



SURVEY OF EMPLOYERS IN THE CONSTRUCTION SECTOR

**Report Prepared for the *BC Construction
Industry Training Organization***
September 1, 2011

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EXECUTIVE SUMMARY

PURPOSE AND SCOPE OF THE PROJECT

The purpose of this project is to conduct a survey of construction (industrial, commercial and institutional) employers with regard to human resource practices and issues. The results of the research will be used to:

- Determine the characteristics of employers which do not employ apprentices and how these characteristics may vary from those who do;
- Better understand how participating and non-participating employers currently meet their recruitment, training and skill requirements;
- Identify additional actions that CITO could take to better serve non-participating employers; and
- Provide a continuing source of information in the organization's work to expand skills development in the sector.

METHOD OF STUDY

We obtained input from 518 employers, including 425 who were interviewed by telephone and 93 who responded to the online survey. Of the 518 employers surveyed, 286 are currently participating or have recently participated in the apprenticeship system although they may currently not employ apprentices. The remaining 232 employers are non-participants.

The sample population of employers to be surveyed was compiled primarily from three sources: employers that registered with WorkSafeBC (because of FOI privacy issues, WorkSafeBC deleted from the list any employers that were registered through a home address); construction-related employers listed in the membership directory of the British Columbia Construction Association; and organizations listed under construction-related trades in business telephone directories. To increase the number of employers not participating in the apprenticeship system who responded these sources were augmented by adding the names of construction-related companies advertising in community newspapers in BC or Craigslist. We also conducted a literature review to develop a profile of employment, employees, and apprentices in the construction sector.

CONCLUSIONS

The major conclusions arising from the survey and literature review are as follows:

- 1. Participation of employers in the apprenticeship system is likely significantly higher than commonly believed.**

A 2006 survey undertaken by the Canadian Apprenticeship Forum - Forum canadien sur l'apprentissage (CAF-FCA) and Skills/Compétences Canada (SCC) found that 18% of employers in the manufacturing, transportation, construction, and services sectors currently employed apprentices and 55% of employers had never hired apprentices. These statistics are often used as evidence to suggest that participation rates are low in the BC construction sector. However, the results of our survey and literature may provide a somewhat different perspective on participation rates. More specifically, the data indicates that:

- **Apprentices represent about 17% of the work force in the construction sector.** (i.e., one out of every six workers in the sector is an apprentice).
- **Participation rates in the apprenticeship system are strongly correlated with size**

of employers (number of employees). In our survey, the percentage of employers participating in the apprenticeship system increases from 31% of those with 5 or fewer employees to 68% of those with 11 to 50 employees, 77% of those with 51 to 100 employees and 91% of those with 100 or more employees.

- **Most employers within the construction sector are very small.** Of the 51,926 construction sector employers in BC, 30,709 (59%) have an indeterminate number of employees (i.e. no employees on the payroll) and 13,928 (26%) have from one to four employees. Only 1,529 employers (3%) have twenty or more employees.
- **While small employers account for the majority of establishments, they do not account for the majority of employment in the sector.** We roughly estimate that establishments with ten or more employees account for only 7% of the number of employers in the construction sector but two-thirds (67%) of the total employment.

Using the construction sector survey results and the literature review, we very roughly estimate that 12% of the total number of employers (29% of the employers with paid employees) participate in the apprenticeship system and 60% of the total work force in the construction sector (including those in non-trade positions) is employed by those organizations.

2. **In addition to being larger, employers that participate in the apprenticeship system tend to be more involved in new construction, and work more often on commercial, industrial, and institutional buildings.**

Employers that participate in the apprenticeship systems tend to perform larger scale work, as can be seen with a higher percentage of employers performing new construction work, and working more often on commercial, industrial, and institutional projects. Employers that do not participate in the apprenticeship system are more often involved in smaller projects, as seen by a greater emphasis on renovation and repair work as well as on residential projects.

3. **In large part because of the slowing economy, attracting and retaining construction workers is not currently considered to be a major issue for most employers.**

Most employers have not reported significant difficulties in either attracting or retaining construction workers. This may be due largely to the decrease in available work for construction companies resulting from the slowing economy. The most common issue that was identified with respect to retention was the lack of sufficient work (i.e. their need to lay off workers) rather than issues regarding workers being hired away by other employers in the sector.

4. **Most employers report placing a priority on skill development.**

Employers that hire apprentices were much more likely to provide or support various forms of training including on-the-job training, mentorship, formal training in-house, and supporting and encouraging formal training outside of the company. Both employers that hire apprentices and those which do not were generally satisfied with the effectiveness of the training provided.

5. **There appear to be no significant actions that CITO could take to better serve employers that are not interested in participating in the apprenticeship system, distinct from those actions targeted at employers which are currently participating.**

Employers that do not participate in the apprenticeship system can be segmented into various sub-groups. Each group varies in terms of its characteristics, the emphasis placed on employee

development, and interest in working with other organizations related on human resource issues. These groups, which are not mutually exclusive (some employers are in multiple groups), include:

- Small employers (0 to 5 employees). Most of the existing employees within these companies are already skilled tradespersons, who developed those skills prior to forming the company. Many work as sub-contractors for larger employers or work on small projects, typically in the residential sector. The employers typically either have little opportunity to grow (e.g. they are primarily independent sub-contractors) and/or little desire to grow (i.e. their primary interest in working on the job themselves rather than managing others). As a result, these employers tend to place a low priority on employee development and identified little opportunity for employers, government, and educators to work together to address issues related to hiring, training and retaining workers.
- Employers in trades where apprenticeship levels are low (e.g. drywalling, flooring, painting and sheet metal). Many of these employers also have few employees and are in the sub-group described above. Those employers who are larger tend to either hire workers who are skilled already or provide on-the-job training and mentoring to less experienced workers. These strategies are viewed as effective and, in general, the employers are not experiencing significant difficulties in attracting workers. Very few saw any role for government or educators to assist them related to hiring, training and retaining workers.
- Larger employers (6 or more employees) in other trades. While these employers most commonly hire workers who are skilled already, many also hire less experienced workers to whom they provide on-the-job training and mentoring. Only one in five of these employers saw a role for government and educators to assist them to address issues related to hiring, training and retaining workers. Amongst those who did, the most common recommendation was to provide some form of incentives (e.g. tax credits) to encourage training, including apprenticeship training.

Overall, amongst both employers who are participating in the apprenticeship system and those who are not, 27% of employers believe there are opportunities for employers to work together with government or educators to address hiring, training and retention issues. Employers (including both participating and non-participating) identified a range of actions that industry, government, or educators could take to help address these issues, of which those most commonly identified included:

- Revise the apprenticeship curriculum to better reflect actual skills and knowledge tradespersons require on the job and include more field training;
- Increase incentives for employers to hire apprentices and train their employees, including tax breaks or training cost subsidies;
- Increase coordination between industry and government in order to develop effective solutions;
- Decrease barriers to training for employees, including reducing cost of training and education, or providing training subsidies;
- Increase accessibility and frequency of training to facilitate enrolment; and
- Begin promoting the trades at a younger age.



INTRODUCTION

- 1 Purpose and Scope of the Project
- 1 Method of Study
- 4 Challenges and Limitations
- 5 Structure of the Report

OVERVIEW OF THE CONSTRUCTION INDUSTRY IN BC

- 6 The Construction Industry Training Organization (CITO)
- 8 Employment in the Construction Industry
- 12 Employers in the Construction Industry
- 16 Apprenticeship

SUMMARY OF RESEARCH FINDINGS

- 20 Overall Results and Findings
- 26 Results and Findings Based on Apprenticeship
- 32 Results and Findings Based on Region

35 MAJOR CONCLUSIONS

APPENDICES

- A-1 List of Documents Reviewed
- A-2 Questionnaire for Employers

I. INTRODUCTION

A. PURPOSE AND SCOPE OF THE PROJECT

The purpose of this project is to conduct a survey of construction (industrial, commercial and institutional) employers with regard to human resource practices and issues. The results of the research will be used to:

- Determine the characteristics of employers which do not employ apprentices and how these characteristics may vary from those who do;
- Better understand how participating and non-participating employers currently meet their recruitment, training and skill requirements;
- Identify additional actions that CITO could take to better serve non-participating employers; and
- Provide a continuing source of information in the organization's work to expand skills development in the sector.

B. METHOD OF STUDY

We conducted this project in two phases. The purpose of Phase I was to prepare the survey questionnaire and approach which was then implemented in the second phase of the project. This section provides an overview of the work we completed to develop the questionnaire and sample, conduct the survey and prepare the report. It also summarizes the characteristics of the companies which participated.

1. Overview of the Research

The specific steps that we undertook to perform the assignment are as follows:

- **Conducted an initial meeting with representatives of CITO and the Study Steering Committee to clarify the scope of the study and the specific outputs desired.** During the meeting, we discussed the purpose, scope, and objectives for the assignment as well as the major elements to be contained in the final report.
- **Prepared the survey questionnaire.** We developed a draft questionnaire which was then reviewed question-by-question with the Study Steering Committee. Based on the feedback received, we made revisions and then finalized the draft questionnaire. It was then tested on a sample of 10 employers. The results were reported back to the Committee and the questionnaire was finalized. A copy of the questionnaire is provided in Appendix I.
- **Established a website for the project (www.bccito-survey.com)** to provide employers with the option of completing the survey online.
- **Developed a sample population of employers to be surveyed.** The initial population list was generated primarily from three sources:
 - Employers that have registered with WorkSafe BC (Workers' Compensation Board of BC). We identified a series of economic sectors which are likely to employ construction-related employees. We then submitted a Freedom of Information (FOI) request to WorkSafeBC, asking for the names, addresses and phone numbers (where available) of organizations from these sectors which had registered. The resulting list included 2,809 employers. However, because of FOI privacy issues, WorkSafeBC had deleted from the

list any employers that were registered through a home address.

- Construction-related employers listed in the membership directory of the British Columbia Construction Association (BCCA). This list consisted of 1,951 employers, of which 671 employers overlapped with the WorkSafeBC list. The resulting combined list included 4,089 employers.
- Organizations listed under construction-related trades in business telephone directories.
- **Augmented the population lists by adding the names of construction-related companies advertising in community newspapers in BC or Craigslist.** Part way through administration of the survey, it was recognized that most of the employers represented organizations that were currently participating in the apprenticeship system (i.e. participating employers) or which had participated in the system in the recent past. It was determined that participating employers were likely over-represented in the population lists. Non-participating employers tend to be small organizations, with few employers (often just one or two); as such, they are more likely to operate out of their personal residence (and therefore be deleted from the list of employers registered with WorkSafe BC) and less likely to purchase a listing in business telephone directories or to be members of the BCCA. To increase the potential population of non-participating employers, we reviewed classified listings in community newspapers in BC and Craigslist related to construction employers (under both construction-related services and help wanted sections).
- **Distributed an introductory email to a sample of employer organizations.** We distributed an email to the employers for whom we were able to obtain email addresses. The letter referred the clients to the project website where they could complete the survey online. Alternatively, the employers were invited to contact us by email or by telephone (toll-free) to set up an appointment to complete the survey by telephone or they could fax a completed questionnaire to us.
- **Followed-up with employers to complete interviews.** We initially called those employers for whom we did not have an email address to ask them to complete the survey, either over the telephone or online. For those who expressed interest in completing the survey online, we asked for an e-mail address and distributed a letter to them describing the survey and providing a link to the online questionnaire.
- **Conducted a literature review to develop a profile of employment, employees, and apprentices in the construction sector.** A listing of the documents which were reviewed is provided in Appendix II.
- **Tabulated the survey results.** We tabulated the survey results using SPSS. We also cross-tabulated the results to highlight how the findings varied depending on the characteristics of employers such as whether they participate in the apprenticeship system or number of employees.
- **Prepared this report summarizing the results of the survey.**

2. Profile of the Companies Surveyed

We obtained input from 518 employers, including 425 who were interviewed by telephone and 93 who responded to the online survey. The characteristics of the employers that participated in the survey are summarized below in terms of number of tradespersons, type of organization, type of work, construction sector, trade, and number of employees.

Table 1: Profile of Companies Surveyed

Profile	Categories	Frequencies	Percent
Number of Tradespersons	Total	6,681	100%
	Average per Organization	12.9	
Type of Organization	General Contractor	112	22%
	Trades Contractor	300	58%
	Other Service Organization	35	7%
	Manufacturer	47	9%
	Utility	2	0%
	Other	22	4%
	Total	518	100%
Type of Work*	New Construction	391	75%
	Renovation	267	52%
	Repair	225	43%
	Other	38	7%
Construction Sector*	Residential	333	64%
	Commercial	327	63%
	Industrial	173	33%
	Institutional	137	26%
Trade*	Brick Laying	25	5%
	Cabinet Making	45	9%
	Carpentry	130	25%
	Ceilings	36	7%
	Concrete Finishing	31	6%
	Drywalling	54	10%
	Electrical	70	14%
	Flooring and Tiling	56	11%
	Gasfitting	34	7%
	Glazier	16	3%
	Insulation	29	6%
	Ironwork	14	3%
	Metal Fabrication (Fitter)	29	6%
	Millwork	31	6%
	Painting and Decorating	80	15%
	Plumbing	69	13%
	Rebar/Reinforcing Steel	16	3%
	Refrigeration/Air Conditioning	21	4%
	Roofing	38	7%
	Sheet Metal Work	44	8%
Sprinkler System Installation	17	3%	
Number of Employees	0 to 5	147	28%
	6 to 10	123	24%
	11 to 25	139	27%
	26 to 50	70	14%
	51 to 100	22	4%

Profile	Categories	Frequencies	Percent
	101 to 250	9	2%
	251 to 500	2	0%
	Other	6	1%
	Total	518	100%

*Totals may not add up to 100% as more than one choice could be selected.

C. CHALLENGES AND LIMITATIONS

The survey encountered two major challenges, which are outlined below:

- **Under-representation of smaller employers.**

As will be discussed in Chapter II, small employers account for the vast majority of organizations operating in the construction sector (e.g. 85% have 4 or fewer employees; however, because of their small size, they represent a much smaller percentage of total employment in the sector). Smaller employers tend to be under-represented in the survey because such employers are less likely to be included in the population lists (i.e. more likely to be based out of a residential address and therefore deleted from the WorkSafeBC list of registered employers as well as less likely to be members of the BCCA or to be listed in business telephone directories).

To address this, we augmented the population lists by adding the names of construction-related companies advertising in community newspapers in BC or Craigslist. In addition, we cross-tabulated the results by size of employer to isolate the characteristics of smaller employers.

- **Non-response error.**

A non-response error exists when the characteristics of employers that participate in the survey is significantly different from the characteristics of those which do not. The potential for non-response exists in this survey because it can be difficult to reach employers (particularly smaller employers where the managers/owners may be onsite working) and because human resource related issues may not be a priority for some of the employers, particularly employers with few staff members.

To increase the response rate and reduce the potential for non-response errors, we carefully explained the purpose of the survey to employers, provided them with multiple formats for completing the survey, contacted employers at varying times (e.g. daytime, evening and weekends) and attempted up to four follow-up telephone calls to encourage the employers to participate in the evaluation. In addition, we cross-tabulated the results by various characteristics of employers to assess how lower response rates from certain sub-groups may have affected the overall results.

D. STRUCTURE OF THE REPORT

This report is divided into four chapters. Chapter II provides an overview of employment, employers, and apprentices in the construction sector in BC based on the results of our literature review. Chapter III summarizes the results of our survey regarding each of the survey questions. Chapter IV summarizes the conclusions we have developed based on an analysis of the survey results.

II. OVERVIEW OF THE CONSTRUCTION INDUSTRY IN BC

A. THE CONSTRUCTION INDUSTRY TRAINING ORGANIZATION (CITO)

In April 2004, the Industry Training Authority (ITA) was established as a crown agency to provide a broad array of government-funded programs aimed at addressing the skills shortages faced by different industries. In early 2005, the ITA began to implement Industry Training Organizations (ITOs) to provide skills training and upgrading to industry standards and national qualifications. The BC Construction Industry Training Organization (CITO) was accepted by the ITA as an ITO in the summer of 2006 and formally commenced operations in January of 2007. CITO is registered as a not-for-profit legal entity accountable to the Industry Training Authority (ITA).

CITO is responsible for the Industrial, Commercial, and Institutional (ICI) sector of the construction industry and is charged with leading and supporting the development of a skilled workforce to meet industry’s needs. The BC construction industry is one of the largest and most active sectors of the British Columbia economic base, representing over 25% of the Provincial GDP. The construction industry includes companies that are primarily engaged in constructing, repairing and renovating buildings and engineering works, and in developing land. The construction industry includes a range of sectors and sub-sectors including industrial, commercial, institutional, high-rise multi-family residential, roads and highway, bridge, and civil construction. The industry is made up of a broad range of companies and enterprises ranging from small one or two-person ventures to large corporate organizations, including both open shop and unionized workplaces.

CITO is responsible for 33 trade programs. There are three types of programs: accredited programs that have an interprovincial red seal attached, recognized programs that are recognized and certified in the province of BC but do not have an IP designation, and foundation programs that are level 1 “pre apprentice” programs often taken in high school (foundation programs are not counted as one of the 33 trade programs.) The programs are listed in the table below.

Table 2: List of CITO Trade Programs

Accredited Programs	Recognized Programs	Foundation Programs
<ul style="list-style-type: none"> ▪ Boilermaker (Construction) ▪ Bricklayer (Mason) ▪ Cabinetmaker (Joiner) ▪ Carpenter ▪ Concrete Finisher (Cement Mason) ▪ Construction Electrician (Electrician) ▪ Floor Covering Installer ▪ Glazier ▪ Insulator (Heat & Frost) ▪ Ironworker (General) ▪ Ironworker (Reinforcing) ▪ Ironworker (Structural/Ornamental) ▪ Lather (Wall & Ceiling Installer) ▪ Painter/Decorator ▪ Plumber ▪ Refrigeration & Air Conditioning Mechanic (Refrigeration Mechanic) ▪ Roofer ▪ Sheet Metal Worker ▪ Sprinkler System Installer ▪ Tiler 	<ul style="list-style-type: none"> ▪ Architectural Sheet Metal ▪ Construction Formwork Technician ▪ Domestic/Commercial Gasfitter ▪ Drywall Finisher ▪ Elevator Mechanic ▪ Hardwood Floor Layer ▪ Locksmith ▪ Petroleum Equipment Installer ▪ Petroleum Equipment Service Technician ▪ Piledriver/Bridgeworker ▪ Plasterer ▪ Reinforcing Steel Installer ▪ Security Alarm Installer 	<ul style="list-style-type: none"> ▪ Architectural Sheet Metal ▪ Boilermaker (Construction) ▪ Bricklayer (Mason) ▪ C.O.R.E (Foundation) ▪ Cabinetmaker (Joiner) ▪ Carpenter ▪ Concrete Finisher (Cement Mason) ▪ Construction Electrician (Electrician) ▪ Construction Formwork Technician ▪ Domestic/Commercial Gasfitter ▪ Drywall Finisher ▪ Floor Covering Installer ▪ Glazier ▪ Hardwood Floor Layer ▪ Ironworker (General) ▪ Painter/Decorator ▪ Plumber ▪ Refrigeration & Air Conditioning Mechanic (Refrigeration Mechanic) ▪ Security Alarm Installer ▪ Sheet Metal Worker ▪ Sprinkler System Installer

In 2010, CITO prepared a Business Plan which focuses on six key goals. The Business Plan outlines the actions that will be taken towards the accomplishment of each goal, detailing the timelines and resource requirements as well as performance measures to aid in the future evaluation of all actions. Three of the six goals (#4, #5, and #6) focus specifically on construction sector employers, as outlined below:

- **GOAL #4: Develop and Implement a Strategy to Increase Participation in the Training System by Construction Sector Employers.** It has been estimated that less than 20% of BC's 30,000 construction employers train apprentices. CITO will focus on increasing employer's awareness of the value of apprentice training. Actions include securing stakeholder partners; developing a matrix of construction employers currently training apprentices and those not training apprentices; identifying a target group of potential new employers of apprentices by location, company type, size, and trade; developing and implementing strategies to encourage employers to hire apprentices.
- **GOAL #5: Develop and Implement a Strategy to Create a More Inclusive Credentialing System for the Construction Industry.** Small companies may not find it feasible or desirable to participate in the mainstream training system. However, training of one type or another still takes place on the job. This initiative will identify opportunities to officially recognize this training and extend the credentialing system to smaller companies. This will benefit CITO by increasing the potential pool of employers that might participate in the apprenticeship system. Actions include developing a data base and profile of employers not participating in the conventional credentialing system; determining significant variables affecting their decision; engaging with smaller employers through research, industry survey, and focus groups; and developing a strategy to better support employers not currently participating in the training and credentialing system.
- **GOAL #6: Develop and Implement a Strategy to Promote the Business Case for Training Apprentices.** CITO will benefit by increasing awareness among employers that apprenticeship is a profitable investment. A recent Canadian Apprenticeship Forum (CAF) survey showed that, on average, employers receive a net positive return of \$1.47 in benefits for every \$1 they spend on apprentices. Other benefits of apprenticeship include reduced risk of skilled labour shortages, increased productivity and competitiveness, stronger employee loyalty and retention, enhanced business reputation, and other intangibles that help the bottom line. Actions include developing marketing and promotional materials through a partnership agreement with CAF, identifying a target group of employers and other stakeholders likely to react positively to promotional efforts, determining the best delivery vehicles and presentation opportunities, and consulting with stakeholders and conducting a follow-up evaluation.

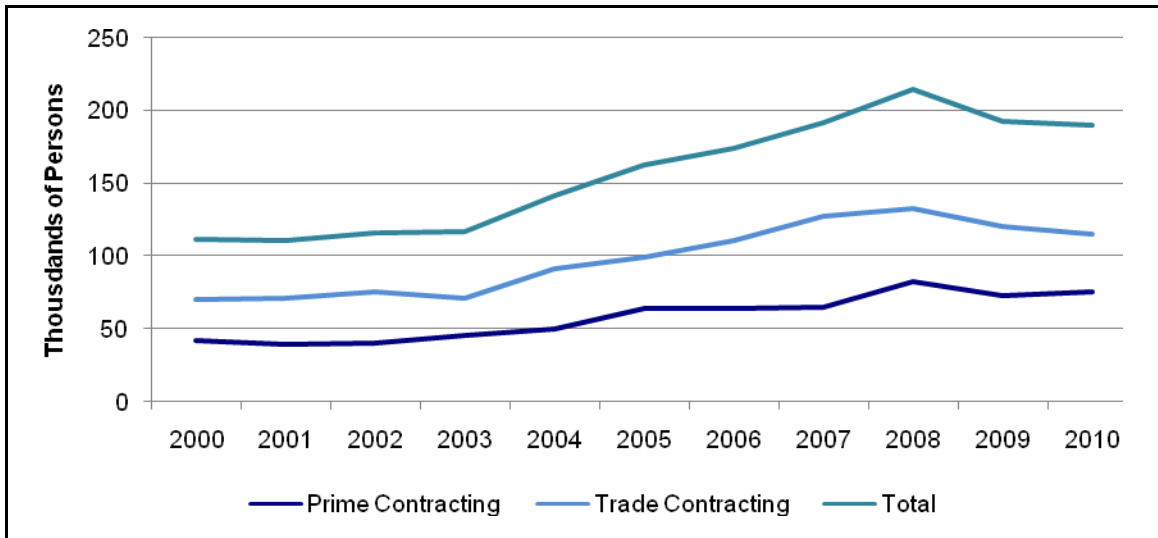
An important step towards the achievement of these three goals is to improve understanding of the characteristics of construction sector employers, including those who do and do not participate in the training system.

B. EMPLOYMENT IN THE CONSTRUCTION INDUSTRY

1. Total Number of Employees in the BC Construction Sector

According to data from Statistics Canada's Labour Force Survey, there were approximately 190,500 employees in the construction sector in 2010, down from a high of 214,900 in 2008. Total employment in the sector increased sharply throughout the decade, growing by an average of 8.5% per year between 2000 and 2008 before declining in each of the past two years as indicated in Figure 1.

Figure 1: Employment in Construction Sector, Prime Contracting and Trade Contracting, 2000 to 2010



2. Employment By Region

Over time, the geographic concentration of the construction industry in BC tends to be reflective of that of all industries. However in the short-term, the distribution can be affected by major construction projects occurring in various regions of the province. Of the total employment in the construction sector in 2010, 57% was located in the Lower Mainland-Southwest, 19% was located on Vancouver Island, and 15% was based in the Thompson-Okanagan.

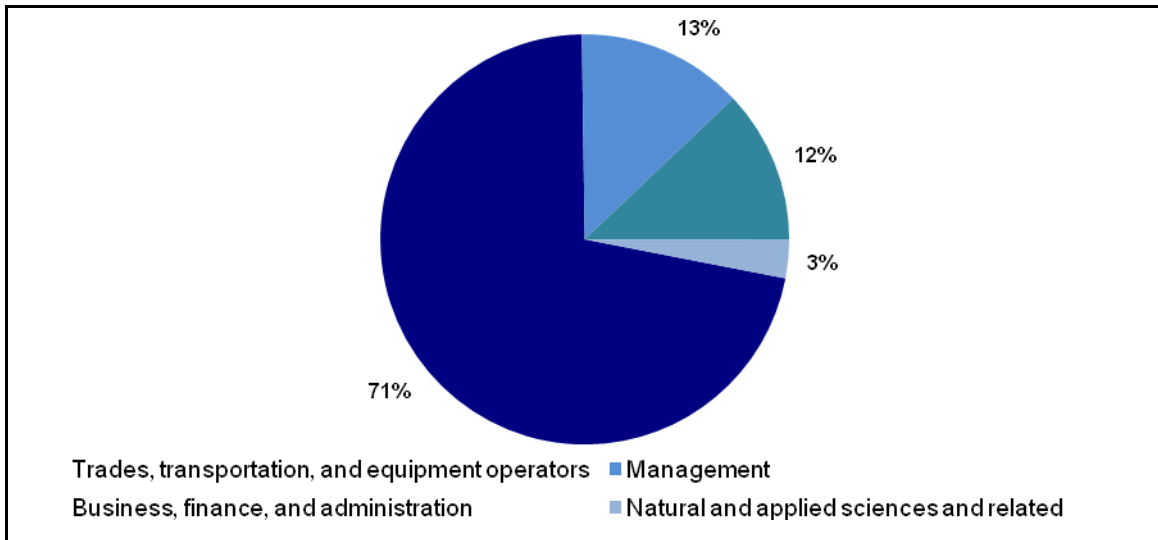
Table 3: Employment in the Construction Sector By Development Region, Prime Contracting and Trade Contracting, 2010

Region	# (Thousands)	%
Cariboo	6.1	3%
Kootenay	7.4	4%
Lower Mainland – Southwest	108.2	57%
North Coast & Nechako	2.1	1%
Northeast	4.1	2%
Thompson-Okanagan	26.7	14%
Vancouver Island and Coast	35.8	19%
Total	190.4	100%

3. Employment in the Construction Trades and Occupations

According to data from the Canadian Occupation Projection System (COPS), trades, transportation and equipment operators account for 71% of the workers in the sector. Most other workers are involved in management or business, finance, and administration as shown in Figure 2.

Figure 2: Distribution of Employment by Occupational Group, 2008



According to data published by the Construction Sector Council (CSC), there were 123,683 people involved in CSC trades and occupations in BC in 2010. The level of employment by trade or occupation is shown in the Table 4.

Table 4: Level of Employment in BC by Trade and Occupation Group, 2010

Trades and Occupation Groups	#	%
Boilermakers	971	1%
Bricklayers	1,404	1%
Carpenters	20,750	17%
Concrete Finishers	1,654	1%
Construction Estimators	1,310	1%
Construction Managers	8,009	6%
Construction Millwrights and Industrial Mechanics (Except Textile)	533	0%
Contractors And Supervisors	8,944	7%
Crane Operators	832	1%
Drillers and Blasters - Construction	371	0%
Electricians (Including Industrial and Power Systems)	8,263	7%
Elevator Constructors and Mechanics	451	0%
Floor Covering Installers	2,599	2%
Gasfitters	538	0%
Glaziers	1,020	1%
Heavy Equipment Operators (Except Crane)	8,047	7%
Heavy-Duty Equipment Mechanics	760	1%
Insulators	769	1%
Ironworkers and Structural Metal Fabricators and Fitters	1,020	1%
Painters And Decorators	7,716	6%
Plasterers, Drywall Installers and Finishers, and Lathers	4,458	4%
Plumbers	5,544	4%
Refrigeration and Air Conditioning Mechanics	1,175	1%
Residential and Commercial Installers and Servicers	2,644	2%
Residential Home Builders And Renovators	4,333	4%
Roofers and Shinglers	3,541	3%
Sheet Metal Workers	2,968	2%

Trades and Occupation Groups	#	%
Steamfitters, Pipefitters, and Sprinkler System Installers	1,195	1%
Tilesetters	1,414	1%
Trades Helpers and Labourers	16,953	14%
Truck Drivers	2,478	2%
Welders and Related Machine Operators	982	1%
Total	123,683	100%

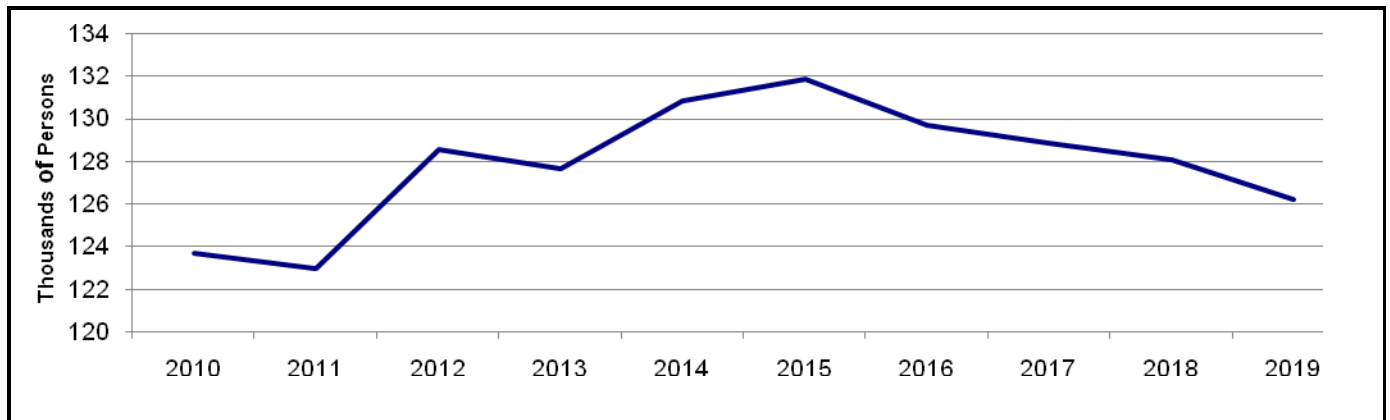
As indicated, in terms of employment, the largest trades are carpenters (20,750 employees), trades helpers and labourers (16,953 employees), contractors and supervisors (8,944 employees), electricians (8,263 employees), and heavy equipment operators (8,047 employees).

4. Projected Changes In Employment In Construction Trades

The CSC predicts that, as stimulus activity decreases in 2011, trades involved in road, highway, and bridgework such as truck drivers, heavy equipment operators, and heavy-duty equipment mechanics will see a decrease in demand. However, this will be more than offset by the commencement of several new mining, pipeline, and port expansion projects. CSC expects that this surge of new projects will create double digit growth in several trades and occupations including boilmakers, carpenters, construction millwrights, drillers and blasters, electricians, plumbers, sheet metal workers, and steamfitters and pipefitters.

This sustained employment and slight growth is expected to last until 2015. CSC predicts a moderate decline in employment for most trades and occupations from 2016 – 2019 as major construction projects approach completion.

Figure 3: Projected Labour Force and Employment 2010-2019



Carpenters, electricians, helpers and labourers, contractors and supervisors, and plumber account for over 60% of the projected growth between 2011 and 2015. The predicted change in employment by trade or occupation is shown in the Table 5.

Table 5: Predicted Change in Construction Employment in BC, 2011-2015 and 2016-2019

Trades and Occupation Groups	Change in Employment
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	2011 – 2015		2016 – 2019	
	#	%	#	%
Boilermakers	182	18	-14	-1
Bricklayers	131	9	-52	-4
Carpenters	2,017	10	-1,142	-5
Concrete Finishers	2	0	-51	-3
Construction Estimators	-1	0	-77	-6
Construction Managers	470	6	-939	-12
Construction Millwrights and Industrial Mechanics (Except Textile)	159	27	-30	-4
Contractors and Supervisors	639	7	-294	-3
Crane Operators	21	3	-51	-6
Drillers and Blasters – Construction	46	12	-40	-10
Electricians (Including Industrial and Power Systems)	1,037	12	-162	-2
Elevator Constructors and Mechanics	15	3	2	0
Floor Covering Installers	160	6	-15	-1
Gasfitters	58	10	-23	-4
Glaziers	36	4	-3	0
Heavy Equipment Operators (Except Crane)	-184	-2	-525	-7
Heavy-Duty Equipment Mechanics	-66	-9	-34	-5
Insulators	79	10	-8	-1
Ironworkers and Structural Metal Fabricators and Fitters	38	4	-6	-4
Painters and Decorators	246	3	9	0
Plasterers, Drywall Installers and Finishers, and Lathers	296	7	-170	-4
Plumbers	637	11	-117	-2
Refrigeration and Air Conditioning Mechanics	60	5	-2	0
Residential and Commercial Installers and Servicers	97	4	1	0
Residential Home Builders and Renovators	258	6	-247	-5
Roofers and Shinglers	378	10	21	1
Sheet Metal Workers	361	12	-41	-1
Steamfitters, Pipefitters, and Sprinkler System Installers	190	15	-7	-1
Tilesetters	84	6	-67	5
Trades Helpers and Labourers	816	5	-1,392	-8
Truck Drivers	-96	-4	-130	-6
Welders and Related Machine Operators	15	2	-39	-4
Total	8,192	7	-5,694	-4

Source: Table 3, Construction Looking Forward: An assessment of Construction Labour Markets from 2011 to 2019 for British Columbia, CSC

New workers will be required for these new positions as well as to replace those who leave the sector. CSC estimates that, from 2011-2019, there will be a loss of approximately 31,000 workers due to retirement and mortality. This represents the need to replace an average of 2.4% of the total labour force annually, with certain professions that have notably older age profiles experiencing replacement demand of up to 3.7%. Trades with younger age profiles will see much lower replacement demand, as low as 1.7%.

The following table compares the projected demand for new workers (to fill new positions and replace those leaving the occupation) with the supply of new workers currently projected to enter the profession. According to the CSC analysis, the projected labour demand for 31,061 new workers exceeds the projected supply of 22,470 new entrants by 8,606 workers.

Table 6: Expected Labour Demand in 2019

Trades and Occupation Groups	Demand	New	Difference
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			#	%
Boilermakers	406	192	-214	-52.7
Bricklayers	351	263	-88	-25.1
Carpenters	5,643	3,876	-1,767	-31.3
Concrete Finishers	283	291	8	2.8
Construction Estimators	336	229	-107	-31.9
Construction Managers	2,696	1,381	-1,315	-48.8
Construction Millwrights and Industrial Mechanics (Except Textile)	208	110	-98	-47.1
Contractors and Supervisors	2,639	1,559	-1,080	-40.9
Crane Operators	198	147	-51	-25.8
Drillers and Blasters – Construction	108	69	-39	-36.1
Electricians (Including Industrial and Power Systems)	1,685	1,567	-118	-7.0
Elevator Constructors and Mechanics	145	80	-65	-44.8
Floor Covering Installers	617	473	-144	-23.3
Gasfitters	181	101	-80	-44.2
Glaziers	262	182	-80	-30.5
Heavy Equipment Operators (Except Crane)	2,117	1,381	-736	-34.8
Heavy-Duty Equipment Mechanics	192	124	-68	-35.4
Insulators	183	144	-39	-21.3
Ironworkers and Structural Metal Fabricators and Fitters	201	182	-19	-9.5
Painters and Decorators	1,845	1,387	-458	-24.8
Plasterers, Drywall Installers and Finishers, and Lathers	1,170	823	-347	-29.7
Plumbers	1,157	1,045	-112	-9.7
Refrigeration and Air Conditioning Mechanics	333	211	-122	-36.6
Residential and Commercial Installers and Servicers	517	477	-40	-7.7
Residential Home Builders and Renovators	1,394	789	-605	-43.4
Roofers and Shinglers	821	667	-154	-18.8
Sheet Metal Workers	558	561	3	0.5
Steamfitters, Pipefitters, and Sprinkler System Installers	302	231	-71	-23.5
Tilesetters	352	257	-95	-27.0
Trades Helpers and Labourers	3,264	3,060	-204	-6.3
Truck Drivers	651	423	-228	-35.0
Welders and Related Machine Operators	246	173	-73	-29.7
Total	31,061	22,455	-8,606	-27.7

Source: Table 3, Construction Looking Forward: An assessment of Construction Labour Markets from 2011 to 2019 for British Columbia, CSC

C. EMPLOYERS IN THE CONSTRUCTION INDUSTRY

1. Number of Employers

According to the Canadian Business Patterns (CBP) report released by Statistics Canada, as of December 2010, there are 51,926 construction-related employers in British Columbia as indicated in Table 7 below. Of this total, 28,707 (55%) are classified as specialty trade contractors under the North American Industry Classification System (NAICS). Within these specialty trade contractors, 11,449 were classified as building finishing contractors, 7,070 as building equipment contractors, 5,841 as foundation, structure, and building contractors, and 4,347 as other specialty trade contractors.

Table 7: Number of Construction Related Employers in BC, December 2010

Number of Employers By Sub-sector	Total	%
2361 - Residential Construction	13,687	26.4%
236110 - Residential Building Construction	13,687	

Number of Employers By Sub-sector	Total	%
2362 - Non-residential Building Construction	2,187	4.2%
236210 - Industrial Building and Structure Construction	338	
236220 - Commercial and Institutional Building Construction	1,849	
2371 - Utility Systems Construction	578	1.1%
237110 - Water and Sewer Line and Related Structures Construction	217	
237120 - Oil and Gas Pipeline and Related Structures Construction	229	
237130 - Power and Communication Line and Related Structures Construction	132	
2372 - Land Subdivision	5,710	11.0%
237210 - Land Subdivision	5,710	
2373 - Highway, Street and Bridge Construction	811	1.6%
237310 - Highway, Street and Bridge Construction	811	
2379 - Other Heavy and Civil Engineering Construction	246	0.5%
237990 - Other Heavy and Civil Engineering Construction	246	
2381 - Foundation, Structure, and Building Exterior Contractors	5,841	11.2%
238110 - Poured Concrete Foundation and Structure Contractors	765	
238120 - Structural Steel and Precast Concrete Contractors	206	
238130 - Framing Contractors	1,276	
238140 - Masonry Contractors	875	
238150 - Glass and Glazing Contractors	267	
238160 - Roofing Contractors	1,187	
238170 - Siding Contractors	656	
238190 - Other Foundation, Structure, and Building Exterior Contractors	609	
2382 - Building Equipment Contractors	7,070	13.6%
238210 - Electrical Contractors and Other Wiring Installation Contractors	3,320	
238220 - Plumbing, Heating, and Air-Conditioning Contractors	3,426	
238291 - Elevator and Escalator Installation Contractors	30	
238299 - All other Building Equipment Contractors	294	
2383 - Building Finishing Contractors	11,449	22.0%
238310 - Drywall and Insulation Contractors	2,303	
238320 - Painting and Wall Covering Contractors	2,852	
238330 - Flooring Contractors	1,480	
238340 - Tile and Terrazzo Contractors	847	
238350 - Finish Carpentry Contractors	3,199	
238390 - Other Building Finishing Contractors	768	
2389 - Other Specialty Trade Contractors	4,347	8.4%
238910 - Site Preparation Contractors	2,770	
238990 - All other Specialty Trade Contractors	1,577	
Total, All Trades and Occupations	51,926	100.0%

Source: Canadian Business Patterns, Dec. 2010

2. Size of Employers

Most employers within the construction sector are very small. Of the 51,926 employers, 30,709 (59%) have an indeterminate number of employees and 13,928 (26%) have from one to four employees. The indeterminate size category includes establishments with no employees at all in the 12 months prior or with no paid employees (i.e. the establishment does not maintain an employee payroll but may employ a worker on a contract basis, a family member or the business owner).

Only 1,529 employers (3%) have twenty or more employees. A table showing the number of employers and percent by sub-sector and size (number of employees) is provided on the following page.

While small employers account for the majority of establishments, they do not account for the majority of employment in the sector. Data is not available on the aggregate number of employees by size of employer. However, we can develop a rough estimate of the distribution of employment by size of employer by selecting a midpoint between the upper and lower range within each size category¹ and multiplying the result by the number of employers in that size category. Using this approach, we roughly estimate that establishments with ten or more employees account for only 7% of the number of employers in the construction sector but two-thirds (67%) of the total employment.

Table 8: Estimate of the Distribution of Sector Employment by Size of Employer

Employer Size	% of Firms	% of Employees
Indeterminate	59%	-
1 to 4	26%	17%
5 to 9	8%	16%
10 to 19	4%	16%
20 to 49	2%	20%
50 to 99	1%	11%
100 to 199	0%	8%
200 to 499	0%	8%
500+	0%	4%
Total	100%	100%

¹ For the purposes of this table, we assumed that the average number of employees in each category is equal to mid-point of the range (i.e. the average of the minimum and maximum in the range). Using this formula, for example, there average number of employees amongst employers with 5 to 9 employees would be 7 employees.

Table 9: Number of Construction Related Employers in BC, 4-Digit NAICS

	Total	Indeterminate	1-4	5-9	10-19	20-49	50-99	100-199	200-499	500 +
2361 - Residential Construction	13,687	8,581	3,510	986	369	184	45	7	5	0
	26%	63%	26%	7%	3%	1%	0%	0%	0%	0%
2362 - Non-residential Building Construction	2,187	1,114	547	228	138	107	33	13	4	3
	4%	51%	25%	10%	6%	5%	2%	1%	0%	0%
2371 - Utility Systems Construction	578	205	177	84	51	37	13	8	3	0
	1%	35%	31%	15%	9%	6%	2%	1%	1%	0%
2372 - Land Subdivision	5,710	4,892	566	121	63	47	8	5	6	2
	11%	86%	10%	2%	1%	1%	0%	0%	0%	0%
2373 - Highway, Street and Bridge Construction	811	303	235	78	78	63	32	14	8	0
	2%	37%	29%	10%	10%	8%	4%	2%	1%	0%
2379 - Other Heavy and Civil Engineering Construction	246	120	50	28	24	15	1	3	4	1
	0%	49%	20%	11%	10%	6%	0%	1%	2%	0%
2381 - Foundation, Structure and Building Exterior Contractors	5,841	2,742	1,838	712	329	168	34	16	2	0
	11%	47%	31%	12%	6%	3%	1%	0%	0%	0%
2382 - Building Equipment Contractors	7,070	2,871	2,468	899	483	254	66	23	6	0
	14%	41%	35%	13%	7%	4%	1%	0%	0%	0%
2383 - Building Finishing Contractors	11,449	7,630	2,632	771	283	108	16	8	1	0
	22%	67%	23%	7%	2%	1%	0%	0%	0%	0%
2389 - Other Specialty Trade Contractors	4,347	2,251	1,275	428	237	121	26	6	3	0
	8%	52%	29%	10%	5%	3%	1%	0%	0%	0%
Total	51,926	30,709	13,298	4,335	2,055	1,104	274	103	42	6
	100%	59%	26%	8%	4%	2%	1%	0%	0%	0%

D. APPRENTICESHIP

1. Number of Active Apprentices

According to data from the ITA, the number of active apprentices in the construction trades has averaged approximately 20,000 in recent years. The total number fluctuated between 2007 and 2011, with a slight increase in 2008 and 2009 which followed by a slightly sharper decline in 2010 and 2011 as the economy slowed.

Table 10: Number of Active Apprenticeships, June 2007 - 2011

Trades and Occupation Groups	2007	2008	2009	2010	2011
Architectural Sheet Metal Worker	67	72	101	147	169
Boilermakers (Construction)	94	104	125	135	133
Bricklayer (Mason)	236	250	254	291	203
Cabinetmaker (Joiner)	581	644	650	548	463
Carpenter	5,875	6,867	6,762	5,822	5,004
Concrete Finisher (Concrete Mason)	138	214	232	170	161
Construction Electrician	5,767	6,441	6,596	5,788	5,531
Construction Formwork Technician	20	14	4	1	-
Domestic/Commercial Gasfitter	210	363	384	301	267
Drywall Finisher	51	81	121	109	56
Elevator Mechanic	2	6	6	4	11
Floor Covering Installer	120	140	137	103	61
Glazier	313	374	367	320	286
Hardwood Floor Layer	23	25	16	31	19
Insulator (Heat And Frost)	103	110	131	142	112
Ironworker (General)	94	127	150	153	161
Ironworker (Reinforcing)	-	-	18	95	35
Lather (Wall And Ceiling Installer)	256	329	353	291	264
Locksmith	13	10	15	22	21
Painter/Decorator	275	378	372	326	73
Piledriver/Bridgeworker	131	110	127	101	73
Plasterer	7	7	14	26	20
Plumber	2,893	3,344	3,401	3,057	2,608
Refrigeration/Air Conditioning (Refrigeration Mechanic)	543	634	656	692	705
Reinforcing Steel Installer	153	138	99	-	-
Roofer	469	510	616	613	538
Security Alarm Installer	73	87	87	135	147
Sheet Metal Worker	903	1056	1004	798	624
Sprinkler System Installer	415	508	699	361	251
Tilesetter	51	50	56	63	46
Total	19,876	22,993	23,553	20,645	18,042

Source: ITA Performance Measurement Reports, June 2008 - 2011

2. Apprentices as a Percent of Sector Employment

Apprentices represent a significant percentage of the work force in the construction sector. The 20,645 registered in apprenticeship represents 17% of the total employment of 123,683 in the construction sector in 2010 as reported by the CSC (i.e., the data suggests that one out of every six workers in the sector is an apprentice). The share of sector employment varies significantly by trade as indicated in Table 11 below.

Table 11: Registered Apprentices as a Percentage of Total Employment by Trade, 2010

Trades	Employment	Apprentices	%
Boilermakers	971	139	14%
Bricklayers	1,404	275	20%
Carpenters (Includes Joiners)	20,750	5,780	28%
Concrete Finishers	1,654	161	10%
Construction Estimators, Managers, Contractors, and Supervisors	18,263	-	-
Construction Millwrights and Industrial Mechanics (Except Textile)	533	717	135%
Crane Operators	832	43	5%
Drillers and Blasters - Construction	371	-	-
Electricians (Including Industrial and Power Systems)	8,263	5,889	71%
Elevator Constructors and Mechanics	451	8	2%
Floor Covering Installers	2,599	95	4%
Gasfitters (Includes Oil Burner Mechanics)	538	276	51%
Glaziers	1,020	297	29%
Heavy Equipment Operators (Except Crane) and Truck Drivers	10,525	-	-
Heavy-Duty Equipment Mechanics	760	1,061	140%
Insulators	769	127	17%
Ironworkers and Structural Metal Fabricators and Fitters	1,020	189	19%
Painters and Decorators	7,716	313	4%
Plasterers, Drywall Installers And Finishers, And Lathers	4,458	105	2%
Plumbers	5,544	2,723	49%
Refrigeration and Air Conditioning Mechanics	1,175	739	63%
Residential and Commercial Installers and Servicers	2,644	-	-
Residential Home Builders and Renovators	4,333	838	19%
Roofers and Shinglers	3,541	539	15%
Sheet Metal Workers	2,968	873	29%
Steamfitters, Pipefitters, and Sprinkler System Installers	1,195	586	49%
Tilesetters	1,414	50	4%
Trades Helpers and Labourers	16,953	-	-
Welders And Related Machine Operators	982	1,645	168%
Other	775	-	-
Total	123,683	23,468	19%

Participation in the apprenticeship system is high in trades such as electricians and plumbers, and low in trades such as drywallers and floor covering installers.

3. Barriers to Apprenticeship

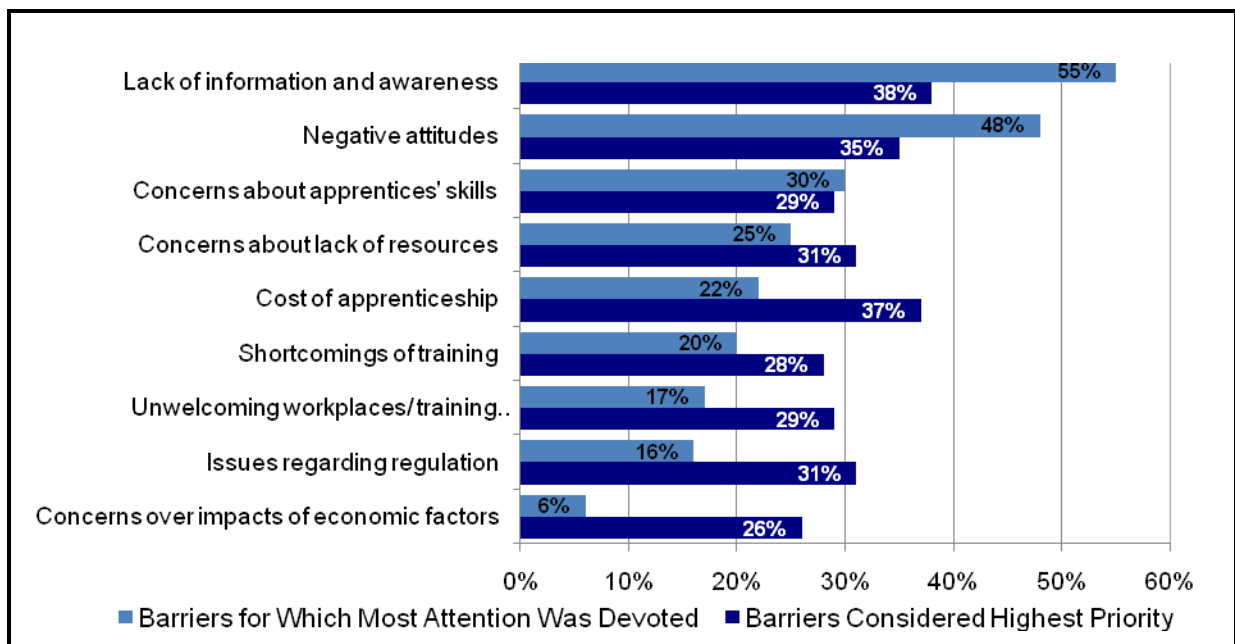
In a series of forums and studies held by the Canadian Apprenticeship Forum – Forum canadien sur l'apprentissage (CAF-FCA), nine barriers to accessing, maintaining, and successfully completing apprenticeships were identified:

- Negative attitudes to apprenticeship and a poor image of trades;
- Lack of information and awareness of apprenticeship;
- Difficulties with unwelcoming workplaces or training environment;
- Costs of apprenticeship to individuals, employers, and unions;
- Concerns over the impacts of economic factors on work and apprenticeship continuation;
- Concerns about the lack of resources to support apprenticeship;

- Concerns about apprentices' basic and essential skills;
- Shortcomings of workplace-based and technical training; and
- Issues regarding regulations governing apprenticeship.

A vast majority (90%) of apprenticeship stakeholders indicate they are aware of these nine factors. When asked which of these barriers was the highest priority to address, 38% of stakeholders identified the lack of information and awareness as the top priority. This was followed closely by the concern about lack of resources (37%), and the negative attitudes to apprenticeship and poor image of the trades (35%). The remaining barriers were identified by 25% to 31% of stakeholders as the highest priorities. Slight regional differences exist, with Atlantic Canada placing a greater importance on a lack of information and awareness, and Western Canada placing a greater importance on concerns about apprentices' basic and essential skills. However, when asked about which barriers deserved the most attention, a majority of stakeholders identified the lack of information and awareness (55%), followed by the negative attitudes to apprenticeship and poor image of trades (48%).

Figure 4: Barriers to Apprenticeship



Stakeholders also identified the following challenges in addressing the barriers stated above:

- Poor access to schools and training, and a lack of qualified and certified workers (27% of respondents);
- Lack of awareness, information, and public knowledge of apprenticeships (24%);
- Lack of employer support, confidence, and commitment (22%);
- Lack of funding and resources (17%);
- Negative perception of trades (11%);
- Poor economic conditions (10%);
- Lack of employment opportunities and access to apprenticeship programs (7%);
- Lack of apprentice support during their course of study (7%);
- Lack of government support (6%);
- Too many government and other regulations (6%);

- Lack of standardization and continuity between provinces (6%); and
- Lack of teamwork and collaboration among stakeholders (5%).

In the pilot forums, employers identified several concrete strategies to encourage non-participating employers to participate in apprentice training:

- **Educating employers about mentoring.** Many employers that do not participate in apprentice training do not have a clear understanding of the apprenticeship system and what is involved in mentoring. By demystifying this process and providing mentoring training to employers, they may become more confident in their ability to train apprentices and how to maximize the skills of their apprentices over the four-year apprenticeship period.
- **Informing employers that apprenticeship is industry driven.** Employers that do not participate in the apprenticeship system may perceive that the training is defined by a governing body without room for flexibility. They may not be aware of the variety of training delivery options available.
- **Providing incentives to employers.** Incentives were identified as a very important way of maintaining and enhancing participation in apprenticeship training. The incentive that was identified as most likely to encourage employers to hire apprentices was the provision of tax incentives. Other incentives suggested by employers included a tool allowance credit, and subsidies for wages of the mentor and/or apprentice. Additionally, employers stressed that these incentives are useful only if the requirements for obtaining them are not too restrictive, clearly presented, and easily understood.
- **Ensuring apprentices understand their value and responsibilities.** Apprentices should be aware of wage subsidies and tax credits so they can inform potential employers what is available when trying to find a sponsor. Additionally, apprentices need to clearly understand the benefits of certification so they are more inclined to overcome major obstacles, such as relocation, to complete their training and obtain their certification.

III. SUMMARY OF RESEARCH FINDINGS

This chapter summarizes the research results and major findings in terms of the employment of skilled tradespersons, the training of tradespersons in industry, and hiring and retention.

A. OVERALL RESULTS AND FINDINGS

This section provides a summary of the responses of all the employers that were surveyed.

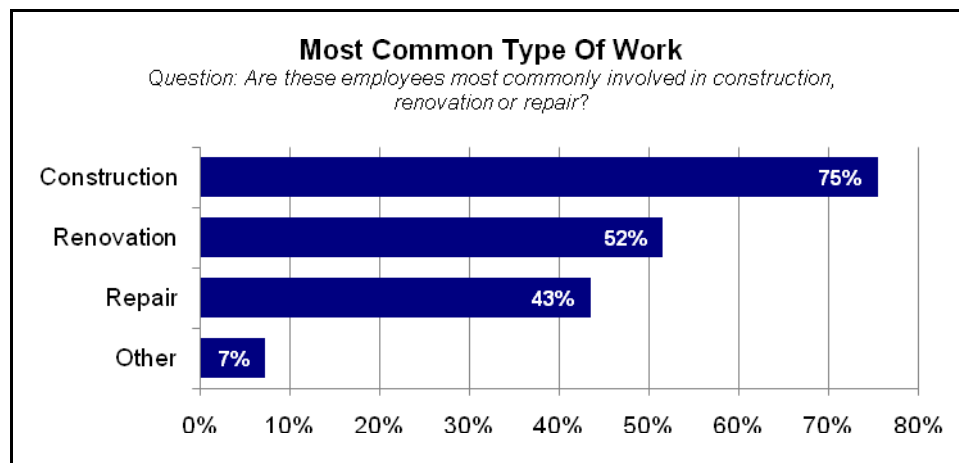
1. Employment of Skilled Tradespersons

- **The 518 employers that we interviewed report that they employ a total of 6,681 construction workers, which represents an average of 12.9 workers per employer.**

In this survey, the construction trades were defined as jobs directly involved in the construction, renovation, or repair of residential, commercial, industrial, or institutional buildings.

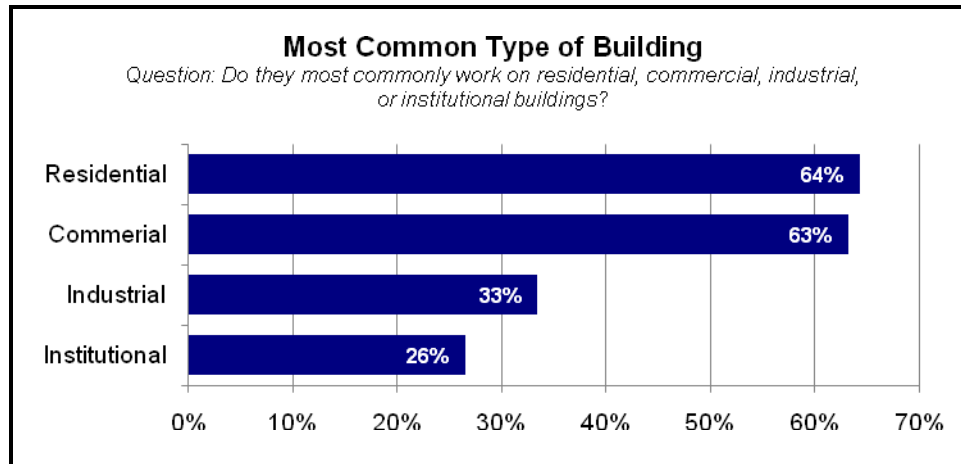
- **Most of the employers (75%) are involved in new construction.**

In addition, 52% of employers reported being commonly involved in renovation while 43% are commonly involved in repair work.



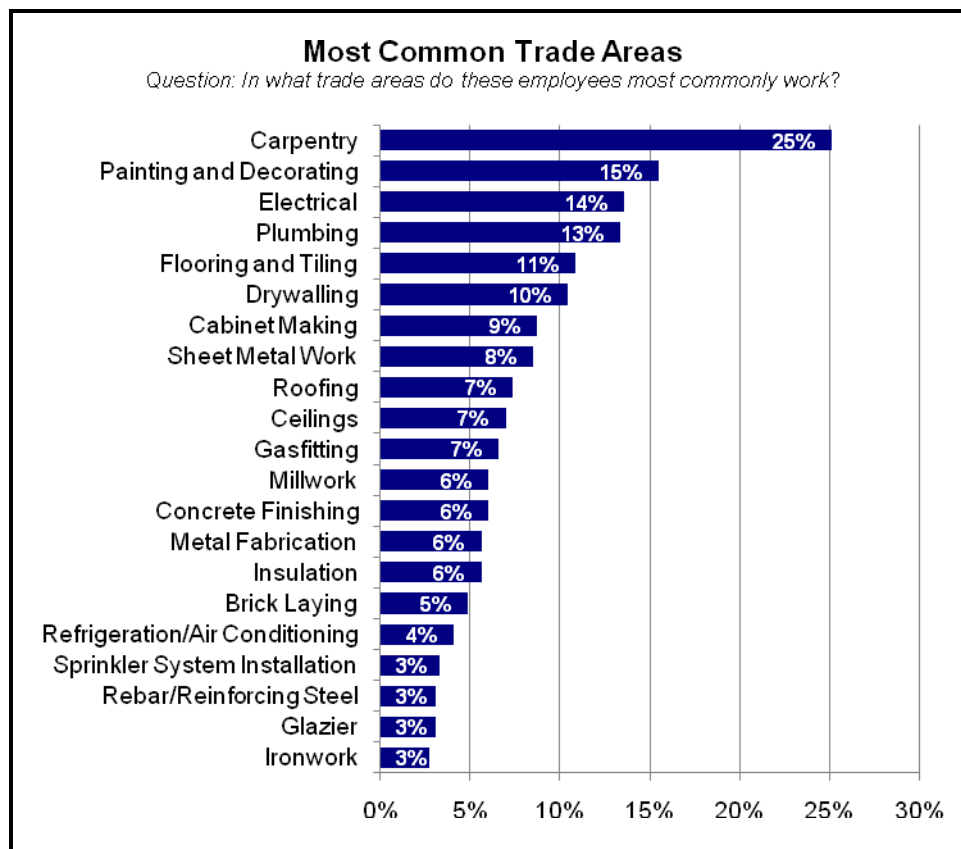
- **More than half of the employers commonly work on commercial or residential buildings.**

When asked what type of buildings they most commonly work on, more than half of the employers reported that they work on commercial (64%) or residential (63%) buildings. One-third of employers reported working most commonly on industrial buildings (33%), and just over a quarter of employers reported working most commonly on institutional buildings (26%).



- **Carpentry is the most common trade amongst the workers employed.**

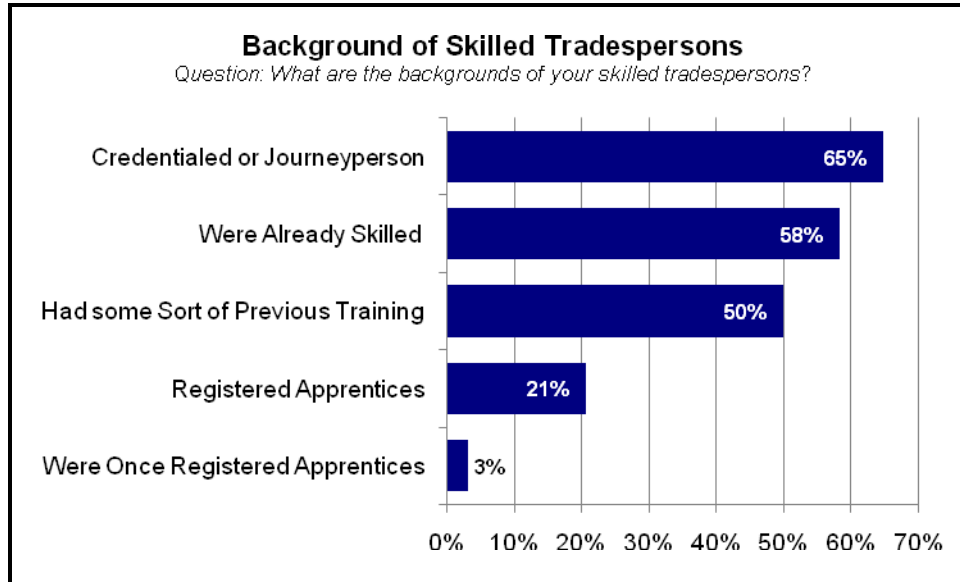
The trades that are most common employed include carpentry (25% of employers), painting and decorating (15%), electrical (14%), plumbing (13%), flooring and tiling (11%), and drywalling (10%). A distribution of the trade areas can be found in the chart below.



- **Employers consider over two-thirds of their construction workers to be skilled workers.**

In this study, a skilled worker is defined as one who understands the trade well enough to work independently with little supervision and could teach others. Employers considered 68% (4,548 workers out of total 6,681) of their workers to be skilled under this definition. Of these skilled

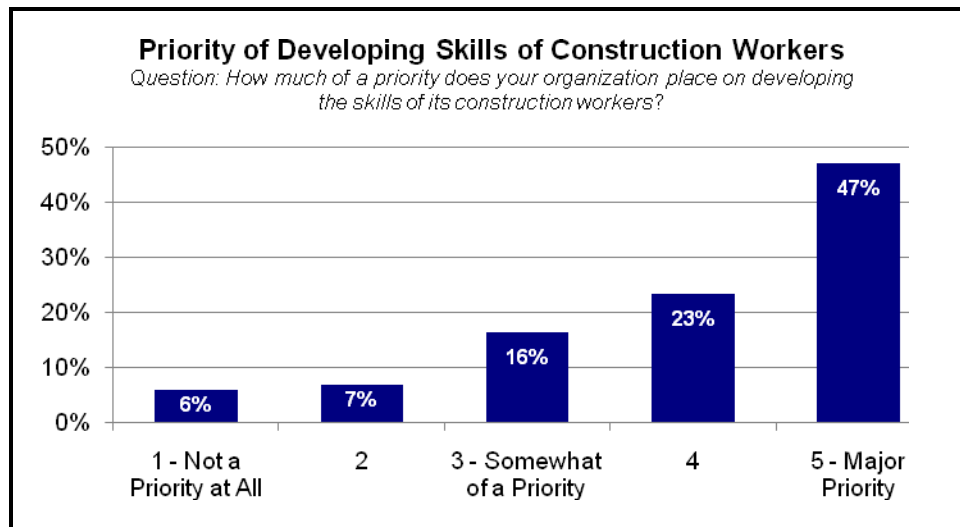
workers, 58% were already skilled when hired, 65% are credentialed or are journeypersons, 21% are registered apprentices, and 3% were once registered apprentices. Additionally, 50% of the skilled workers had some kind of previous formal training.



2. Training

- **Most employers believe they place a priority on development of the skills of their workers.**

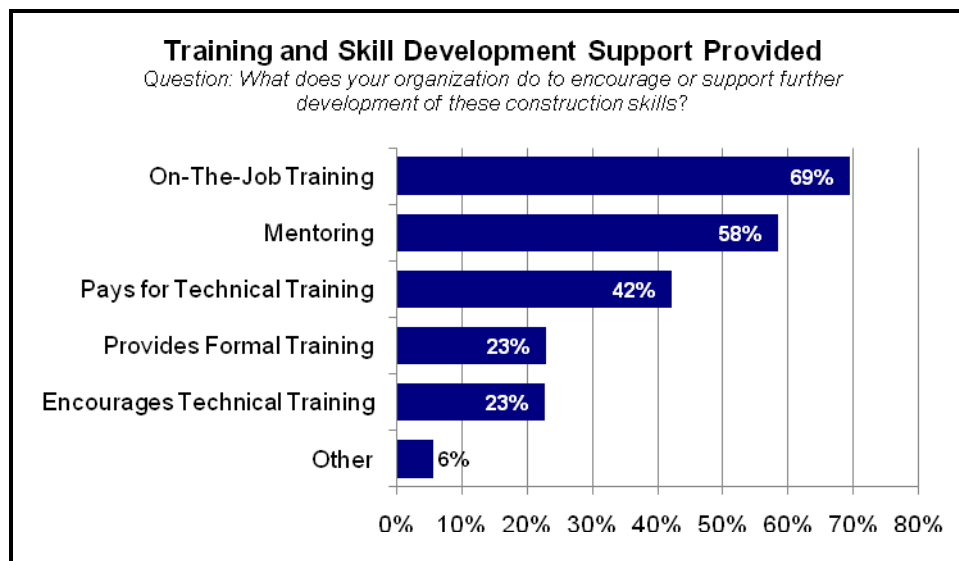
When asked to rate how much of a priority they place on developing the skills of its construction workers, nearly half of employers placed it as a major priority. On a scale of 1 to 5, where 1 is not a priority at all and 5 is a major priority, the average rating given by employers was 3.9. The distribution of ratings can be seen in the chart below.



When asked why they place a priority on skill development, the employers highlighted:

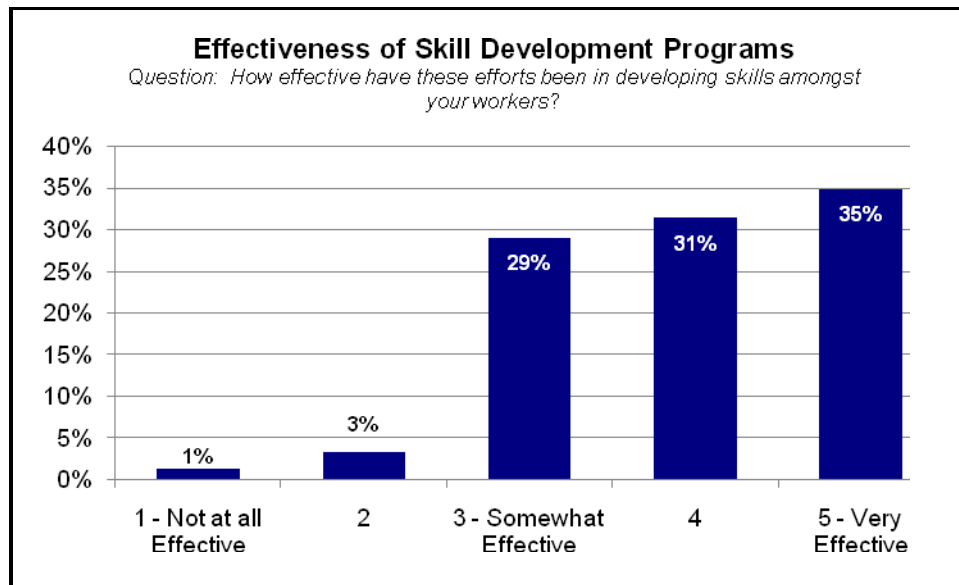
- The need for skilled workers who can complete high quality work (identified by 183 employers);
- Company growth is dependent on developing and retaining skilled workers/the ability of the company to develop and retain workers increases as workload and profits grow (96 respondents);
- The need to keep employees up-to-date with current practices, products, and safety requirements (58 respondents); and
- That the only most effective way to learn the trade is through on-the-job training (21 respondents).

A large number of employers provide on-the-job training (69%), mentoring for newer workers (58%), or have paid-for technical training taken by employees from outside sources (42%). Just under one in four employers provide in-house technical training (23%), or encourage its workers to take technical training but do not pay for it (23%).



- **Most employers believe their efforts to develop employee skills are effective or very effective.**

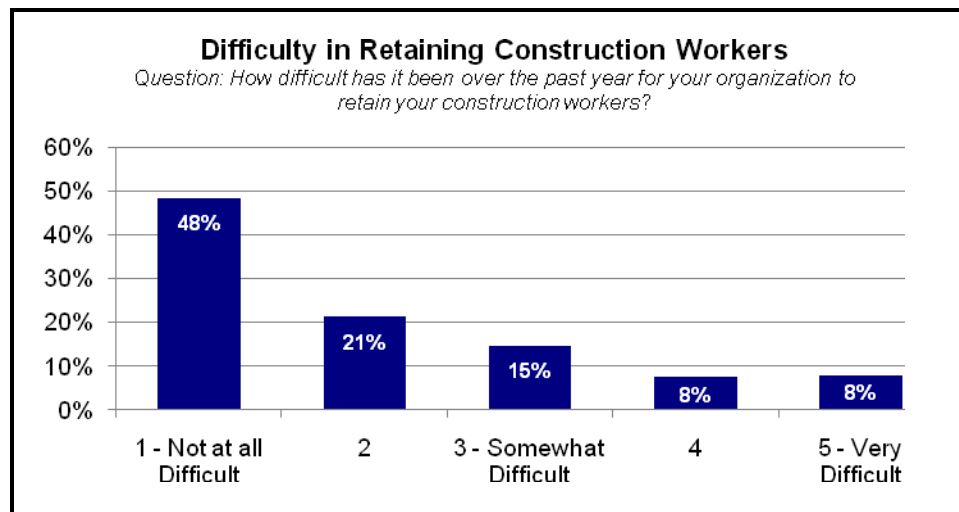
When asked to rate the effectiveness of their skill development programs, nearly all employers rated them as at least somewhat effective, with over one-third of employers reporting they were very effective. On a scale of 1 to 5 where 1 is not effective at all and 5 is very effective, the average rating given by the employers was 3.9. The distribution of employer ratings can be seen in the chart below.



3. Hiring and Retention

- **Staff retention has not been a major issue for most employers.**

When asked to rate how difficult it has been over the past year to retain their construction employees, over two-thirds of employers report that it has not been difficult or not at all difficult to do so. On a scale from 1 to 5, where 1 is not at all difficult and 5 is very difficult, the average rating given by employers was 1.9. The distribution of the employer ratings can be seen in the chart below.

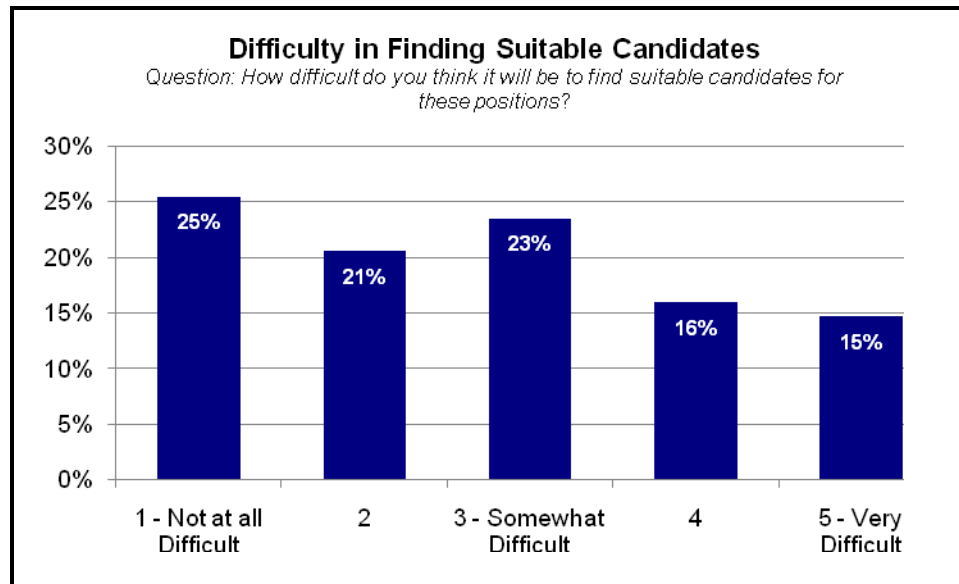


Those from whom retention is an issue identified the reasons for those difficulties as:

- The slow economy which caused the organization to reduce its workforce due to a lack of work (identified by 90 respondents);
- Competing companies offering better wages and benefits (40 respondents);
- Difficulties in attracting effective workers – e.g. poor attitude or work ethic (33 respondents);

- Unrealistic wage expectations by employees (10 respondents); and
 - Lack of skills and/or inability to obtain required skills (6 respondents).
- **On average, the employers expect to hire 3.6 skilled construction workers on a full-time basis in the next 12 months. The employers are varied in their opinions as to how difficult it will be to fill these positions.**

When asked to rate their expected difficulty in finding suitable candidates on a scale from 1 to 5, where 1 is not at all difficult, and 5 is very difficult, the employers provided an average rating of 2.6. The distribution of the employer ratings can be seen in the chart below.



Most employers identified technical skills as the most difficult quality to find potential candidates (identified by 103 respondents). Employers also identified personal integrity and work ethic (43 respondents), and professionalism and supervision skills (21 respondents) as difficult qualities and skills to find.

- **When asked to identify the most significant issue they face with respect to hiring, training, and retaining workers in the construction trades, employers most commonly identified the quality of workers.**

More specifically, many employers indicated that it is difficult to find workers who are motivated, reliable, responsible, and have a drive to learn and improve (identified by 139 respondents). Other major issues commonly identified included:

- Lack of workers with proper and sufficient training and skills in the trade (65 respondents);
- Lack of sufficient work to retain workers (65 respondents);
- High levels of competition affecting wages and costs contributing to a lack of worker loyalty (56 respondents);
- High monetary, time, and opportunity costs of training (26 respondents); and
- General availability of workers (23 respondents).

- **Nearly half of employers believe that there are opportunities for employers to work together with government or educators to address these issues.**

Twenty-seven percent of employers believe there are opportunities for employers to work together with government or educators to address these issues. Employers identified several actions that industry, government, or educators could take to help address these issues, including:

- Revise the apprenticeship curriculum to better reflect actual skills and knowledge tradespersons require on the job and include more field training (identified by 35 respondents);
- Increase incentives for employers to hire apprentices and train their employees, including tax breaks or training cost subsidies (35 respondents);
- Increase coordination between industry and government in order to develop effective solutions (34 respondents);
- Decrease barriers to training for employees, including reducing cost of training and education, or providing training subsidies (28 respondents);
- Increase accessibility and frequency of training to facilitate enrolment (22 respondents); and
- Begin promoting the trades at a younger age (17 respondents).

B. RESULTS AND FINDINGS BASED ON APPRENTICESHIP

Of the 518 employers surveyed, 286 are currently participating or have recently participated in the apprenticeship system although they may currently not employ apprentices. The remaining 232 employers are non-participants. This section compares the responses of those who do not participate in the system to those who do.

1. Employment of Skilled Tradespersons

- **Larger employers are much more likely to participate in the apprenticeship program.**

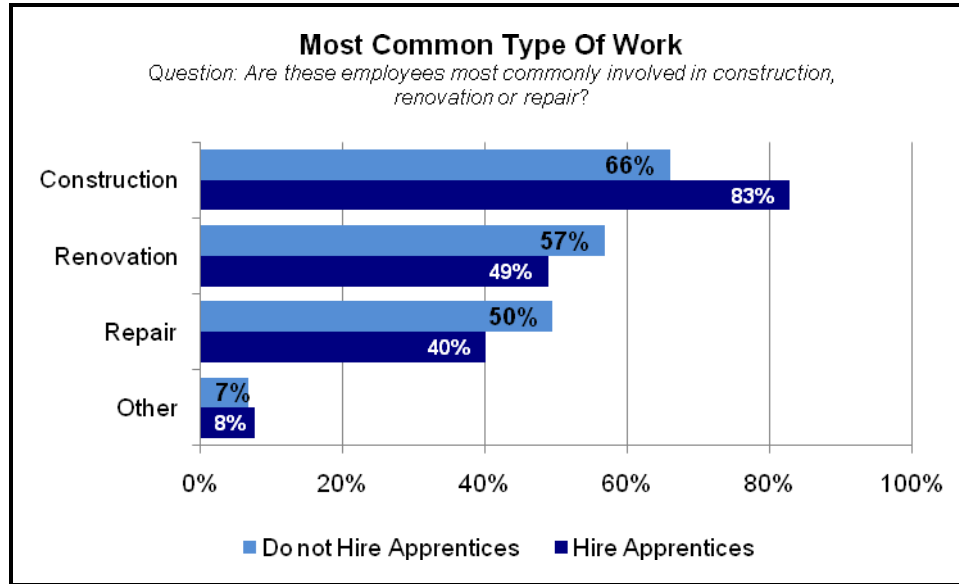
Employers that hire apprentices employ an average of 18 construction workers per company, compared to employers that do not hire apprentices which employ an average of 6.5 construction workers. As can be seen in the table below, employers that hire apprentices tend to be larger operations, with an increasing proportion of employers hiring apprentices as employer sizes increase. Employers that do not hire apprentices are mainly small operations (e.g. only 31% of employers who have 0-5 employees participate). Organizations participating in the apprenticeship system accounted for 55% of the employers and 77% of the total number construction workers employed.

Table 12: Participation by Size of Employer

Employer Size	Number Surveyed	Number Participating	% Participating
0 to 5 Employees	147	45	31%
6 to 10 Employees	123	69	56%
11 to 25 Employees	139	92	66%
26 to 50 Employees	70	50	71%
51 to 100 Employees	22	17	77%
101 to 250 Employees	9	8	89%
251 to 500 Employees	2	2	100%
Other	3	1	33%
Total	518	286	55%

- **Employers that hire apprentices are somewhat more likely to be involved in new construction than employers that do not hire apprentices.**

Eighty-three percent (83%) of employers that hire apprentices are involved in new construction, compared to the 66% of employers that do not hire apprentices. As can be seen in the chart below, employers that do not hire apprentices are somewhat more likely to be involved in renovation (57%) or repair work (50%) compared to employers that hire apprentices (49% and 40% respectively).



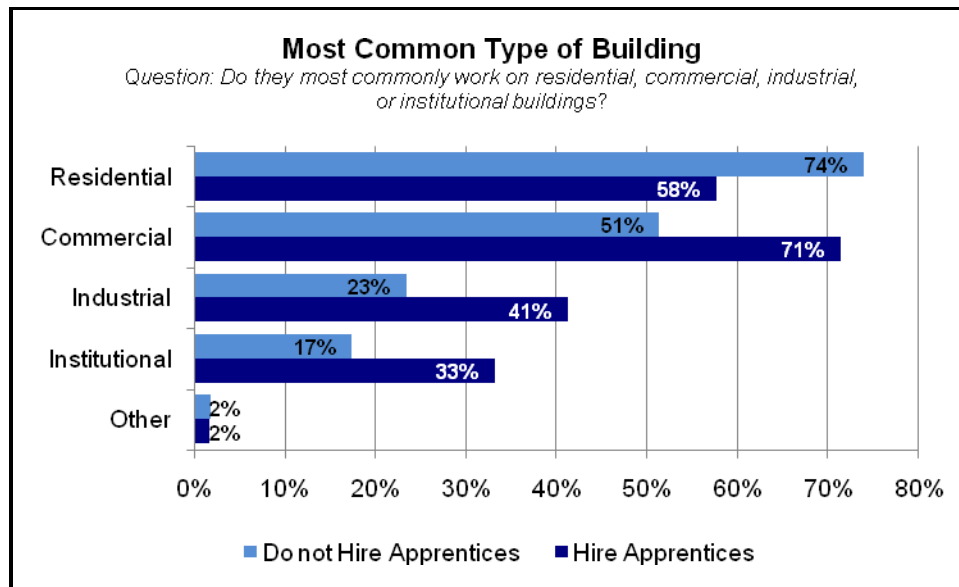
Sixty-one percent (61%) of all employers surveyed that are involved in new construction participate in the apprenticeship program and just over half of employers involved in renovation (52%) and repair (51%) work participate in the apprenticeship program.

Table 13: Participation by Type of Work

	Number Surveyed	Number Participating	% Participating
Construction	391	237	61%
Renovation	267	140	52%
Repair	225	115	51%
Other	38	22	58%

- **Employers that do not hire apprentices are more likely to commonly work on residential projects than employers that hire apprentices.**

Nearly three-quarters of employers that do not hire apprentices are involved in residential projects (74%), compared to the 58% of employers that hire apprentices. However, as can be seen in the chart below, employers that hire apprentices are much more likely than employers that do not hire apprentices to work on commercial, industrial, and institutional projects.



Half (50%) of the employers surveyed that are involved in residential projects participate in the apprenticeship system. Higher rates of participation are seen in employers that are involved in commercial (62%), industrial (68%), and institutional (69%) projects.

Table 14: Participation by Construction Segment

	Number Surveyed	Number Participating	% Participating
Residential	333	165	50%
Commercial	327	204	62%
Industrial	173	118	68%
Institutional	137	95	69%
Other	10	5	50%

- **Employers that hire apprentices tend to be involved more commonly in the refrigeration and air conditioning, sheet metal working, rebar and reinforcing steel, and ironworking trades than employers that do not hire apprentices.**

The trades with the highest rates of participation in the apprenticeship system were the refrigeration and air conditioning (86% participation), sheet metal working (82%), rebar and reinforcing steel (81%), and ironworking (79%) trades. The trades with the least participation in the apprenticeship system were the painting and decorating (28%), drywalling (35%), flooring and tiling (36%), and ceiling trades (53%)

Table 15: Participation By Trade

Trade	Number Surveyed	% Participating
Brick Laying	25	60%
Cabinet Making	45	64%
Carpentry	130	62%
Ceilings	36	42%
Concrete Finishing	31	45%
Drywalling	54	35%
Electrical	70	73%
Flooring and Tiling	56	36%

Trade	Number Surveyed	% Participating
Gasfitting	34	59%
Glazier	16	63%
Insulation	29	45%
Ironwork	14	79%
Metal Fabrication (Fitter)	29	62%
Millwork	31	61%
Painting and Decorating	80	28%
Plumbing	69	74%
Rebar/Reinforcing Steel	16	81%
Refrigeration/Air Conditioning	21	86%
Roofing	38	61%
Sheet Metal Work	44	82%

It is important to note that many employers are involved in multiple trades. As a result, the participation rates shown above may not be representative of a particular trade (e.g. a company may be involved in both drywalling and painting – such an employer would be reported as participating in the system even if they do not have an apprentice in drywalling if they have one in painting).

- **Both employers that hire apprentices and those that do not consider most of their construction workers to be skilled.**

Employers that hire apprentices considered 68% of their construction workers to be skilled, while employers that do not hire apprentices considered 69% of their construction workers to be skilled. However, the skilled workers with employers that hire apprentices are more likely to be credentialed or be journeypersons (49% of skilled workers), than those with employers that do not hire apprentices (30%). Additionally, skilled workers with employers that hire apprentices were more likely to have some kind of previous formal training (36%) than those who worked for employers that do not hire apprentices (26%).

**Table 16: Source of Skilled Amongst Skilled Workers
By Participation in the Apprenticeship System**

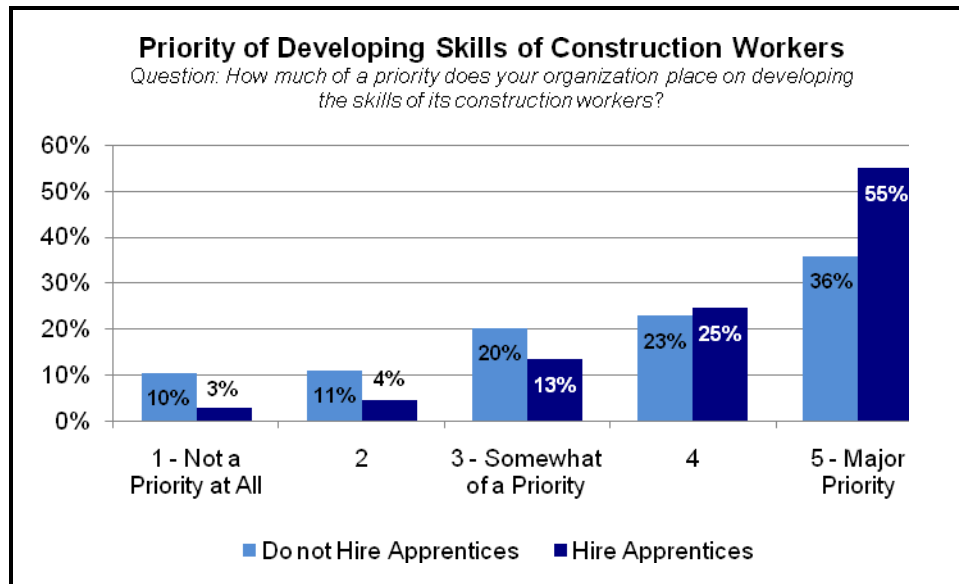
Source of Skills for Their Skilled Workers	Participate in Apprenticeship System	
	Yes	No
Total Skilled Workers as % of Construction Workers	68%	69%
Background of Skilled Workers (% of Skilled)		
Were Already Skilled	39%	43%
Credentialed/Journeypersons	49%	30%
Were Once Registered Apprentices	1%	3%
Had Some Kind Of Formal Training	36%	26%
Registered Apprentices	18%	-

2. Training

- **On average, employers that hire apprentices tend to place a higher priority on skill development in their workers than employers that do not hire apprentices.**

As can be seen in the chart below, just over half of employers that hire apprentices rated skill development as a major priority, while just over one-third of employers that do not hire apprentices rated it as a major priority. On a scale from 1 to 5, where 1 is not a priority at all and

5 is a major priority, employers that hire apprentices gave an average rating of 4.3, while employers that do not hire apprentices gave an average rating of 3.6.



This can be partially attributed to the fact that larger employers place a higher priority on developing the skills of construction workers and tend to be more likely to participate in the apprenticeship system. However, it can be observed that within each size range of employers, those that participate in the apprenticeship system place a higher priority than employers that do not participate.

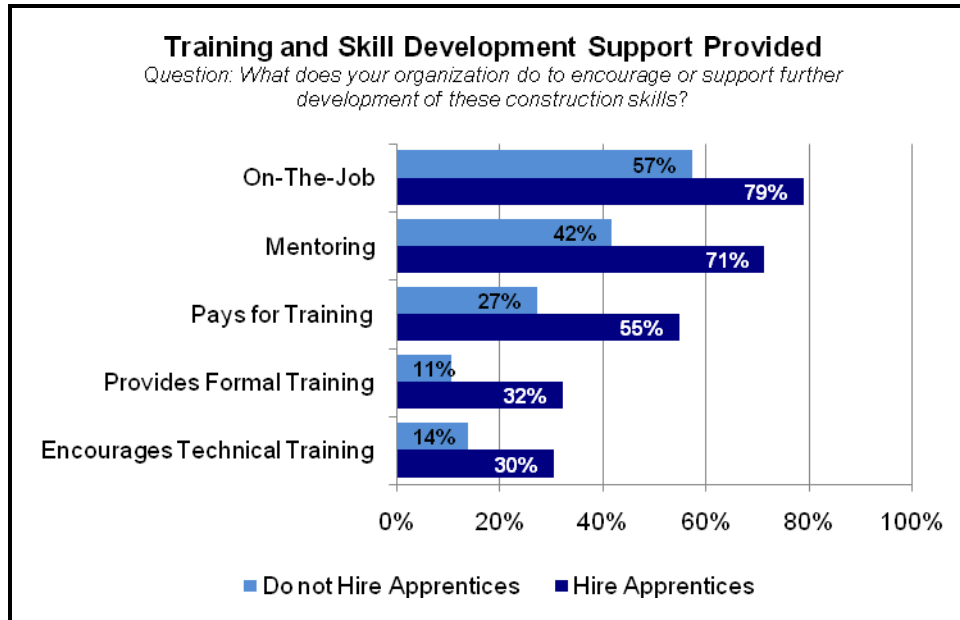
Table 17: Employer Size Ranges and Participation in Apprenticeship System vs. Priority of Skill Development in Construction Workers

Priority on a Scale of 1 to 5	Hired Apprentice	1		2		3		4		5		Average
		#	%	#	%	#	%	#	%	#	%	
0 to 5 Employees	Yes	5	12%	5	12%	4	10%	9	21%	19	45%	3.8
	No	17	20%	15	18%	14	16%	11	13%	28	33%	3.2
	Total	22	17%	20	16%	18	14%	20	16%	47	37%	3.4
6 to 10 Employees	Yes	3	4%	2	3%	6	9%	24	35%	33	49%	4.2
	No	3	6%	3	6%	10	21%	10	21%	22	46%	3.9
	Total	6	5%	5	4%	16	14%	34	29%	55	47%	4.1
11 to 25 Employees	Yes	-	-	3	3%	16	18%	19	21%	52	58%	4.3
	No	-	-	2	5%	10	25%	16	40%	12	30%	4.0
	Total	-	-	5	4%	26	20%	35	27%	64	49%	4.2
26 to 50 Employees	Yes	-	-	-	-	7	14%	11	22%	31	63%	4.5
	No	-	-	1	6%	4	25%	5	31%	6	38%	4.0
	Total	-	-	1	2%	11	17%	16	25%	37	57%	4.4
51 to 100 Employees	Yes	-	-	1	6%	1	6%	4	25%	10	63%	4.4
	No	-	-	-	-	1	33%	2	67%	-	-	3.7
	Total	-	-	1	5%	2	11%	6	32%	10	53%	4.3
101 to 250 Employees	Yes	-	-	-	-	2	25%	1	13%	5	63%	4.4
	No	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	2	25%	1	13%	5	63%	4.4
251 to 500 Employees	Yes	-	-	-	-	-	-	-	-	1	100%	5.0
	No	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	1	100%	5.0

Priority on a Scale of 1 to 5	Hired Apprentice	1		2		3		4		5		Average
		#	%	#	%	#	%	#	%	#	%	
Total	Yes	8	3%	11	4%	36	13%	68	25%	151	55%	4.3
	No	20	10%	21	11%	39	20%	44	23%	68	35%	3.6
	Total	28	6%	32	7%	75	16%	112	24%	219	47%	4.0

- **Employers that hire apprentices are more likely to provide various types of training.**

As can be seen in the chart below, employers that hire apprentices are much more likely to provide or support formal technical training programs, as well as on-the-job training and mentorship, than employers that do not.



On a scale from 1 to 5, where 1 is not at all effective and 5 is very effective, employers that hire apprentices provided an average rating of 4.0, and employers that do not hire apprentices provided an average rating of 3.6.

3. Hiring and Retention

- **Neither employers that hire apprentices nor those that do not hire apprentices experience much difficulty in retaining their staff over the past year.**

When asked to rate their difficulty in staff retention on a scale of 1 to 5, where 1 is not difficult at all and 5 is very difficult, employers that hire apprentices provided an average rating of 2.0 and employers that do not hire apprentices provided an average rating of 1.7.

- **Both employers that hire apprentices and those that do not hire apprentices anticipate increasing their number of construction workers by approximately one-third over the next 12 months and anticipate a slight difficulty in recruiting these anticipated hires.**

Employers that hire apprentices anticipate hiring a total of 1,400 construction workers (27% of number of current construction workers), and employers that do not hire apprentices anticipate hiring 474 construction workers (33%). When asked to rate the difficulty they foresee in

recruiting these anticipated hires on a scale from 1 to 5, where 1 is not at all difficult and 5 is very difficult, employers that hire apprentices provided an average rating of 2.7 and employers that do not hire apprentices provided an average rating of 2.5.

- **Employers that hire apprentices are more likely than those that do not hire apprentices to believe that there are opportunities for employers to work with government or educators to address issues regarding the hiring, training, and retention of workers in the construction trades.**

Similar issues were identified regarding the hiring, training, and retention of workers in the construction trades by both employers that hire and do not hire apprentices. Nearly one-third of employers that hire apprentices (32%) believe that opportunities exist for employers to work with government or educators to address these issues, while just over one in five (21%) of employer who do not hire apprentices believe these opportunities exist.

Employers that do not participate in the apprenticeship system can be segmented into various sub-groups. Each group varies in terms of its characteristics, the emphasis placed on employee development, and interest in working with other organizations related on human resource issues. These groups, which are not mutually exclusive (some employers are in multiple groups), include:

- Small employers (0 to 5 employees). Most of the existing employees within these companies are already skilled tradespersons, who developed those skills prior to forming the company. Many work as sub-contractors for larger employers or work on small projects, typically in the residential sector. The employers typically either have little opportunity to grow (e.g. they are primarily independent sub-contractors) and/or little desire to grow (i.e. their primary interest in working on the job themselves rather than managing others). As a result, these employers tend to place a low priority on employee development and identified little opportunity for employers, government, and educators to work together to address issues related to hiring, training and retaining workers. Of the 102 small employers who do not participate, four identified providing some kind of incentive to encourage them to participate in the apprenticeship system and other training and three identified delivering some short form of basic training or certificate program. No other recommendation was provided by more than one employer.
- Employers in trades where apprenticeship levels are low (e.g. drywalling, flooring, painting and sheet metal). Many of these employers also have few employees and are in the sub-group described above. Those employers who are larger tend to either hire workers who are skilled already or provide on-the-job training and mentoring to less experienced workers. These strategies are viewed as effective and, in general, the employers are not experiencing significant difficulties in attracting workers. Very few saw any role for government or educators to assist them related to hiring, training and retaining workers and, amongst those who did, there were no common recommendations (i.e. recommendations provided by more than one employer).
- Larger employers (6 or more employees) in other trades. While these employers most commonly hire workers who are skilled already, many also hire less experienced workers to whom they provide on-the-job training and mentoring. Only one in five of these employers saw a role for government and educators to assist them to address issues related to hiring, training and retaining workers. Amongst those who did, the most common recommendation was to provide some form of incentives (e.g. tax credits) to encourage training, including apprenticeship training. A few employers suggested increasing access

to training, sponsoring a job board or database to facilitate staff recruitment, providing language training, and making it easier for foreign workers to get or extend their work visas.

C. RESULTS AND FINDINGS BASED ON REGION

The results of the survey were also cross-tabulated by region. The Cariboo, Nechako, North Coast, and Northeast regions have been grouped as the Northern Interior, and the Thompson-Okanagan and Kootenay regions have been grouped as the Southern Interior. The largest companies are located in the Mainland/Southwest and Vancouver Island/Coast regions. However, this was balanced by a large number of smaller employers in the same regions, resulting in a similar average numbers of construction workers per company in all regions.

Employers surveyed from the Mainland/Southwest and Vancouver Island were much less likely to participate in the apprenticeship systems than employers in the other regions. However, this does not necessarily mean that this is representative for the region overall; the sample of non-participants came largely from a review of sources such as Craigslist, online classifieds and community newspapers, sources in which employers from Mainland/Southwest region tend to be overrepresented. The results of the survey do suggest that employers in the Northern Interior region face greater difficulties in recruiting construction workers.

Table 18: Summary of Responses By Region

Characteristics	Northern Interior	Southern Interior	Mainland/Southwest	Vancouver Island/Coast
Employers Surveyed	43	92	293	85
Number of Construction Workers				
Average	18.4	12.9	11.8	14.5
Type of Work Done (% of region)				
Construction	84%	85%	74%	67%
Renovation	47%	49%	54%	48%
Repair	63%	40%	42%	46%
Other	2%	5%	9%	5%
Type of Building (% of region)				
Residential	53%	61%	65%	69%
Commercial	58%	65%	63%	65%
Industrial	63%	38%	30%	26%
Institutional	26%	32%	25%	28%
Other	0%	1%	2%	2%
Trade Areas (% of region)				
Brick Laying	7%	2%	5%	5%
Cabinet Making	14%	7%	8%	12%
Carpentry	30%	27%	23%	26%
Ceilings	9%	3%	8%	7%
Concrete Finishing	12%	4%	4%	11%
Drywalling	12%	7%	12%	8%
Electrical	23%	12%	13%	13%
Flooring and Tiling	12%	12%	10%	12%
Gasfitting	16%	4%	6%	5%
Glazier	12%	2%	2%	4%
Insulation	12%	3%	5%	6%
Ironwork	9%	3%	2%	1%
Metal Fabrication (Fitter)	9%	9%	4%	7%
Millwork	14%	3%	5%	7%
Painting and Decorating	19%	12%	15%	20%

Characteristics	Northern Interior	Southern Interior	Mainland/Southwest	Vancouver Island/Coast
Plumbing	16%	12%	15%	9%
Rebar and Reinforcing Steel	9%	2%	2%	6%
Refrigeration and Air Conditioning	16%	5%	3%	0%
Roofing	12%	9%	5%	11%
Sheet Metal Work	19%	8%	8%	7%
Sprinkler System Installation	5%	5%	2%	5%
Number of Skilled Tradespersons				
% of Total Construction Workers	61%	65%	70%	69%
Were already Skilled (% of Skilled)	58%	63%	58%	55%
Credentialed (% of Skilled)	84%	67%	61%	61%
Are Registered Apprentices (% of Skilled)	26%	25%	17%	24%
Were Once Registered Apprentices (% of Skilled)	4%	5%	2%	3%
Have Had Some Sort Of Formal Training (% of Skilled)	73%	47%	42%	61%
Priority Placed on Developing Skills (where 1 is not a priority and 5 is a major priority)				
Average	4.5	4.2	3.7	4.0
Activities for Skill Development (% of employers and average number of employers)				
On-The-Job Training	77%	79%	64%	74%
Mentoring For Newer Workers	70%	70%	53%	60%
Provides Formal Technical Training Directly	44%	24%	20%	22%
Pays for Technical Training Taken By Employees from Outside Sources	56%	53%	38%	40%
Encourages Employees to Take Technical Training But Does Not Pay	28%	27%	20%	24%
Effectiveness in Skills Development (Where 1 is not at all effective and 5 is very effective)				
Average	4.1	4.0	3.7	4.0
Difficulty in Retaining Skilled Employees (Where 1 is not at all difficult and 5 is very difficult)				
Average	2.2	2.0	1.8	2.0
Anticipated Hires Over the Next 12 Months				
Average	5.2	3.7	3.6	3.3
Expected Difficulty in Recruiting Anticipated Hires (where 1 is not at all difficult and 5 is very difficult)				
Average	3.5	2.7	2.5	2.5
Size of Company				
0 to 5 Employees	21%	21%	32%	25%
6 to 10 Employees	23%	24%	20%	33%
11 to 25 Employees	28%	32%	26%	25%
26 to 50 Employees	12%	15%	14%	12%
51 to 100 Employees	2%	7%	4%	1%
101 to 250 Employees	2%	1%	1%	4%
251 to 500 Employees	2%	0%	0%	1%
Type of Organization				
General Contractor	28%	26%	18%	24%
Manufacturer	5%	5%	11%	9%
Trades Contractor	58%	57%	60%	52%
Other Service Organization	5%	7%	7%	7%
Other	5%	5%	3%	7%
Hires Apprentices				
Yes	79%	68%	48%	55%
No	14%	30%	49%	42%

IV. MAJOR CONCLUSIONS

The major conclusions arising from the survey and literature review are as follows:

1. **Participation of employers in the apprenticeship system is likely significantly higher than commonly believed.**

A 2006 survey undertaken by the Canadian Apprenticeship Forum - Forum canadien sur l'apprentissage (CAF-FCA) and Skills/Compétences Canada (SCC) found that 18% of employers in the manufacturing, transportation, construction, and services sectors currently employed apprentices and 55% of employers had never hired apprentices. These statistics are often used as evidence to suggest that participation rates are low in the BC construction sector. However, the results of our survey and literature may provide a somewhat different perspective on participation rates. More specifically, the data indicates that:

- **Apprentices represent a significant percentage of the work force in the construction sector.** The 20,645 workers registered in apprenticeship in 2010 represent 17% of the total employment of 123,683 in the construction sector reported by the CSC (i.e., the data suggests that one out of every six workers in the sector is an apprentice).
- **Participation rates are strongly correlated with size of employers** (number of employees). In our survey, the percentage of employers participating in the apprenticeship system increases from 31% of those with 5 or fewer employees to 68% of those with 11 to 50 employees, 77% of those with 51 to 100 employees and 91% of those with 100 or more employees.
- **Most employers within the construction sector are very small.** Of the 51,926 construction sector employers in BC, 30,709 (59%) have an indeterminate number of employees (i.e. no employees on the payroll) and 13,928 (26%) have from one to four employees. Only 1,529 employers (3%) have twenty or more employees.
- **While small employers account for the majority of establishments, they do not account for the majority of employment in the sector.** We roughly estimate that establishments with ten or more employees account for only 7% of the number of employers in the construction sector but two-thirds (67%) of the total employment.

Taken together, we can conclude that while the majority of employers may not participate in the system, the majority of construction workers likely do work for employers that participate. To illustrate this, we have assumed that the survey results with respect to participation levels are representative for employers with 10 or more employees (the population lists are reasonably comprehensive for the larger employers in that they would not have been deleted from the Worksafe BC lists and are likely to be listed in directories). However, we have assumed that the survey results over-represent participation levels for smaller employers and adjusted the results accordingly. The following table uses CBP employer counts and the adjusted survey results to roughly estimate the number of employers who participate and what percentage of the construction work force is employed by those participating employers. As indicated, we estimate that 12% of the total number of employers (29% of the employers with paid employees) participate in the apprenticeship system and 60% of the total work force in the construction sector (including those in non-trade positions) is employed by those organizations.

Table 19: Estimated Percentage of Employers and Percentage of the Work Force Employed by Employers Participating in the Apprenticeship System

Number of Employees	Number of Employers	Estimated % Participating ²	Estimated Employers	Number of Employees	
				Total	With Participating
Indeterminate	30,709	0%	-	-	-
1 to 4	13,298	16%	2,061	33,245	5,153
5 to 9	4,335	37%	1,618	30,345	11,329
10 to 19	2,055	66%	1,356	29,798	19,666
20 to 49	1,104	71%	784	38,088	27,042
50 to 99	274	77%	211	20,413	15,718
100 to 199	103	89%	92	15,399	13,705
200 or More	48	100%	48	20,679	20,679
Total	51,926	12%	6,170	187,966	113,292
With Employees	21,217	29%	6,170		60%

- In addition to being larger, employers that participate in the apprenticeship system tend to be more involved in new construction, and work more often on commercial, industrial, and institutional buildings.**

Employers that participate in the apprenticeship system are generally larger; 84% of employers that participate have greater than five employees, and 60% have greater than 10 employees whereas only 54% of non-participating employers have greater than five employees and 31% that have greater than ten. Employers that participate in the apprenticeship system tend to perform larger scale work, as evidenced by the higher percentage of employers performing new construction work, and working on commercial, industrial, and institutional projects. Employers that do not participate in the apprenticeship system are more often involved in smaller projects, particularly renovation and repair work in the residential sector.

- In large part because of the slowing economy, attracting and retaining construction workers is not currently considered to be a major issue for most employers.**

Most employers have not reported significant difficulties in either attracting or retaining construction workers. This may be due largely to the decrease in available work for construction companies as a result of the slowing economy. The most common issue that was identified with respect to retention was the lack of sufficient work (i.e. their need to lay off workers) rather than issues regarding workers being hired away by other employers in the sector.

- Most employers report placing a priority on skill development.**

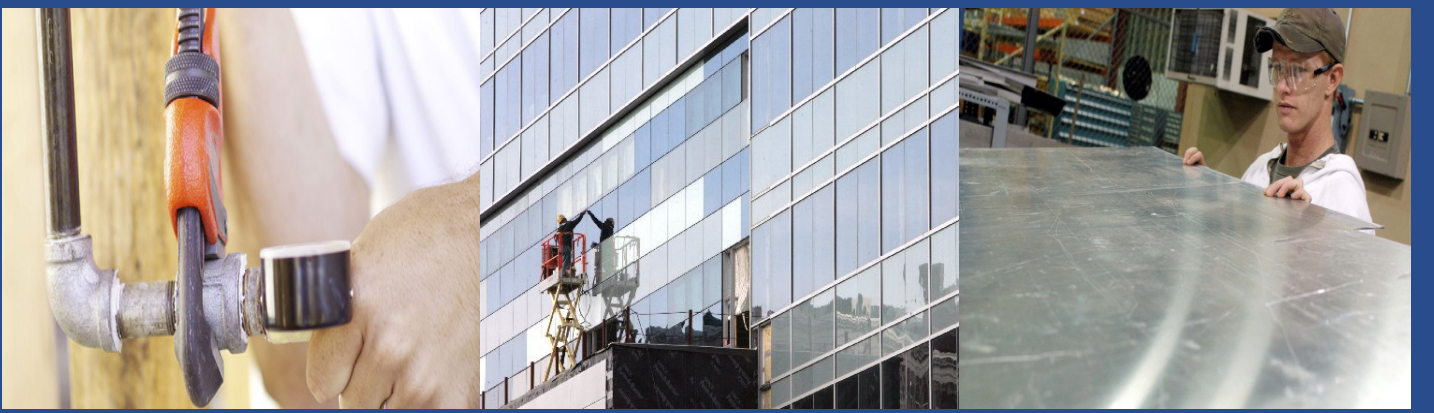
Employers placed a high priority on skill development, with employers that hire apprentices reporting a slightly higher priority than those that do not. Employers that hire apprentices were much more likely to provide or support various forms of training including on-the-job training, mentorship, formal training in-house, and supporting and encouraging formal training outside of the company. Both employers that hire apprentices and those which do not were generally satisfied with the effectiveness of the training provided.

² The estimated percentage participating is based on the survey results. The figures for smaller employers have been adjusted to reflect that employers not participating in the system are expected to be somewhat less likely to be identified and to respond to the survey. Compared to the survey results, the estimated percentage of employers with fewer than 5 employees has been reduced by one-half (from 31% of those surveyed to 15.5%) and the employers with 5 to 9 employees has been reduced by one-third (from 56% to about 37%).

5. There appear to be no significant actions that CITO could take to better serve employers that are not interested in participating in the apprenticeship system, distinct from those targeted at employers currently participating.

Overall, amongst both employers who are participating in the apprenticeship system and those who are not, 27% of employers believe there are opportunities for employers to work together with government or educators to address hiring, training and retention issues. Employers identified a range of actions that industry, government, or educators could take to help address these issues, of which those most commonly identified included:

- Revise the apprenticeship curriculum to better reflect actual skills and knowledge tradespersons require on the job and include more field training;
- Increase incentives for employers to hire apprentices and train their employees, including tax breaks or training cost subsidies;
- Increase coordination between industry and government in order to develop effective solutions;
- Decrease barriers to training for employees, including reducing cost of training and education, or providing training subsidies;
- Increase accessibility and frequency of training to facilitate enrolment; and
- Begin promoting the trades at a younger age.



APPENDICES

APPENDIX I: LIST OF DOCUMENTS REVIEWED

- Labour Force Survey (December 2010), Statistics Canada
- Canadian Business Patterns (December 2010), Statistics Canada
- Construction Looking Forward: An Assessment of Construction Labour Markets from 2011 to 2019 for British Columbia, Construction Sector Council
- A Guide to the BC Economy and Labour Market, BC Ministry of Regional Economic and Skills Development, <http://www.guidetobceconomy.org/>
- What's Happening in Apprenticeship Now: Stakeholders' Feedback on the Barriers to Apprenticeship (Final Report – May 2009), Canadian Apprenticeship Forum
- Strategies to Increase Employer Participation in Apprenticeship Training in Canada: A Summary of Discussion Results With Employers Across Canada, Canadian Apprenticeship Forum
- ITA Performance Measurement Report, Industry Training Authority. Various periods (June 2007-2011)
- Pan-Canadian study reveals only 18% of employers hire apprentices in key industries, Canadian Apprenticeship Forum and Skills Canada, <http://www.careersintrades.ca/media/default.asp?load=news>

APPENDIX II: QUESTIONNAIRE FOR EMPLOYERS

Hello, my name is _____ and I'm with Ference Weicker & Company, a management consulting firm. We are conducting interviews on behalf of CITO (the BC Construction Industry Training Organization) to find out more about the hiring and training of employees in the construction trades. You may have received an e-mail or fax from CITO recently about the project. Do you recall receiving that? (if doesn't recall, explain the project and obtain or confirm the contact name and e-mail).

I can go through the questionnaire with you right now. It would take about ten minutes to complete. If not, can we set up another time?

CONTACT INFORMATION

Name of the Business	
Key Contact	
E-mail Address	
Phone Number	
Date Completed	

A. EMPLOYMENT AND TRAINING

1. **By the construction trades, we mean jobs directly involved in the construction, renovation or repair of residential, commercial, industrial or institutional buildings. How many of the people employed by your organization, including perhaps yourself, directly do this type of work?**

_____ Number of Employees in Positions Related to Construction Trades

IF NONE, SKIP TO SECTION B

2. **Are these employees most commonly involved in construction, renovation or repair (you can select more than one)?**

- a. _____ Construction
- b. _____ Renovation
- c. _____ Repair
- d. _____ Other (_____)

3. **Do they most commonly work on residential, commercial, industrial or institutional buildings (you can select more than one)?**

- a. _____ Residential
- b. _____ Commercial
- c. _____ Industrial
- d. _____ Institutional
- e. _____ Other (_____)

4. In what trades areas do these employees most commonly work (you can select more than one)?

In what trades areas are these employees most commonly working?		
<input type="checkbox"/> Brick Laying	<input type="checkbox"/> Flooring and Tiling	<input type="checkbox"/> Paining & Decorating
<input type="checkbox"/> Cabinet Making	<input type="checkbox"/> Gasfitting	<input type="checkbox"/> Plumbing
<input type="checkbox"/> Carpentry	<input type="checkbox"/> Glazier	<input type="checkbox"/> Rebar/Reinforcing Steel
<input type="checkbox"/> Ceilings	<input type="checkbox"/> Insulation	<input type="checkbox"/> Refrigeration/Air Conditioning
<input type="checkbox"/> Concrete Finishing	<input type="checkbox"/> Ironwork	<input type="checkbox"/> Roofing
<input type="checkbox"/> Drywalling	<input type="checkbox"/> Metal Fabrication (Fitter)	<input type="checkbox"/> Sheet Metal Work
<input type="checkbox"/> Electrical	<input type="checkbox"/> Millwork	<input type="checkbox"/> Sprinkler System Installation
Other:		

5. Of these employees, how many would you say are skilled tradespersons given their experience and/or past training? By skilled, we mean someone who understands the trade well enough to work independently with little supervision and could teach others?

_____ Number of Skilled Workers in Construction Related Positions

IF NONE, SKIP TO QUESTION A7

6. How many of these skilled tradespersons:

a	Would you say were already skilled at the time they were hired by your organization (as opposed to becoming skilled while employed with your organization)?	
b	Are credentialed in a construction trade (e.g., are journeypersons)?	
c	Are registered as an apprentice in a construction trade?	
d	Are not currently credentialed or registered but were once registered as an apprentice in a construction trade?	
e	Have taken some form of formal technical training (apart from apprenticeship) related to the trade? This could range from a one day course to a much longer training program?	
<i>(if any) How long were these training programs?</i>		
 <i>What did the technical training focus on?</i>		
 <i>Where did they (most commonly) receive this training (e.g., name of organization or type of institution)?</i>		

7. On a scale of 1 to 5, where 1 is not priority at all, 3 is somewhat of a priority and 5 is a major priority, how much of a priority does your organization place on developing the skills of its construction workers?

None at All		Somewhat		Major		
1	2	3	4	5		N/A

7a. Why is that? _____

IF 2 OR LESS, SKIP TO SECTION B

7b. (if 3 or more) What does your organization do to encourage or support further development of these construction skills?

- a. _____ "On-the-job" training
- b. _____ Mentoring for newer workers
- c. _____ Provides formal technical training directly through the company
- d. _____ Pays for technical training taken by employees from outside sources
- e. _____ Encourages employees to take technical training but does not pay for it
- f. _____ Other (please specify: _____)
- g. _____ Not sure

IF NO ACTIONS ARE IDENTIFIED, SKIP TO SECTION B

8. On a scale of 1 to 5, where 1 is not at all effective, 3 is somewhat effective and 5 is very effective, how effective have these efforts been in developing skills amongst your workers?

Not at All		Somewhat		Very		
1	2	3	4	5		N/A

8a. Why is that? _____

B. HIRING AND RETENTION

1. On a scale of 1 to 5, where 1 is not at all difficult, 3 is somewhat difficult and 5 is very difficult, how difficult has it been over the past year for your organization to retain your construction employees?

Not at All		Somewhat		Very		
1	2	3	4	5		N/A

1a. (if 3 or more) Why is that? _____

2. Over the next 12 months, how many skilled construction workers do you anticipate that you will hire on a full-time basis to fill new positions or to replace staff members who may leave?

_____ Anticipated Number of Hires Over Next 12 Months

IF NO PLANS TO HIRE, SKIP TO SECTION C

3. On a scale of 1 to 5, where 1 is not at all difficult, 3 is somewhat difficult and 5 is very difficult, how difficult do you think it will be to find suitable candidates for these positions?

Not at All		Somewhat		Very	
1	2	3	4	5	N/A

IF 2 OR LESS, SKIP TO SECTION C

3a. (if 3 or more) What specific types of skills will be hard to find? _____

3b. What strategies or actions will your organization take to address these challenges or shortages? _____

C. PRIORITIES AND RECOMMENDATIONS

1. What would you identify as the three major issues that you face with respect to hiring, training, and retaining workers in the construction trades? _____

IF NO ISSUES IDENTIFIED, SKIP TO SECTION D

2. Are there opportunities for employers to work together, perhaps with government or educators, to address these issues?

- Yes No Don't Know

3. What, if any, actions would you recommend that industry, government, or educators take to help address these issues? _____

4. Do you have any final comments or recommendations? _____

D. EMPLOYER

Lastly, we have some questions for classification purposes.

1. Is your organization best described as a:

- a. _____ General contractor?
- b. _____ Trades contractor (in which trade(s) _____)?
- c. _____ Other service organization?
- d. _____ Manufacturer?
- e. _____ Government organization?
- f. _____ Utility?
- g. _____ Other (_____)

2. How many people does your organization employ in total including the construction workers you mentioned and others?

- a. _____ 0-5 employees
- b. _____ 6-10 employees
- c. _____ 11-25 employees
- d. _____ 26-50 employees
- e. _____ 51-100 employees
- e. _____ 101-250 employees
- f. _____ Over 500 employees
- f. _____ 251-500 employees
- g. _____ Other (_____)
- h. _____ Not sure
- i. _____

3. Do you employ any apprentices? Yes No Don't Know

THANK YOU FOR YOUR PARTICIPATION!