at 14.6 percent followed by electricians and operating engineers which each account for approximately 13 percent of the workforce. The remaining trades each account for six percent or less of the workforce.

Figure 9: Distribution of Workforce by Trade

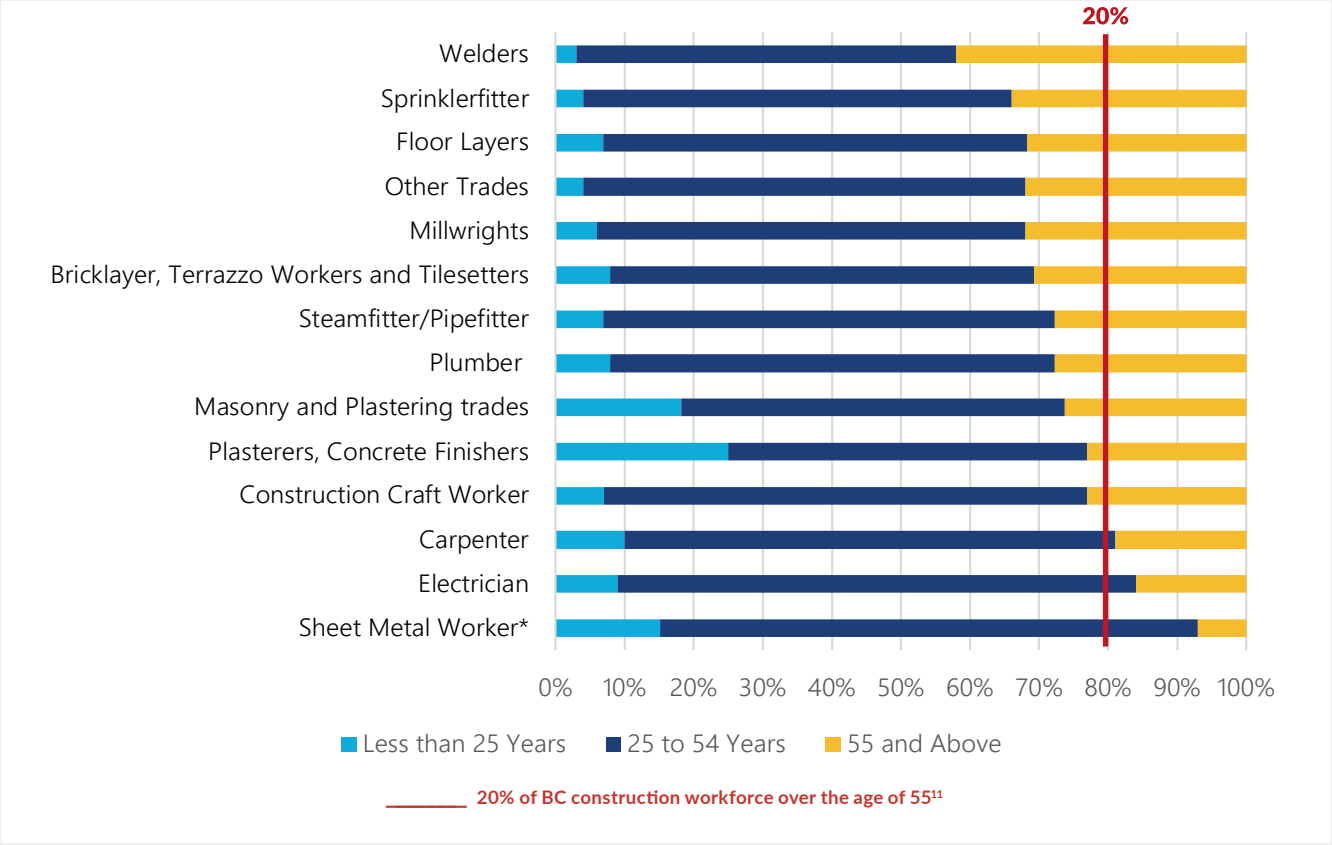


*Carpenter includes scaffolders and lathers

Most of the workforce were estimated to be between 25 to 54 years of age (approximately 69 percent) with approximately 23 percent being older than 54 years of age and 8 percent being younger than 25 years of age. Compared with the age distribution of the workforce for the B.C construction sector overall the unionized sector is older. As shown in Figure 10, carpenters, electricians and sheet metal workers in the unionized sector are relatively younger than the construction workforce overall, while the workforce of all other trades is relatively older.

10 There were 33,000 active members in the unions that provided information on their workforce. This was estimated to account for approximately 95 percent of the total tradespeople in the unionized construction sector workforce in BC based on benchmarks from Buildforce and Statistics Canada.

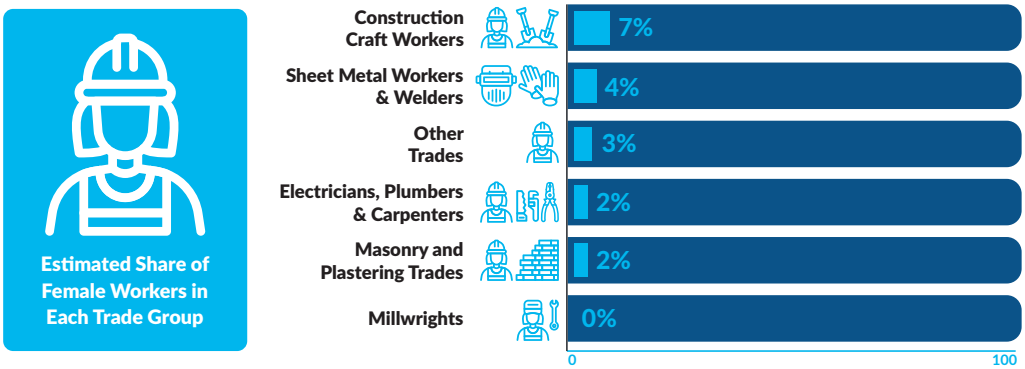
Figure 10: Distribution of Workforce by Age



*Please note that estimates for sheet metal workers are based on limited data points and should be used with caution.

Figure 11 shows the estimated share of female workers in each trade group. The share of females varies across different trades with the highest percentage of women being in construction craft workers (seven percent), followed by sheet metal workers and welders. Please note that these estimates are based on limited data and should be used with caution.

Figure 11: Share of Female Workers*



*Estimates are based on limited data and should be used with caution

11 Statistics Canada, "Statistics Canada. Table 14-10-0023-01 Labour Force Characteristics by Industry, Annual (x 1,000)," accessed August 3, 2021, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410002301.

5. Phase 1: **Labour Market Estimates**

Overview of the Labour Market for Construction

Construction is project-based and demand for tradespeople is determined by the level of investment in construction. Within the unionized construction sector, the supply of labour is managed by the unions. According to union interviewees the number of members is managed to provide ongoing employment. Long-term sustained increases in demand for workers will result in increased recruitment, while short-term peaks in demand are filled by reaching out to affiliated locals in other regions, other provinces or in the US. Unions may also reach out to other unions in BC representing trades which have comparable skills (e.g., general welding).

According to employer interviewees availability of labour can be a consideration when bidding on projects. This is most often a factor for large projects or for projects in regions where there is a lack of available labour.

Current State

Current Demand for Unionized Labour

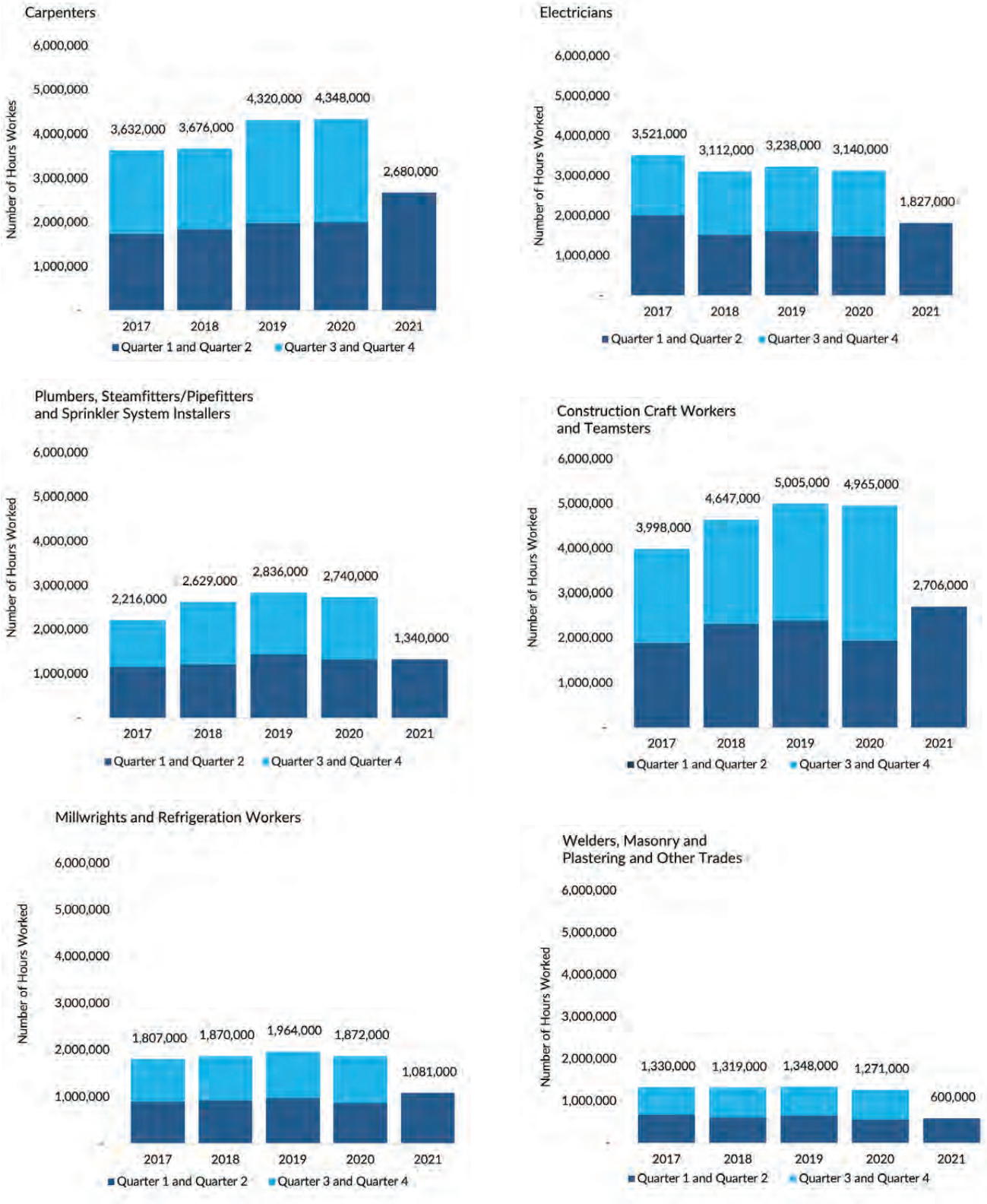
Figure 12 shows the number of hours worked by trade reported by union participants between 2017 and the first half of 2021. There is some indication that demand for trades within the unionized sector increased over the period. The largest increase in hours worked was reported by carpenters and construction craft workers and teamsters. The reported hours worked increased modestly for plumbers, steamfitters/pipefitters, and sprinkler system installers, while the reported hours worked for electricians, millwrights and refrigeration workers and welders, masonry and plastering and other trades was relatively stable.

Community Benefits Agreement

The Community Benefits Agreement was announced in 2018 to develop a diverse and qualified trades workforce across the province. Key public infrastructure projects are designated by Cabinet and the Treasury Board to be delivered through the CBA. The workforce for CBA projects is then hired and administered by BCIB, a crown corporation. As of February 2022, there were 12 projects that fall under the CBA.

Source: BC Gov News https://news.gov.bc.ca/releases/2018PREM0057-001406 and BCIB.

Figure 12: Number of Hours Worked by Trade



Source: Union Templates

Trends in Apprenticeship Registrations and Completions

Apprenticeship registrations in BC for electricians, carpenters and plumbers, pipefitters and steamfitters increased around 2003 and have remained elevated through 2019.[12] Completion rates for these trades also increased over the period.[13] Other construction trade groups including heavy equipment and crane operators, millwrights, welders, and interior finishing trades also had increases in registrations; however, completions have fluctuated.

Between 2016 and 2019 apprenticeship registrations in most construction trades in BC increased modestly.[14] Data from ITA suggests that the trend in registrations within the unionized construction sector is like that of the overall construction trades in BC.

The sample of completions and registrations for union sponsors provided by the ITA suggests that in 2021 completions and registration increased for carpenters, electricians, and sheet metal workers within the unionized sector. The data suggests registrations also increased for bricklayers, pile drivers, divers, bridge, dock and wharf builders and operating engineers while registrations for plumbers, sprinkler system installers, insulators, millwrights, refrigeration workers and teamsters remained stable. Trades for which completions remained stable included bricklayers, roofers, floor layers, millwrights and pile drivers, divers, bridge, dock, and wharf builders.

Please note that due to physical distancing requirements in place during the COVID pandemic training institutions reduced cohort sizes which may affect the number of completions in affected cohorts. See Section 6 for a discussion of the impact of COVID on training and completion.

12 Statistics Canada, "Table 37-10-0023-01 Number of Apprenticeship Program Registrations," accessed August 4, 2021, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710002301.

13 Statistics Canada, "Table 37-10-0089-01 Number of Certificates Granted to Registered Apprentices and Trade Qualifiers," n.d.

14 Statistics Canada, "Table 37-10-0023-01 Number of Apprenticeship Program Registrations."

Table 3: Trends in Registrations and Completions within the Unionized Sector

Workers from Other Provinces

During peak periods unions may need to draw on affiliated locals in other provinces or in the US. Similarly, increases in demand in other provinces may result in locals in BC sending members to work outside the province. Several unions representing finishing trades and construction craft workers reported that their workforce in 2021 included workers from outside the province. These unions also reported that they had members working outside of BC. Overall, there did not appear to be a significant difference in the number of tradespeople being brought in from outside of province and the number of BC tradespeople working outside the province. It is important to note that the data received related to this was limited and it was not possible to develop quantitative estimates.

What We Heard

Approximately 60 percent of employers interviewed indicated that it was difficult to access labour through the unions. Welders, piping trades, refrigeration and air conditioning, sheet metal and roofers were cited by those reporting difficulty accessing labour.

Interviewees employing carpenters, electricians, masonry and plastering, and metal forming, shaping and erecting trades reported that their experience accessing trades was good.

Short term work of a day or two was indicated to be the most challenging to fill. There was also some indication that there are regional differences in availability. Northern BC and remote areas were cited as being particularly challenging. When local labour is not available costs increase as employers need to cover travel and accommodation for workers brought in from outside the local area.

Unions interviewed noted that they have high retention rates and that their membership numbers are relatively stable from year-to-year. Several interviewees also indicated that the labour market is tight and is expected to remain so over the next five to ten years.

Workforce Forecasts 2022 to 2032

Overview of Construction Forecasts

To identify the occupations that are expected to be in high demand as well as occupations that are at risk of decreasing demand, we reviewed the occupational demand and supply forecasts from the BC Ministry of Advanced Education and Skills Training ("AEST") and BuildForce Canada, a national organization led by industry representatives within the Canadian construction sector. Please note data published by AEST corresponds to the construction sector in BC whereas the data published by BuildForce Canada that was reviewed is specific to the non-residential construction sector. These occupational demand projections consider growth in the industry and construction projects as well as additional labour required to replace the ageing workforce.

Literature Review of Demand and Supply Forecasts

AEST Projections

The labour market outlook data published by AEST provides information on job openings and the supply of labour for construction trades in BC between 2021 and 2031. According to these projections, 10 of the trades being examined in the study are included among BC's top 15 trades in terms of projected job openings.[15]

BuildForce Canada Projections

The annual projections by BuildForce Canada cover the period 2021 to 2031. These projections are based on the timing of major projects in the non-residential construction sector. According to BuildForce Canada, the non-residential construction sector is expected to experience tight labour market conditions between 2021 and 2022 for most trades and occupations.[16] This is due to post COVID-19 recovery and continuation of major engineering projects as well as strong growth and expansion of the industrial, commercial, and institutional building construction. The bulk of the work on major projects is expected to begin to wrap up in 2022 and the labour market for non-residential construction is expected to slow between 2024 and 2026. Between 2027 and 2030 the market is expected to remain generally balanced as growth is gradual and patterns of mobility and recruitment are expected to be sufficient to meet requirements.

15 British Columbia Ministry of Advanced Education, Skills Training, and Labour Market Analytics, "British Columbia Labour Market Outlook: 2021 Edition," 2021.

16 BuildForce Canada, "Construction and Maintenance Looking Forward, 2021-2030, Highlights, British Columbia," 2021, 6–7.

The occupations that could be impacted more than the others during the slow down between 2024 and 2026 include metal forming, shaping and erecting trades; electricians, plumbers, and carpenters; and heavy equipment operators.[17] The specific occupations most likely to be affected are:

- 7236 - Ironworker
- 7237 - Welders and Related Machine Operators
- 7241 - Electricians (except industrial and power system)
- 7252 - Steamfitters, pipefitters, and sprinkler system installers
- 7271 - Carpenters
- 7293 - Insulators
- 7371 - Crane operators
- 7521 - Heavy equipment operators (except crane)
- 7611 - Construction trades helpers and labourers

Unionized Construction Sector Projections

To estimate how much labour will be required by the unionized construction sector and identify high demand occupations as well as occupations that are at risk of decreasing demand, demand and supply forecasts were developed for the unionized workforce for 2022 to 2032.

Methodology and Approach

The methodology and approach used to develop the forecasts is outlined below

1) **Estimating Labour Demand:** Demand forecasts were developed based on BuildForce's forecasts of investment in non-residential construction by type of construction. The share of construction that would be undertaken by the unionized sector was then identified for each type of construction based on the estimated market share in 2021, infrastructure investment announcements, review of the BC Major Projects Inventory and projects designated under the Community Benefits Agreement. Demand for each trade was then estimated based on the share of labour associated with each type of construction using standard ratios of the percentage of value spent on labour by trade.
2) **Estimating Labour Supply:** Forecast were developed by estimating the number of new entrants into the labour market as well as workers leaving the labour market. Estimation of new entrants was based on trends in apprenticeship registrations and completions by trade. Estimates of new entrants also considered trends in the intake of members by unions, informed by discussions with unions. Estimation of workers leaving the market was based on retention rates reported by union participants as well the number of workers retiring based on the age profile of the existing workforce.
3) **Identifying the Gap:** The demand and supply estimates were then compared to identify the gap for each trade. The gap represents the share of workforce that needs to be supplied from other sectors and/or provinces to meet the demand. It was estimated by calculating the excess demand over the forecast period as the share of supply. Trades with a higher and an increasing gap are those that are expected to face difficult labour market conditions.

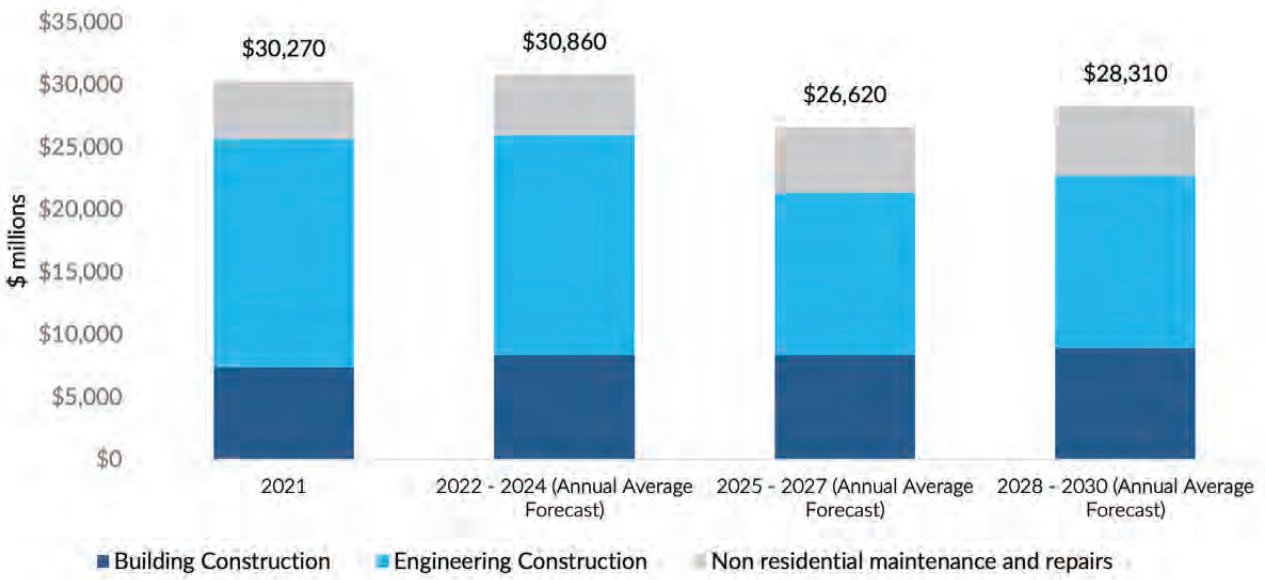
The demand and supply forecasts were developed for the 2022 to 2024, 2025 to 2027 and 2028 to 2032.

17 Ibid., 8–9.

Construction Expenditure Forecasts

Figure 13 shows non-residential construction expenditure forecasts from BuildForce for the period 2021 to 2030. As noted above, construction expenditures were forecast to increase between 2021 and 2022 due to increases in engineering construction. Expenditures related to engineering construction were forecast to slow between 2024 and 2027 before increasing again between 2028 and 2030. The construction expenditures related to industrial, commercial, and institutional building construction, as well as industrial repairs and maintenance and other repairs and maintenance are expected to increase steadily throughout the forecast period.

Figure 13: BuildForce Construction Expenditures Forecast (2021 $ million) – 2021 to 2030[18,19]



18 The numbers were converted to 2021 dollars.

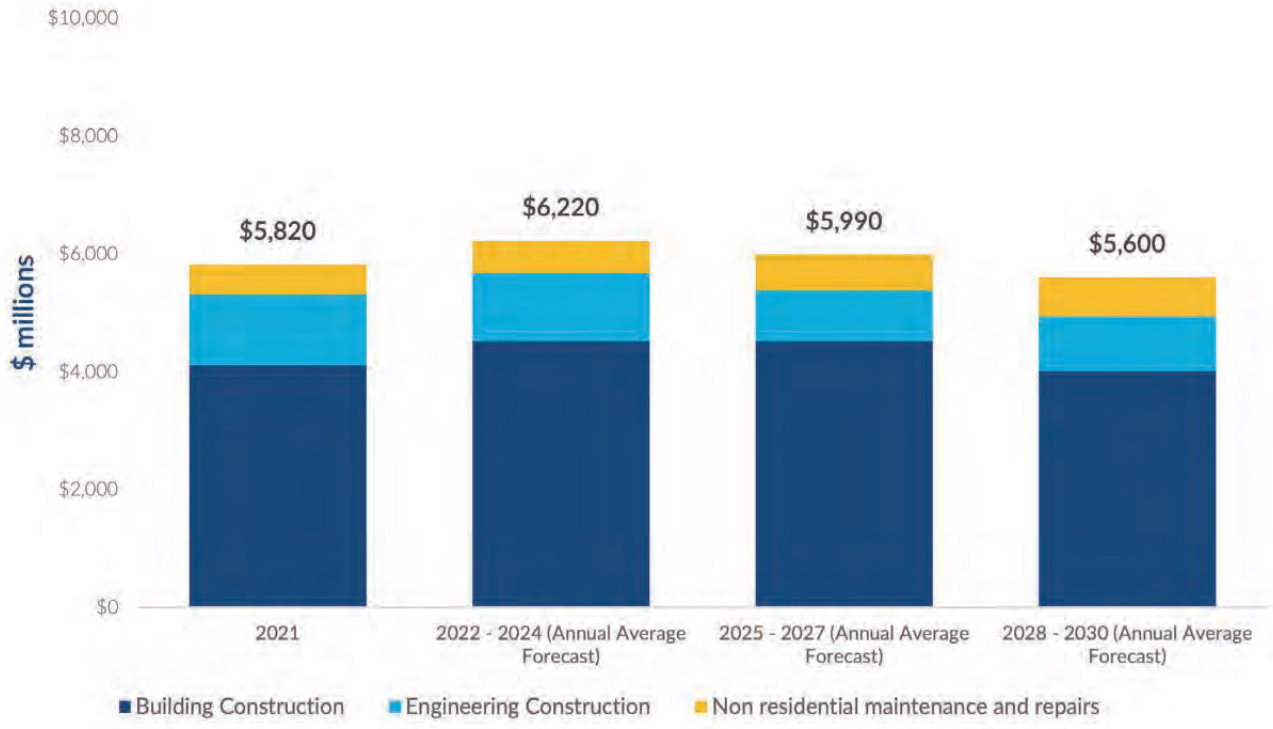
19 BuildForce Canada, "Construction Forecasts Data Series."

Figure 14 shows the value of construction forecast to be undertaken by the unionized sector between 2021 and 2032. The growth in construction expenditures is mainly driven by the investment in the construction of industrial, commercial, and institutional buildings, which accounts for approximately 70 percent of the total construction expenditures within the unionized sector. Engineering construction was estimated to account for approximately 20 percent of the value and non-residential repairs and maintenance was approximately 10 percent of the value. The increase in building construction in the unionized sector between 2022 and 2027 is due to construction of hospitals. These projects are expected to wrap-up between 2025 and 2027 and construction expenditures are expected to decline between 2028 and 2032. Infrastructure construction and non-residential repairs and maintenance within the unionized sector are expected to follow trends like the overall infrastructure and non-residential repairs and maintenance sector.

Market Share

In 2021 the overall market share of the unionized construction sector was estimated to be between 11 percent and 18 percent of non-residential construction. Over the forecast period its market share was estimated to rise to approximately 19 percent due to increased investment in hospitals.

Figure 14: Forecast Construction Expenditures within the Unionized Sector ($ million) – 2021 to 2032



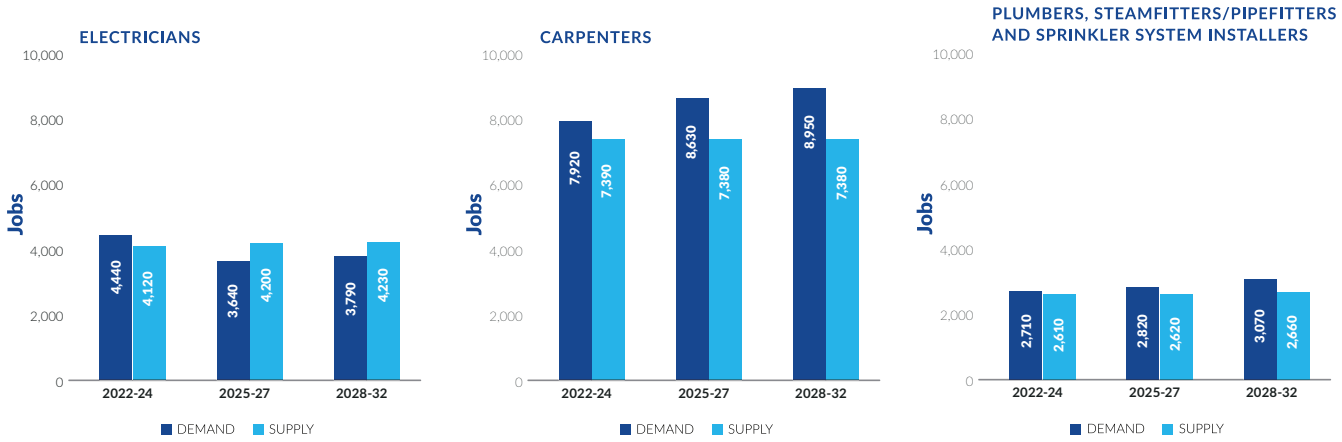
The following sections present the demand and supply forecasts by trade.

Electricians, Plumbers and Carpenters

The forecasts indicate that the demand and supply for electricians will be relatively balanced between 2022 and 2024. Beginning in 2025 when infrastructure and engineering construction begins to slow there is expected to be excess supply of electricians within the unionized sector. The supply gap is expected to narrow between 2028 and 2032.

The labour market for carpenters and plumbing trades was forecast to experience shortages that are expected to increase between 2022 and 2032. This is mainly due to increasing demand from the repair and maintenance sector combined with relatively stable supply for both trades. The gap for carpenters was estimated to be approximately 15 percent and the gap for plumbers was estimated to be approximately 9 percent.

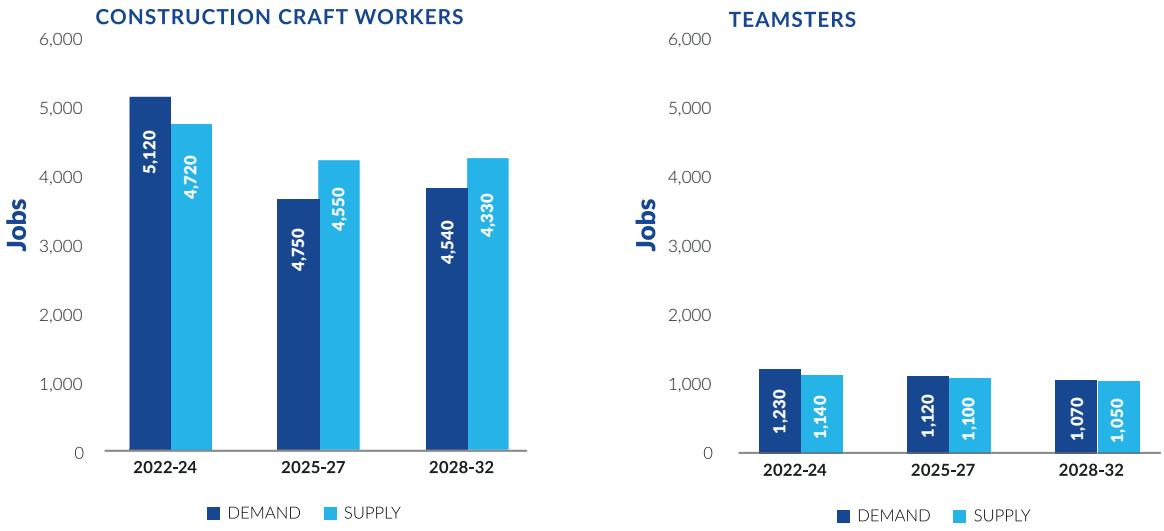
Figure 15: Demand and Supply Forecasts – Electricians, Carpenters, Plumbers, Steamfitters/Pipefitters and Sprinkler System Installers



Construction Craft Workers and Teamsters

Although the demand for construction craft workers and teamsters was forecast to decrease, a relatively small but persistent gap between demand and supply was forecast for both the trades through 2027. For construction craft workers the gap was forecast to decrease between 2028 and 2032 due to decrease in demand. By 2028 the labour market for teamsters was forecast to be balanced.

Figure 16: Demand and Supply Forecasts – Construction Craft Workers and Teamsters



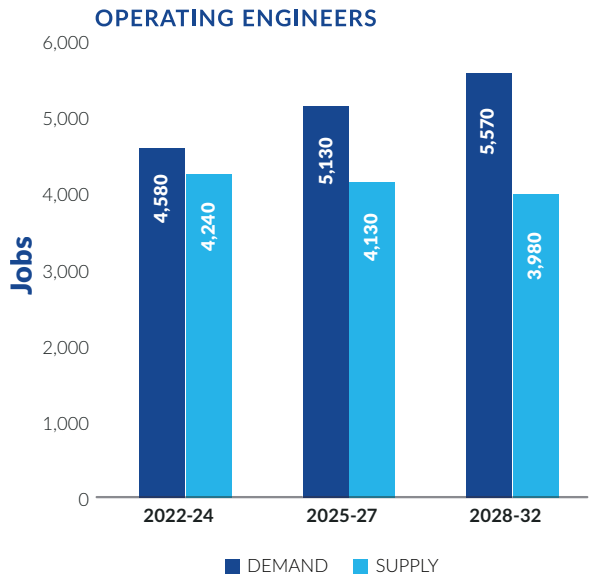
Mechanics and Heavy Equipment Operators

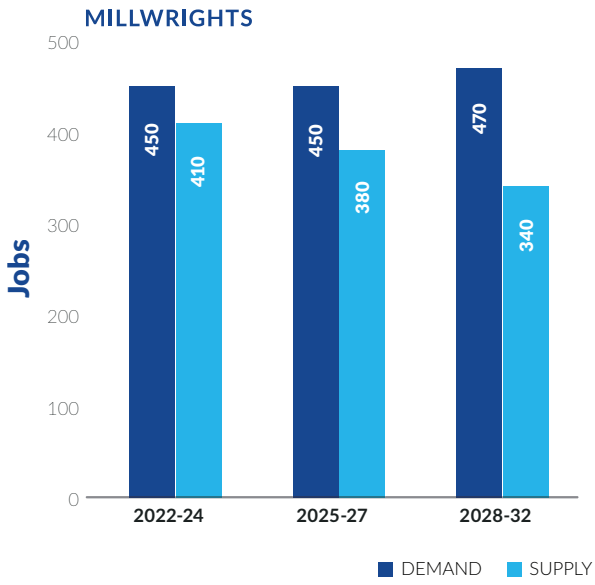
Operating engineers, and millwrights were forecast to experience tight labour market conditions and the gap was forecast to increase between 2022 and 2032. This is mainly driven by increase in investment in repairs and maintenance as well as infrastructure between 2028 and 2032. Fewer entrants into the trades as well as an increase in retirements are also expected to contribute to the increase in the gap.

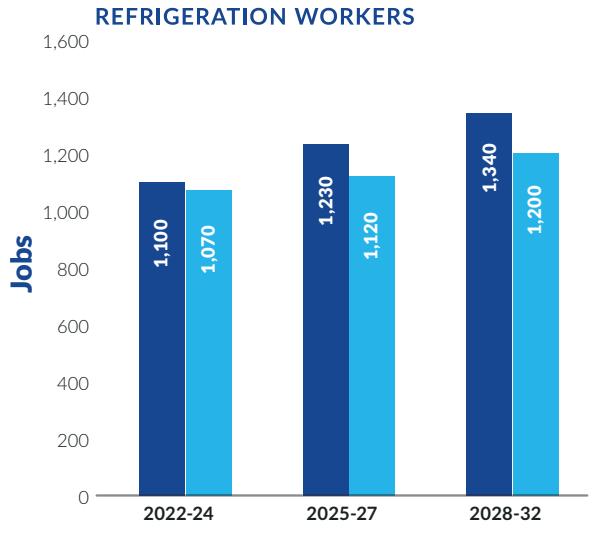
Refrigeration workers were forecast to have a persistent gap of approximately eight percent through 2032 as entry into the workforce is not sufficient to meet growth in demand.

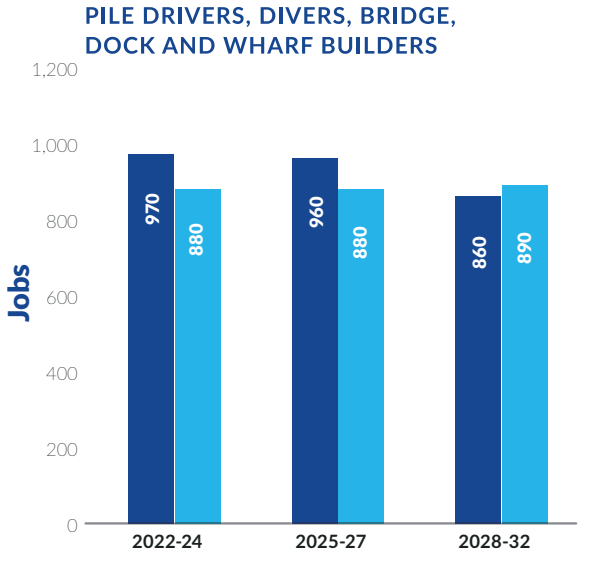
For pile drivers, divers, bridge, dock, and wharf builders a gap of approximately five percent was forecast through 2027. However, by 2032 the labour market was forecast to be relatively balanced.

Figure 17: Demand and Supply Forecasts – Operating Engineers, Millwrights, Refrigeration Workers, Pile Drivers, Divers, Bridge, Dock, and Wharf Builders





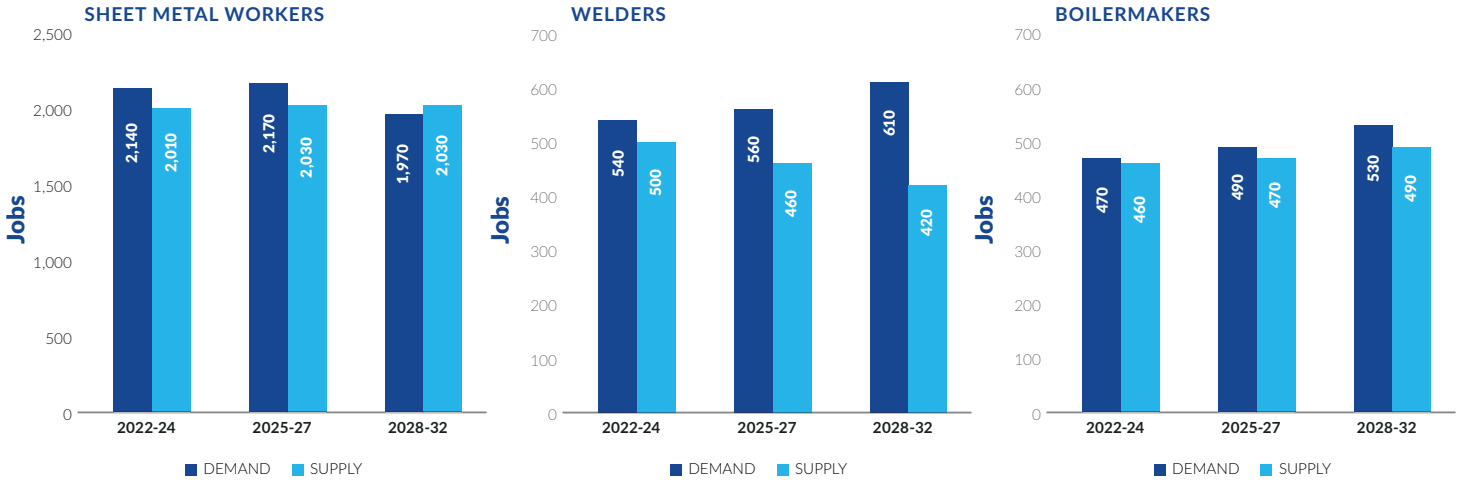




Metal Forming, Shaping and Erecting Trades

Sheet metal workers were forecast to have a modest gap between 2022 and 2027 which closes over time as building construction slows. For welders the gap was forecast to increase between 2025 and 2032 due to increasing demand combined with an increase in retirements. For boilermakers a small gap was forecasted that would increase slightly between 2028 and 2032 as growth in demand exceeds growth in supply.

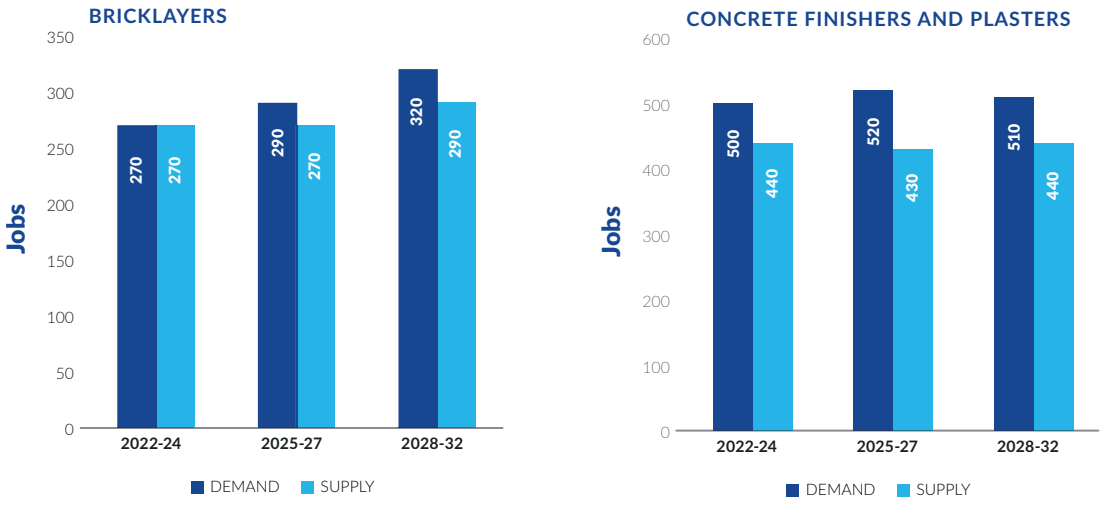
Figure 18: Demand and Supply Forecasts – Metal Forming, Shaping and Erecting Trades



Masonry and Plastering Trades

Bricklayers, tilesetters and terrazzo workers were forecast to experience relatively stable demand and supply through 2027. Between 2028 and 2032 demand was forecast to increase faster than supply resulting in a gap of approximately 10 percent. The demand for concrete finishers and plasterers was forecast to remain relatively stable however a gap of approximately 14 percent was forecast to persist.

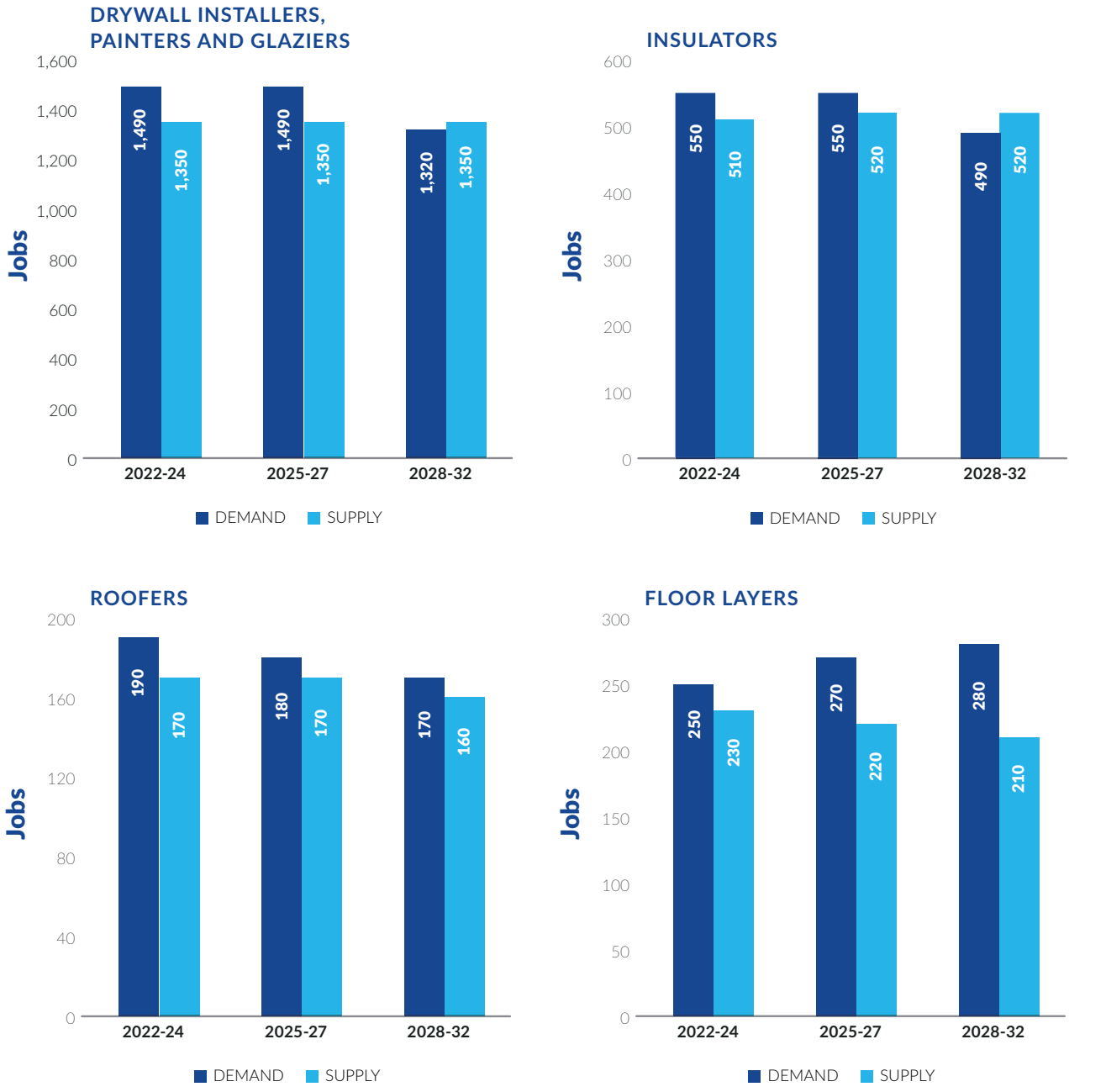
Figure 19: Demand and Supply Forecasts – Bricklayers, Concrete Finishers and Plasterers

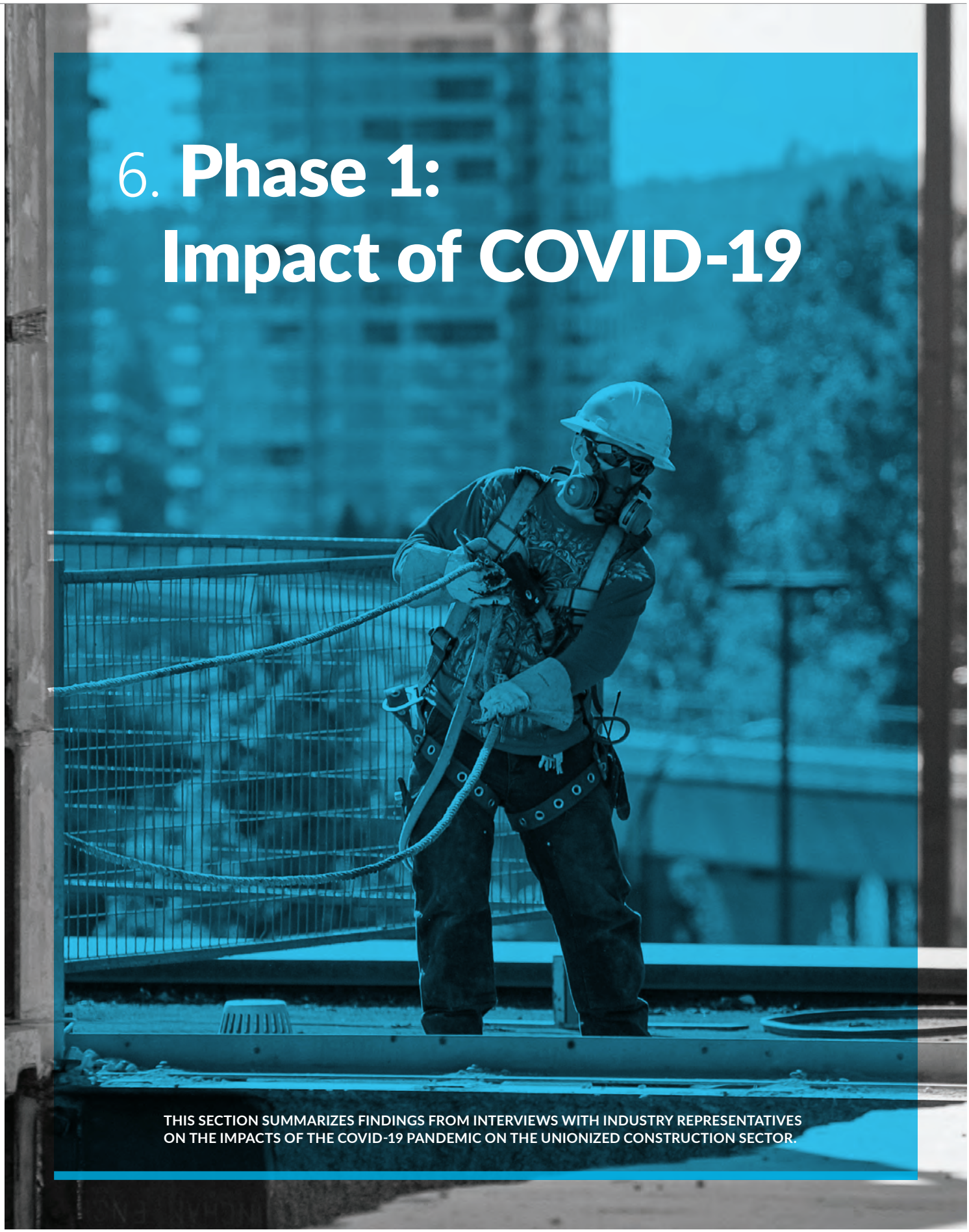


Other Trades

Drywall installers, painters, and glaziers were forecast to have a modest gap through 2027. The gap is then expected to close as demand decreases. For insulators, the labour market is forecasted to be relatively balanced overall, with a small gap between 2022 and 2027. For roofers the gap was forecast to narrow through 2032, while the gap for floor layers was forecast to increase due to increasing demand and fewer entrants into the workforce.

Figure 20: Demand and Supply Forecasts – Other Trades





6. Phase 1: Impact of COVID-19

THIS SECTION SUMMARIZES FINDINGS FROM INTERVIEWS WITH INDUSTRY REPRESENTATIVES ON THE IMPACTS OF THE COVID-19 PANDEMIC ON THE UNIONIZED CONSTRUCTION SECTOR.

Workforce, Supply Chains, and Project Timelines

On March 26, 2020, the BC government declared construction work as an essential service, permitting construction services to continue throughout the pandemic.[20] According to interviewees, the classification of construction workers as essential workers allowed most construction activities to continue uninterrupted. The most common impacts of COVID-19 mentioned by interviewees were:

- **Decreases in efficiency and/or delays in project timelines due to physical distancing requirements**. Physical distancing requirements were reported to result in smaller team sizes, restructuring of teams through staggered lunch breaks, and increases in supervisory time. These requirements and subsequent measures were reported to be more difficult for certain trades which required collaboration among team members working in a confined space, such as electricians, millwrights, and machine erectors. Some employers also mentioned that because of physical distancing requirements, they increased their focus on site logistics, by dedicating certain resources or sites to a particular trade per day. One interviewee noted that, after observing efficiency gains from this method, they plan to approach every job site this way.
- **Increases in costs and in some cases, decreases in productivity due to the introduction of COVID-19-specific safety requirements and protocols.** Interviewees reported having allocated more time and resources to planning and safety meetings, as well as the purchase of personal protective equipment. To streamline safety procedures, most employers interviewed reported having used technology, such as smartphones, tablets, and QR codes, to carry out daily health checks of workers, conduct contact tracing, and communicate safety protocols.
- **Supply chain issues for raw materials which have led to delays in project timelines and cost increases.** Employers reported having taken several measures to mitigate supply chain issues, such as communicating potential cost increases and bottlenecks with clients at the tendering stage and modifying project budgets and timelines accordingly to account for higher costs and delivery delays.

> **Vaccination rates vary across unions. Unions reported being concerned about how vaccine mandates could affect the available labour pool.**

20 Government of British Columbia, "Province Takes Unprecedented Steps to Support COVID-19 Response."

Employee Attitudes to Work

At the onset of the pandemic, unions and employers interviewed noted that there was a widespread reluctance to report to work among members and employees. However, interviewees stated that most workers returned to work once COVID-19-related safety policies and procedures were introduced. Other examples of short-term impacts of the pandemic on employee attitudes to work included earlier retirements, reluctance to report to certain work sites where travel was required, increase in mental health issues (e.g., anxiety, depression), and an increase in cautiousness by workers while on work sites. Although most unions and employers did not report any significant long-term impacts[21] of the pandemic on workers' attitudes, concerns were raised regarding mandatory vaccine requirements and their effect on the available labour pool. In general, interviewees believed that unvaccinated members and workers would be ineligible to work on certain job sites, particularly camp jobs, and large infrastructure projects, further exacerbating existing labour shortages. According to data from the BC Centre for Disease Control, as of mid-November 2021, the share of people aged 18 years and older that were fully vaccinated against COVID-19 is the lowest in the Interior and Northern health regions.[22]

Attraction, Recruitment, and Retention

Most employers and unions interviewed did not report significant impacts of the pandemic on attraction or recruitment efforts. The impacts that were identified included:

- **Established attraction and recruitment methods were affected.** Such effects included the cancellation of career fairs, restricted access of union representatives to non-unionized work sites, and temporary stoppage of union training programs, which made it difficult to engage potential workers and members.
- **Mandatory vaccine requirements and their impact on recruitment and retention.** Interviewees noted that mandatory vaccine requirements could dissuade workers from accepting certain jobs and several employers stated that they are no longer hiring unvaccinated tradespeople.
- **Recruitment of workers from outside the construction sector.** Some employers mentioned that they have been actively recruiting workers from certain industries that were most affected by COVID-19, including the hospitality and service sectors.

Interviewees also expressed concern that retention of workers may be impacted by the availability of government financial supports during the pandemic, such as the Canadian Emergency Response Benefit. In these cases, interviewees speculated that these supports disincentivized some workers from reporting to job sites, ultimately shrinking the trades labour pool. As the financial supports wind down it is not known if these workers will return. Furthermore, there is some evidence that the pandemic may continue to impact career and employment decisions of workers, namely apprentices. According to a survey of apprentices carried out by the Canadian Apprenticeship Forum, 33 percent of respondents did not expect to work with their most recent employer again, while 23 percent of respondents were considering leaving the skilled trades due to negative impacts of the pandemic on retention.[23]

21 Please note that longer-term impacts arising from the COIVD-19 pandemic may still be emerging.

22 BC Centre for Disease Control, "Vaccination Progress in BC and by Health Authority, Nov. 18," accessed November 23, 2021, http://www.bccdc.ca/health-professionals/data-reports/covid-19-surveillance-dashboard.

23 Canadian Apprenticeship Forum, "Apprentice Demand in Red Seal Trades: A 2021 National Labour Market Information Report," 2021, 14.

Training and Certification

At the beginning of the pandemic, most training providers transitioned all courses and programs to online instruction.

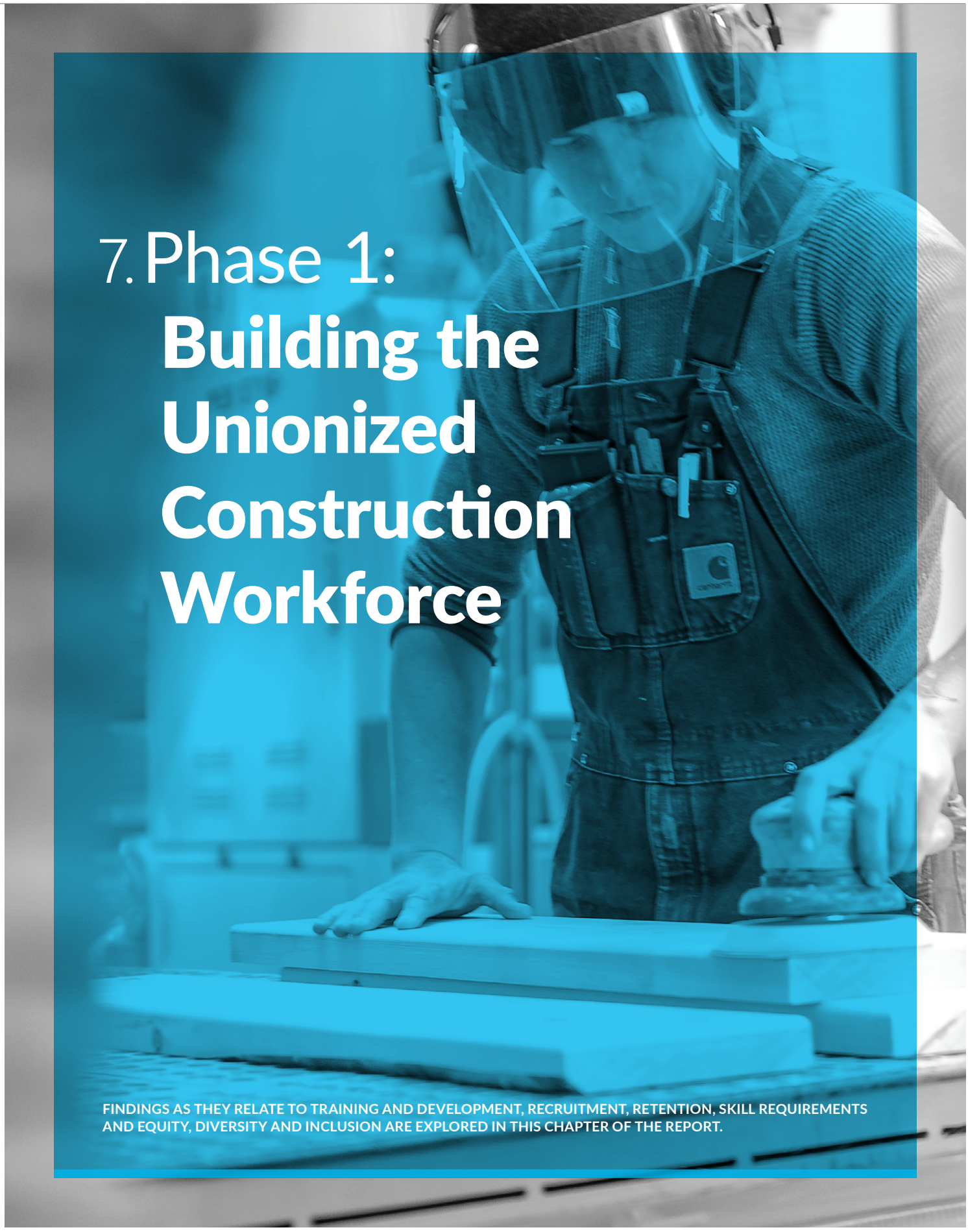
Interviewees reported that, after a few months, a hybrid delivery model was introduced. Under this model, practical elements of trades programs were offered in-person with reduced class sizes along with virtual training for theoretical content. Although the ITA waived the requirement to write the Standard Level Exams during the pandemic, Red Seal exams continued to be offered.

It is unclear how the pandemic affected enrollment in training programs. Some training providers mentioned that COVID-19 accelerated enrollment into trades programs as students valued the fact that construction activity was able to continue throughout the pandemic, unlike many service occupations. Other interviewees noted that enrollment had slowed during the pandemic due to a reluctance to participate in virtual learning.

While most training institutions transitioned to a hybrid delivery model, offering in-person training for some elements, physical distancing requirements caused a reduction in class sizes. As a result, backlogs in enrollment and waitlists for trades programs were reported throughout the pandemic. Additionally, interviewees stated that apprentices experienced difficulties meeting hours requirements due to delays and cancellation of construction projects and subsequent layoffs across the sector.

This was consistent with findings from a 2021 Canadian Apprenticeship Forum report indicating that the rate of unemployment for apprentices across Canada rose from 9 percent prior to the pandemic to 29 percent during the pandemic.[24] According to the report, Level 1 apprentices were more likely to be laid off compared to other apprentice levels. Consequently, apprenticeship completions are expected to fall temporarily beginning in 2022.

24 Ibid.



7. Phase 1: Building the Unionized Construction Workforce

FINDINGS AS THEY RELATE TO TRAINING AND DEVELOPMENT, RECRUITMENT, RETENTION, SKILL REQUIREMENTS AND EQUITY, DIVERSITY AND INCLUSION ARE EXPLORED IN THIS CHAPTER OF THE REPORT.

Training and Development, Recruitment, and Retention

This section describes the process which workers typically follow to enter and advance within the construction trades. It includes findings from industry stakeholders on their views of each phase, from training and development to retention as well as thoughts on existing and emerging skill gaps. This section also summarizes our review of published literature on factors influencing decisions related to trades training and retention.

Why People Choose Construction Trades

Those looking to enter construction trades training consider several factors when choosing a trade. To identify the factors that influence the decision to enter the construction trades, we consulted industry stakeholders and reviewed the 2007 and 2015 National Apprenticeship Survey (NAS) as well as a 2019 study of construction workers in the Greater Toronto Area (GTA). Our review found that:

- **Prospective students consider the availability and stability of employment opportunities of a trade.** According to interviewees, people often gravitate towards trades that are currently and expected to continue to be in high demand. This is particularly relevant for the construction trades in the wake of COVID-19 as construction activity continued throughout the pandemic, and careers in the construction sector are now regarded as "pandemic-proof".
- **Earning potential of a trade is a key deciding factor.** Interviewees noted that students generally choose trades with higher starting salaries or with the most salary growth potential.
- **A substantial number of people who enter the trades do so out of interest.** Results from the 2007 NAS showed that just over half of those that registered for an apprenticeship reported entering the program because they were "interested in the trade or that line of work, like the work conditions".[25] Interest remained a key driver of apprenticeship registrations, as almost half of those surveyed in the 2015 NAS indicated that "interested in the trade" was why they registered for the program.[26] This is also consistent with the findings of a 2019 study of construction workers in the GTA where approximately 41 percent of respondents indicated that they had "always been interested in making things/fixing things/building things."[27]
- **Friends and family have a significant influence on the decision to enter the trades.** Slightly more than half of respondents to the 2015 NAS cited friends and family as being influential in the decision to enter trades.[28] This was confirmed by interviewees who noted that students who have prior exposure to the trades or union environment through a friend or family member were more likely to pursue training in that trade or join a union.

It was also noted that individuals from certain under-represented groups may consider other factors, in addition to those detailed above. For example, women may choose a trade that offers a better work-life balance while immigrants may consider the amount of training required and the cultural value of each trade.

25 Marinka Ménard, Cindy K Y Chan, and Merv Walker, "National Apprenticeship Survey Canada: Overview Report," 2007, 45, https://www150.statcan.gc.ca/n1/en/pub/81-598-x/81-598-x2008001-eng.pdf?st=kdEZSwgV.

26 Kristyn Frank and Emily Jovic, "National Apprenticeship Survey," 2017, 59, https://www150.statcan.gc.ca/n1/en/pub/81-598-x/81-598-x2017001-eng.pdf?st=6JMLk-xj.

27 Jon Callegher, "Retaining Employees in the Skilled Trades Prepared By Job Talks and Q.I. Value Systems Inc," 2019, 26, https://rescon.com/reports/files/BE_Report_Overview.pdf.

28 Frank and Jovic, "National Apprenticeship Survey," 59.

Overview of Training and Development

To become a certified journeyperson, apprentices must fulfill the work-based hours requirements, complete the specified technical training, pass a final certification exam[29] and be recommended for certification by an employer/sponsor.

ITA leads and coordinates the province's skilled trade system while trades training is provided by three types of organizations or institutions:

- Public training providers.
- Private training providers.
- Indigenous Skills and Employment Training (ISET) Agreement Holders.

Public and private training providers are those that have completed ITA's designation review process and are authorized to offer ITA-approved industry training programs.[30] ISET agreement holders are Indigenous community training and employment service agencies that support Indigenous peoples through the design and delivery of employment programs and services, including in the skilled trades.[31] For a list of training providers by type, please see Appendix C.

College of the BC Building Trades

The College of the BC Building Trades is an association of training providers that is affiliated with the construction unions. Its members provide apprenticeship training and upgrading courses to members of affiliated unions..

Source: https://collegeofthebcbt.ca/ourschools/

According to interviewees, the number of seats allocated across trades programs is determined in collaboration with ITA, and based on funding allocations, regional demands, and program enrollment trends. Several training providers noted that while provincial funding to their organizations has remained unchanged since the early 2000s, the cost of providing training has steadily increased (i.e., trades training requires a significant quantity of materials) over the same timeframe. This means that training providers have had to absorb cost increases to continue to deliver trades training programs.

According to training providers interviewed, the preferred learning modalities are in-person and hands-on delivery, which can simulate real world circumstances and working environments. Some interviewees noted that theoretical components of trades training were offered virtually during the pandemic and could continue to be offered online. As a result, many providers plan to maintain a hybrid delivery model with in-person training for practical course elements and online learning for theoretical components.

29 Industry Training Authority, "Managing Apprentices - 6 Steps to Success," accessed December 2, 2021, https://www.itabc.ca/managing-apprentices/6-steps-success.

30 Industry Training Authority, "Training Provider Designation," accessed November 24, 2021, https://www.itabc.ca/training-providers/training-provider-designation.

31 Industry Training Authority, "Aboriginal Employment Service Providers," accessed November 24, 2021, https://www.itabc.ca/aboriginal-people-trades/isets-holders.

In terms of supports for training and development, all employers consulted reported being involved in the training of workers in one or more of the following areas:

- On-site training components of apprenticeship programs.
- Onboarding and upskilling, such as site-specific training on safety, equipment, technologies and/or skills that may not be relevant or required on other work sites.
- Leadership and supervisory training.
- Participation in union advisory committees to help identify training requirements for the trades.
- Provision of mentorship support for new hires.
- Financial contribution to union training funds.

Employer-provided training is often conducted in-house or through a third party and generally funded solely by the employer, except in certain cases where upgrading courses are offered by the union. In addition to funding training, some employers reported offering paid leave during training and paying for salaries, books, travel, and accommodations for those participating in training.

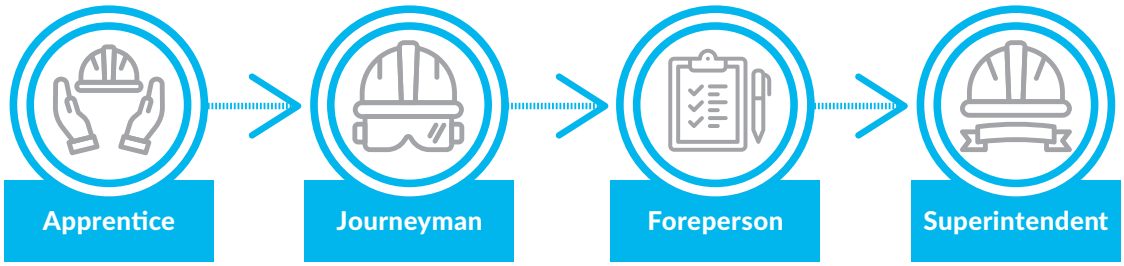
Although supports are provided to apprentices by employers and training institutions, interviewees mentioned various barriers to accessing trades training and obtaining certification. These included:

- **Cost of training.** Out-of-pocket expenses and the loss of income while attending technical training courses, was the most often cited barrier. These costs are felt more acutely by those not living near large urban centres which is where most training institutions are located. Many students must incur travel expenses or additional living costs should they choose to stay near the facility.
- **Lack of transportation.** In cases where students are near the training institution, a lack of public transportation infrastructure in certain regions or other reliable means of transportation, can make it difficult to attend classes regularly.
- **Time away to take training.** Several interviewees cited instances where apprentices are not released by their employers to complete the classroom component of their training, especially during busy construction periods. This often leads apprentices to delay their certification, and in some cases, they may choose to prioritize their employment and choose not to complete their apprenticeship altogether.
- **Insufficient exposure to the full scope of the trade.** Training providers noted that despite fulfilling the work-based hours requirements, some apprentices do not have sufficient experience across the scope of the trade to successfully pass the Red Seal exam.

Career Paths

The career path for tradespeople in the unionized construction sector is shown in Figure 21 . Entry into the skilled trades begins with apprenticeship. Following completion of an apprenticeship, tradespeople may progress to a foreman position, superintendent, or other management position. While this is a common career path, it was mentioned that not all workers choose to move into management roles and that many tradespeople begin their careers as labourers before becoming apprentices.

Figure 21: Typical Career Path



Recruitment

Entry into the Unions

For most unions, the active recruitment of new members is primarily determined by the market demand for workers. Unions typically recruit to the level that they can provide stable long-term employment for their members. Some unions, mainly those under-subscribed, indicate they usually always accept membership applications.

Few unions that were interviewed reported recruiting high school students into apprenticeships. The reported pathway was typically to have some work experience on a construction site prior to joining the union. An alternative pathway for trades such as electricians was to join the union as an apprentice after completing a foundation program. One interviewee indicated that a certain level of a maturity is required to safely work on a construction site which many youths do not have. As a result, recruitment efforts are aimed at those in their mid-20s and older.

Union interviewees reported that their new members predominantly come from the construction sector, with percentages ranging between 60 to 90 percent across unions and trade groups. One exception was the electrical locals, which reported that their new recruits are evenly split between the construction and non-construction sector. Most unions also reported that most of their members are not certified upon joining. A smaller number of unions (e.g., bricklayers, millwrights, machine erectors) noted that the number of new members who were certified versus uncertified was evenly split, at around 50 percent, while one union reported that most of their members enter the union fully certified.

> **There is a preference for experienced workers, and we do not generally recruit out of high school. Youth lack work readiness skills and maturity which creates a safety hazard.**
>
> *Union Representative*

Attraction

According to unions, the most effective recruitment pathway is word of mouth, including referrals from existing members and/or network connections with prior union involvement. Other recruitment strategies mentioned included social media and digital advertising campaigns, participation in job fairs, outreach activities at high schools or training programs, and visits to non-unionized work sites.

In general, employers interviewed indicated that they do not recruit workers directly, as this is the role of the unions. Those who reported engaging in recruitment activities do so by encouraging referrals, advertising on job boards and social media, and keeping resumes of potential candidates on file. Workers recruited by an employer are required to sign on with the union following the 14-day probation period to continue employment.

Nearly all unions and employers consulted agreed that more awareness and education of the trades is needed to continue to attract youth to the sector. This may include outreach activities such as presentations on the benefits of trades careers, inclusion of trades training in high school curricula, provision of work placement opportunities to students, and increased offerings of trades discovery programs. Additionally, as there are often misperceptions about trade occupations, several employers noted that parents and teachers of youth should be included in outreach activities so that the opportunities in trades can be accurately communicated.

While most unions and employers plan to continue using existing recruitment strategies, several interviewees felt that recruitment efforts could be focused on workers from other sectors that have been negatively impacted by COVID-19. As many individuals were laid off or experienced job instability throughout the pandemic, it was noted that these workers could be recruited to careers in the trades. This was consistent with reports from interviewees that they had observed an influx of inquiries from hospitality workers. A few interviewees, employing carpenters and labourers, mentioned that they are actively collaborating with government to increase access to temporary foreign workers to supplement the local labour pool. Several employers also reported developing internal training programs to attract workers to their companies.

> **We need to try different recruitment strategies. We are trying to do more presentations in high schools and even elementary schools. We are working closely with non-union and union contractors to get presenters into schools to reduce the perception that it is better to have a degree.**
>
> *Union Representative*

Retention

Retention of Students and Apprentices

According to training providers consulted, there are several factors that lead students to leave training in the skilled construction trades:

- **Lack of interest in trade.** As students learn more about their trade of choice, some find that the day-to-day duties are not what they expected, and the trade is no longer of interest. This may result in the student switching to another trade or leaving trades training entirely.
- **Lack of pre-requisite skills.** To be successful in most trade programs, training providers noted that strong literacy and math skills are required. The importance of these pre-requisite skills is not always communicated to potential students and as such many choose to leave trades training for other programs where these skills are not essential.
- **Difficulty finding an employer sponsor.** As all apprenticeships require the completion of work-based hours, some apprentices struggle to find an employer or certified journeyperson to support their training. This often interferes with apprentices' training and certification plans, with some choosing to abandon their apprenticeship completely.
- **Barriers faced by under-represented groups.** As outlined later in the report, there are several barriers to inclusion in the skilled trades faced by under-represented groups such as women, Indigenous peoples, and minority groups. These barriers range from a lack of representation within the sector to bullying, harassment and discrimination.

Information was also available from findings of the 2015 NAS on apprenticeship completers and discontinuers. For apprentices, the 2015 NAS found the main reasons reported for discontinuing an apprenticeship were "job instability" (17.3 percent), "received a better job offer" (15.5 percent), "financial constraints" (10.8 percent) and "personal/family issues" (10.6 percent).[32]

Retention of the Workforce

A review of publicly available data and reports found that there was very little information on retention within the skilled trades for the construction sector and there was no information specific to retention within construction unions. We reviewed two reports on recruitment and retention trends within the Ontario construction industry, and a survey of apprentices in Canada. This was supplemented with information gathered through the interviews with employers and unions. Our findings and review of existing literature found that:

- **A desirable work environment supports retention.** A 2017 survey of apprentices conducted by the Canadian Apprenticeship Foundation found the main factors supporting retention were "career advancement" (70 percent), "a positive work environment" (68 percent), "journeypersons willing to teach" (47 percent) and "a wide variety of work experiences" (42 percent).[33] This was echoed in interviews with unions and employers who noted that attractive working conditions, including competitive wages and a good work life-balance were important factors in retaining members and workers.

32 Frank and Jovic, "National Apprenticeship Survey," 24.

33 Canadian Apprenticeship Forum, "Apprenticeship in Canada," 30.

- **Overall job satisfaction is believed to be an important determinant of retention.** A 2019 study of the construction workforce in the GTA (the "GTA Study") found that workers that reported high levels of job satisfaction had longer tenures in the industry than those reporting lower levels of job satisfaction.[34]
- **Factors influencing retention vary by generation.** In the GTA Study, Millennials reported lower levels of agreement with statements associated with satisfaction than older generations.[35] This is consistent with findings from other studies where differences in expectations and values related to work between Millennials and older generations have been documented.[36] Additionally, interviewees noted that retirement is the main reason older workers leave the sector.
- **Reported retention rates in the unionized construction sector range from 70 percent to 90 percent.** Union interviewees reported relatively high retention rates, and that while they may lose some members, they generally recruit new members to offset any losses.
- **Union benefits play a significant role in retaining members.** Union interviewees reported that access to training, pension plans and healthcare benefits were highly valued by members, positively influencing retention. Consequently, frequent communication and education about these benefits was central to their retention strategies.
- **Supplemental compensation encourages retention.** Most employer interviewees stated that compensation strategies, such as offering pay above union wages or performance pay, are especially effective in retaining workers. However, unions often disapprove of differing wages across workers which has resulted in some companies implementing a confidential bonus program where employees are prohibited from discussing or sharing information on any supplemental wages received. In some cases, employers offer training beyond what is available from the unions, such as specialized equipment training, which was reported to be valuable to workers.
- **Access to stable and continuous employment is important to retention.** Several union interviewees mentioned that member retention is predicated on the union being able to provide enough work opportunities to its membership. Employers also reported that by providing continuous work opportunities, employees are less likely to leave. This is especially effective if the work site is close to the employee's home and reduces time spent commuting.

34 Callegher, "Retaining Employees in the Skilled Trades Prepared By Job Talks and Q.I. Value Systems Inc."

35 Ibid.

36 Ron Hansen and Catharine Dishke Hondzel, "The Apprentice Retention Program: Evaluation and Implications for Ontario," 2015, 8, https://heqco.ca/pub/the-apprentice-retention-program-evaluation-and-implications-for-ontario/

Factors leading workers to leave the unionized construction sector mentioned by interviewees included the following:

- **Lifestyle change.** This may include pursuing another occupation that provides a better work-life balance (e.g., by offering more flexible working hours or work closer to home) or to address burnout and prioritize mental health. It was also mentioned that in some cases, skilled tradespeople may choose to leave their job to start their own business.
- **Career progression.** Supervisory and management roles generally fall outside collective bargaining agreements.
- **Poaching by non-unionized companies.** Interviewees noted that members and employees have been approached by non-unionized employers, often with the promise of steady work and higher wages.
- **Women and minority groups are influenced by additional retention factors.** For women, discriminatory recruitment and hiring practices are often cited as reasons for not completing apprenticeships or leaving the industry.[37] As noted later in the report, lack of mentors and role models has also been identified as a factor.[38] Additionally, as noted by several interviewees, long and/or early working hour requirements coupled with lack of available childcare, often lead women to leave trades training programs, pursue other occupations with more flexible working hours, or leave the labour force altogether. For immigrants, interviewees stated that cultural differences, including a preference to work in non-unionized environments, negatively influence retention of these workers.

KEY FINDINGS

Factors that influence the decision to enter the trades include interest, friends, and family, earning potential, and availability and stability of employment.

Barriers to accessing and completing training include the cost of training, foregone income while engaging in training, and reluctance of employers to release apprentices for training during busy periods.

The entry pathway into a union depends on the trade. Few unions have high rates of high school students joining as apprentice members. Joining having completed a foundation program is more common.

Union benefits play a significant role in retaining members. Access to training, pension plans and healthcare benefits are highly valued by workers.

Supplemental compensation such as pay above union wages or performance pay, and specialized training encourages retention.

Stability of employment is an important factor in retention and recruitment efforts by unions are guided by the amount of work available.

37 Social Research and Demonstration Corporation, "Enhancing the Retention and Advancement of Women in Trades in British Columbia: Final Report," 2017, 38–40, https://www.srdc.org/media/199982/bc-women-in-trades-final-report-february-2017.pdf.

38 Ibid., 37.

Skills

The skills required to work in construction are many, varied and continually evolving. Technological advancements are leading this evolution, emphasizing cognitive capabilities, and digital literacy. Development of sustainable building practices is also driving change, giving rise to green literacy skills. As a result of this shifting landscape, transferable skills across trades are increasingly valuable. The changing nature of the required skillset within the construction sector has implications for the attraction, recruitment, training, and retention of tradespeople.

Technology

This section reviews trends in technology that are affecting the construction sector. Our review of the literature on technological trends in construction found three main ways technological advancements could affect the labour demand in construction. These include automation of various processes in construction that might replace labour; monitoring and inspection technologies that augment labour and improve productivity; and technology that indirectly affects the demand for labour by improving decision making.

Automation

The three main trends in automation affecting the construction sector that were identified were:

- **3D Printing or Additive Manufacturing**[39,40] technology is used to build building components autonomously from digital models, with minimal human intervention. This technology uses software to design and create lightweight molds that can easily be transported to a construction site and filled with concrete to add architectural detail to a structure. This is a relatively new technological trend and research around development of effective 3D printed structural loadbearing components with desired stability and strength is ongoing.
- **Use of factory produced components, prefabricated buildings, and modular buildings.** These components are assembled in controlled facilities, allowing for the use of automated processes. This offsite construction technology helps to increase the quality of builds by ensuring standardization while shortening lead times. The use of this technology is more prevalent in residential construction and is increasing in institutional and commercial projects that use uniform repetitive designs and specifications.[41,42,43]
- **Use of Robotics and co-robotics.** This technology can perform tasks like those performed by humans. It is used to either replace or complement individuals in performing physically demanding, or dull activities. The adoption of robotics in construction has been slow; however, some examples of new robots which may have mass-market appeal include 3D printing robots, bricklaying and masonry robots, and demolition robots.[44,45,46]
- **The increased adoption of these technologies is likely to affect trades that perform tasks that are repetitive such as assembling and fabricating.** These include masonry and plastering trades, metal forming and erecting trades as well as material handlers and trade labourers.

39 Seyed Ghaffar and Paul Mullett, "Commentary: 3D Printing Set to Transform the Construction Industry," Proceedings of the Institution of Civil Engineers: Structures and Buildings 171, no. 10 (October 2018): 737–38, https://doi.org/10.1680/jstbu.18.00136.

40 Paul Emrath, "Builders' and Remodelers' Use of Technology in 2019 Special Studies," 2019, 2.

41 KAPLIŃSKI, Oleg. "View of Innovative Solutions in Construction Industry. Review of 2016–2018 Events and Trends." Engineering Structures and Technologies 10, no. 1 (2018): 27–33. https://journals.vgtu.lt/index.php/EST/article/view/1469/1168.

42 McKinsey & Company, "The next Normal in Construction," 2020, 27-28,78, https://www.mckinsey.com/~/media/McKinsey/Industries/Capital Projects and Infrastructure/Our Insights/The next normal in construction/The-next-normal-in-construction.pdf.

43 Alazzaz, Faisal, and Andrew Whyte. "Uptake of Off-Site Construction: Benefit and Future Application." International Science Index 8, no. 12 (2014): 1151. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.660.2528&rep=rep1&type=pdf.

44 "Automation, Association for Advancing. "Construction Robots Will Change the Industry Forever," 2018. https://www.automate.org/blogs/construction-robots-will-change-the-industry-forever.

45 Robotics Business Review. "5 Ways Robotics Will Disrupt the Construction Industry in 2019," 2019. https://www.roboticsbusinessreview.com/news/5-ways-robotics-will-disrupt-construction-industry-in-2019/.

46 Council on Tall Buildings and Urban Habitat Housing, "Construction Robotics: Current Approaches, Future Prospects," 2021, 12,17, https://global.ctbuh.org/resources/papers/4429-Balzan_Robotics.pdf.

Monitoring and Inspection Technologies

Trends in the use of monitoring and inspection technologies in construction include:

- **Technologies related to augmented or virtual reality** to help visualize and simulate construction work, training, and projects. Although augmented reality presently has a low adoption in the construction industry, it can make project management more efficient and minimize health and safety issues by detecting errors and avoiding mistakes.[47,48,49]
- **Unmanned Aerial Vehicles (UAVs)** to help gather additional performance and monitoring information, safely, allowing for safer working environments and reducing the need for some difficult manual tasks involved in inspection or site management.[50,51]

Technology for Improved Decision-Making

Trends in the use of technology to improve decision making in construction relate to:

- **Internet of Things** is expected to allow businesses to make more robust, informed decisions, leading to a potential rise in productivity and lower labour requirements.[52,53]
- **Building Information Modeling (BIM)** technology that allows users to create precise 3D models of all building components, thereby increasing efficiency, reducing maintenance costs, supporting more robust decision-making, and helping in the development of factory-produced components. While BIM is not new to the construction sector, the industry has struggled to adopt it successfully.[54]

The adoption of technologies aimed at improving working conditions and decision making could reduce the overall demand for labour by improving productivity. Furthermore, these technological advancements might shift the skill requirements of labour from physical strength to cognitive capabilities such as critical thinking and the ability to utilize technology.

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47 Oke, Ayodeji Emmanuel, and Victor Adetunji Arowoiya. "An Analysis of the Application Areas of Augmented Reality Technology in the Construction Industry." Smart and Sustainable Built Environment, 2021. https://doi.org/10.1108/SASBE-11-2020-0162.

48 Sara Rankohi and Lloyd Waugh, "Review and Analysis of Augmented Reality Literature for Construction Industry," *Visualization in Engineering* 1, no. 1 (December 1, 2013): 1,2,6, https://doi.org/10.1186/2213-7459-1-9.

49 Mohsen Ghobadi and Samad M.E. Sepasgozar, "An Investigation of Virtual Reality Technology Adoption in the Construction Industry," Smart Cities and Construction Technologies, 2020, 157–80, https://www.intechopen.com/chapters/71203.

50 Jonathan Downey, "More Efficient and Safer – How Drones Are Changing the Workplace | World Economic Forum," World Economic Forum, 2017, https://www.weforum.org/agenda/2017/06/more-efficient-and-safer-how-drones-are-changing-the-workplace/.

51 Dastgheibifard, Soroush, and Asnafi Mahsa. "A Review on Potential Applications of Unmanned Aerial Vehicle for Construction Industry." Sustainable Structure and Materials 1, no. 2 (2018): 43–44. https://www.researchgate.net/publication/326266278_A_Review_on_Potential_Applications_of_Unmanned_Aerial_Vehicle_for_Construction_Industry.

52 Ghosh, Arka, David John Edwards, and M. Reza Hosseini. "Patterns and Trends in Internet of Things (IoT) Research: Future Applications in the Construction Industry." Engineering, Construction and Architectural Management 28, no. 2 (February 15, 2021): 457–81.

53 Abdul-Quayyum Gbadamosi et al., "The Role of Internet of Things in Delivering Smart Construction," CIB World Building Congress, 2019, 17–21, https://uwe-repository.worktribe.com/OutputFile/1492592.

54 McKinsey & Company, "The next Normal in Construction."

Skills and Aptitudes Required for Longevity

This section reviews the literature on the skills and aptitudes required for longevity in construction trades and the transferability of skills within construction trades. Our review identified three main categories of skills and aptitudes. The first category comprises core skills, the second is emerging skills while the final grouping is future skills.

Core skills

A long career in many sectors begins with learning and executing the core skillset for the sector in question. Mastering this base skill level can help tradespeople perform their job today and into the future as changes to the industry and trades arise. Table 4 outlines the most important core skills that are required to work within each of the construction trades. Please note that many of the skills listed are applicable across trades (e.g., decision-making, thinking, etc); however, only those core skills that are most important for each trade are highlighted.

Table 4: Most Important Core Skills Required for Construction Trades, by Trade[55,56]

MOST IMPORTANT CORE SKILLS	DOCUMENT USE	NUMERACY	PROBLEM SOLVING	PLANNING & ORGANIZING	DECISION MAKING	READING	THINKING	ORAL COMMUNICATION	WRITING	DIGITAL TECHNOLOGY	WORKING WITH OTHERS	SIGNIFICANT USE OF MEMORY
Boilermaker	✓	✓						✓				
Bricklayer	✓	✓	✓	✓								
Cabinetmaking	✓	✓	✓		✓							
Carpentry	✓	✓	✓									
Concrete Finisher	✓	✓	✓		✓							
Construction Millwright/ Industrial Mechanic	✓		✓		✓			✓		✓	✓	
Crane Operator		✓	✓								✓	
Cribber	✓	✓	✓									
Driller Blaster			✓	✓				✓			✓	
Electrical Installations	✓		✓			✓	✓					
Electrician	✓		✓							✓		
Elevator Constructor/Mechanic	✓	✓	✓									
Exterior Finisher	✓	✓	✓									
Floor Covering Installer	✓		✓	✓								
Framer	✓	✓	✓									
Glazier	✓	✓	✓									
Industrial Control	✓		✓				✓	✓				
Ironworkers	✓	✓	✓								✓	
Landscape Gardening			✓				✓	✓				
Painter			✓	✓				✓				
Plasterer/Drywall Installers/Lather		✓	✓								✓	✓
Plumber	✓		✓					✓				
Refrigeration and Air Conditioning	✓		✓			✓						
Roofer/Shingler		✓									✓	✓
Sheet Metal Work	✓	✓	✓									
Sprinkler System Installer	✓	✓				✓			✓			
Steamfitter/Pipefitter	✓	✓				✓			✓			
Tilesetters	✓	✓				✓						
Welder	✓	✓										

55 Careers in Construction, "Career Finder | Careers in Construction," accessed August 13, 2021, https://www.careersinconstruction.ca/en/careers/career-finder.

56 Skills Competences Canada, "Construction - Skills Competences Canada," accessed August 13, 2021, https://www.skillscompetencescanada.com/en/skills/construction/.

Emerging skills

It is expected that many of the skills currently required are also those that will be required going forward.[57] At the same time, there is an expectation and a corresponding forecast of emerging skills that is documented in the literature. These emerging skills are skills for which we have a forecast and some visibility of. They are also distinct from the future skills which are explored on the following page. Emerging skills can be divided into the following classifications:

- **Digital & Technology Skills.** As the construction industry experiences the rise of smart technologies, BIM, automation systems, and the Internet of Things, digital and technology skills are growing in demand.[58] A range of technical and non-technical digital skills will be required to keep pace in the sector and aid career longevity. Specifically, technical, information management, collaboration, communication, critical thinking, and problem-solving skills have been identified as skills that will be required for construction tradespeople.[59] Table 5 outlines these skills and their application to digital and technology capacity.

Table 5: Description of 21st-Century Digital Skills[60]

DIGITAL SKILL	DEFINITION
Technical	The skills to use computerized machinery and Information and Communications Technology (ICT) to accomplish practical tasks.
Information management	The skills to use ICT to effectively search, select, and organize information to make informed decisions about the most appropriate sources of information for a specific trade task.
Communication	The ability to use ICT to share information and ideas with others, ensuring that the meaning is fully conveyed.
Collaboration	The skills to use ICT to develop a social network and work in a team to exchange information, negotiate agreements, and make decisions toward achieving a common goal.
Critical thinking	The skills to use ICT to make informed judgments and choices about job information and communication using reflective reasoning and enough evidence to support the claims.
Problem-solving	The skills to use ICT to cognitively process and understand a problem situation, in combination with the active use of trade knowledge to find a solution to a problem.

- **Soft Skills.** According to The Conference Board of Canada, greater attention to social and emotional skills (SES) will be required by tradespeople to adapt to the future of construction work.[61] First, critical thinking and emotional intelligence have been identified as priorities. Such skills will aid workers in participating in an increasingly diverse workforce which is expected to arise due to recruitment from a wider selection of ethnic and minority backgrounds to address labour shortages. Second, a greater emphasis on patience and communication will be required to address generational differences in communication preferences and work styles which can hinder information sharing and work performance. Third, construction tradespeople are expected to need increasing problem-solving capabilities particularly as they relate to advancing health and safety. Specific examples include problem solving skills to respond to hazardous workplace environments such as an oil spill.

57 National Skills Council, "Building Future Skills The Demand for Skills in Ireland's Built Envirnoment Sector 2030," 2020, xi.

58 The Conference Board of Canada, "Bridging Generational Divides: Advancing Digital Skills in Canada's Apprenticeships and Skilled Trades Ecosystem," 2020, 11, https://www.conferenceboard.ca/temp/1787cda5-1835-4385-bbc5-9f44278d655e/10707_impact-paper_bridging-generational-divides.pdf.

59 Ibid.

60 Ester van Laar et al., "The Relation between 21st-Century Skills and Digital Skills: A Systematic Literature Review," *Computers in Human Behavior* 72 (July 1, 2017): 577–88, https://doi.org/10.1016/J.CHB.2017.03.010.

61 The Conference Board of Canada, "Rising Skills: A Toolbox Talk on Social and Emotional Skills in the Construction Trades," 2020, 5.

Future skills

Future skills differ from emerging skills in that we do not have visibility of these skills. Rather we do expect new skills and aptitudes to arise as changes to the construction sector continue. As such, future skills cannot yet be easily identified or isolated. By way of example, it would have been difficult to forecast the specific application of virtual reality within construction trades 20 years ago but now that application is much clearer and is being used today. Similarly, there will be new skills in the future that tradespeople will need to acquire, which we cannot currently conceive of in a meaningful way. The Conference Board of Canada asserts that 'the next generation of tradespeople will use digital technologies and skills that don't yet exist and aren't yet being taught'.[62] Current skills and aptitudes such as continuous learning, flexibility and adaptability can provide a solid foundation for future upskilling and reskilling.

Transferable skills

Skills that translate between jobs and industries are known as transferrable skills. Transferable skills are particularly important as today's workforce will likely change occupations several times throughout their careers. While there is consensus that construction tradespeople possess transferable skills, the specific skills which are transferable are not defined in the literature. However, interviewees noted that there are several skills that are used across the trades which can be transferred from one trade occupation to another:

- Organizational skills.
- Ability to interpret construction plans and drawings.
- Safety skills.
- Leadership skills.
- Interpersonal and communication skills.
- Practical skills (e.g., dexterity and hand-eye coordination).
- Project management skills, including task scheduling.
- Troubleshooting.

People in skilled trades are using personal electronic devices to access technical data and to track progress and information directly related to their job.

Additionally, employers mentioned that trade-specific skills may be transferred across similar trades. For example, ironworker, boilermaker, and millwright trades all include components of welding and as such, these tradespeople could all complete general welding tasks. This is also true for plumbers, pipefitters, and electricians who use comparable skills that were reported to be easily transferable to careers in refrigeration. Similarly, skills are transferable across all finishing trades. Skill transfer opportunities also exist across trades where tradespeople work in tandem, such as in pipefitting, boiler making, and ironworking. Transferable skills across trades are valuable, especially in times of labour shortages, where skill gaps are present and in remote locations.

62 The Conference Board of Canada, "Bridging Generational Divides: Advancing Digital Skills in Canada's Apprenticeships and Skilled Trades Ecosystem," 2020, 2.

What We Heard

How Skill Requirements are Identified and Addressed

The training providers, unions, and employers consulted agreed that the identification of sector skill gaps requires a collaborative effort across industry. This includes discussions amongst program advisory committees (PACs) at training institutions, feedback from employers and members, and an ongoing dialogue with ITA.

Training providers rely heavily on PACs, which are comprised of representatives from relevant employers, alumni, and other sector representatives, to advise the institution on any industry changes or trends that may affect trades programming. Training providers reported reviewing existing program curricula and make any revisions to account for emerging skill requirements as recommended by the PAC. Union interviewees reported responding to input from employers and members regarding skill gaps through changes to training offerings. In cases where relevant training to address the identified gaps is not already provided by the union, specialized training courses may be developed and offered to certain employers, or more broadly to the membership. Most unions interviewed believed that skill requirements have not changed for the trades they represent, or any changes have been addressed through training and upskilling.

Trends in Skill Requirements and Gaps

According to training providers, the most common changes in skill requirements are those related to the use of technology and the pre-requisite for digital literacy, citing the prevalence of tablets and laptops used on work sites. However, interviewees reported that due to the fast-changing nature of technology, it is often difficult for training institutions to keep pace with technological advancements in terms of programming and required equipment.

Several interviewees also referenced emerging skill requirements related to sustainable building practices and construction standards. Sustainable or "green" construction methods aim to improve energy efficiency of buildings to address climate change.[63] Examples of sustainable buildings include net-zero energy-ready buildings, which produce as much clean energy as they consume and use renewable energy sources to produce any other energy required, or those built to Canada's Green Building Council's Leadership in Energy and Environmental Design (LEED) certifications.[64] [65] In BC, the BC Energy Step Code is an optional compliance path in the BC Building Code that may be used by local governments to incorporate energy efficiency in new builds.[66] It is expected that performance targets outlined in the BC Energy Step Code, measured as a percentage of energy efficiency, will be incorporated as minimum requirements in the National Building Code of Canada by 2030 and in the BC Building Code by 2032.[67] These proposed changes to the provincial and federal building codes are expected to increase demand for related skills across construction trades. According to a study by the Canada Green Building Council, skills related to geothermal systems, plumbing and pipefitting, insulation and wall assembly, ventilation, and building automation systems are expected to be the most sought after for sustainable building projects.[68]

63 Government of Canada, "Energy Efficiency in New Buildings," July 24, 2020, https://www.nrcan.gc.ca/energy-efficiency/buildings/new-buildings/20673.

64 CleanBC Better Buildings, "Net Zero Energy Ready Challenge - Better Buildings," accessed December 15, 2021, https://betterbuildingsbc.ca/new-construction/net-zero-energy-ready-challenge/.

65 Government of Canada, "Energy Efficiency in New Buildings."

66 Building and Safety Standards Branch Government of British Columbia, "Energy Step Code," accessed December 15, 2021, https://energystepcode.ca/.

67 Government of British Columbia, "How the BC Energy Step Code Works," accessed December 15, 2021, https://energystepcode.ca/how-it-works/.

68 Canada Green Building Council, "Equipping Ontario Trades with the Skills of the Future," 2019,.

The report also states that tradespeople involved in sustainable building practices require a different set of soft skills, including a high level of "green literacy" in order to understand the implications of building techniques and materials on the environment.[69]

When asked to comment on the overall skill level of unionized workers, employers had differing views. Some employers stated that the skill level of unionized workers is generally good and often better than those in the non-unionized sector. It was noted, however, that as trades are becoming more specialized, workers develop expertise in one area and therefore may not be as skilled in all aspects of the trade. Other employers felt that the skill level of unionized workers varies widely across trades and individuals. A few employers considered the skill level of workers in the unionized sector to be poor, with a variety of trades being employed by these interviewees.

> ***Technology reduces the amount of human power required which will make it more accessible. Younger generations might be very interested in the new technology systems coming and may be very keen to use these.***
>
> ***- Employer Representative***

In addition to the above views on the skill level of workers, employers identified strategies to address two main skill gaps within the sector:

- **Apprentices not learning the full scope of trade.** According to ITA, the employer is responsible for ensuring that the apprentice receives work-based training that incorporates the full scope of the trade.[70] Employer interviewees recounted instances where tradespeople hired were not able to complete certain duties required of the trade. This was reported to be due to workers focusing on one facet of the trade throughout their apprenticeship rather than being exposed to and gaining experience in the full breadth of the trade. To address this issue, several interviewees recommended the implementation of a stronger competency framework to track the number of hours worked and competencies learned during the apprenticeship process. According to interviewees, this could include a requirement that apprentices are trained on different work sites and using different equipment that they may typically encounter throughout their careers. Additionally, it was suggested that in-class training timelines be lengthened so that apprentices have adequate time and supports to learn all the required skills.
- **Some workers are not keeping up with re-certification of upskilling.** Some interviewees felt that workers are not staying up to date with certifications or new building techniques, tools, or equipment. While employers noted that they ensure their employees upgrade skills and renew certifications as often as necessary, this may not be the case for unionized workers who are not currently employed by an organization. Thus, some interviewees suggested that the union take on the responsibility of tracking certification and skills of its members. One interviewee also proposed that there should be mandatory recertification or skills upgrading requirements across the trades.

69 Ibid., 3.

70 Industry Training Authority, "Managing Apprentices - 6 Steps to Success."

Technology

Nearly all the unions and employers that were consulted agreed that technology was becoming increasingly embedded into the trades and that the use of technology has become more common on work sites. The most often mentioned technologies and their uses include:

- **Tablets and smartphones** used in safety planning, to reference workplans, enter time sheets, and access training materials. Several employers noted that through the widespread integration of tablets and smartphones, they were able to better track processes, personnel information, and operational data.
- **Robotics and other autonomous technologies**, such as drones, layout lasers and pre-fabrication processes, to replace human labour. The use of these technologies, according to employers, has resulted in efficiency gains on certain work sites.
- **Virtual and augmented reality technologies** for use in training and to develop 3D work plans. A few employers stated that they have started to use virtual reality technologies during safety training to simulate real-world working environments and hazards.

Additionally, most employers interviewed reported that they have shifted the bulk of their onboarding and training content to a virtual environment, which has reduced training costs and allowed workers to enter the work site fully briefed on site-specific safety requirements.

> ***Technology can help reduce the impact on the body which can help entice people into the industry and keep them working longer.***
>
> ***- Employer Representative***

Beyond increases in efficiencies and cost reductions, interviewees noted that the use of technology across trades could have positive impacts on retention and recruitment. For example, the integration of certain technologies, such as robotics, into the trades is believed to make trades more attractive to youth. Similarly, the use and demonstration of simulators and other augmented reality technologies at job fairs were thought to be effective in drawing in prospective students and tradespeople. Finally, interviewees mentioned that there are several technologies being developed to simplify construction activities or processes. Once incorporated into training programs or work sites, these technologies could be especially appealing to those who may have been deterred by the trades due to the amount or extent of routine and manual labour required. This was noted to be particularly relevant for women looking to enter more physically demanding trades.

While the use of technology has become more prevalent across work sites, it has revealed a skill gap in digital literacy, especially among older workers. Interviewees noted that the increased use of technology may deter older workers from joining the trades or push them to retire early. In some cases, employers reported that older employees have retired early as they were unwilling to adapt to new technologies.

KEY FINDINGS

Technology is increasingly embedded in construction trades, with future advancements expected to affect the demand for labour and skill requirements. There is increased focus on cognitive capabilities and digital literacy.

Technology integration can be a pull factor when attracting personnel, especially youths and women. However, it can also reveal a digital skills gap which is typically more pronounced among older tradespeople and can lead to early retirements.

Another area of emerging skills relates to sustainable building practices. Tradespeople involved in this niche will require a different set of soft skills, including a high level of "green literacy."

Skill gaps are identified collaboratively by stakeholders across the industry. However, programming and course content can lag due to the fast-changing nature of technology.

As trades become more specialized, workers develop expertise in one area. They, therefore, may not be as skilled in all aspects of the trade, minimizing the opportunity for transferable skills.

There are differing perspectives on the skill level of the unionized workforce. Some employers indicated satisfaction stating the quality was superior to the non-unionized sector, while others contended that the standard varied greatly across trades and personnel.

Equity, Diversity and Inclusion

This section reviews the overall trends in participation in the construction sector for under-represented groups and summarizes the findings of our review of published information and interviews on the barriers to inclusion for each group, as well as initiatives that have been carried out to increase equity, diversity and inclusion in the trades and unionized construction sector. The under-represented groups that are included in the scope of this report are women, Indigenous peoples, and visible minorities.

Trends in Participation

This section reports on trends in participation in the construction sector overall for women, Indigenous peoples, and visible minorities. Employment estimates for the construction sector reported here are based on all occupations in the construction sector as data were not available by occupation or occupational category (e.g., tradespeople, management, administrative). Consequently, they likely over-estimate participation in the skilled trades.

Women

Employment in the BC construction sector has more than doubled since 2000, from 112,000 to nearly 250,000 in 2019.[71] In 2020, employment declined by 11.2 percent to 222,000 due to slowdowns in construction activity related to the COVID-19 pandemic. Employment in April and May 2021 was slightly higher than in the same period in 2020 when BC was in phase 1 of its pandemic response and the most stringent restrictions were in place, while employment in June 2021 was down approximately 4.1 percent compared with June 2020 and in July was down 2.7 percent compared with July 2020.[72]

> **At the start of the pandemic, many women lost their retail and hospitality jobs and turned to trades as they needed to get work.**
>
> ***Under-represented Group Representative***

The number of women employed in the BC construction sector has more than tripled since 2000, growing from 11,000 in 2000 to over 36,000 in 2019.[73] Between 2000 and 2016, the share of women employed in the BC construction sector fluctuated between 10 percent and 13 percent. Beginning in 2016 the share began to rise, reaching 14.5 percent in 2019 and remaining relatively stable in 2020. In 2020, women's employment followed a trend like the trends in overall employment in the construction sector, contracting by 11.6 percent (4,200). In 2021 there was some indication that women's employment in the construction sector declined more than men. In June 2021 women's employment was down 16 percent compared with June 2020 and in July it was down 11.1 percent compared with July 2021, while men's employment was down 2.2 percent in June 2021 and down less than

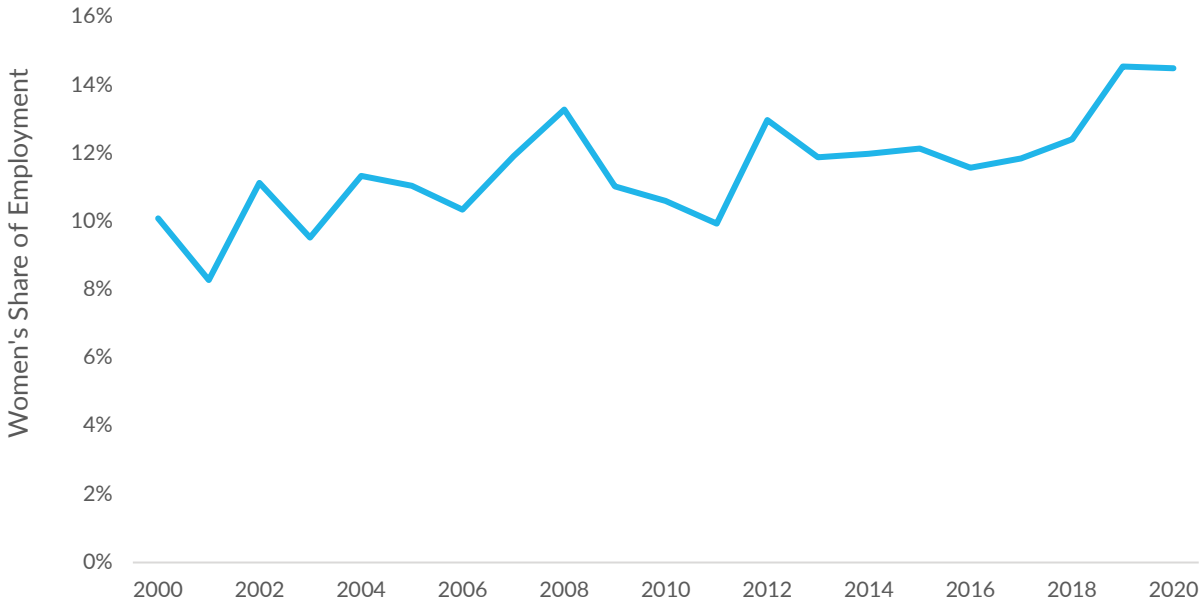
71 Statistics Canada, "Statistics Canada. Table 14-10-0023-01 Labour Force Characteristics by Industry, Annual (x 1,000)."

72 Statistics Canada, "Table 14-10-0022-01 Labour Force Characteristics by Industry, Monthly, Unadjusted for Seasonality (x 1,000)," accessed August 12, 2021, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410002201.

73 Statistics Canada, "Statistics Canada. Table 14-10-0023-01 Labour Force Characteristics by Industry, Annual (x 1,000)."

1 percent in July 2021.[74] According to interviewees, women employed in the BC construction labour force were disproportionately impacted by the COVID-19 pandemic, as many women left their jobs to care for children and/or elderly relatives. Conversely, it was also noted that more women had inquired about or enrolled in trades-related training programs in search of new careers due to loss of employment in retail and hospitality sectors.

Figure 22: Women's Share of Employment in the Construction Sector, BC, (2000 – 2020).[75]



Please note that the employment data referenced above includes all occupations within the sector as data were not available on the percentage of women employed in the trades within the construction sector over time. Data from the Labour Force Survey on women's employment in industrial, electrical and construction trades across all industries suggests that the percentage of women in the trades has increased from approximately 2.2 percent in 2000 to 4.7 percent in 2020.[76]

Similarly, total apprenticeship registrations within the construction trades in BC have been growing steadily since the early-2000s, with women increasing their share of new registrations from two percent in 2003 to six percent in 2019 and completions from one percent in 2003 to four percent in 2019 (Figure 23).[77]

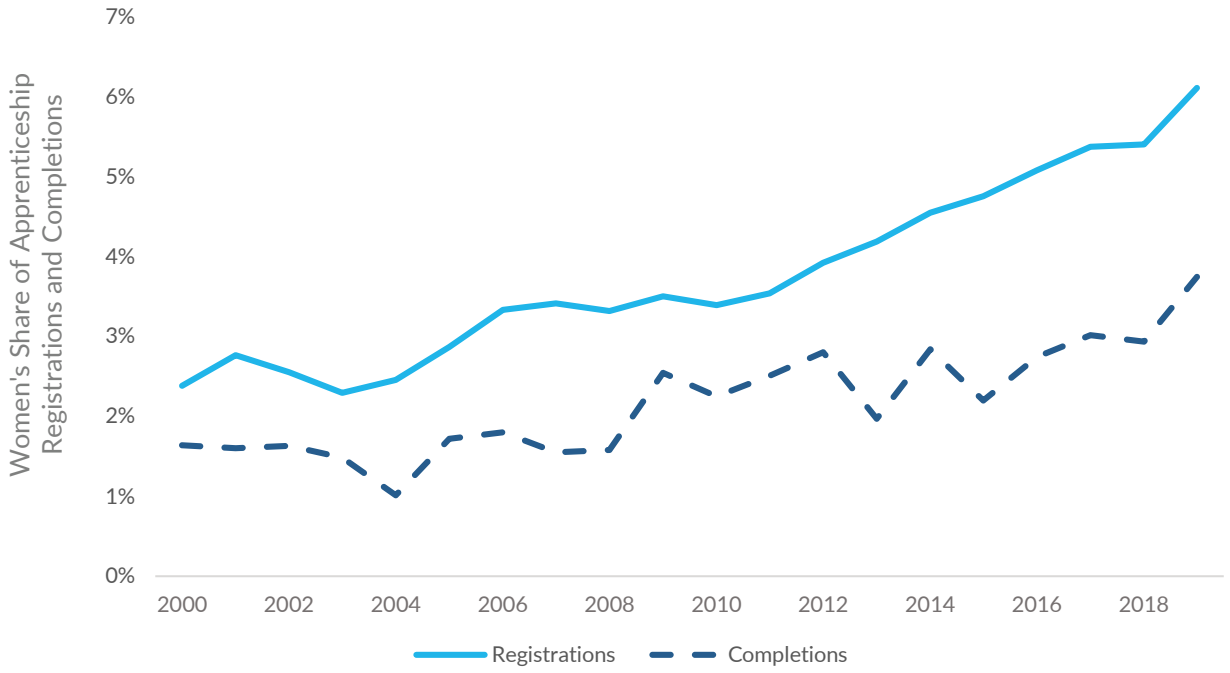
74 Statistics Canada, "Table 14-10-0022-01 Labour Force Characteristics by Industry, Monthly, Unadjusted for Seasonality (x 1,000)."

75 Statistics Canada, "Statistics Canada. Table 14-10-0023-01 Labour Force Characteristics by Industry, Annual (x 1,000)."

76 Statistics Canada. "Table 14-10-0296-01 Labour force characteristics by occupation, monthly, unadjusted for seasonality (x 1,000)."

77 Statistics Canada, "Table 37-10-0023-01 Number of Apprenticeship Program Registrations"; Statistics Canada, " Table 37-10-0089-01 Number of Certificates Granted to Registered Apprentices and Trade Qualifiers," accessed August 4, 2021, https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=371000890.

Figure 23: Women's Share of Apprenticeship Registrations and Completions in Construction Trades, BC, (2000 - 2020)[78]



Data from the Labour Force Survey shows higher union coverage in the construction sector among men than among women in Canada (Figure 24). In BC, union coverage for female construction sector employees was higher (8 percent) than the national average (6 percent) in 2019.[79]

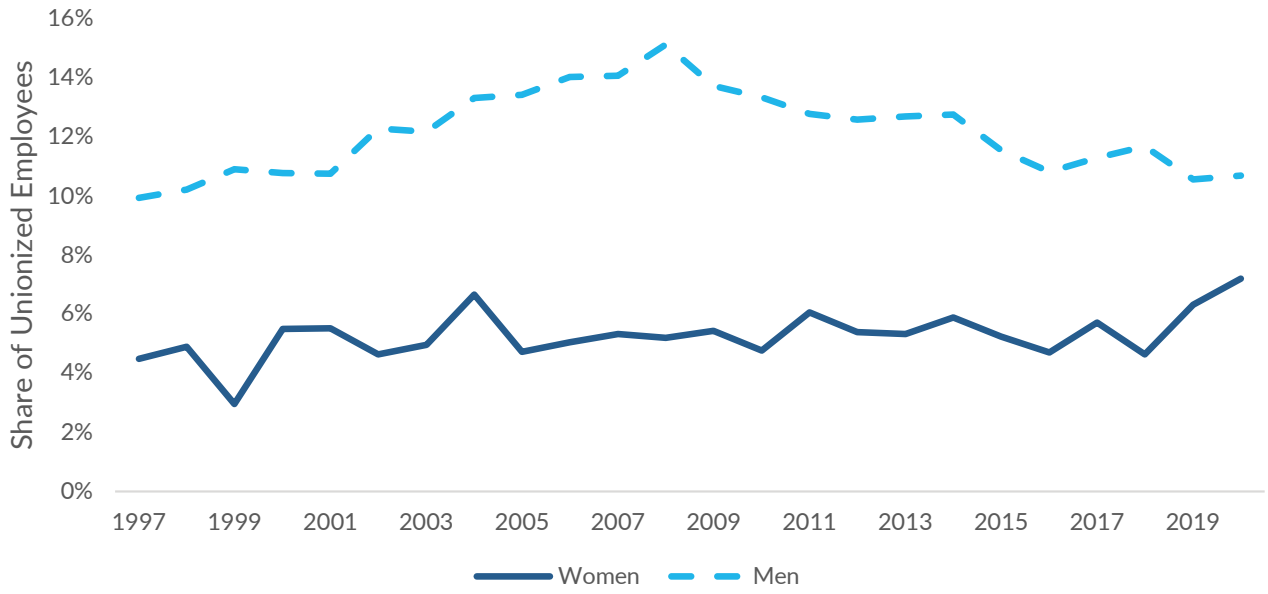
Among apprentices, a Statistics Canada study on labour market outcomes of female and male apprenticeships in the 2015 NAS, observed few gender differences in union membership.[80]

78 Statistics Canada, "Table 37-10-0023-01 Number of Apprenticeship Program Registrations"; Statistics Canada, " Table 37-10-0089-01 Number of Certificates Granted to Registered Apprentices and Trade Qualifiers."

79 Statistics Canada, "Statistics Canada. Table 14-10-0023-01 Labour Force Characteristics by Industry, Annual (x 1,000)"; Statistics Canada, "Statistics Canada. Table 14-10-0070-01 Union Coverage by Industry, Annual (x 1,000)," accessed August 3, 2021, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410007001.

80 Kristyn Frank and Marc Frenette, "How Do Women in Male-Dominated Apprenticeships Fare in the Labour Market?," 2019, 15, https://www150.statcan.gc.ca/n1/en/pub/11f0019m/11f0019m2019008-eng.pdf?st=n8YgkdZn.

Figure 24: Union Coverage of Construction Sector Employees, Canada (2000 - 2020)[81]



Indigenous Peoples

There is limited information on the representation of Indigenous peoples in the BC construction sector.

According to estimates from Buildforce Canada, the share of Indigenous peoples employed within the BC construction sector rose from 3.4 percent in 2011 to 5.8 percent in 2017.[82] Results from the 2016 Census indicate that the share of Indigenous peoples employed within the BC construction sector was 6.2 percent.[83] In non-residential construction, Indigenous representation reported in the 2016 Census was higher at approximately 8 percent.[84]

Representation of Indigenous peoples is slightly higher among apprentices than within the construction sector overall. Data from the ITA indicates that Indigenous peoples accounted for approximately 7.5 percent of total apprenticeships in construction trades in 2019/20 and 7.8 percent as of the third quarter of 2020/21.[85]

There was no information identified on the representation of Indigenous peoples in the unionized construction sector.

81 Statistics Canada, "Statistics Canada. Table 14-10-0023-01 Labour Force Characteristics by Industry, Annual (x 1,000)"; Statistics Canada, "Statistics Canada. Table 14-10-0070-01 Union Coverage by Industry, Annual (x 1,000)."

82 BuildForce Canada, "Representation of Indigenous Canadians and Women in Canada's Construction and Maintenance Workforce," 2018, 7, https://www.buildforce.ca/en/media/160.

83 Statistics Canada, "2016 Census of Population, Statistics Canada Catalogue No. 98-400-X2016359," accessed August 12, 2021, https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GK=0&GRP=1&PID=112128&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=124&VID=0&VNAMEE=&VNAMEF=.

84 Non-residential construction includes heavy and civil engineering and non-residential building construction. Estimates for specialty trade contractors providing services in the non-residential construction were not available.

85 Industry Training Authority, "Quarterly Performance Report - 2019/20 Fourth Quarter," n.d., 15–16; Quarterly Performance Report - 2020/21 Third Quarter, "Industry Training Authority," n.d.

Visible Minorities

There was limited information on the representation of visible minorities in the unionized construction sector. Information was available from the NAS[86] on the share of apprentices in Canada and the 2016 Census on the share of those employed within the BC non-residential construction sector that identify as visible minorities. According to the 2015 NAS[87], immigrants represented 8.7 percent of apprentices while visible minorities represented 8.2 percent of apprentices.[88] The representation of visible minorities among apprentices was less than half of their share of the Canadian population.[89] Results from the 2016 Census indicate that approximately 18 percent of those employed within the BC construction sector identified as a visible minority, while approximately 11 percent of those employed in non-residential construction[90] identified as a visible minority.[91]

During interviews with industry stakeholders, it was noted that due to heightened construction activity and labour shortages in BC, many companies are looking to under-represented groups such as immigrants, to supplement their workforce. Nevertheless, it was reported that during an economic downturn, such as the COVID-19 pandemic, employees of marginalized groups are often the first to be let go.

As will be discussed later in the report, interviewees reported that immigrants are less likely to join unions due to differing cultural perceptions of trades and unions. There was no additional information identified on the trends in participation of visible minorities within the unionized construction sector.

Barriers to Inclusion of Under-Represented Groups

Our assessment of the barriers to inclusion faced by under-represented groups was based on a review of existing literature and interviews with industry stakeholders.

> **In BC in particular, a lot of women are taking training, but employment is a massive barrier, as they are not being provided with opportunities. This means that we need to educate hiring managers.**
>
> ***Underrepresented Group Representative***

86 The NAS was a collaborative effort on the part of Employment and Social Development Canada and Statistics Canada. It gathers information on the experience of apprentices during their apprenticeship and on labour market outcomes.

87 The 2015 NAS looked at the experience of registered apprentices between 2011 and 2013.

88 Canadian Apprenticeship Forum, "Apprenticeship in Canada," 14.

89 Ibid.

90 Non-residential construction includes heavy and civil engineering and non-residential building construction. Estimates for specialty trade contractors providing services in the non-residential construction were not available.

91 Statistics Canada, "2016 Census of Population, Statistics Canada Catalogue No. 98-400-X2016360," accessed August 12, 2021, https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=59&GK=1&GRP=1&PID=112129&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=124&VID=0&VNAMEE=&VNAMEF=.

Women

We reviewed two reports by the Social Research and Demonstration Corporation, a BC-based non-profit research organization. Both reports discussed the experience of women in trades in BC and were funded through the Canada-British Columbia Labour Market Development Agreement. Our findings were also informed through interviews with representatives of organizations working on the key challenges experienced by women in the trades. Our review identified the following barriers to inclusion faced by women in trades in BC, which were confirmed through primary research activities:

- **Less awareness of and exposure to career opportunities.** According to a 2017 study of barriers to women's participation in the trades in BC, women reported not having been made aware of nor exposed to career choices in trades in the pre-apprenticeship stage to the same extent as their male counterparts.[92] As a result, women reported being less likely to develop the skills and expertise necessary to enter and advance within the trades.[93]
- **Lack of role models, mentors, and networking opportunities.** Due to the limited participation by women in the provincial trades labour force, tradeswomen identified a lack of supportive female networks as a major barrier faced throughout their careers.[94] This is consistent with findings from the 2020 evaluation of the BCWITT where over 60 percent of tradeswomen engaged reported the lack of female role models as the top barrier.[95]
- **Discrimination, bullying, and harassment in the workplace.** Women working in the trades in BC have noted discriminatory hiring, recruitment, and advancement practices along with highly sexualized and/or sexist work environments, which are exacerbated by a lack of systems and resources in place to address harassment and discrimination.[96] Additionally, women in unionized workplaces were more likely to report significant challenges related to enforcement of diversity-related policies, including those aimed at addressing gender bias, bullying and harassment, than those in non-unionized work environments.[97] It was noted by one interviewee, however, that unions may offer better support to women throughout these conflicts than non-unionized workplaces, as members are represented by union stewards and representatives.
- **Challenges surrounding work-life balance.** For women looking to continue their careers within the trades, maintaining work and family responsibilities is a key challenge.[98] Due to inflexible workplace policies and practices (e.g., set working hours, frequent travel, lack of childcare support), many women choose to leave the trades to start a family or soon after having children.[99] Interviewees reported that the lack of available and affordable childcare poses the most significant barrier to women in trades.

92 Social Research and Demonstration Corporation, "Enhancing the Retention and Advancement of Women in Trades in British Columbia: Final Report," 36.

93 Ibid.

94 Ibid., 37.

95 Social Research and Demonstration Corporation, "BC Centre for Women in the Trades: Final Evaluation Report," 2020, 18, https://www.srdc.org/media/553102/bccwitt-final-evaluation-report.pdf.

96 Social Research and Demonstration Corporation, "Enhancing the Retention and Advancement of Women in Trades in British Columbia: Final Report," 38–40.

97 Ibid., 127–28.

98 Ibid., 41-42,46.

99 Ibid.

Indigenous Peoples

To identify barriers to inclusion faced by Indigenous peoples we reviewed reports by the Canadian Apprenticeship Forum and the Conference Board of Canada on the participation of Indigenous peoples within the skilled trades and construction sectors in Canada. Our review identified the following barriers to inclusion faced by Indigenous peoples within the Canadian construction sector:

- **Limited awareness of career and apprenticeship opportunities.** A lack of information and exposure to opportunities within the trades was reported as a key barrier to apprenticeship entry by Indigenous high school students consulted as part of a study for the Canadian Apprenticeship Forum on experiential learning opportunities for Indigenous youth interested in the skilled trades.[100] This is often exacerbated by the absence of shop classes offered at high schools in Indigenous communities.[101]
- **Preference to remain in one's community.** Indigenous peoples in rural and remote regions across Canada face additional barriers entering the trades due to limited technical training providers in many of these areas and a reluctance to leave their community to seek training elsewhere.[102] This sentiment was supported by interviewees, who noted that there is a lack of public transportation options from Indigenous communities to most training facilities and work sites.
- **Lack of personal and/or financial supports.** Financial pressures and lack of awareness of financial supports offered were reported to be greater for Indigenous youth interested in apprenticeships.[103]
- **Lack of essential and employability skills at pre-apprenticeship level.** According to a study carried out by the Canadian Apprenticeship Forum on experiential learning opportunities for Indigenous youth interested in the skilled trades, some students lack the reading, numeracy, and time management skills necessary to pursue an apprenticeship.[104]
- **Lack of representation within the workforce.** Interviewees noted that, because of limited participation of Indigenous peoples within the local construction workforce, Indigenous peoples are less likely to enter or continue in an industry where they are not represented. This lack of representation was reported to be widespread from trades training through to union membership.
- **Racism and cultural discrimination.** Training providers consulted noted that racial and cultural discrimination against Indigenous peoples impacts the likelihood of finding an employee sponsor. According to interviewees, this may lead an individual to abandon their training or prolong the apprenticeship process.
- **Lack of infrastructure and equipment to support virtual learning.** While virtual learning was reported to eliminate cost- and transportation- related barriers to training, interviewees stated that some Indigenous students do not have access to the technological infrastructure or equipment required to participate in online courses. It was noted that wireless connections are often unreliable in remote areas or Indigenous communities, and some individuals may not own or have access to a laptop or tablet.

There was no information identified specific to barriers faced by Indigenous peoples within construction unions, although one union reported waiving the initiation fee for Indigenous peoples to reduce financial barriers to union membership.

100 Canadian Apprenticeship Forum, "Promoting Careers in the Skilled Trades to Indigenous Youth in Canada," 2019, 13, https://caf-fca.org/wp-content/uploads/2019/11/Promoting-Careers-in-the-Skilled-Trades-to-Indigenous-Youth-in-Canada.pdf.

101 Ibid., 14.

102 The Conference Board of Canada, "Rising Skills: A Toolbox Talk on Social and Emotional Skills in the Construction Trades," 9.

103 Canadian Apprenticeship Forum, "Promoting Careers in the Skilled Trades to Indigenous Youth in Canada," 15.

104 Ibid., 14.

Visible Minorities

To identify barriers to inclusion faced by visible minorities we reviewed reports by the Canadian Apprenticeship Forum, Social Research and Demonstration Corporation, and BuildForce Canada on the experience of these groups within the skilled trades. Our findings were also informed by interviews with various industry stakeholders, including organizations representing visible minorities within or looking to enter the trades. Our review and primary research activities identified the following barriers to inclusion faced by minority groups within the construction sector and skilled trades:

- **Issues related to foreign credential recognition.** Those applying for immigration to Canada and looking to enter the construction sector are required to have their qualifications assessed in advance.[105] However, differences in formal recognition of foreign credentials across provinces and territories often pose barriers to newcomers after emigration.[106] This is a barrier for both visible minority immigrants and non-visible minority immigrants.
- **Financial and/or personal barriers.** There is some evidence from the Alberta construction sector that new immigrants often face financial struggles and communication barriers that ultimately impact their integration into the apprenticeship system.[107] This is consistent with earlier findings within the broader skilled trades in Canada, that those from economically disadvantaged backgrounds or with English as a second language are less likely to pursue training or network effectively.[108] Interviewees also noted that financial constraints hinder immigrants from accessing training or recertification necessary to pursue a career in the trades in BC.
- **Cultural differences in perceptions of trades and unions.** Cultural differences were also mentioned by several interviewees who noted that many immigrants have different perceptions of trades, with some cultures valuing academics over trades occupations. As a result, interviewees reported that immigrants generally choose to work for non-union employers who may have a similar cultural background to reduce language barriers, and because unionized environments are not common in many cultures.
- **Difficulty finding an employee sponsor.** According to 2016 and 2017 surveys of apprentices conducted by the Canadian Apprenticeship Forum, 27 percent of visible minorities reported experiencing challenges finding an employee sponsor, more than any other demographic group.[109] The most common reasons reported for difficulty finding an employer sponsor were "employers were not hiring apprentices", "limited opportunities", "not knowing how to find interested employers", and "discrimination".[110]
- **Racial discrimination and harassment.** A 2010 report by the Canadian Apprenticeship Forum highlighting case studies of initiatives supporting minority groups seeking careers in skilled trades noted racism, discrimination and harassment as barriers to the integration of these individuals into the labour market.[111] Discrimination, including name-based discrimination, unconscious bias, and race-based violence, were also noted as systemic barriers to training and employment in the broader Canadian labour market in a 2021 study by Social Research and Demonstration Corporation.[112]

105 BuildForce Canada, "Immigration Trends in the Canadian Construction Sector," 2020, 18, https://www.buildforce.ca/en/immigration.

106 Ibid.

107 Canadian Apprenticeship Forum, "Regional Roundtable Summary Integrating Newcomers into Alberta's Apprenticeship System," 2017, 2, https://caf-fca.org/wp-content/uploads/2017/11/Integrating-Newcomers.pdf.

108 Canadian Apprenticeship Forum, "Creating Diversity and Career Opportunities in the Skilled Trades," 2010, 74–75, https://caf-fca.org/wp-content/uploads/2017/07/Creating-Diversity-in-the-Skilled-Trades.pdf.

109 Canadian Apprenticeship Forum, "Apprenticeship in Canada," 25.

110 Ibid., 34.

111 Canadian Apprenticeship Forum, "Creating Diversity and Career Opportunities in the Skilled Trades," 74–75.

112 Social Research and Demonstration Corporation, "Barriers to Employment and Training for Equity-Seeking Groups," 2021, 13–15, https://www.srdc.org/media/553157/training-barriers-for-equity-seeking-groups-final-report.pdf.

Equity, Diversity and Inclusion Initiatives

Through consultations with industry stakeholders, several strategies and initiatives seeking to increase the participation of under-represented groups in the construction trades in BC were identified.

The most mentioned industry wide initiative was the introduction of the Community Benefits Agreement (CBA) in 2018. The CBA is a labour agreement which provides incremental and prioritized opportunities to under-represented groups on provincial government infrastructure projects.[113] BCIB is the Crown Corporation responsible for carrying out projects under the CBA, including ensuring priority hiring opportunities are offered to qualified under-represented groups.[114] Interviewees also referenced that work undertaken by specific organizations (e.g., BCWITT, Women Building Futures), federal government programs aimed at resettling and sponsoring refugees, and various training programs (e.g., cultural sensitivity training) were being applied across the sector to improve the inclusion of tradespeople from under-represented groups.

In addition to those undertaken across industry, equity, diversity, and inclusion initiatives have been and are currently being implemented at the organization level. It was noted that training institutions and unions generally follow a structured approach in carrying out these initiatives while employers target under-represented groups on an ad-hoc basis. Examples of past and current initiatives are summarized in Table 6.

Table 6: Examples of Equity, Diversity, and Inclusion Initiatives

INITIATIVE	TARGETED UNDER-REPRESENTED GROUP		
	WOMEN	INDIGENOUS PEOPLES	MINORITY GROUPS
Pre-apprenticeship and trade discovery programs	X	X	
Offering and participation in Be More Than a Bystander Program[115]	X		
Partnerships with communities to provide training, hire locally and/or include in project bids		X	
Formation of equity, diversity, and inclusion committees within unions or employer organizations	X	X	X
Partnerships with organizations who serve under-represented groups (i.e., BC Women in Trades)	X	X	X
Provision of mentorship programs and/or job opportunities	X	X	X
Prioritization of resumes of tradespeople from under-represented groups	X	X	X

113 Government of British Columbia, "New Framework Ties Major Projects to Benefits for Workers and Communities," accessed December 13, 2021, https://news.gov.bc.ca/releases/2018PREM0057-001406.

114 Government of British Columbia, "BC Infrastructure Benefits," accessed December 13, 2021, https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/crown-corporations/bc-infrastructure-benefits.

115 The Be More than a Bystander program originated in 2011 as a partnership between the BC Lions and Ending Violence Association of BC (EVA BC) to create awareness of gender-based violence in the workplace. In 2018, BCWITT worked with EVA BC to adapt the program to the skilled trades, teaching men in leadership positions how to identify and speak up about gender-based bullying and harassment in the sector. Since then, approximately 150 male leaders within the skilled trades have been trained to deliver this program within their own organizations. Source: BC Centre for Women in the Trades, "Shifting the Workplace Culture," accessed December 8, 2021, https://bccwitt.ca/whatwedo/bystander/.

In general, interviewees reported that past initiatives have helped to increase the number of students, members, and workers from under-represented groups in the trades. However, it was noted that such initiatives require sustained efforts in terms of resourcing and financial support from all industry stakeholders to be successful. Additionally, interviewees emphasized the importance of communicating the benefits and opportunities of trades careers in recruiting students and workers from under-represented groups. While this is an important consideration when recruiting any individual to the sector, this was noted to be especially valuable for the recruitment of under-represented groups where differences in cultural values or perceptions of the trade are evident and act as barriers to inclusion.

When asked to comment on any factors or supports required to increase equity, diversity and inclusion within the sector, interviewees offered the following suggestions:

- Provide peer and mentor support for workers, especially at the onboarding phase.
- Provide affordable and flexible childcare options.
- Provide financial support for training.
- Increase resources for recruitment of students and workers from under-represented groups.
- Improve the work environment to reduce and address instances of bullying and/or harassment

KEY FINDINGS

The number of members from equity-seeking groups enrolling in apprenticeships and working in the BC construction sector has increased in the last decade.

Barriers common across all three under-represented groups include discrimination, a lack of financial support, and insufficient information at key career decision points.

Specific barriers include access to affordable childcare for women, geographic challenges for Indigenous communities, and cultural and language differences for visible minorities leading to lower union membership rates for the latter group.

Unions offer support to under-represented groups through union stewards while union rules seek to protect members, all of which contributes to an inclusive work environment.

The CBA is widely recognized as the province's leading equity, diversity, and inclusion initiative, with unions, training institutions, and employers implementing a selection of their own schemes.

Communicating the benefits and opportunities of trades careers and union membership when recruiting students and workers from under-represented groups is especially important.

8. Phase 1: Summary of Findings

THIS CHAPTER OF THE REPORT SUMMARIZES THE FINDINGS OF THE PHASE 1 LMI STUDY.

Conclusions

Forecasts of supply and demand were developed for eighteen trades accounting for approximately 95 percent of the unionized construction sector in BC. Fourteen of the eighteen trade groups were expected to experience labour shortages over the forecast period. The most severe shortages were forecast to be among operating engineers, millwrights, welders, concrete finishers and Plasterers and floor layers. Shortages of operating engineers, millwrights, welders, concrete finishers, and Plasterers are forecast in the overall construction sector as well. This suggests that additional efforts will need to be made to recruit and retain the workforce needed to support growth in the unionized construction sector.

The research identified that there is a need to modify existing recruitment practices and that there are opportunities to build the needed workforce through the adoption of technology and addressing barriers to employment for under-represented groups. Strategies aimed at developing the workforce should build on collaboration between unions, employers, and training providers to develop competitive advantages for unions in attracting and retaining labour and competitive advantages for employers to grow the market share of unionized construction in BC.

Considerations

Areas for consideration in the development of a human resource strategy to address current and emerging trends within the unionized construction sector are as follows:

- **The COVID-19 pandemic has resulted in several short-term impacts for the unionized construction sector.** Such impacts include a rise in early retirements among older workers, which may add to the forecast labour shortages, delays to project timelines, and increased costs. Additionally, the training and certification of apprentices may be delayed as the sector recovers from the slow down (e.g., stoppages in training delivery and reduced class sizes) caused by the pandemic. It remains unclear what effects the pandemic will have on attraction and retention in the industry over the longer term.
- **Considerations must be given to ensuring apprentices develop skills across the full scope of their respective trades.** Training providers noted that despite fulfilling the work-based hours requirements, some apprentices do not have sufficient experience across the scope of the trade to pass the Red Seal exam successfully. The rise of specialization within the trades and the busy nature of some employers were two reasons cited for the insufficient exposure to the full scope of trade for some apprentices.
- **Friends and family have a significant influence on the decision to enter trades.** It is well documented in both the literature and the primary research that friends and family play a key role in the decision of individuals to enter the trades. Those who have prior exposure to the trades or union environment through a friend or family member were more likely to pursue training in that trade or join a union.
- **The availability and stability of employment opportunities are important for attraction and retention.** Primary research indicated that people often gravitate towards trades that are currently and expected to continue to be in high demand. This is particularly relevant for the construction trades in the wake of COVID-19 as construction activity continued throughout the pandemic, and careers in the construction sector are now regarded as "pandemic-proof". Unions reported that providing long-term ongoing employment is also an important factor in the retention of workers.

- **Broadening recruitment efforts to target workers in other sectors.** At present most recruitment efforts are directed at workers within the construction sector. Reaching out to workers in other sectors, including those most affected by the pandemic, could increase the pool of available labour.
- **Strategies targeting high school students, including developing workforce readiness skills, should be considered.** Several unions reported focusing their recruitment efforts on experienced workers and most new members come from the within the construction sector. One union interviewee reported preferring not to recruit youth straight out of high school, citing safety concerns. Targeting this demographic while also equipping them with the necessary workforce readiness skills may be effective in attracting new entrants.
- **The increased adoption of technology in the industry may affect both attraction and retention.** The required skill set to enter and advance in the trades will evolve as technology is further integrated. Technology adoption may also hasten the exit of older workers from the workforce while simultaneously attracting younger workers. Similarly, the impact of technology on the physical strength required in specific trades could lower barriers to recruitment for some groups, including from under-represented groups, such as women, and increase the length of time older workers can continue working.
- **Barriers to entry and advancement in the trades continue to exist for equity-seeking groups.** Specific barriers include access to affordable childcare for women, cultural differences and language barriers for new Canadians, and geographic challenges and under-representation for Indigenous peoples. These barriers, and others, keep representation among these groups low.
- **There is some indication that there may be a negative perception of union membership among some groups.** Union membership has decreased across industries including the construction industry. Interviewees suggested that unions are perceived negatively among some groups which can hinder attraction efforts. A better understanding of how union membership is perceived among target groups could aid in the development of strategies to counter negative perceptions and increase attraction.
- **Opportunities for cross-utilization of tradespeople should be considered.** There are several skills which are transferable across several trade groups (e.g., welding, piping). Cross-training on high-demand tasks could support retention and improve access to labour by providing ongoing employment opportunities for workers during periods when their primary trade is experiencing decreased demand.

9. Phase 2: **HR Strategy**

THIS CHAPTER PRESENTS THE HR STRATEGY DEVELOPED TO ADDRESS THE CONSIDERATIONS RELATED TO RECRUITMENT AND RETENTION, TRAINING AND TECHNOLOGY IDENTIFIED IN PHASE 1.

Situational Analysis

The LMI Study identified ten areas related to recruitment and retention, training, and/or technology for consideration in developing the HR Strategy (see Chapter 8). The findings of the LMI Study and key informant interviews conducted in Phase 2 in relation to each of the identified areas of consideration are summarized below. Note that orange text boxes are used throughout this section to emphasize key points.

RECRUITMENT AND RETENTION

Increase representation of equity-seeking groups

Currently, there are barriers to entry in the industry for equity-seeking groups that keep the representation of specific populations low. Barriers common to all equity-seeking groups include lack of representation within the industry, bullying, harassment, micro-aggression, and other forms of discrimination. Additional barriers that were identified for specific groups were:

- **Women** - poor awareness of and exposure to career opportunities, as well as a lack of role models, mentors, networking opportunities, and work-life balance challenges.
- **Indigenous Peoples** - limited awareness of career and apprenticeship opportunities, lack of local community employment, low levels of personal and/or financial support, lack of essential and employability skills at the pre-apprenticeship level, racism and cultural discrimination, and lack of access to infrastructure and equipment to support virtual learning.
- **Immigrants** - issues related to foreign credential recognition, financial and/or personal barriers, cultural differences in perceptions of trades and unions, difficulty finding an employee sponsor, and racial discrimination and harassment. This is a barrier for both visible minority immigrants and non-visible minority immigrants.

Expand recruitment efforts beyond the construction industry.

At present, most recruitment efforts are directed at workers within the construction industry. Reaching out to workers in other sectors, including those most affected by the pandemic, could increase the available labour pool. Most unions and employers that participated in both Phase 1 and Phase 2 agree that more awareness and education are needed to attract youth and other target groups. This may include outreach activities such as presentations on the benefits of careers in the trades and increased exposure to the trades through open houses and work placements.

Counter misperceptions

There is some indication that there may be a negative perception of union membership among some groups. To combat misperception about the trades, several employers suggested that parents and teachers of youth should be included in outreach activities so that the opportunities in trades can be accurately communicated.

Friends and family are key influencers

Research has found that friends and family can significantly influence an individual's decision to enter a trade. Individuals who have prior exposure to trades or unions are more likely to pursue a career in trades, get trades training or join a union.

Employment Stability

The availability and stability of employment opportunities are key factors in ensuring the retention of workers in the industry. People often gravitate towards trades that are currently and expected to continue to be in high demand. The fact that the construction industry continued to operate during the COVID-19 and was considered an essential service may be beneficial for attracting new people to the industry. However, continuing to provide long-term employment opportunities is essential for retention.

TRAINING

Youth need workforce readiness skills

The LMI Study found that strategies were needed to target high school students and develop their workforce readiness skills. Most unions focus their recruiting efforts on experienced workers. One factor in the focus on experienced workers is that there is a certain level of maturity required to safely work on a construction site which many youths do not possess.

Apprentices need to learn the full scope of trade

Employers and training providers noted that apprentices may not be receiving exposure to the full scope of their chosen trade. Reasons cited for this include increased specialization within trades and the busy nature of some employers.

Cross-utilization of trades

Opportunities for cross-utilization of tradespeople should be considered to support retention and mitigate the effect of downturns on employment in the industry. There are several skills which are transferable across multiple trade groups. Cross-training on high-demand tasks could support retention and improve access to labour by providing ongoing employment for workers during periods when their primary trade is experiencing decreased demand.

TECHNOLOGY

Interviewees suggested that the increased adoption of technology in the industry might affect attraction and retention.

It was noted that technology could be deployed to automate and modernize monitoring and inspection and improve decision-making. The increased adoption of automation technologies is likely to affect trades that perform repetitive tasks such as assembling and fabricating, which could increase the attractiveness of trade occupations. Adopting technologies aimed at improving working conditions and decision-making could reduce the overall demand for labour by improving productivity and shifting the skill requirements of labour from physical strength to cognitive capabilities such as critical thinking and the ability to utilize technology. This might make trades more attractive for underrepresented groups such as women or allow older workers to remain in the trades longer. Nearly all the unions and employers agreed that technology is increasingly embedded into the trades, and digital and technology skills are growing in demand. Interviewees suggested that the use of technology across trades could positively impact retention and recruitment and could help attract more youth to the industry.

Literature Review

To identify what initiatives are being undertaken by other organizations to address the areas of focus identified in the LMI Study and best practices with respect to recruitment and retention we conducted a literature review. Recent, relevant documents and publications identified through the literature review are summarized in this section.

Addressing labour shortages

The House of Commons Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities (HUMA) was asked to study labour shortages in the construction industry, particularly in the Greater Toronto and Hamilton Area (GTHA).

The committee identified the following reasons for the labour shortages:

- A retiring workforce;
- Growing industry demand;
- Lack of awareness about skilled trades;
- Difficulty accessing existing supports; and
- Economic barriers to labour mobility.

To address the labour shortages, the committee recommended a multi-faceted approach and collaboration between government and industry. Specific strategies were[116]:

- Increasing awareness of the issue through targeted national awareness campaigns to promote the skilled trades. Any campaign should then be reviewed to assess its success and evaluate the need for continued investment;
- Providing skills training by first identifying emerging and persistent skill gaps in the skilled trades and using this to inform the development of training;
- Offering financial support for apprentices, tradespeople, and employers to offset costs related to training, hiring, and working in the skilled trades; and
- Increasing recruitment from underrepresented groups through initiatives such as community benefits agreements, immigration programming, and customizing apprenticeship and pre-apprenticeship supports to the specific needs of equity-seeking groups.

116 Labour shortages and solutions in the GTHA construction industry – Report of the Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities – House of Commons May 2019 https://www.ourcommons.ca/Content/Committee/421/HUMA/Reports/RP10492157/humarp17/humarp17-e.pdf

Research on improving the quality of life for workers suggests that providing flexibility in training delivery and work schedules to accommodate family and personal commitments could increase the accessibility of the workforce for potential workers and help minimize family disruptions. Solutions could include shorter work weeks, extending the apprentice program, and onsite accommodations for families of workers.[122]

Interdepartmental Circles on Indigenous Representation identified the following best practices in the recruitment and retention of Indigenous Peoples[123]:

- Establishing a representative workforce policy;
- Encouraging voluntary self-identification and reporting;
- Establishing partnerships with Indigenous organizations;
- Establishing specialized recruitment programs;
- Pursuing outreach at Indigenous education and employment events;
- Encouraging Indigenous employee networks; and
- Acknowledging and including Indigenous cultural practices.

More formal recruitment methods in the research included online recruitment through Indigenous job-seeking websites, Indigenous local newspapers, on-campus recruitment at educational institutions, internships, co-op programs, and professional agencies. In addition, application processes should recognize the skills of Indigenous applicants beyond formal work experience or education.[124]

Through interviews, interviewees should understand how culture impacts communication. It is crucial to allow space for silence, as Indigenous culture promotes listening and learning throughout the interview process rather than speaking.[125]

Findings further suggest the importance of providing cultural awareness and cultural safety training to improve the industry's culture. Providing training that promotes awareness and understanding of historical legacies and different cultural practices helps normalize diversity and provides all workers with the knowledge to incorporate diversity and inclusion practices in their daily work environment.[126]

To further improve Indigenous participation, findings suggest that hiring trainers from rural and Indigenous communities can help increase apprentice success, as it provides them with mentors that provide safety and effective knowledge transfer[127].

122 Centre of Training Excellence in Mining, "Skills Roadmap Project – A Sector Labour Market Partnership," 2022, 26

123 "Many Voices One Mind: a Pathway to Reconciliation - Section 3. Research on Best Practices in Recruitment and Retention of Indigenous Peoples." Government of Canada. December 4, 2017. https://www.canada.ca/en/government/publicservice/wellness-inclusion-diversity-public-service/diversity-inclusion-public-service/knowledge-circle/many-voices.html

124 Nicole Johnston and James Ashwell, "Indigenous Recruitment, Retention and Community Outreach in the Canadian Natural Resource Sector," Centre for the Study of Living Standards, August 2018, http://www.csls.ca/reports/csls2018-01.pdf

125 Nicole Johnston and James Ashwell, "Indigenous Recruitment, Retention and Community Outreach in the Canadian Natural Resource Sector," Centre for the Study of Living Standards, August 2018, http://www.csls.ca/reports/csls2018-01.pdf

126 Centre of Training Excellence in Mining, "Skills Roadmap Project – A Sector Labour Market Partnership," 2022, 26

127 Centre of Training Excellence in Mining, "Skills Roadmap Project – A Sector Labour Market Partnership," 2022, 26

Creating a Diverse and Inclusive Workplace

Different generations have different values and expectations with respect to work. Millennials tend to emphasize working conditions, on-the-job training, mentoring, positive reinforcement, and the opportunity to make mistakes without recourse.[117] As Gen Z enters the workforce there is some evidence that diversity and inclusion is something that is highly valued.[118]

The research into best practices on the development of diversity plans and the recruitment of equity-seeking groups found that the process should include[119]:

- An assessment of diversity through surveys, discussions, and employee feedback to gather insights and create a working plan to overcome obstacles to diversity.
- Using the information gathered through surveys, discussions, and feedback to develop diversity plans. Plans should include a series of attainable and measurable goals regarding workplace diversity.
- The plan being implemented by seeking all members' commitment to implement the set goals.

Key elements in the success of DEI initiatives that were identified in a report on the evidence of the effectiveness of diversity and inclusion initiatives compiled by David S. Pedulla were:

- Measurable Data**.** Collection and analysis of data on diversity over a period can increase accountability and transparency related to diversity issues, particularly if it is compared with other organizations and shared.[120] When used properly, this information can help organizations identify shortfalls, set targets, pinpoint roadblocks, and measure progress.
- Engage managers and other key players**.** Involving managers and other key members of the organization in designing the processes for increasing representation can increase buy-in and increase the likelihood that the tools and processes will be effective and sustainable.[121]

117 Ron Hansen and Catharine Dishke Hondzel, "The Apprentice Retention Program: Evaluation and Implications for Ontario," 2015, 8, https://heqco.ca/pub/the-apprentice-retention-program-evaluation-and-implications-for-ontario/

118 Deloitte. "Understanding Generation Z in the Workplace: New Employee Engagement Tactics for Changing Demographics," 2019. https://www2.deloitte.com/us/en/pages/consumer-business/articles/understanding-generation-z-in-the-workplace.html

119 BC Campus Open Textbook Project, Human Resource Management: First Canadian Edition, College of New Caledonia 2017 https://pressbooks.bccapus.ca/hrm1stcanadianedition/

120 Pedulla et al. What Works? – Evidence-Based Ideas to Increase Diversity, Equity, and Inclusion in the Workplace. Available here: https://www.umass.edu/employmentequity/sites/default/files/What_Works.pdf

121 Ibid.

What Others are Doing to Increase Diversity

To address the under representation of certain groups in the industry, the Future Skills Centre developed a free online platform with resources to help people access careers in the skilled construction trades. The project aims to meet the demand for construction industry workers, emphasizing underrepresented groups (e.g., women, youth, newcomers, Indigenous peoples, racialized/displaced workers, veterans, and low-skilled individuals). The online platform is designed to attract underrepresented individuals through self-assessments, preparation guides, practice tests, interactive online courses, and tutorial videos to help them understand the trades. Early results indicate that the project has successfully attracted candidates to explore careers in the skilled construction trades.[128]

Training Funding

Several trade funding sources are available to the industry, as well as several models and programs that could be reworked to the BC context. These funding sources include:

- *The LNG Canada Trades Training Fund* which helps cover the costs of foundation or apprenticeship training for an employee interested in developing their skills in high-demand trades. The fund was established to[129]:
  - ➥ Support employers, particularly small enterprises that employ, sponsor and train apprentices in the construction related trades;
  - ➥ Support and increase apprenticeship training and completions; and
  - ➥ Support workforce development and increase the number of skilled British Columbian journeypersons available to work in the trades.
- *The Union Training and Innovation Program ("UTIP")* which is a federal program that supports union-based apprenticeship training, innovation, and enhanced partnerships.[130] Stream 1 provided support for the purchase of equipment and materials for union-led training, while Stream 2 provided support for innovative approaches to address challenges that limit apprentices.
- *The Canadian Apprenticeship Strategy* which is intended to strengthen existing supports and programs by helping apprentices succeed in skilled trades through grants, loans, tax credits, employment insurance benefits, project funding, and red seal program support.[131]

128 Virtual recruitment & assessment for the unionized construction industry – Future Skills Centre https://fsc-ccf.ca/projects/virtual-recruitment-assessment-for-the-unionized-construction-industry/

129 British Columbia Construction Association and LNG Canada "LNG Canada Trades Training Fund."

130 Government of Canada, "Funding: Union Training and Innovation Program: Innovation in Apprenticeship – Overview, " https://www.canada.ca/en/employment-social-development/services/funding/union-training-innovation-apprenticeship.html

131 Government of Canada, "Government of Canada Invests in Labour Mobility to Boost Skilled Trades," April 2022, https://www.canada.ca/en/employment-social-development/news/2022/04/government-of-canada-invests-in-labour-mobility-to-boost-skilled-trades.html

Technology

While the industry is poised for rapid innovation, which promises productivity gains and economic growth, skills and training will need to be adapted.

A study by BuildForce on upskilling Alberta's construction workforce found that barriers to the adoption of technologies include[132]:

- Lack of skilled labour in technology and technology implementation;
- Industry fragmentation which leads to poor communication between participants and constrains adoption of innovations;
- Poor collaboration and knowledge exchange, such as adversarial procurement processes and contracts which do not reward innovation and contracts that are awarded through lower-bid proposals that do not give sufficient opportunities to recoup costs;
- The project-based nature of construction, especially in non-residential construction, tends to result in numerous unique projects where the parameters differ significantly. Given this, an innovation used on one site may not apply to another; and
- The skills training system of apprentices relies heavily on onsite training. However, challenges occur if the onsite trainer have not themselves been exposed to new technologies.

To address these barriers, BuildForce provided the following recommendations[133]:

- Improve the awareness of available technologies by initiating dialogue and fostering communities of practices;
- Government support for innovation by considering whether to require BIM on public projects and supporting collaborative delivery on public projects; and
- Reform the training system to incentivize upgrading for journey people by strengthening and implementing provincial and local apprenticeship committees and embracing competency-based education for journeypersons and apprentices.

132 BuildForce Canada, "Upskilling Alberta's Construction Workforce: A Response to Changing Technology," March 2020, 18-21 https://www.buildforce.ca/system/files/documents/Upskilling-Albertas-Workforce-Final-Report-March-2020.pdf

133 BuildForce Canada, "Upskilling Alberta's Construction Workforce: A Response to Changing Technology," March 2020, 23-27 https://www.buildforce.ca/system/files/documents/Upskilling-Albertas-Workforce-Final-Report-March-2020.pdf

Strategies

This section outlines the strategies that were identified to address labour challenges in the unionized construction industry, related actions, and considerations to enable their implementation. The strategies were developed based on input from industry and incorporate considerations identified in our review of initiatives being undertaken by other organizations and best practices.

The strategies are organized based on the following themes:

- RECRUITMENT AND RETENTION
- TRAINING
- TECHNOLOGY
- OTHER

Each strategy has a priority attached to it. The priorities were assigned based on input from unions and employers gathered through focus groups. The priority rankings and how they were assigned are outlined in Figure 26.

Figure 26: Priority Ranking

Priority Ranking	Definition
HIGHEST PRIORITY	Consistently rated as priority 1 or 2 by employers and unions.
MEDIUM PRIORITY	Consistently rated as priority 2 or 3 by employers and unions.
LOWEST PRIORITY	Consistently rated as priority 3 by employers and unions

Recruitment and Retention

The recruitment and retention strategies outlined in this section are focused on creating healthy and respectful work environments that are inclusive and reflective of the population of BC.

ESTABLISH THE UNIONIZED CONSTRUCTION INDUSTRY AS A LEADER IN ENVIRONMENTAL, SOCIAL, AND GOVERNANCE GOALS

Rationale

Interviewees expressed the importance of creating a robust and inclusive workplace culture to attract and retain members of equity-seeking groups and youths. As such, interviewees proposed that the unionized construction industry should differentiate itself by becoming a leader in Environmental, Social, and Governance ("ESG") goals, with a particular emphasis placed on Equity, Diversity, and Inclusion ("EDI").

There is substantial research that indicates that factors influencing retention vary by generation. Younger generations place a high value on diversity and inclusion, and this is an important consideration in the attraction and retention of Gen Z.

There is also a strong shift in societal expectations around how companies conduct themselves in relation to the environment and social issues. In response institutional investors are seeking to receive a return on investment and strong commitment to ESG practices and reporting. [134]

Developing a diverse workforce and being able to demonstrate this could provide the unionized construction industry with a competitive advantage in bidding on contracts. In addition, a focus on ESG may support recruitment of indigenous workers and investments, as Indigenous leaders have indicated that ESG goals are reflective of their world view and traditional knowledge.[135]

Timing

The industry should initiate this action in the short- to medium-term but maintain it continuously.

Key Actions and Considerations

The industry should consider implementing the following actions to establish itself as a leader in ESG goals. In implementing these actions, it is essential to involve leadership from both employers and unions in developing the processes and targets to gain buy-in.

134 Business Council of British Columbia, "ESG in B.C., An Opportunity for a Sustainable Economy," January 2022, 2, https://bcbc.com/dist/assets/publications/esg-in-b-c-final-report-what-we-heard/ESG-in-BC_FINAL-REPORT_2022-01-31-185205_zaop.pdf

135 Business Council of British Columbia, "ESG in B.C., An Opportunity for a Sustainable Economy," January 2022, 7, https://bcbc.com/dist/assets/publications/esg-in-b-c-final-report-what-we-heard/ESG-in-BC_FINAL-REPORT_2022-01-31-185205_zaop.pdf

Accountability (short-term)

- Set targets and measures and report on the representation of equity-seeking groups. Defining targets and reporting on progress in achieving them will communicate to key participants that representation is a priority and will increase accountability. In setting targets, consideration should be given to aligning the targets with key clients' EDI goals, including government and developers.

Education (short term)

- Implement awareness and training to support the creation of an inclusive environment, as the research shows that new generations and equity-seeking groups place a high emphasis on workplace culture as a deciding factor in their employment. Specific initiatives would include:
  - ↪ Include EDI training as part of onboarding and ongoing development for new union members, managers, and forepersons.
  - ↪ Include EDI training and cultural awareness training as part of apprenticeship training and require that employers continue these initiatives on site.
  - ↪ Expand the delivery of 'History Matters' training to educate non-Indigenous people on the best and most meaningful steps on the path toward reconciliation – including employment.
  - ↪ Expand the provision of the "Be More than a Bystander Program".

Modify Policies and Processes (medium-term)

- Provide flexibility in collective bargaining agreements to allow for cultural accommodations. Acknowledging cultural differences in this way could foster a sense of belonging among members of different cultures. One example of where cultural accommodations may be provided that was identified in the key informant interviews was that different cultures have different mourning customs and practices and providing a bereavement leave in the case of the death of an immediate family member would acknowledge cultural traditions and practices. The parameters of the leave should consider both cultural considerations and operational requirements of the industry.
- Review recruitment screening processes and work allocation processes to ensure they are free of cultural and gender-biases.

Indigenous Business Recruitment Strategy Development long-term)

- Develop a strategy to engage with Indigenous employers and increase representation within the unionized construction sector. Specifically, this means discussing benefits of union membership with existing Indigenous owned, non-union construction companies. The concept of an Indigenous business recruitment strategy was raised by interviewees. Development of the strategy would rely heavily on engagement between industry and Indigenous-owned businesses – building on the principle of 'Nothing about us without us'. The inclusion of more Indigenous-owned employers in unionized construction would serve two purposes. First, it would support efforts to recruit Indigenous apprentices and tradespeople to the industry. Second, for Indigenous-owned employers, joining the unionized construction industry could provide access to business opportunities while supporting skill development.

Responsibility

This initiative would require partnerships and commitments from unions, employers, Indigenous-owned businesses, the ITA, and training institutions to ensure that all members take part in the necessary training, that the training is delivered effectively, and that appropriate cultural accommodations can be provided. The main responsible party for each group of actions would be:

- Unions and employers would be jointly responsible for awareness and training initiatives. Unions would be responsible for incorporating EDI training into onboarding new members, while employers would be responsible for providing training to managers and non-union employees.
- Unions would be responsible for leading modifications to policies and processes, with support from employers in identifying reasonable cultural accommodations through the collective bargaining process.
- The CLR would be responsible for developing strategies to recruit Indigenous-owned employers to the industry with the support of unions and BC Building Trades, with direct engagement of Indigenous-owned businesses.
- The ITA envisions a collaborative role with industry through its office of Trades Inclusion and Access

Resourcing and Funding

The industry may use existing training funds to offer EDI training. Additional investments on behalf of employers and unions may be required to develop the required training materials, employ recruitment strategies, and review existing processes.

The development of a recruitment strategy for Indigenous employers would be funded by industry.

CREATE A WORKPLACE CULTURE THAT IS INCLUSIVE AND WELCOMING

Rationale

Interviewees agreed that a healthy, inclusive, and welcoming culture was crucial to attracting and retaining workers. They noted that new generations increasingly want environments free of judgement and bias and have high expectations regarding inclusion. To mitigate its negative perception of being a "rough" and "tough" industry, the industry will need to undertake concerted efforts to improve the culture on work sites and communicate the improvements to the broader public.

Interviewees acknowledged that much of the culture is controlled by employers and the general contractor on work sites. As a result, there is a need to develop a unified strategy to promote and create an inclusive and welcoming culture in the unionized construction industry.

Timing

The industry should initiate this action in the short- to medium term but maintain it continuously.

Key Actions and Considerations

To develop a workplace culture that is inclusive and welcoming, the industry should consider implementing the following actions:

Engagement (short-term)

- Employ periodic surveys to assess union members' engagement, mental health, and satisfaction. The results can be used to identify areas for improvement and track progress. Acting on the results of the survey, tracking and reporting on engagement can reinforce that union members are valued and support attraction and retention.
- Foster the sense of community among union members by hosting community and social events for members and their families and promoting participation in union committees and groups.

Education and Training (short-term)

- Provide mentorship and management training to existing and future managers, as they have a high level of influence over the culture on the work site.
- Educate the industry on cultural safety, cultural competency, and cultural awareness.

Provide Supports to Address Barriers to Inclusion (short-term)

- Provide supports such as clean, functioning toilets, transportation, and daycare to promote a supportive environment that shows respect for its workers.

- Provide flexibility in training and work schedules to accommodate family and personal commitments.
- Accommodate Indigenous cultural practices and ways of thinking within training programs and accommodate the training accordingly to respond to cultural needs (e.g., recognize the role of socioeconomic conditions, build trust, and communicate respect for the individuals' beliefs).
- Establish a mentorship program to support new entrants and apprentices.
- Focus attraction and recruitment activities to draw in more women e.g., 'Try a Trade' programs for girls that include long term tracking to gauge whether early exposure influences career choices, and hosting construction trades events featuring female leaders in trades (highlighting top female trades workers, teachers, business leaders, etc.).

Responsibility

The responsibility for this initiative would require partnerships and commitments from the unions, employers, the BC Centre for Women in the Trades (BCCWITT), and training institutions.

Unions should be responsible for:

- Administering engagement surveys. The results of the surveys should be shared with employers through the CLR and used to identify where the industry is doing well and where changes may be needed.
- Hosting community events and encouraging participation in union committees and groups.

Employers should be responsible for providing supports to address barriers to inclusion on the work site. These may take the form of partnerships/relationships with service providers to accommodate the needs of the workforce (e.g., daycare, transportation) Training providers should be responsible for incorporating Indigenous cultural practices and ways of thinking into training programs. BCCWITT will provide a mix of supports related to Diversity, Equity, and Inclusion.

Resourcing and Funding

Engagement activities such as community events could be funded through sponsorships by employers or service/equipment providers.

Services such as daycare or transportation could be provided on a cost recovery basis for users.

Engagement surveys and training materials may require investment by unions and training providers.

Worksite amenities such as clean toilets would be provided by employers.

INCREASE YOUTH EXPOSURE TO TRADES AND DEVELOP WORKFORCE READINESS SKILLS

Rationale

Youths are a key target group for recruitment. At present, open houses and trade discovery programs are offered to expose youth to trades; however, there is a perception among industry participants that more should be done to ensure consistency across the province. Uptake and availability of youth programming varies across the province and there is inequity between rural/remote and urban schools.

School districts rely heavily on local 'champions' to drive programming, which includes relationship building and fostering partnerships with post-secondary institutions and industry to make facilities, equipment, and learning resources available. Competing priorities place pressure on local school district budgets. According to interviewees, there is no mechanism for centralized coordination of efforts in the K-12 system and it is acknowledged that there is no 'one size fits all' solution.

Findings from the LMI Study suggested that despite the need to attract youth, there were concerns that youths coming from high school were unprepared for a trades career, due to lack of workforce readiness skills. These skills range from showing up consistently and on time to poor safety practices and awareness.

Timing

This strategy should be implemented over the long term, as it would require the development of a program that would rely on broad input to ensure its successful implementation and long-term relationship building.

Key Actions and Considerations

BC Building Trades is currently in the process of developing a Youth Engagement program with possible tactics including a youth ambassador program. The following actions may be complementary to this or supported through this.

Promoting Increased Exposure to Trades in Youth in the K-12 System (long-term)

Interviewees supported forming relationships with the province, school districts, and schools to improve trade exposure and youth perception by:

- Introducing trade career information in the K-12 curriculum as early as kindergarten to reinforce the idea that trades are a viable 'first choice' career path;
- Developing curriculum that includes information on how the subject matter of each course would apply to different trades;
- Promoting the formulation of partnerships between colleges and high schools to expose youth to trades; and
- Extending "foundation" programs and associated funding to additional trades to better cover the full suite of building trades.

Maximize Use of Dual Credit Programs and other ITA Youth Initiatives (long-term)

Industry should consider implementing the following actions:

- Building on the existing ITA Youth Initiatives (e.g., Train in Trades and Work in Trades), create a mechanism that transitions youth to Industry for exposure to the trades and to create a pipeline to employment without impacting collective agreements or operations.
- Coordinate allocation of resources to allow delivery of programs in areas where there is high need.
- Support school districts in accessing resources for delivery of programs.
- Identify local champions to promote trades and engage with local partners.

Host regular, targeted, youth-focused events

- Develop annual events and special programs like Idaho's 'Hardhats, Hammers and Hotdogs' (male-oriented)[136] or Spokane's 'Pizza, Pop, and Power Tools' (female-oriented)[137].

Responsibility

The CLR should lead the program development and administration efforts with support from BC Building Trades and promote the program and related exposure strategies to the provincial government, ITA, school districts, industry, and schools.

Resourcing and Funding

This strategy could be self-funded or supported by a successful grant application to an appropriate funder.

136 Coeur d'Alene/Post Falls Press. "12th annual Hard Hats, Hammers and Hot Dogs event Friday". April 6, 2022. https://cdapress.com/news/2022/apr/06/12th-annual-hard-hats-hammers-and-hot-dogs-event-f/

137 Construction Centre of Excellence. https://constructioncenterofexcellence.com/events/pizza-pop-power-tools-may-2020

USE IMMIGRATION CHANNELS TO SUPPORT RECRUITMENT

Rationale

The LMI Study identified that industry participants were increasingly seeking to recruit from non-traditional groups to supplement their workforce during heightened construction activity. Phase 2 interviewees further supported the notion of needing to recruit from non-traditional groups. They confirmed that current market demands led them to consider sponsoring immigrants and bringing in temporary foreign workers.

Timing

The industry should initiate this action in the medium term.

Key Actions and Considerations

While there was broad support for the use of immigration channels to support recruitment, interviewees noted the importance of developing formal mechanisms to assess the existing skills of immigrants. In addition, interviewees supported the implementation of clear and straightforward upgrading and upskilling paths to remove barriers to entry and provide a path for immigrants to obtain Canadian certifications. The ITA is currently working to enhance its existing certification pathways to allow people without sufficient experience to challenge the Red Seal exam to be 'slotted' into in an apprenticeship at an appropriate level. In addition, the ITA is continuing its work to address the English proficiency barriers faced by many newcomers.

Building on these initiatives, specific actions the industry could implement are:

- Adapt the Cross-Trade Pathways[138] program to help expedite the path to receiving advanced standing within a trade, apprenticeship, or certifications if the individual has extensive experience in a related trade.
- Develop clear paths for immigrants to participate in skills upgrading or training that would allow them to write the challenge exam or engage in the apprenticeship system at an appropriate level.

Interviewees also supported advocating for grant funding for international students in trade programs. Doing so could provide untapped opportunities to recruit and train international students by providing them with a low-cost trade education.

138 Cross-Trade Pathways, "Program Overview – What is Cross-Trade Pathways", accessed on June 13th, 2022, https://www.crosstrade.ca/is-this-for-me/program-overview

Responsibility

ITA, with support from CLR would be responsible for developing clear and simple roadmaps to assess immigrants' skills and identifying requirements for writing challenge exams or placement in apprenticeship.

BCBT, through its College of the BC Building Trades, would be responsible for developing appropriate upskilling and upgrading courses to prepare immigrants to meet challenge exams requirements to take to receive their certification.

Resourcing and Funding

This initiative could be funded through a cost recovery model in which fees are charged to users. There would need to be an initial investment in development of the materials and processes which could be self-funded, supported by a successful grant application to an appropriate funder, or recovered through the fees generated from the program once it is established.

ENCOURAGE SUPPLIERS TO PROVIDE EQUIPMENT DESIGNED FOR WOMEN

Rationale

Numerous programs target women in trades. This includes ongoing efforts to ensure gender neutral language and images in trades training materials, specialized programs for women in trades, etc.

Interviewees noted, however, that tools and equipment do not always meet women's needs and specifications, which creates a barrier to attracting women. Interviewees suggested that women can sometimes struggle to find things as fundamental as tool belts and are often required to use small men's equipment. According to interviewees, equipment and tool suppliers have traditionally been unwilling to adapt tools and equipment to meet women's needs due to limited market demand. However, increasing participation by women and the increased focus on women's recruitment may make suppliers more willing to accommodate women's needs.

Timing

The industry should initiate this action in the medium term to establish an effective relationship-building and communication plan.

Key Actions and Considerations

To increase the chance of success, the industry should conduct its efforts through a centralized association or organization representing the industry's interests. Relationship-building efforts should be supported by data and metrics showing the growth in women's participation in the trades and projected growth to create a strong business case for suppliers. In addition, a mechanism for women to provide feedback on the tools and equipment should be established. The centralized body should share this feedback with suppliers as part of its communication efforts.

Responsibility

The BCBT would be responsible for leading this initiative as they represent almost 40,000 tradespeople in BC who purchase tools and equipment from suppliers.

Resourcing and Funding

Resourcing for this should be provided by the BCBT with support from the unions.

DEVELOP A COORDINATED APPROACH TO OUTREACH

Rationale

Interviewees identified that many unions were undertaking individual marketing campaigns to communicate the benefits of a career within their respective trade and support attraction efforts. However, comments were made by some interviewees that this lack of centralization had led to inconsistent messaging and that perhaps, centralizing efforts could lead to improvements in the perception of the industry, increase the reach of marketing efforts, and reduce costs for each union through the pooling of resources.

While the value proposition of union membership is well established and documented, there is a perception that it is not being effectively communicated to youth, leading to a need for targeted marketing efforts to youth.

Unions and employers currently participate in open houses and hold discovery programs to introduce trades to youth or members of equity-seeking groups. Interviewees noted the importance of enhancing these efforts in a coordinated way to continue to expose the next generation of workers to careers in trades.

Timing

The industry should initiate this strategy over the medium term and maintain it continuously to support ongoing recruitment efforts.

Key Actions and Considerations

Key actions and considerations are organized into actions and considerations for coordinated marketing and for coordinated open houses.

Develop a Coordinated Marketing Strategy for the Unionized Construction Industry

Interviewees suggested that the marketing strategy should concentrate on changing the perception that trades are "jobs" to trades are "careers." This could be done by communicating the benefits of careers in trades such as the high earning potential and robust benefits packages, as well as the career opportunities and the value proposition associated with union membership. For example, marketing efforts could profile journey people who have become business owners, trainers, or managers. Efforts should build on the activities of the College of the BC Building Trades, which is in the process of marketing the trades.

Considerations for marketing of trades include:

- Use evidence to showcase career and lifestyle opportunities to reduce trade stigma (e.g., showcase real-life examples of real people succeeding in trades).
- Communicate and market the career path opportunities to parents and guidance counselors.
- Identify target audiences (e.g., workers in other sectors, youth, equity-seeking groups) to focus on and develop messaging for each. Development of messaging may require market research be undertaken to identify what resonates with each target audience.

- Use multiple channels for communication and target these based on the desired audience.
- Identify ambassadors (influencers) from equity-seeking groups to promote careers in trades to members of their communities. Having ambassadors from equity-seeking groups may inspire applicants from these communities to see themselves in trade occupations and help to remove potential stereotypes and cultural misconceptions about the industry.

To attract youth, interviewees identified the need to focus marketing efforts on showcasing the use of technology in the industry. This includes promoting examples of technologies being used and showcasing emerging technologies.

Coordinate Open Houses

The industry should consider the following actions:

- Employers and unions collaborate to jointly host open houses to expose the public and youth to multiple trades at each event. This would showcase unity and could reach a larger audience than if employers and unions undertook open houses independently.
- Create opportunities for youth to gain exposure to the trades. This may be done through 'boot camps' that allow youth to work on the tools and experience a work site. Virtual reality technologies may be used to provide exposure to operating equipment.
- Open houses should emphasize the use of technology to increase youth interest in trades.
- Conduct high-school job fairs.

Tracking the success of different events/initiatives in attracting new entrants should be done to allow identification of which activities have the highest success rate and allow future efforts to be targeted.

Responsibility

The BCBT with the support of its member unions should be responsible for coordinating the development and execution of the marketing strategy.

The CLR should lead development of a strategy for coordinating on open houses. Employers and unions would be responsible for coordinating and hosting the events.

Resourcing and Funding

The marketing strategy could be funded through pooling a portion of each union's marketing budgets. The open houses should be resourced through existing budgets wherever possible. If additional funding is required, sponsorship by tool/equipment suppliers may be explored.

Training

Training strategies outlined below are focused on supporting tradespeople in developing and maintaining the skills necessary in both the present environment and in the future.

GAIN A CLEAR UNDERSTANDING OF MEMBER COMPETENCIES THROUGH TECHNOLOGY & TRACKING TOOLS

Rationale

Interviewees reported concerns that apprentices were not receiving exposure to the full scope of their trade, which led to challenges in passing their Red Seal examinations.

To support the development of skilled tradespeople, interviewees supported developing clear competency frameworks and using tools to track the achievement of those competencies in the apprenticeship program. While much of this information exists in ITA's program outlines, some employers do not fully understand the scope of trade and their responsibility to train accordingly.

ITA is currently upgrading the access apprentices and sponsors have to its information via a new portal. This will include real time data relating to their apprenticeship. Skilled Trades Certification legislation will impact this for an initial list of ten trades that will eventually influence all trades in BC.

Timing

Begin undertaking this initiative in the short term, as it would require time to establish competencies and implement the appropriate tools.

Key Actions and Considerations

In collaboration with the ITA, unions should identify the required competency frameworks and develop electronic logbooks for tracking training. Each apprentice would be responsible for maintaining their logbook and getting training signed off on. This would provide a record of the training individual apprentices receive and allow union training coordinators to identify gaps in training.

Once implemented, unions should use the logbooks to:

- Identify gaps in training and move apprentices to different work sites to ensure that they receive training in the full scope of trade; and
- Pre-screen workers to better match skillsets and certifications to those requested by the employer before dispatch.

The unions should provide all industry participants with access to the competency frameworks to foster a collaborative, information-sharing environment that encourages employers to provide opportunities for apprentices to gain experience across the full scope of trade.

Interviewees suggest building on the work being done by SkillPlan through tools funded by the federal government. SkillPlan has created cognitive profiles for each trade and have assessment tools, practice guides and other tools in their online learning centre.

Responsibility

The ITA would be responsible for developing/maintaining standardized competencies that meet Red Seal requirements. Unions could use these as the basis for developing electronic logbooks.

Unions should lead best practice working groups to share information and identify the best technological solutions to use for tracking competencies. Unions should hold the responsibility for implementing the technology.

Resourcing and Funding

Explore funding sources such as UTIP to support the development and implementation of the technology.

Ongoing operations would be funded out of union budgets.

ENCOURAGE EMPLOYERS TO INVEST IN EACH LEVEL OF APPRENTICESHIP

Rationale

Ensuring that apprentices develop skills across the full scope of their trade will require concerted efforts and commitment from employers and unions to collaborate on training. There is a perception that employers are reluctant to invest time and resources in level one and two apprentices, leading to difficulties in finding work for the apprentices and creating challenges for them to gain experience in the full scope of their trade.

Interviewees supported getting commitments from employers to invest a certain number of training and work hours into each apprentice level.

Timing

Undertake this strategy over the long-term, as it should be undertaken once there is a robust competency tracking process to ensure consistency of requirements for each apprenticeship level.

Key Actions and Considerations

This will require collaboration between unions and employers to identify opportunities for level one and level two apprentices and expectations. Implementation of the previous strategy (Gain a Clear Understanding of Member Competencies Through Technology and Tracking Tools) would provide information that could be used to facilitate the matching of level one and level two apprentices with work opportunities.

Key approaches to incentivize employers to participate in this model include:

- Set targets for employers to provide a percentage of requested hours to level one and level two apprentices. Include reporting on the number of hours provided to level one and level two apprentices and the number of available hours for level one and level two apprentices as part of information sharing. Setting targets and sharing information on progress would provide transparency both in the number of apprentices and their utilization which can help inform workforce utilization decisions.
- Communicating and promoting existing programs, such as Canada's Apprenticeship Job Creation Tax Credit[139] which provides up to $2,000 a year to employers who employ apprentices in the first two years of their apprenticeship.
- Using established competency frameworks to match apprentices with the requested skill sets.

While industry consultations indicated that there is support for this initiative, efforts should include fostering buy-in from employers.

139 Government of Canada, "Apprenticeship Job Creation Tax Credit," February 2019, https://www.canada.ca/en/revenue-agency/services/tax/individuals/topics/about-your-tax-return/tax-return/completing-a-tax-return/deductions-credits-expenses/line-41200-investment-tax-credit/apprenticeship-job-creation-tax-credit.html

Responsibility

The CLR should lead the development of targets and reporting.

Resourcing and Funding

Implementation of this may be done using existing resources to support development of targets and tracking of progress.

EXPLORE INNOVATIVE WAYS TO OFFSET TRAINING COSTS IN THE SKILLED TRADES

Rationale

Interviewees supported researching and implementing models to offset training costs. By doing so, employers and unions could develop innovative training programs for emerging technologies, expand training delivery to ensure that exposure to the full scope of trade is provided, and develop and mandate new EDI training to improve the culture of trades.

Timing

This strategy should be undertaken in the short term and maintained continuously to ensure that new and innovative methods are identified now and into the future.

Key Actions and Considerations

A working group of unions, employers, training institutions, the CLR, BCBT and provincial government representatives should be formed to identify innovative funding methods. The working group should explore:

- Potential to create a reimbursement program for supplemental training and certification (e.g., like the LNG Canada Trades Training Fund). The development of such a program would require careful consideration of the program requirements, eligibility criteria, and funding sources.
- How to leverage existing funding available to members of equity-seeking groups undertaking apprenticeship training.

Responsibility

The CLR or BCBT should act as the leaders of the working groups. The development of a reimbursement program should be managed by the working group, with the program administrator being a centralized body chosen by the working group (e.g., CLR or BCBT).

Resourcing and Funding

Funding to offset the cost of development may be provided through a grant from programs such as the UTIP or by using existing resources.

IDENTIFY WHERE SECONDMENT OPPORTUNITIES CAN BE PROVIDED

Rationale

A suggestion was made to identify where secondment opportunities could be provided. Some examples included possibly allowing trade instructors and experienced tradespeople to shift between the roles to maintain their skills, keeping them relevant while providing them with new opportunities to advance their careers. By providing secondment opportunities, workers could be exposed to other career opportunities within the industry and develop new skills which would support both upskilling and retention.

Timing

Undertake this strategy in the medium term to identify and develop the secondment parameters and eligibility criteria and maintain them continuously.

Key Actions and Considerations

The CLR, BCBT, unions, and employers should collaborate to identify potential secondment opportunities. In doing this safety and training requirements would need to be taken into consideration.

Once opportunities are identified, a program should be developed to allow participants within the unionized construction industry to participate in secondment opportunities. This would allow tradespeople to discover new career opportunities without making permanent commitments to change their roles and help instructors understand changing skill requirements within the industry. The program should be defined regarding secondment term lengths, eligibility criteria, application requirements, decision-making, and program administration consideration. Examples of secondment opportunities could include:

- A tradesperson works as an instructor in a training program; or
- An instructor works on a job site to gain exposure to new and emerging practices on the work site which can aid them in delivery training modules and support the identification of where existing training may need to be modified or expanded.

Responsibility

The development of this program should be led by CLR and engage BCBT and the BC Association of Trades and Technical Administrators (BCATTA). Note: BCATTA is an organization managed by the deans and directors of technical and trades training in the BC public post-secondary system.

Execution of the program would be the responsibility of CLR with support from BCIB, BCBT and training providers.

Resourcing and Funding

Resourcing for the development of the program could draw on existing resources and a cost sharing model could be used to fund secondments.

IMPROVE EMPLOYMENT STABILITY THROUGH FLEXIBILITY IN THE UTILIZATION OF THE WORKFORCE

Rationale

Employment stability was identified as a key factor influencing attraction and retention. The cyclical nature of the construction industry can lead to periods where there is a reduction in available hours which affects retention and the ability of apprentices to complete training. According to interviewees, increasing the flexibility in the utilization of the workforce could help to improve employment stability and skill development. Potential ways that this could be done that were identified by interviewees were:

- Allow for Cross-Trade Utilization and Training - Interviewees noted that time is often wasted on work sites as they are required to wait for a specific tradesperson to complete a task that could have been done quickly by other onsite tradespeople. This leads to slowdowns in work and hurts the overall competitiveness of the unionized construction industry.
- Movement of Workers from Site to Site - Interviewees expressed concerns that those working in highly specialized functions of their trade were at risk from downturns in the industry, as they are not developing and maintaining skills across their full scope of trade. As such, there was support for implementing a mechanism to promote workers' movement to various work sites to help them maintain a broader set of skills.
- Offer Micro-Credentialing for Journey People on Emerging Skills or Additional Applications of Skills as Part of Professional Development - Interviewees supported implementing micro-credentialing programs for journey people on emerging technologies and skills as part of ongoing professional development. This would encourage journey people to engage in ongoing professional development and support maintenance of relevant skills. Interviewees noted that the new generation of workers entering the industry get immense pride from a continued sense of growth and personal accomplishment, suggesting that micro-credentialing could help support recruitment and retention. In regions where it is difficult to recruit and retain workers, micro-credentialing and cross-utilization of trades may support the development of a unionized workforce by providing employment stability. ITA supports micro-credentialing to continuously learn and upskill after certification while complementing current apprenticeship training and providing a solid pathway for certified workers to continue their learning and keep pace with changes in their industry.

While the industry should strive to provide consistent employment stability to its tradespeople, interviewees noted that it is essential to prepare the workforce for potential downturns in the market. There was a perception that some tradespeople (especially new entrants to the industry) may not recognize the cyclical nature of trades, leading to a potential for the poor management of finances. Consequently, interviewees suggested that tradespeople should be provided with financial planning and literacy training to help them understand and manage their finances during slowdowns in work.

Timing

Implementation of this strategy would be staged.

The development of a financial planning and literacy training course should be undertaken in the short term and maintained continuously to ensure that all new entrants receive training.

A micro-credentialing program should be developed over the medium to long term and maintained to ensure training is available for emerging skills and technologies.

Undertaking the movement of workers from site to site and allowing cross-trade utilization would be undertaken over the long-term, as it would require significant buy-in from the broader union and employer community and would require careful considerations for how it can be implemented.

Key Actions and Considerations

Provide Financial Planning and Literacy Training for Trades Workers

Given the universal nature of the issue, interviewees suggested the development of one online course for the whole industry. The course should focus on:

- Explaining the cyclical nature of the industry;
- Introducing financial management and its importance;
- Discussing intro concepts to financial planning and management; and
- Providing tips, tricks, tools, and templates to help tradespeople with financial planning.

It was also suggested that the training be made available for use in pre-apprentice and apprentice programs. Implementation of this would require coordination with training institutions and the ITA. Note that BCBT and SkillPlan are in discussions with Community Savings to develop a financial literacy tool for apprentices.

Offer Micro-Credentialing for Journey People on Emerging Skills or Additional Applications of Skills as Part of Professional Development

Interviewees expressed concern about the use of micro-credentialing and stressed that micro-credentials should only be offered to tradespeople with a Red Seal certification. Micro-credentialing should not be used to separate existing Red Seal programs into component parts. As such, interviewees identified the need to:

- Define what types of skills training would be provided through micro-credentialing;
- Communicate the purpose of micro-credentialing; and
- Use micro-credentialing to offer additional specializations and professional development to journey people.

Unions, employers, the ITA, and training institutions would need to collaborate in developing micro-credentialing programs to identify the areas with the most need and support for such certifications, identify requirements, and deliver and promote the programs.

Move Workers from Site to Site

This strategy would require engagement with unions and employers to identify opportunities and foster buy-in from those involved. Key actions and considerations for implementation should include:

- Establishment of a centralized database of upcoming projects, and turnarounds, with the estimated trade requirements to provide individuals with the opportunities to see what work is coming up; and
- Utilization of competency tracking (see Gain a Clear Understanding of Member Competencies Through Technology and Tracking Tools) for journey people to track skill development and identify opportunities for upskilling.

Allow for Cross-Trade Utilization

This strategy would require the engagement of unions and employers to identify opportunities and foster buy-in from those involved. The role of the BCBT jurisdictional assignment plan should be considered. Key actions and considerations for implementation of this strategy should include:

- Identification of cross-over between trades as well as cross-training and transferable skills sets from trade to trade;
- Identification of a process for cross-union local utilization of apprentices and journey people; and
- Identification of union representation for tradespeople with multiple certifications.

Responsibility

The BCBT should build on its existing efforts to coordinate the development financial literacy training materials for the industry.

Development of a process for the movement of workers from site to site and the cross-utilization of trades should be coordinated by CLR with support from the BCBT and its member unions.

Training institutions should lead the effort to develop micro-credentialing programs with support from industry participants.

Resourcing and Funding

Development of financial literacy training can be resourced through pooling of existing curriculum development budgets.

Development and delivery of micro-credentialing could be funded on a cost recovery basis with fees charged to users.

Development of the cross-utilization strategy would be funded by industry.

Technology

The strategies for the use of technology outlined below are focused on information sharing and implementation of technology to manage the workforce.

ESTABLISH A TECHNOLOGY WORKING GROUP

Rationale

A key theme that emerged from the key informant interviews was a lack of coordinated approach and awareness of the tools and technology in use and/or available for managing workflows, information sharing and communication. Formation of a Technology Working Group would allow for the sharing of best practices around the use of technology, identification of opportunities to improve workforce management and workflows using technology and opportunities for collaboration in the use or purchase of technology.

Timing

The strategy should be implemented in the short-term, with meetings continuing indefinitely to assess the state of technological advancement continually and to identify future opportunities

Key Actions and Considerations

The Technology Working Group should be used to:

- Identify and share best practices concerning the use of technology.
- Identify technology impacts on existing labour and proactively seek solutions to address them (e.g., pre-fabrication is on the rise, and there are opportunities to ensure that this work is done in a unionized environment).
- Identify emerging technologies and market needs and prepare the workforce for these through training and workforce planning.
- Identify how to reduce barriers to entering trades with technologies that simplify training, change physical requirements and/or simplify tasks.

The Technology Working Group should include representation from traditional industry participants, as well as youth and Indigenous Peoples. Some possible areas to explore by the Technology Working Group would include:

- Technologies with the highest likelihood of increasing the industry's safety and reducing the physical or technical skills required.
- Technologies and tools that could be implemented for each specific trade.
- Technologies that have the most significant impact in reducing barriers to accessing trades by shifting things to online formats or by virtual reality and augmented reality technologies.
- Identifying funding sources to help employers and training institutions implement technologies.
- Hosting an annual construction trades technology conference.

Responsibility

The Technology Working Group should be led the CLR or BCBT and include representation from unions, employers, and training institutions.

Resourcing and Funding

Resourcing could draw from existing resources. Initiatives and research identified by the Technology Working Group could be funded through grant applications or investments by industry.

IMPLEMENT TECHNOLOGIES TO IMPROVE THE DISPATCHING AND HIRING PROCESS

Rationale

Interviewees suggested that there may be opportunities to implement technologies to improve the dispatching and hiring processes. There is broad industry support for creating and maintaining modern dispatch technology. Technologies could reduce administrative workloads by automating key portions of processes and providing additional functionality to participants going through the dispatch process.

Timing

Undertake this strategy over the medium term to allow time to identify and test technological solutions.

Key Actions and Considerations

Implementing new technologies will require research to gather specific requirements and compare those to available tools. Business cases should be built to assess each solution's functionalities, costs, and benefits. The dispatch solution must also consider the ways in which unions each currently handle dispatch to ensure fairness of access to regular dispatch.

Responsibility

Unions would be responsible for implementing this strategy.

Resourcing and Funding

Resourcing for this would be provided by the unions.

EMPLOY TECHNOLOGIES TO SHARE DEMAND AND FORECAST INFORMATION

Rationale

Sharing of information on workforce demand, supply and utilization could assist in effectively managing the workforce. Interviewees reported that some employers share information on forecast demand with the applicable unions on an ad hoc basis. In Phase 1 of this project, construction labour market status and anticipated demand were reported. However, there is no formal mechanism to share real time information on available labour or anticipated demand. This strategy suggests a solution.

Interviewees supported employing technology to share forecast information to aid with workforce planning. Greater transparency could improve project planning, help deploy labour more effectively and provide insights on the need for recruitment.

Timing

This strategy should be undertaken in the medium-term to identify the appropriate tools and normalize information-sharing practices.

Key Actions and Considerations

Key considerations in information sharing are:

- Collection of the information would need to be done through a neutral third party to maintain the integrity and confidentiality of individual information.
- Information should only be reported in aggregate (e.g., hours for each trade) rather than in a manner that would identify individual employees or companies.
- The minimum amount of information necessary should be collected.
- BCIB has been through the process of collecting this data and developing models. It may be possible to leverage learnings and tools from its experience.
- Commitment to provide information by industry participants and abide by agreed rules of use for the information is essential for this initiative to be successful.

Responsibility

CLR and the BCBT should be responsible for leading this initiative.

Resourcing and Funding

Funding for the development of the process, identification of the technology to use and implementation should be through investment by both unions and employers to encourage participation.

Other

The other strategy outlined below is related to retaining enhancements to the work environment and management of resources that were adopted in response to COVID-19.

RETAIN LESSONS LEARNED FROM COVID-19

Rationale

In response to the COVID-19 pandemic the construction industry learned to adapt and pivot quickly to changing requirements. This led to a rise in modernization, with increased emphasis on digital tools to transform training and safety monitoring. Interviewees expressed a desire for the industry to build on the lessons learned and maintain new practices that emerged through the pandemic to continue to advance and benefit the industry.

Timing

This strategy should be undertaken in the short-term and maintained continuously.

Key Actions and Considerations

Opportunities and lessons learned from COVID-19 that should continue to be used include:

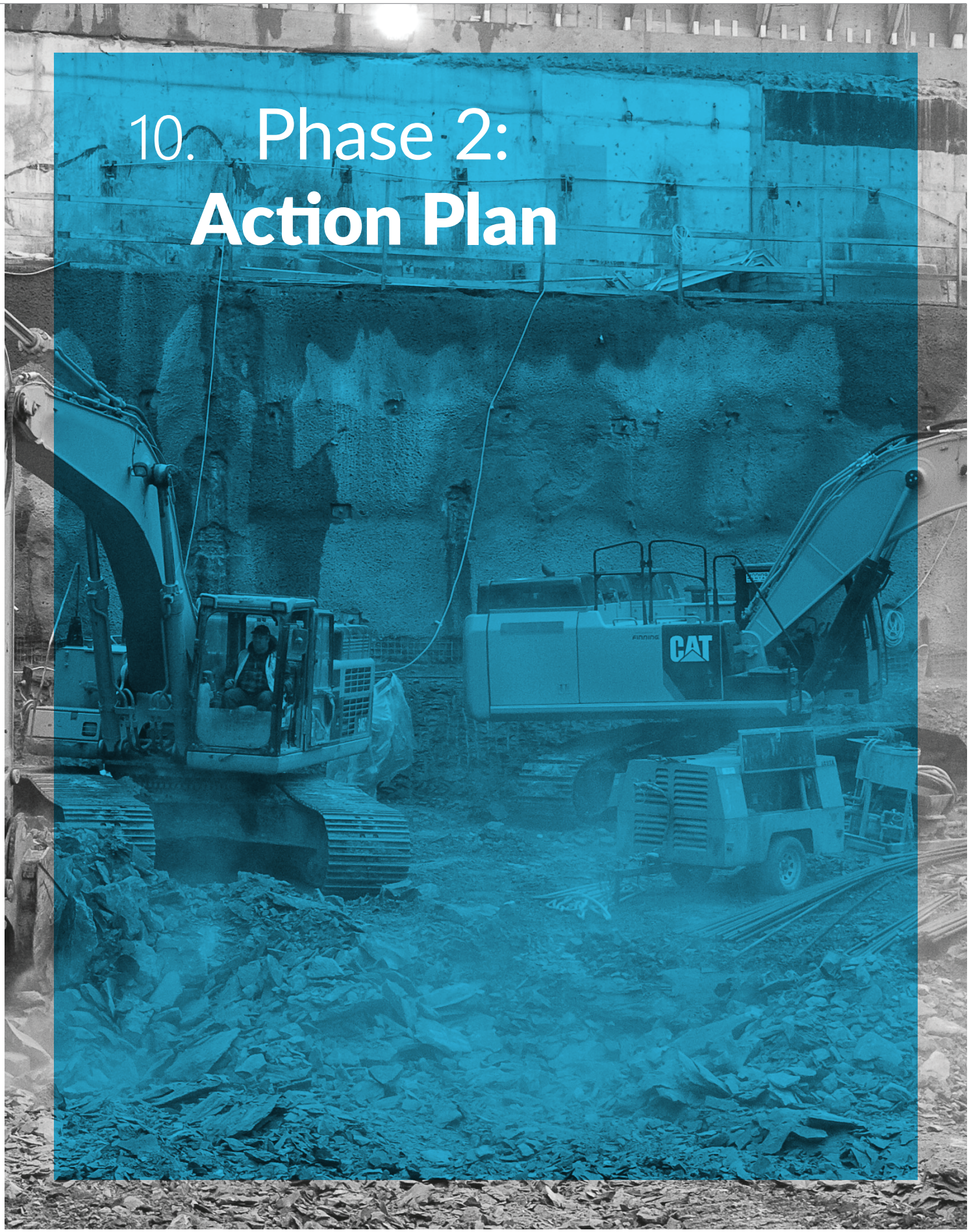
- Maintaining disease and cleanliness protocols;
- Providing options for remote training delivery;
- Maintaining improvements in communication, supervision, and access to information to allow for ongoing remote management of operations and for the nimble adaptation to changing requirements;
- Ensuring that unions continue to communicate with members to identify their needs through challenging times and address them accordingly; and
- Continuing to use implemented data tracking and project management tools, such as onsite tablets with construction drawings, specifications, and technical information.

Responsibility

Employers, unions, and training institutions should be responsible for retaining the relevant changes made in response to COVID-19.

Resourcing and Funding

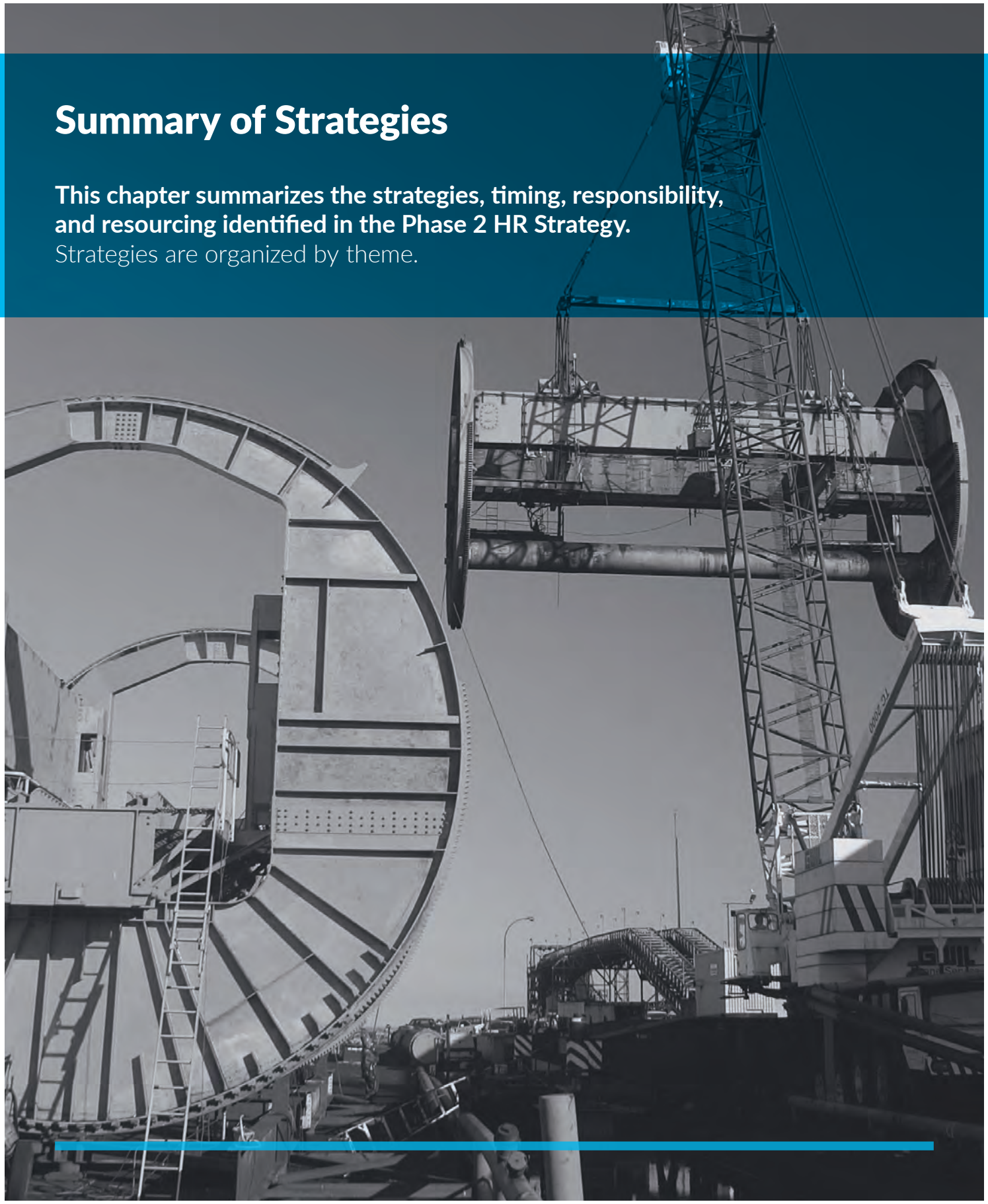
Incorporate maintenance into budgets going forward.



10. Phase 2: **Action Plan**

Summary of Strategies

This chapter summarizes the strategies, timing, responsibility, and resourcing identified in the Phase 2 HR Strategy.
Strategies are organized by theme.



		TIMEFRAME	RESPONSIBILITY					RESOURCING			
			CLR	BCBT	Unions	ITA	Training Providers	Self-Funded	Sponsorship	Grants	Other
Establish the Unionized Construction Industry as a Leader in Environmental, Social, and Governance Goals	Accountability	Short term						X			
	Education	Short term						X - existing training funds may be used			
	Modify Polices and Processes	Medium term						X			
	Indigenous Business Recruitment Strategy Development	Medium term						X			
Create a Workplace Culture that is Inclusive and Welcoming	Engagement	Short term						X - engagement surveys and reporting	X - events		
	Education and Training	Short term						X delivery		X - develop training materials	
	Provide Supports to Address Barriers	Short to medium term						X - barriers to inclusion on the worksite (e.g., toilets)			X - user funded for supports such as daycare, transportation
Increase Youth Exposure to Trades and Improve Workforce Readiness Skills	Promote increased exposure to trades in youth in the K-12 system	Long term						X		X	
	Maximize Use of Dual Credit Programs and Other ITA Initiatives	Long term								X	
Use Immigration Channels to Support Recruitment	Mechanism for assessing skills	Medium term						X		X	
	Development of upskilling/re-skilling training	Medium term									X - cost recovery model
Encourage Suppliers to Provide Equipment Designed for Women	Female focused tools and equipment	Medium term						X			
Develop Coordinated Approach to Outreach	Marketing campaign	Medium term						X			
	Open houses and discovery programs	Medium term						X	X		

Lead
Support

Table 8: Training Strategies

		TIMEFRAME	RESPONSIBILITY						RESOURCING			
			CLR	BCBT	Unions	ITA	Other	Training Providers	Self-Funded	Sponsorship	Grants	Other
Gain a Clear Understanding of Member Competencies Through Technology and Tracking Tools	Identify competency frameworks	Short term							X			
	Develop electronic logbooks	Medium term									X	
Encourage Employers to Invest in Each Level of Apprenticeship	Develop targets for employer to provide training to level 1 and level 2 apprentices	Long term							X			
	Report on progress	Long term							X			
Explore Innovative Ways to Offset Training Costs in the Skilled Trades	Establish working group to explore innovative ways to offset training costs	Short term							X		X	
Identify where Secondment Opportunities Can be Provided	Development of the model	Medium term							X		X	
	Execution	Medium term							X - cost sharing model			
Improve Employment Stability Through Flexibility in the Utilization of the Workforce	Provide financial literacy training for trades workers	Short term							X - pooling of training budgets			
	Offer micro-credentialing for journey people on emerging skills or additional application of skills as part of professional development	Medium to long term							X - cost recovery model			
	Union workers are moved from site to site	Long term							X			
	Unions and employers allow for cross-trade utilization	Long term							X			

Lead
Support

Table 9: Technology Strategies

		TIMEFRAME	RESPONSIBILITY					RESOURCING			
			CLR	BCBT	Unions	ITA	Training Providers	Self-Funded	Sponsorship	Grants	Other
Establish a Technology Working Group	Establish working group	Short term						X		X - for specific initiatives	
Implement Technologies to Improve the Dispatching and Hiring Process	Define requirements and identify available tools	Medium term						X			
	Implementation of tools	Medium term						X			
Employ Technologies to Share Demand and Forecast Information	Define parameters, identify tools, and gain buy-in from all participants	Medium term						X			
	Implement information sharing	Medium term						X			
Retain lessons learned from COVID-19	Maintain new practices that emerged through the pandemic.	Long term						X			

Lead
Support

11. Appendices

Appendix A – Legal Matters

The report is provided for information purposes and is intended for general guidance only. It should not be regarded as comprehensive or a substitute for personalized, investment or business advice.

StoneCoast Group and MNP have relied upon the completeness, accuracy and fair presentation of all information and data obtained from CLR, ITA, BCBT, BCIB, Buildforce, survey respondents, interview participants, focus group participants and public sources, believed to be reliable. The accuracy and reliability of the findings and opinions expressed in the presentation are conditional upon the completeness, accuracy and fair presentation of the information underlying them. As a result, we caution readers not to rely upon any findings or opinions for business or investment purposes and disclaim any liability to any party who relies upon them as such.

The findings and opinions expressed in the presentation constitute judgments as of the report date and are subject to change without notice. StoneCoast and MNP are under no obligation to advise of any change brought to their attention which would alter those findings or opinions.

The analysis contained in this report is based upon projections, founded on past events giving an expectation of certain future events. Future events are not guaranteed to follow past patterns and results may vary, even significantly. Accordingly, we express no assurance as to whether projections underlying the economic analysis will be achieved.

Appendix B – Primary Data Collection

Interviews

Invitations and Sample Design

The target sample design by region for key informant interviews is shown in the table below.

Sample Design

SAMPLE DESIGN						
STAKEHOLDER GROUP	PROVINCIAL ORGANIZATIONS	LOWER MAINLAND AND FRASER VALLEY	VANCOUVER ISLAND	INTERIOR	NORTHERN BC	TARGET TOTAL
Employers		12	8	8	5	33
Unions	25					25
TRAINING INSTITUTIONS						
Public Post-Secondary		2	1	1	1	5
Private Training Providers		1	1	1	1	4
Indigenous Skills and Employment Training Agreement Holders		2	2	2	2	8
ITA	1					1
UNDER-REPRESENTED GROUPS						
BC Women in Trades	1					1
Women Building Futures	1					1
Minority Groups	2					2
Total	30	17	12	12	9	80

Invitations to participate in the key informant interviews were sent to 127 industry stakeholders. The invitation list was compiled in conjunction with the CLR, SkillSource, BCBT, the Project Governance Committee, and through public sources.

Interviewees

The table below shows the distribution of interview participants by stakeholder group and region. Please note that many of the employers that participated operate in multiple regions across the province so the totals by region exceed the total number of interviewees.

STAKEHOLDER GROUP	PROVINCIAL ORGANIZATIONS	LOWER MAINLAND AND FRASER VALLEY	VANCOUVER ISLAND	INTERIOR	NORTHERN BC	TOTAL
Employers*		23	18	17	19	28
Unions	16					16
TRAINING INSTITUTIONS						
Public Post-Secondary		2	1	1	1	5
Private Training Providers	1	2			1	4
Indigenous Skills and Employment Training Agreement Holders		2	1	1	2	6
ITA	1					1
UNDER-REPRESENTED GROUPS						
BC Women in Trades	1					1
Women Building Futures	1					1
Minority Groups	2					2
Total						64

*Regions by employer are not mutually exclusive and reflect all regions in which employers reported operating.

Union Data Collection Template

Invitations

Invitations to complete the data collection template were sent to all 25 members outlined in Appendix D.

Employer Survey

Invitations

Invitations to participate in the employer survey were sent to approximately 300 members of CLR throughout BC by CLR.

Appendix C – Trades Training Providers

TRADES TRAINING PROVIDERS
PUBLIC TRAINING PROVIDERS
BCIT
Camosun College
Coast Mountain College
College of New Caledonia
College of the Rockies
Kwantlen Polytechnic
Nicola Valley Institute of Technology
North Island College
Northern Lights College
Okanagan College
Selkirk College
Thompson Rivers University
University of the Fraser Valley
Vancouver Community College
Vancouver Island University
PRIVATE TRAINING PROVIDERS
Ace Community College
Automotive Training Centres
BC Funeral Services Association
BC Hydro
BC Wall and Ceiling Association
Blanche Macdonald
Construction & Specialized Workers Training Centre
Electrical Industry Training Institute
Electrical Joint Training Committee
Emerald College
Finishing Trades Institute of BC
Floor Layers Union Local 1541
HF Insulation Industry Apprenticeship Association
IUOE Local 115 Training Association
Keystone College
LaSalle College
MC College
Northwest Culinary Academy of Vancouver
Pacific Horticulture College
Pacific Institute of Culinary Arts

TRADES TRAINING PROVIDERS
Pacific Vocational College
Pile Drivers, Divers, Bridge, Dock & Wharf Builders Local Union 2404
Quadrant Marine Institute
Refrigeration Training Institute
Roofing Contractors Association of BC
Riverside College
Riverside Trades & Career Centre (SD75)
SD 23 (Kelowna) - Kelowna Secondary
SD 23 (Kelowna) - Mount Boucherie Secondary School
SD 33 (Chilliwack) - Chilliwack Secondary School
SD 34 (Abbotsford) - Abbotsford Senior Secondary
SD 36 (Surrey) - North Surrey Learning Centre
SD 37 (Delta) - Seaquam Secondary
SD 41 (Burnaby) - Burnaby Central
SD 41 (Burnaby) - Cariboo Hill
SD 41 (Burnaby) - Riverway
SD 43 (Coquitlam) - Centennial
SD 43 (Coquitlam) - Gleneagle
SD 43 (Coquitlam) - Riverside
SD 47 (Powell River) - Powell River
SD 73 (Kamloops) - Norkam Secondary School
SD 83 (North Okanagan Shuswap) - Salmon Arm Secondary School, Sullivan Campus
Sheet Metal Workers Training Centre
Southern Interior Construction Association
Sprott Shaw College
Taylor Pro Training
Trowel Trades Training Association
UA Piping Industry College of BC
UBC Botanical Garden
Vancouver Career College
White Spot Limited - Vancouver
INDIGENOUS SKILLS AND EMPLOYMENT TRAINING AGREEMENT HOLDERS
Stó:lō Aboriginal Skills & Employment Training (SASET)
Shuswap Nation Tribal Council
Nuu-chah-nulth Employment & Training Program (NETP)
Aboriginal Community Career Employment Services Society (ACCESS)
Tribal Resources Investment Corporation (TRICORP)
Ktunaxa Nation Council (KNC)

Appendix D – Unions in the Construction Sector

UNION NAME	MEMBER OF BCBT	INCLUDED IN THE STUDY POPULATION
Sheet Metal Workers, Roofers and Production Workers' Local 280	Yes	Yes
International Brotherhood of Electrical Workers 213	Yes	Yes
Operative Plasterers' and Cement Masons' International Association of the United States and Canada - Local 919	Yes	Yes
Millwrights, Machine Erectors, and Maintenance Local Union 2736	Yes	Yes
Labourers International Union of North America - Construction and Specialized Workers Union Local 1611	Yes	Yes
International Association of Heat and Frost 118	Yes	Yes
Plumbers and Pipefitters UA Local 170	Yes	Yes
BC Regional Council of Carpenters - BCRCC	Yes	Yes
Sheet Metal Workers International Association Local 276 (Vancouver Island)	Yes	Yes
International Union of Operating Engineers – Local Union 115	Yes	Yes
International Brotherhood of Electrical Workers 993	Yes	Yes
Pile Drivers Local 2404	Yes	Yes
Hotel Employees & Restaurant Employees International Union – UNITE HERE Local 40	Yes	Yes
International Brotherhood of Electrical Workers 1003	Yes	Yes
International Brotherhood of Electrical Workers 230	Yes	Yes
International Association of Bridge, Structural, Ornamental, and Reinforcing Ironworkers - Local 97	Yes	Yes
International Brotherhood of Teamsters - Local 213	Yes	Yes
International Union of Bricklayers & Allied Craftworkers 2	Yes	Yes
International Union of Painters and Allied Trades - District Council 38	Yes	Yes
United Brotherhood of Carpenters & Joiners of America, Floorlayers Local 1541	Yes	Yes
Plumbers and Pipefitters UA Local 324	Yes	Yes
Plumbers and Pipefitters UA Local 516 (Refrigeration Workers United Association Local 516)	Yes	Yes
Construction, Maintenance, and Allied Workers Bargaining Council	No	Yes
Elevator Constructor Local 82	No	Yes
International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers, and Helpers Lodge 359	No	Yes

Appendix E – Occupation Descriptions

TRADE OCCUPATION	NOC	TRADE DESCRIPTION
Sheet Metal Worker	7233 - Sheet Metal Worker	Sheet metal workers lay out, fabricate, assemble, weld, install, and service a variety of projects such as HVAC (heating, ventilation, and air conditioning), industrial, kitchen and hospital equipment and architectural work.
Boilermaker	7234 - Boilermakers	Boilermakers assemble, install, and repair boilers, closed vats, and other large vessels or containers that hold liquids and gases. They perform physically demanding, and at times, dangerous work.
Ironworker	7236 - Ironworker	Ironworkers are responsible for rigging, handling and placing all the re-bar, post tensioning and structural steel on a construction site. This would include columns, beams, joist, girders, canopies, stairs, handrails, and precast segments. Ironworkers in BC work on high-rises, commercial buildings, bridges, tunnels, dams, mines, industrial mills, stadiums, sky-trains, and seismic upgrades, etc. Ironworkers are also involved in the demolition of those same projects.
Electrician	7241 - Electricians (except industrial and power system) 7242 - Industrial Electricians	Electricians design, plan, install, repair, and maintain electrical systems in homes, commercial buildings, industrial complexes, and retail buildings.
Plumber	7251 - Plumber	Plumbers are responsible for studying building plans, measuring, cutting, threading, bending, and soldering pipes, assembling, and installing valve fittings and installing underground storm, sanitary and water piping systems. Plumbers work in all areas of construction, including residential, commercial, institutional, and industrial.
Steamfitter/pipefitter **Sprinkler System Installer**	7252 - Steamfitters, pipefitters, and sprinkler system installers	The work of steamfitters (also known as pipefitters) consists of laying out, assembling, fabricating, maintaining, and repairing piping systems, which carry water, steam, chemicals, or fuel used in heating, cooling, lubricating and other processes. Steamfitters work in pulp mills, oil refineries, LNG facilities and shipyards The work of sprinkler system installers consists of the knowledge and ability to install all types of fire protection systems, including the layout and installation. Sprinkler system installers can read blueprints, understand codes and layout and install hangers and overhead piping in all types of buildings and all types of construction. Fire sprinklers are installed in high-rises, warehouses, shopping centers, schools, and hotels.
Carpenters	7271 - Carpenters	Carpenters are responsible for bringing an architect's blueprints to life by working with wood, vinyl, plastic, and other materials to create the interior and exterior of structures.
Bricklayer	7281 - Bricklayer	Bricklayers prepare, lay brick and other masonry units to construct and repair structures such as walls, partitions, fireplaces and chimneys. They also lay or install fire brick or castable materials on commercial or industrial projects
Concrete Finishers **Cement Masons**	7282 - Concrete finishers	Concrete finishers place, level and finish perishable concrete in various settings including residential, commercial, industrial, and institutional construction. They install overlayments and perform repairs to existing deteriorated surfaces to restore to an acceptable condition. Concrete finishers also install structural and machine base grouts. Cement masons are people who finish all concrete construction, such as floors, walls, ceilings, sidewalks, curbs, and gutters, whether finished by trowel or float or any other process, and sacks, chips, rubs, grinds, and cures by compounds in concrete finishing work, and dry packs, grots and finishes in connection with setting machinery such as engines, generators, air compressors and tanks.

TRADE OCCUPATION	NOC	TRADE DESCRIPTION
Tilesetters	7283 - Tilesetters	Tilesetters prepare bases, including waterproof membranes, metal lath and fasteners, back-up materials pertaining to tile, mixing and use of cement mortars. They apply a variety of tiles including vitreous, quarry, ceramic, terrazzo, quartzite, glass, ceramic veneer, granite, slate, brick pavers, thin bricks and marble to walls, floors and ceilings, fireplaces, steam rooms, arches, swimming pools, circular walls and stairway.
Terrazzo Workers		Terrazzo Workers apply a mixture of cement, sand, pigment, or marble chips to floors, stairways, and cabinet fixtures to fashion durable and decorative surfaces.
Drywall Installer, Tapers & Finishers	7284 - Plasterers, drywall installers and finishers and lathers	Drywall installers and finishers install and finish drywall sheets and various types of ceiling systems.
Plasterers		Plasterers apply finish and maintain and restore plaster or similar materials on interior and exterior walls, ceilings and building partitions to produce plain or decorative surfaces.
Lathers		Lathers install support framework for ceiling systems, interior and exterior walls and building partitions
Millwrights	7311 - Construction millwrights and industrial mechanics	Millwrights install, repair, overhaul and maintain machinery and heavy mechanical equipment, such as conveyor systems in diverse settings including repair shops, plants, construction sites, mines, logging operations, ski hills and most production and manufacturing facilities. Millwright is designated as Industrial Mechanic (Millwright) under the Inter-provincial Red Seal program. Millwrights also perform routine maintenance activities, such as cleaning and lubricating equipment, adjusting valves and seals, and investigating breakdowns.
Refrigeration Worker	7313 - Heating, refrigeration, and air conditioning mechanics	Refrigeration workers fabricate, install, alter, repair and service closed systems used for cooling and/or heating that contain refrigerant or brine and thermoelectric cooling. They work predominantly in servicing the institutional, commercial, and industrial construction sector.
Teamster	7452 - Material handlers	Teamsters moves crews and materials using a pickup truck to a rock truck to a nine-axle lowboy. There is no sector of industry, be it heavy construction, agriculture, manufacturing, road building, oil and gas, which does not require the services of a Teamster. The role of a teamster is to drive a wide range of motorized vehicles in a safe and skillful manner.
Elevator Constructors and Mechanics	7318 - Elevator Constructors and Mechanics	Elevator constructors and mechanics assemble, install, maintain, and repair freight and passenger elevators, escalators, moving walkways and other related equipment. They often work for elevator construction and maintenance companies
Pile Drivers, Divers, Bridge, Dock and Wharf Builders	7521 - Heavy equipment operators (except crane) and 7383 - Other trades and related occupations	Pile drivers and bridge workers construct, install, repair, or remove all types of deep piles and caisson foundations and other types of marine installations: such as bridges, docks, wharves, tunnels, and bulkheads. This group also includes commercial divers that perform underwater inspection, construction, and repair for all types of marine facilities.
Operating Engineers	7521 - Heavy equipment operators (except crane, 7312 - Heavy-duty equipment mechanics and 7371 -Crane operators, 7237 - Welders and related machine operators	Operating engineers work as light and heavy equipment operators, crane operators, mechanics and welders in the construction, road building, paving, mining, marine, pipeline, oil and gas industries.

TRADE OCCUPATION	NOC	TRADE DESCRIPTION
Landscape architects	2152 - Landscape architects	Landscape architects analyze, plan, design and manage the natural and built environment. Their work involves conceptual and detailed design of environments ranging from streetscapes to parks and playgrounds, created wetlands and restored river systems, transit solutions and tourism strategies, private backyards to planning new suburbs and even cities.
Landscape and horticulture technicians and specialists	2225 - Landscape and horticulture technicians and specialists	Landscape and horticultural technicians and specialists survey and assess landscapes; draw sketches and build models of landscape designs; construct and maintain gardens, parks, golf courses and other landscaped environments; advise clients on issues related to horticulture; breed, cultivate and study plants and treat injured and diseased trees and plants.
Landscapers	8612 - Landscaping and grounds maintenance labourers	Landscapers build and maintain gardens, parks, golf courses and other landscaped areas.
Construction Craft Worker (Labourers)	7611 - Construction trades helpers and labourers	Construction craft workers, also called Labourers, work in many different industries, including civil construction, road building, high-rise construction, demolition, dam and tunnel construction, pipelines, and various others.
Mason Tenders		A mason tender is an onsite assistant to a stonemason. The primary responsibilities of a mason tender are to maintain tools, transport materials, and keep the job site clean. You assist the mason in maintaining, repairing, and constructing surfaces and structures made of bricks and stones.
Scaffolder		Scaffolders assemble systems that are temporary structures used to support equipment and material and to provide access for workers in the construction and maintenance of buildings and facilities.
Camp Workers (prepare and serve meals in camps and clean facilities)	6322 - Cooks	Camp workers plan, prepare and serve meals and clean facilities in remote construction camps.
Roofers	7291 - Roofers and shinglers	Roofers install, repair, and replace flat roofs and shingles, shakes and other roofing tiles on residential, industrial, and commercial buildings.
Glaziers	7292 - Glaziers	Glaziers cut, fit, install, and replace glass in residential, commercial, and industrial buildings, on exterior walls of buildings and other structures, and in furniture and other products.
Insulators	7293 - Insulators	Insulators apply, remove and repair thermal and acoustical insulation using an array of insulation materials (e.g., fibreglass, mineral wool, duct wrap, glass foam, calcium silicate, styrofoam, fire stop) on all types of mechanical equipment, such as plumbing and piping systems, HVAC systems, heat exchangers, tanks, vessels, and other mechanical systems.
Painters	7294 - Painters and decorators (except interior decorators)	Painters paint surfaces, walls, and ceilings for residential or commercial construction projects.
Floor Layers (also known as Floor Covering Installers)	7295 - Floor Covering Installers	Floor layers, also known as floor covering installers, install all types of flooring materials, including carpet, sheet vinyl, tile, wood, and laminates, and even sports surfaces. Floor Covering Installers install floor coverings in structures such as commercial buildings, schools, hotels, homes, and churches.
Industrial painters and coaters	9536 - Industrial painters, coaters, and metal finishing process operators	Painters and coaters tend and operate machines or use brushes and spray equipment to apply paint, enamel, lacquer, or other non-metallic protective and decorative coatings to various products. They work for manufacturing companies, specialized coating and plating shops and refinishing establishments.
Metal finishing process operators		Metal finishing process operators operate machines or equipment to deposit metallized substances on workpieces and surfaces to provide decorative, protective, and restorative coatings. They work for manufacturing companies, specialized coating and plating shops and refinishing establishments.

Appendix F – Workforce Estimates

Estimates of Labour Demand and Supply

Table F1: Estimates of Supply and Demand by Trade – 2022 to 2032

TRADE	DEMAND			SUPPLY		
	2022 - 2024	2025 - 2027	2028 - 2032	2022 - 2024	2025 - 2027	2028 - 2032
Electrician	4,440	3,640	3,790	4,120	4,200	4,230
Carpenter*	7,920	8,630	8,950	7,390	7,380	7,380
Plumber	1,530	1,590	1,730	1,500	1,540	1,630
Steamfitter/pipefitter	870	910	990	820	790	750
Sprinkler System Installer	310	320	350	290	290	280
Construction Craft Worker	5120	4750	4540	4720	4550	4330
Teamsters	1230	1120	1070	1140	1100	1050
Operating Engineers	4580	5130	5570	4240	4130	3980
Refrigeration Worker	1100	1230	1340	1070	1120	1200
Pile Drivers, Divers, Bridge, Dock and Wharf Builders	970	960	860	880	880	890
Millwrights	450	450	470	410	380	340
Sheet Metal Worker	2,140	2,170	1,970	2,010	2,030	2,030
Boilermaker	470	490	530	460	470	490
Welders	540	560	610	500	460	420
Bricklayers, Tilesetters and Terrazzo Workers	270	290	320	270	270	290
Concrete Finishers and Plasterers	500	520	510	440	430	440
Drywall Installers, Painters and Glaziers	1,490	1,490	1,320	1,350	1,350	1,350
Roofers	190	180	170	170	170	160
Insulators	550	550	490	510	520	520
Floor Layers	250	270	280	230	220	210

* Carpenter includes scaffolders and lathers

Table F2: Annual Estimates of Supply by Trade – 2022 to 2032

TRADE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Electrician	4,100	4,130	4,140	4,180	4,210	4,210	4,200	4,220	4,250	4,250	4,240
Carpenter*	7,400	7,390	7,380	7,380	7,380	7,380	7,370	7,370	7,380	7,380	7,390
Plumber	1,480	1,500	1,510	1,530	1,540	1,570	1,580	1,600	1,620	1,660	1,680
Steamfitter/pipefitter	830	820	810	800	790	790	770	760	750	740	730
Sprinkler System Installer	290	290	290	290	290	280	280	280	280	280	280
Construction Craft Worker	4,770	4,720	4,660	4,610	4,550	4,500	4,440	4,390	4,330	4,270	4,220
Teamsters	1,160	1,140	1,130	1,120	1,100	1,090	1,070	1,060	1,050	1,030	1,020
Operating Engineers	4,280	4,250	4,200	4,170	4,130	4,090	4,050	4,010	3,980	3,940	3,900
Refrigeration Worker	1,060	1,070	1,080	1,100	1,120	1,140	1,150	1,180	1,210	1,230	1,250
Pile Drivers, Divers, Bridge, Dock and Wharf Builders	880	880	880	880	880	880	890	890	890	900	900
Millwrights	420	410	400	390	380	370	360	350	340	330	320
Sheet Metal Worker	1,990	2,010	2,030	2,030	2,030	2,030	2,030	2,030	2,030	2,030	2,030
Boilermaker	460	460	460	460	470	470	480	480	490	490	500
Welders	510	500	490	470	460	450	440	430	420	410	400
Bricklayers, Tilesetters and Terrazzo Workers	270	270	270	280	280	280	280	290	290	290	290
Concrete Finishers and Plasterers	450	440	440	440	440	430	440	450	440	450	460
Drywall Installers, Painters and Glaziers	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Roofers	180	170	170	170	170	170	160	160	160	160	160
Insulators	510	510	520	520	520	520	520	520	520	520	520
Floor Layers	230	230	220	220	220	220	220	220	210	210	210

*Carpenter includes scaffolders and lathers

Appendix G – Project Governance Committee

NAME	POSITION	ORGANIZATION	PHASE 1	PHASE 2
Ken McCormack (Chair)	President & CEO	Construction Labour Relations Association of BC (CLR)	✓	✓
Brynn Bourke	Executive Director, Interim	BC Building Trades	✓	✓
Mike Yorke	Senior Manager, Industrial Relations	Fluor	✓	
Eric Akelaitis	VP Business Development	CIMS Ltd.	✓	✓
Guy Ellis	Dean, School of Transportation	BCIT	✓	✓
Hamish Stewart	Executive Secretary, Treasurer	BC Regional Council of Carpenters (BCRCC)	✓	✓
Irene Kerr	President & CEO	BC Infrastructure Benefits (BCIB)	✓	✓
Karen Dearlove	Executive Director	BC Centre for Women in the Trades (BCCWITT)	✓	✓
Rod Bianchini	Chief Operating Officer	Industry Training Authority (ITA)	✓	✓
Man Wang	Economist	Province of British Columbia Ministry of Advanced Education and Skills Training (AEST)	✓	
Chris Reid	Vice President, HR	Woodfibre LNG Limited		✓
Ryan McCormick (ex officio)	Senior Program Manager	Province of British Columbia		✓

Appendix H - Stakeholder Engagement Info

ENGAGEMENT METHOD	STAKEHOLDER TYPE	NUMBER OF PARTICIPANTS
INTERVIEWS	Unions	9
	Educators in K-12 and post-secondary	6
	Regulators	1
	Indigenous representatives	3
	Employers	11
	Associations	1
	Apprentices	1
FOCUS GROUPS	Unions	10
	Employers	9
	Unions, employers, Indigenous representatives, Training institutions, K-12 representatives	16