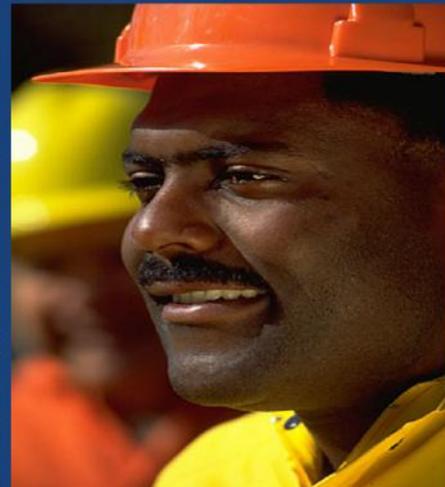


Construction Sector Career Resource Model

Barriers to Employment



Nova Scotia
Construction Sector Council
Industrial-Commercial-Institutional

April 2008



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1.0 Executive Summary

The Industrial-Commercial-Institutional (ICI) construction sector is defined as “any aspect of the construction industry other than pipeline construction, bridge building, road building, the construction of sewers, tunnels and water mains and house building”¹. Like other Canadian industries and sectors, the ICI construction sector is a highly competitive industry in which changing demographics and mixed messages in regard to the future demand of the industry have led to a shortage of a skilled and qualified workforce. With the average age of ICI workers being 39, it has been projected that 48% of journey person workers will retire from the workforce in the next 5 -10 years². In turn, these mass retirements will also increase the demand for workers who have the necessary skills to replace vacancies within the industry. Proper training infrastructure for individuals to acquire the critical skills and knowledge for work in the field, combined with the demonstration to educators, youth and parents of the viability of careers in the ICI construction sector will allow the industry to address critical human resource issues, including skills shortages, confidently and effectively both now and in the near future.

The Nova Scotia Construction Sector Council

The Nova Scotia Construction Sector Council-Industrial-Commercial-Institutional (NSCSC-ICI) is a not for profit organization that facilitates communication and consultation between member organizations, the construction sector and federal and provincial partners to identify and address human resource planning and skills development challenges within the industry. Through partnerships with various industry organizations, the staff and directors of the NSCSC provide human resource solutions and labour market information to Service Canada, various departments and agencies within the province of Nova Scotia, the national Construction Sector Council, public and private training institutions, associations, organizations, groups and individual Nova Scotians. The purpose of the NSCSC is to contribute research and labour market information to support short, medium, and long-term recommendations for improving human resource capacity in the construction sector to:

- Identify imminent and future skills required by sector employees,
- Identify current worker skills and qualifications,
- Identify the demand for additional skills development,
- Identify current and future essential skills and new technology, and
- Promote this industry as a professional career choice.

The NSCSC works to develop research directives and projects with their central goal in mind which is “to compliment the work of labour and management organizations, government departments and other industry associations and organizations and work to ensure industry and government investment is managed to benefit the sector.”³

¹ Labour Relations Board of Nova Scotia: <http://www.gov.ns.ca/enla/lrb/>

² Labour Market Assessment: Industrial-Commercial-Institutional Construction Industry of Nova Scotia Statistical Index.

³ The Nova Scotia Construction Sector Council: <http://www.constructioncouncil.ns.ca/>

Future Learning, Inc. was contracted by the Nova Scotia Construction Sector Council-ICI to undertake work on the Construction Career Resource Model (CRM) Project. The objective of the project was to conduct research and evaluate career planning opportunities within the Industrial-Commercial-Institutional construction industry. The key objectives of the project were to:

1. Collect “Best/Current Practices” on career hindrances and barriers to employment;
2. Develop and assemble interview, research and testing guides to assess individual skills and abilities (including learning styles – tactile, visual, etc.), personal aptitudes, and any disabilities, injuries or other career hindrances;
3. Conduct individual tests and assessments of industry participants (minimum 15);
4. Identify learning styles prevalent among the construction workforce;
5. Assess and analyze personal aptitudes;
6. Identify barriers to employment and skills development (career hindrances) encountered in the industry by new entrants, individuals who have left the industry and the current workforce;
7. Identify trends and emerging issues facing the industry;
8. Identify specific areas of need/recognition to be addressed in the next stage of development, including those that can be addressed immediately or requiring further research/development;
9. Develop a human resource method (screening tool) to effectively promote, recruit and retain suitable human resources within the sector; and
10. Compile a comprehensive assessment (report) of skills and abilities, disabilities, injuries, career hindrances and barriers within the sector and outline a plan that will assist to develop human resource solutions within the construction industry to enhance skill levels and employability of low-skilled and under-employed workers, and reintegrate disabled and older workers in the ICI construction sector.

To meet project objectives, preliminary research was conducted to assess and evaluate current career barriers and hindrances, as well as the best and current practices utilized within the ICI construction sector to address these barriers. Extensive database and related report and document searching was conducted, and a report of these preliminary findings was submitted to the Nova Scotia Construction Sector Council-ICI.

A total of sixteen (16) interviews were conducted with persons involved in the Industrial-Commercial-Institutional construction industry. The individuals interviewed were either new entrants to the industry, current employees, or individuals who have left the industry. Workers were asked questions by the research team surrounding their experience in the industry, and any career barriers and/or hindrances they may have encountered. Interviews were conducted following the outline of the “Client Needs, Barriers and Job Readiness Checklist”, which is described in more detail in the previously-submitted “Preliminary Summary Interview Results Report”. The “Client Needs, Barriers and Job Readiness Checklist” is available through the Nova Scotia Construction Sector Council.

In addition to the sixteen (16) interviews conducted with workers in the industry, an additional thirteen (13) industry stakeholders were interviewed by telephone. Information gathered from

these interviews complimented previously researched information and preliminary interviews conducted to best assist the Nova Scotia Construction Sector Council in addressing the pressing barriers facing the industry. Overall barriers addressed in this final report include:

- Disabilities and Workplace Injuries
- Aging Workforce
- Discrimination
- Negative Attitudes about the Skilled Trades
- Costs and Other Barriers to the Apprenticeship
- Poor Performance in College Programs and Formal Exams
- Declining Enrollment Rates in Trades Courses
- Education, Literacy and Essential Skills
- Trades Course Application Requirements versus Necessary Industry Aptitudes
- Local Job Market Demand
- Physical Abilities
- Other Barriers, including:
 - Resistance to “Change”
 - Foreign Workers, Credential Recognition, and Prior Learning Assessment
 - Substance Abuse and Criminal Records
 - Lack of Specialized Trade Courses
 - Mental Disabilities

A series of nineteen (19) recommendations for addressing these pressing barriers have also been identified. These recommendations include:

- The creation of comprehensive reintegration, rehabilitation and retraining programs;
- The implementation of a four-week grace period for injured workers returning to work before closing their Worker’s Compensation claims
- The research and implementation of a program to develop and advance physical fitness of workers to advance workplace safety;
- The creation of opportunities for mentorship and information-transfer amongst older and younger workers;
- A further expansion of the Techsploration program;
- The introduction and development of innovative recruitment methods and incentives to increase the percentage of females enrolled in trades courses;
- The creation of an ongoing support network for women working in the trades in Nova Scotia;
- A complete implementation of the Construction Association of Nova Scotia’s (CANS) Cooperative Education/Youth Apprenticeship Program;
- The commencement of a marketing campaign in the province to refocus the industry’s image;
- The development and implementation of a program designed to reimburse upgrading costs when a candidate successfully completes a ticket upgrade or apprenticeship and remains in the province for at least one year;
- The increase of after-hours and online trades courses and apprenticeship offerings across Nova Scotia;

- The initiation of research on current apprenticeship opportunities and how such opportunities might be improved upon to ensure that apprentices are exposed to the full scope of any given trade;
- The research and implementation of hands on training, testing and certification processes;
- The implementation of research to evaluate the effectiveness of current Red Seal testing to identify the underlying rationale behind decreasing pass rates;
- The pilot-testing of a trades aptitude test or tests in conjunction with the application process to trades programs across Nova Scotia;
- The initiation of a tuition reimbursement program of up to 100% offered to new trades people who work in the province for a minimum of three years upon graduating from a trades program in Nova Scotia;
- The setting of standard benchmarks for numeracy and literacy requirements for the industry;
- The undertaking of a study of current and future economic conditions and employment opportunities in the industry across the province; and
- The creation of an accessible, online job-seeking network specific to the construction industry in Nova Scotia.

The prevalent learning styles of interview respondents were also analyzed through the administration of the “Learning Channel Preference Checklist (LCPC)”. Interviewees were asked to complete the self-rating checklist following each interview. The most prevalent learning style amongst the interviewees was **Visual**. Other learning styles of the interview respondents included:

- Auditory
- Haptic

The “Learning Channel Preference Checklist (LCPC)” is available through the Nova Scotia Construction Sector Council.

In addition, stakeholders were asked to identify emerging issues and trends, as well as necessary emerging skills and abilities. Emerging trends and issues included:

- General shortage of skilled workers
- Changed work ethic
- Decreasing numeracy and literacy skills

Interviewees were also asked which skills and abilities could be most linked to success in the industry. Such necessary emerging skills and abilities included:

- Increased work ethic, motivation and workplace satisfaction
- Increased physical fitness
- Increase in new workplace entrants with a mechanical aptitude
- Improved numeracy and literacy skills

More information on emerging issues and trends, skills and abilities can be found in Sections 4.0 and 5.0 of this report, respectively. The “Stakeholder Interview Questionnaire” utilized by the research team during conducted telephone interviews with stakeholders is available through the Nova Scotia Construction Sector Council.

The best use and availability of existing tools was also investigated during the course of research conducted for the benefit of future human resources strategies undertaken by the Nova Scotia Construction Sector Council.

2.0 Introduction

The Construction Sector Career Resource Model project was multi-phased in nature, and commenced with a preliminary literature scan on career hindrances and current and best practices of the Industrial-Commercial-Institutional construction industry. Following this phase, and in conjunction with extensive research on career hindrances and best/current practices, a series of interviews with stakeholders and individuals involved in the industry as current workers, former workers and new entrants was conducted. A preliminary summary interview results report was submitted to the Nova Scotia Construction Sector Council during its committee meeting held on January 28th, 2008. In addition, research conducted assessed the availability and best use of existing tools, which assisted in the design and development of recommendations as to how various existing tools might be adapted and best utilized by the NSCSC in designing and implementing future human resources strategies.

Moving into the final phase of the project, previously conducted research was supplemented with extensive further research on the career hindrances faced by persons involved in the Industrial-Commercial-Institutional construction industry in this final report. Research conducted in this final phase of the Career Resource Model (CRM) Project has enabled, for the benefit of the NSCSC, the identification of an updated and comprehensive collection of barriers to employment, emerging trends, issues, skills and abilities, prevalent learning styles and personal aptitudes. In addition, this report will provide a series of soundly researched recommendations for addressing the pressing career hindrances and barriers within the industry.

The following report will assist the Nova Scotia Construction Sector Council-ICI in understanding the career barriers faced by individuals involved in the industry, and will enable the NSCSC to proactively address the emerging issues of tomorrow. Most importantly, however, the NSCSC will be empowered to act upon outlined recommendations in an attempt to secure a successful, thriving, long-term construction industry now and into the future.

The following section of this report will briefly outline the existing career hindrances and barriers to employment as expressed by interviewed current, former and new workers as well as stakeholders in the industry. Recommendations for addressing each career hindrance or barrier will also be included in the following section of this report.

3.0 Existing Barriers and Recommendations

The previously submitted “Preliminary Interview Results Report” outlined a variety of barriers to employment in the industry based on preliminary interviews with current, former and new workers. These eleven (11) preliminary interviews provided the foundation for five (5) additional interviews with current, former and new workers, as well as thirteen (13) stakeholders involved in various capacities in the industry. Information gathered from these interviews assisted the research team in expanding upon previously-identified barriers and career hindrances, and in outlining new barriers and career hindrances. The following section of this report outlines the major barriers to employment in the industry as indicated by the interviewees.

3.1 Disabilities and Workplace Injuries

Workplace injuries and disabilities were extremely common amongst employees and stakeholders interviewed, with some citing it as the most common barrier of all and the most difficult to overcome. Six interviewees indicated that they had suffered moderate to serious injuries both on and off the job. Four employees interviewed in particular indicated that they had suffered injuries (with three of the interviewees’ injuries occurring on the job) which prevented them from returning to work in the industry. In three of those cases, the interviewees were unable to regain employment in any capacity. In some cases, the inability to reenter the workforce left interviewees feeling “worthless” and “a burden” to their families.

The injured workers interviewed also pointed to a lack of support from either their employer, their union, or injured-worker support programs or organizations such as Workers Compensation. Several voiced a desire to reenter the industry in a reduced capacity, while others were strongly deterred from reentrance as a result of this lack of support. Many interviewees pointed to the need for better reintegration practices in an ever-changing industry. One interviewee indicated that, with today’s advances in technology, the need for the injured worker to perform the physical labour of the past has been substantially diminished. The industry is no longer focused around the ability to perform manual labour. One stakeholder also cited the high cost of appropriate rehabilitation as a barrier.

Additionally, one stakeholder interviewed cited an increasing need to emphasize safer working practices to reduce workplace injuries in the future.

Recommendations:

To address this pressing barrier, a number of recommendations are proposed:

- **The introduction of appropriate rehabilitation or retraining programs by Workers Compensation for individuals who have been injured on-the-job in the Industrial-Commercial-Institutional construction industry** is recommended. These programs may include, but are not limited to, increased support for injured workers in the form of employment counselors, and assistance in establishing appropriate Employment Assistance Programs for interested employers. Injured workers should also receive assistance to allow them to return to work on a part-time basis when required.

- **The creation of appropriate reintegration, rehabilitation and retraining programs**, which will greatly benefit both injured workers in Nova Scotia as well as the construction industry as a whole.
- The research and implementation of **a program** (following comprehensive research on best practices) **to develop and advance physical fitness of workers** to ensure workplace safety.

3.2 Aging Workforce

Like other Canadian industries and sectors, the ICI construction sector is a highly competitive industry in which changing demographics and mixed messages in regard to the future demand of the industry have led to a shortage of a skilled and qualified workforce. With the average age of ICI workers being 39, it has been projected that 48% of journey person workers will retire from the workforce in the next 5-10 years⁴. In turn, these mass retirements will also increase the demand for workers who have the necessary skills to replace vacancies within the industry. Two interviewees spoke of their long histories in the industry, but indicated that their age was a barrier to maintaining full-time work in the industry in their previous capacities. One interviewee in particular spoke of the need for appropriate part-time work in his trade. It was his belief that work in the trade, when it became available, was either full-time in nature, or unavailable: there was no appropriate part-time work for him in his trade. Respondents pointed to a need for better reintegration practices for the older worker, citing the importance of preserving the extensive knowledge and experience of aging workers for the benefit of the future workforce. As indicated by one interviewee, “No one can replace the skills and knowledge that are lost when an older worker leaves the industry”.

Recommendation:

- To best accommodate and reintegrate the aging worker, it is recommended that **opportunities for mentorship and information-transfer amongst older and younger workers be more extensively developed and expanded across the industry**. In addition, the Nova Scotia Construction Sector Council should consider facilitating increased opportunities for employers to better integrate the skills and experience of older workers. Assistance for older workers may include, but is not limited to – employment counselors, and the establishment of appropriate Employment Assistance Programs.

3.3 Discrimination

Interviewees pointed to a number of forms of discrimination amongst industry participants, including gender discrimination, age discrimination, racial discrimination and cultural discrimination. According to stakeholders interviewed in particular, these forms of discrimination pose a major barrier to persons in minority positions in entering the industry. In particular, one respondent spoke of the belief he encountered upon entering the industry that persons of his race were only able to work in limited occupations.

⁴ Labour Market Assessment: Industrial-Commercial-Institutional Construction Industry of Nova Scotia Statistical Index.

Gender discrimination was also articulated as a major barrier to females considering entering the trade in particular. Some interviewees believed that gender inequality existed to lesser degrees in other locales, and that many women “didn’t stand a chance” when it came to entering the trades in Nova Scotia. In particular, interviewees pointed to incidences of harassment and physical attack, as well as inappropriate behaviour toward women working in the industry. Women face a unique challenge with regard to childcare as well, encountering difficulties with maintaining full-time employment. Many interviewed indicated that the industry was as accommodating as possible to women entering the trade, but that the interest by women to enter the trade was often lacking. Others believed that the industry was simply (and unintentionally) not welcoming to women. One stakeholder spoke of the fear of (male) employees that women were being trained to take over their jobs.

Recommendations:

It is recommended that proactive steps – particularly in the formation of various assistances such as Employment Assistance Programs and employment counselors – be taken to address in particular ageism, racism and cultural discrimination within the industry. In another vein, a number of recommendations have been formulated to address gender discrimination in particular:

- First, **the further expansion of the Techsploration program.** The Techsploration program has been implemented to enable an early interest in the trades by female high school students, and is a joint initiative of Nova Scotia Community College, WITT (Women in Trades and Technology) Nova Scotia, and the Department of Education. Its purpose is to allow young women in grades 9 – 12 the opportunity to explore careers across many sectors and industries, including the trades. Participants meet mentors, perform career research, participate in work site tours, and are given an opportunity to attend Techsplorers Conferences.
- Second, **the introduction and development of innovative recruitment methods and incentives to increase the percentage of females enrolled in trade courses by at least 30% within three years** is recommended. These recruitment methods might include, but are not limited to, a public awareness campaign on women in the trades and seminars for Nova Scotia high school students offered by females working in the trades. Once enrolled in trades programs, however, many women face the reality of gender bias, especially upon entering the workforce as apprentices or as new workers. To this end, the creation of employer agreements and mentoring programs offered through the Nova Scotia Community College for females placed in workplaces where the ratio of men to women is 2:1 or greater is recommended. Mentorship programs will enable women working in the industry to receive the support they require to overcome gender bias and to embark upon long-term, successful careers in the trades.
- Third, **the creation of an ongoing support network for women working in the trades in Nova Scotia** is recommended to ensure that women receive adequate supports throughout their careers. This practice will increase the retention of women working in the industry in Nova Scotia in the future.

3.4 Negative Attitudes about Skilled Trades

Several interviewees indicated that negative attitudes about the skilled trades certainly exist across Nova Scotia, especially amongst young students. The skilled trades are often seen as a “second class” career choice, and high school students today are often pushed toward more “white collar” professions, as stated by one stakeholder. It was also indicated that the trades are usually an “unmentionable” career choice for most high school students, only cited as a career option for students with weaker academic performances. One interviewee in particular saw this lack of interest in the trades as a career choice as a direct result of the education system itself, and an increased emphasis on the need to attend university or to pursue more academic career paths. However, it was noted that – while some students pursue university and other academic careers successfully, others later find themselves to be quite unsuited to this particular educational path. The industry has since moved to remedy these increased misconceptions of the industry amongst students. For example, some spoke of the Dexter Institute’s efforts to educate young students on the trades as a viable career choice.

Recommendations:

To combat this increasing problem, a two-phased process is recommended.

- The first phase consists of the proper **and full implementation of the Construction Association of Nova Scotia’s (CANS) Cooperative Education/Youth Apprenticeship Program**. This program is designed to promote career awareness and long-term attachment to the construction industry⁵.
- In conjunction with the implementation of the CANS Cooperative Education/Youth Apprenticeship Program, the **commencement of a marketing campaign in the province to refocus the industry’s image** during this important transitional time when older workers are rapidly retiring and a need for new workers to carry the industry into the future is essential and recommended. In commencing such a campaign, it will be important to identify and promote “role models” – or, young, successful tradespersons – working in the industry, as well as emphasize the economic benefit of working in the trades. A marketing campaign focused on new workers will be highly effective in securing a pool of qualified labour for the industry now and into the future.

3.5 Costs and Other Barriers to Apprenticeship

Several interviewees spoke of the cost of the apprenticeship in particular. This was highlighted by three employees, who indicated that they had *not* fully completed their apprenticeships, being unable to take the necessary time away from work for financial reasons. In addition, one stakeholder indicated that there may be a lack of incentive on the part of employers to have their employees complete the apprenticeship.

⁵ Construction Trades Pre-Apprentice Program. <http://www.buildingfutures.ca/>

Interviewees, particularly those living in Cape Breton and other remote areas of the province, also identified the cost of relocation to complete the apprenticeship and/or other training as a barrier.

Additionally, research and interviews conducted have highlighted the shortfalls of current apprenticeship opportunities. It has been indicated by interviewees that current apprenticeship opportunities may not cover the full “scope” of a given trade, prohibiting the trainee from gaining experience in all facets of the trade. Having gained only limited in experience during their apprenticeships, many new workers may be dissatisfied upon entering the workforce, resulting in early employment termination in some extreme cases across many trades. It is therefore recommended that current apprenticeship opportunities be redesigned so as to provide apprentices with a full breadth of experience in a given trade.

Several interviewees also spoke of experienced difficulties with testing and certification practices. Many interviewees – both workers and stakeholders – spoke about academic testing and the barrier in which it posed to persons with strictly mechanical aptitudes. One interviewee in particular stated that he required the assistance of a tutor while completing his apprenticeship. Others indicated that they were not able to complete their respective apprenticeships as a result of testing challenges.

Recommendations:

It is recommended that further action be taken to remedy ongoing complications and shortfalls surrounding apprenticeship offerings in the province. These actions may include, but are not limited to:

- **The development and implementation of a program designed to reimburse upgrading costs by up to 100% when a candidate successfully completes a ticket upgrade or apprenticeship and remains working in the province for at least one year.** For each year of work in the province, the program should provide up to \$1000 in reimbursements. Such a program will allow workers in the province to complete their apprenticeships and upgrade tickets without risking potential professional and financial setbacks.
- **The increase of after-hours and online trades courses and apprenticeship offerings across Nova Scotia.** This would enable more individuals to become enrolled in the trades in their communities across Nova Scotia.
- **The initiation of research on current apprenticeship opportunities and how such opportunities might be improved upon to ensure that apprentices are exposed to the full scope of any given trade.**
- **The research and implementation of hands on training, testing and certification processes.**

3.6 Poor Performance in College Programs and Formal Exams

Many interviewees – stakeholders in particular – indicated a recurring disconnect between the curriculum used in Nova Scotia trades programs and standardized tests such as the Red Seal test.

Current pass rates for some trades programs are 50% or less, according to one stakeholder. Another stakeholder indicated that students in trades programs don't seem to have the necessary previous testing experience, and may not have the aptitude for written testing. Overall, the provincial Red Seal examination, according to one stakeholder, is inherently flawed. The same stakeholder indicated that the ongoing disconnect between the curriculum taught and the administered provincial Red Seal test has only been initially recognized – further action is required to correct the issue.

Recommendations:

Several recommendations have been developed to address this ongoing barrier. Such recommendations include:

- **Conduct research to evaluate the effectiveness of current Red Seal testing to identify the underlying rationale behind decreasing pass rates.**
- **The pilot-testing of a trades aptitude test or tests to be undertaken in conjunction with the application process to trades programs across Nova Scotia.** Proper aptitude testing exists, but should be implemented as a requirement for entrants and used to determine those who would be most successful in training. Proper aptitude tests will ensure that individuals accepted into trades programs will be more likely to pursue their trade upon graduation. The implementation of proper aptitude testing will also assist community colleges in recruiting and retaining students with appropriate trades-related aptitudes.

3.7 Declining Enrollment Rates in Trades Courses

Many programs at the Nova Scotia Community College have seen declining enrollment rates over the past two years. For example, enrollment rates for the Electrical-Construction and Industrial (Certificate) program at Nova Scotia Community College have decreased from 37% in 2005 to 31% in 2007, while the Electrical-Construction and Industrial (Diploma) program has experienced similar decreased enrolment rates: from 67% in 2005 to 42% in the 2007 – 2008 academic year. Enrollment in Pipe trades courses has fallen from 42% in 2005 to 26% in 2007, with only 41 students enrolled successfully out of 159 applicants in the 2007 – 2008 academic year⁶, indicating that fewer applicants are being accepted for enrollment. Overall decreased enrollment rates may be attributed in part to the out-migration of potential students to other provinces to pursue necessary training. On the other hand, this may actually be indicative of an improved admissions process and guidelines, as community colleges such as the Nova Scotia Community College may be aiming to enroll more qualified and well-suited applicants in trade programs.

Recommendations:

To address declining enrollment in trades courses across the province, several recommendations have been identified:

⁶ Nova Scotia Community College Statistics.

- **The commencement of a marketing campaign in the province to refocus the industry’s image** during this important transitional time, when older workers are rapidly retiring and a need for new workers to carry the industry into the future is essential. In commencing such a campaign, it will be important to identify and promote “role models” – or young, successful tradespersons – working in the industry, as well as emphasize the economic benefit of working in the trades. A marketing campaign focused on new workers will be highly effective in securing a pool of qualified labour for the industry now and into the future.
- **The initiation of a tuition reimbursement program of up to 100% offered to new entrants who work in the province for a minimum of three years upon graduating from a trades program in Nova Scotia** is recommended. This practice will entice young workers to consider work in the trades and to remain in the province upon graduation.

3.8 Education, Literacy and Essential Skills

Of the interviews conducted, four individuals indicated that their formal education level posed a barrier to their working in the industry. All four respondents indicated that they had limited formal education; in one case, a respondent had completed grade nine, but was not able to earn a high school diploma or equivalent due to testing difficulties. Another interviewee indicated that he had experienced similar testing difficulties and had been “steered toward the trades” in high school, being told that he did not have the aptitude required to pursue more academic career paths.

The importance of improving numeracy – or “trades math” – was seen to be essential for entering the workforce. In addition, several interviewees spoke of the importance of literacy and writing skills, indicating that they, too, require improvement. One stakeholder in particular saw lacking numeracy and literacy skills as a major deterrent to advancement in the industry.

Recommendation:

- It is recommended that **standard benchmarks for numeracy and literacy requirements be set for the Industrial-Commercial-Institutional industry in particular**. These established benchmarks will assist in assessing and evaluating numeracy and literacy amongst workers and new entrants in particular. Numeracy and literacy standards should be specific and relevant to areas of training, encompassing the “trades math” of a particular trade, for example.

3.9 Trades Course Application Requirements versus Necessary Industry Aptitudes

During recent years, an increasing disconnect between academic performance and the workplace performance of new industry entrants has been noted. Interviewees attributed this in part to a lack of appropriate entrance requirements for trades courses in the province, which are academic in nature. Tradespersons, for the most part, require more than an academic aptitude to be successful in the industry: ideally, a mechanical aptitude is preferred.

During the course of interviews and research conducted, the need for an industry-specific aptitude test or tests has been strongly articulated. Some individuals interviewed pointed to a disproportionate percentage of graduates from the Nova Scotia Community College and new entrants in the trades. While many potential rationales for this disproportion were provided, an overarching need for proper trades aptitude testing was common. Many interviewees indicated that students who entered trades-related programs at the community college level were either choosing not to practice their trade upon graduation, or leaving the trade in pursuit of alternate careers. It has also been indicated that entrance requirements for trades programs at the community college level in Nova Scotia are often solely based on previous academic performance only.

Recommendation:

- It is recommended that **pilot-testing of a trades aptitude test or tests** be undertaken in conjunction with the application process to trades programs across Nova Scotia. Proper aptitude testing exists, but is currently not a requirement for acceptance into trades programs across the province. If implemented as a requirement, proper aptitude tests will ensure that individuals accepted into trades programs will be more likely to pursue their trade upon graduation. The implementation of proper aptitude testing will also assist community colleges in recruiting and retaining students with appropriate trades-related aptitudes.

3.10 Local Job Market Demand

Local job market demand is a major area of barrier, according to interviewees, with eight individuals indicating that demand for their skills was declining in the province. No particular respondent indicated that he or she was considering relocating elsewhere in the province (for example, from Cape Breton to the mainland) to seek work. Instead, respondents indicated that they were seriously reconsidering relocating to another province where there was a greater demand for their skills and abilities.

In particular, two interviewees had previously worked in the industry in Alberta. One interviewee stated that, while the demand for his trade (welding) was limited to non-existent in Nova Scotia, he would be unwilling to relocate, even though his skills were in high demand in provinces such as Alberta. He felt as though his desire to live and work in Nova Scotia constrained him into accepting a stable, permanent but low-paying position. Another respondent indicated that he was actively searching for work in Nova Scotia, but was almost inevitably prepared to relocate to Alberta if his job search proved unsuccessful.

Additionally, while the availability of work is steady in the Halifax Regional Municipality, other more rural areas of the province are experiencing an economic downturn – especially the Cape Breton region. Interviewees and stakeholders interviewed in Cape Breton indicated that people in the industry in the area are waiting for an economic “boom”, or a source of new work that, according to some interviewees, is not imminent. In rural or economically-depressed regions of the province, work is not steadily available, resulting in workers either out-migrating to other locales for work, or leaving the industry.

Recommendations:

- It is recommended that the Nova Scotia Construction Sector Council **undertake a study of current and future economic conditions in the province**. Such a comprehensive study should consider current and potential sources of work for persons in the industry in order to project a realistic vision of the industry in upcoming years.
- The creation of an **accessible, online job-seeking network specific to the construction industry in Nova Scotia** is recommended. Such a job-seeking network will enable employers to post positions and potential employees to post their resumes. In conjunction with the creation of a job-seeking network will be a public awareness campaign. For individuals without internet access, it is recommended that available job postings be publicly posted and updated periodically. The creation of a job-seeking network will allow an equal opportunity for employees and employers to access a pool of employment and labour. As some interviewees indicated, access to a job-seeking network will likely further reduce the ongoing out-migration of labour to provinces such as Alberta.

3.11 Physical Abilities

In recent years, the physical abilities required to work in the industry have decreased with an increase in technology. However, most interviewees indicated that a certain degree of physical ability and fitness is required to gain employment in the industry, although most choose their preferred trade according to their level of physical ability. Depending on the trade, a certain degree of dexterity may be required. Others indicated that, regardless of physical ability, employers should be willing to delegate labour-intensive tasks to other workers, thus allowing persons with decreased physical abilities to utilize alternative skills in any given trade. Another stakeholder indicated that physical abilities have rapidly decreased in recent years, preventing new workers from undertaking the necessary physical work required for many jobs in the industry.

Additionally, there is a need for a grace period for injured workers who return to work. Many injured workers return too early to work, only to discover that they require additional time off and have already closed their Worker's Compensation claims.

Recommendations:

- It is recommended that the Nova Scotia Construction Sector Council **undertake the research and implementation of a program to develop and advance physical fitness of workers** in order to better ensure workplace safety.
- It is recommended that a **four-week grace period be granted to injured workers returning to work before closing their Worker's Compensation claims**.

Other Barriers

In speaking with interviewees, several additional – but less prevalent – barriers to employment were identified. These barriers include:

3.12 Resistance to “Change”

Interestingly, several interviewees voiced the notion of “change” as a barrier to their employment, demonstrating a resistance to change. In some cases, this change occurred as a result of employment status, with some interviewees articulating a difficulty adjusting to a “self-employed” status, for example. Other forms of “change” include the need to relocate to other areas of the province for employment.

3.13 Foreign Workers, Credential Recognition, and Prior Learning Assessment

The integration of workers from other countries was seen as a barrier, most notably with regard to the lack of foreign worker credential recognition. One stakeholder interviewed indicated that foreign worker credential recognition was in its formative stages in Nova Scotia, and that the industry was only beginning to undertake preliminary work to assess the credentials of those from other countries in working in the construction industry. Another interviewee indicated that the industry was currently unaccommodating in this area, and not set up to easily assess the credentials of foreign workers, citing a need for further “bridging” practices. The issue of unlevelled or disproportionate credential recognition for foreign workers was also articulated, indicating that the credential recognition and/or certification process is not parallel amongst both foreign and Canadian workers. Overall, it became clear that the issue of foreign credential recognition should be brought to the forefront of subsequent discussions on the future of the industry.

3.14 Substance Abuse and Criminal Records

Substance abuse was not seen as a major area of barrier according to those interviewed. Some interviewees stated that the issue of substance abuse *does* exist, but to a lesser degree than in the past. Others believed that current workplace policies and practices served to better address issues related to substance abuse in the industry. The importance of recognizing and acting on substance abuse by employers was seen as essential because of the safety risks associated with the work of the industry. In addition, criminal records were not seen to be a major area of barrier. However, one stakeholder in particular indicated that having a criminal background (in particular, previous theft or burglary charges) may impede a worker’s ability to be hired in the industry.

Workers with previous instances of substance abuse or criminal records may face challenges upon seeking or gaining employment, as employers place an increased emphasis on workplace safety and the protection of workplace property as time goes on. As a result, persons with past histories of substance abuse or incidences of criminal activity may find it increasingly difficult to gain employment in the Industrial-Commercial-Institutional construction industry.

3.15 Lack of Specialized Trade Courses

While research conducted pointed to the incidence of ineffective apprenticeship experiences, interviewees have also indicated a shortage of specialized trade courses in the province, such as specialized welding, for example. Such specialized trade courses will expose students to the full scope of any trade specialization. This shortage had many negative consequences for the

interviewees, and resulted in a high level of workplace dissatisfaction. Interviewees cited the lack of specialized trade courses in the province as a major rationale for the constant out-migration of persons to other locales to seek employment and/or training.

3.16 Mental Disabilities

While mental disabilities were not found to be a barrier for most interview respondents, they *were* seen as a barrier for a particular group of tradespersons. In particular, mental disabilities amongst this group result in low rates of employment success and are often paired with a need for constant supervision, learning disabilities and/or substance abuse. As one stakeholder indicated, there is a need for increased offerings by the Apprenticeship division of the Department of Education to better accommodate persons with mental disabilities.

The following section of the report outlines the emerging trends and issues within the Industrial-Commercial-Institutional industry as indicated by the thirteen (13) stakeholders interviewed.

4.0 Emerging Trends and Issues

In addition to articulating current barriers to gaining employment in the industry, stakeholders were also asked about emerging issues and trends. Insight gained into emerging issues and trends will assist the Nova Scotia Construction Sector Council-ICI in developing proactive human resource solutions to best meet the needs of not only today's workforce, but also the workforce of the future. The following section of this report will outline the emerging issues and trends as indicated by interviewed stakeholders.

General Shortage of Skilled Workers

During the course of interviews conducted, it became apparent that more and more workers are leaving the province in pursuit of work elsewhere. This is especially true in the case of skilled workers – or workers with particular trades specializations – who have been reportedly out-migrating to provinces such as Alberta at an alarming rate. In fact, as the Construction Sector Council's *Construction Looking Forward: Labour Requirements from 2007 to 2015 for Atlantic Canada* Report indicates, in 2006 "Alberta had the strongest markets and would have been the most attractive destination for Nova Scotia workers."

According to one stakeholder, this shortage of skilled workers in Nova Scotia first became apparent approximately ten years ago, and the trend is expected to continue indefinitely in the future, with the industry bound to "fail" unless young workers are recruited to stay and work in the province over the next twenty to thirty years. Evidence of this increasing shortage of skilled workers in the province is evident through various news articles and interviews conducted with stakeholders and workers. (More information can be found in March 2007's *Labour Market Assessment of the Industrial-Commercial-Institutional Construction Sector of Nova Scotia and the associated Statistical Appendix* – available through the NSCSC-ICI). Additionally, the Construction Sector Council's *Looking Forward: Labour Requirements from 2007 to 2015 for Atlantic Canada* Report indicates that, while "competition for workers with specialty skills will remain a fact of life . . . conditions will improve in Western provinces such as Alberta, Saskatchewan and British Columbia, thus increasing the demand for skilled workers such as boilermakers, millwrights, crane operators, equipment operators, trades helpers and labourers, truck drivers and welders [in Nova Scotia]." Statistics Canada Construction Activity in Nova Scotia Index 2001 indicates that non-residential construction will reach its highest point in 2008, falling off until 2011 when the industry will stabilize.⁷ This is due to the many difficulties the province will face in attracting and retaining skilled workers. Future human resource strategies developed by the Nova Scotia Construction Sector Council should take into consideration the need for specialized trades courses and incentives for keeping young skilled workers in the province upon graduation.

Changed Work Ethic

One stakeholder pointed to a change in "work ethic" amongst young workers, indicating this to be a trend that will continue on into the future. According to the interviewee, today's young workers are not taught to apply themselves as were the workers of the past. A potential rationale for this changed work ethic was due in part to the disciplinary policies of Nova Scotia trade

⁷ National Construction Sector Council: *Looking Forward: Labour Requirements from 2007 to 2015 for Atlantic Canada*

schools and community colleges. According to the stakeholder, this lack of discipline could be seen as directly correlated with the “weakened” work ethic of some new workers in the industry.

Additionally, the Industrial-Commercial-Institutional industry will experience a rapid need for more workers as the current workforce continues to age and retire. This in turn creates a “buyer’s market” for workers, as indicated currently in the hospitality industry, where workers are better able to transition into a variety of occupations within the industry with ease. This “buyer’s market” trend is expected to increase in incoming years across many industries.

Decreasing Numeracy and Literacy Skills

A decrease in numeracy and literacy levels was a common barrier articulated by several interviewees – and one that is expected to continue into the future. According to one stakeholder, the industry is increasingly reducing its standards to accommodate persons with decreased numeracy and literacy skills. This may be due in part to a lack of testing and standards with regard to numeracy and literacy within the educational system itself, which is essential to establishing the levels of numeracy and literacy required for an occupation.

As a result of increasing numeracy and literacy challenges, one stakeholder pointed to an ongoing loosening of qualification requirements. Interviewees expressed a fear that these decreased qualification requirements would result in an unsafe, unreliable and unstable future workforce.

The following section of the report outlines the emerging skills and abilities of workers within the Industrial-Commercial-Institutional industry as indicated by the thirteen (13) stakeholders interviewed.

5.0 Emerging Skills / Abilities

Stakeholders interviewed were also asked to identify essential skills and abilities required for success upon entering the industry. By acquiring a knowledge of these required skills and abilities, the Nova Scotia Construction Sector-ICI will be better able to tailor its human resources strategies to accommodate such skills in the future. The following skills and abilities as identified by stakeholders are required to ensure employment success in the industry.

Increased Work Ethic, Motivation and Workplace Satisfaction

To properly succeed in the industry in the future, stakeholders interviewed emphasized the importance of developing an appropriate work ethic, workplace motivation and workplace satisfaction. For one stakeholder, appropriate motivation and satisfaction were key to ensuring the success of future workers and the industry in general. Rapidly changing work ethics and decreasing motivation and job satisfaction have resulted in a sub-par, unreliable workforce. To best remedy this, it is recommended that measures are undertaken to develop an appropriate work ethic and increase perceptions of the industry – and hence workplace satisfaction and motivation – early on, during training, for example. An increase in work ethic, motivation and workplace satisfaction is highly essential to ensuring a vital Industrial-Commercial-Institutional construction industry in the future.

Additionally, as in many industries, both monetary and non-monetary incentives play a large role in employee motivation. In particular, there has been a recent need to increase employee motivation as the demand for workers increases and the idea of the employee's "buyer's market" prevails. This motivation often is non-monetary in nature, presenting itself in the form of memberships to fitness clubs and special non-monetary bonuses for performance, for example. However, non-monetary motivation is difficult to achieve in the Industrial-Commercial-Institutional-Industry due to the project-to-project nature of the work.

Increased Physical Fitness

An increased emphasis on physical fitness is essential to gaining employment in some trades within the industry. It was indicated, however, that physical abilities are less essential for certain tradespersons – such as electricians or welders. Overall, physical fitness levels were declining amongst new workers, according to stakeholders interviewed. Emphasizing the importance of appropriate physical fitness and physical ability is important for students entering trades courses and new workers entering the workforce.

Physical fitness has historically been essential for success in the construction industry. While recent evidence has indicated that physical fitness is less important to employment success in the industry, it is important to note that appropriate physical fitness is key to injury prevention. As such, increased emphasis should be placed on promoting the importance of physical fitness amongst employees – especially new entrants – in the industry.

Mechanical Aptitude

Stakeholders interviewed noted that, while individuals are often able to enter and complete trades courses with ease, upon entering the industry, many discover that they do not have the appropriate mechanical aptitude, resulting in frustration, sub-par performance, and – in some

cases – leaving the industry. One stakeholder in particular spoke of the difficulties faced by a new employee who – although he had successfully completed his trades course at the top of his class – encountered difficulties upon entering the workforce, being required to utilize a more “hands-on” or mechanical aptitude. It is imperative that new entrants be required to undertake appropriate aptitude testing as an entrance requirement to trades programs.

Additionally, trades courses should be appropriately tailored to meet the needs of persons with mechanical or “hands on” aptitudes. It was noted that, while many trades programs utilized hands-on training methods, academic testing was often a requirement for certification. The combination of both hands on and academic aptitudes during trades programs often proved to be counterintuitive for many students, resulting in frustration at the apprenticeship and Red Seal levels in particular.

Improved Literacy and Numeracy Skills

As indicated previously, there is a need for new workers to possess adequate literacy and numeracy skills. Appropriate literacy and numeracy skills are essential for success – and advancement – in the industry. Literacy skills include the ability to speak and read instructions, for example, as well as adequate writing abilities, which are essential, according to one stakeholder. Numeracy skills include an appropriate understanding of necessary “trades math”. As one stakeholder indicated, numeracy and literacy skills can be obtained through additional training and/or ongoing education, if required.

The following section of the report outlines the prevalent learning styles of the former, current and new workers interviewed according to the “Learning Channel Preference Checklist”.

6.0 Prevalent Learning Styles

As indicated in the previously submitted “Preliminary Summary Interview Results Report”, a number of interviews were conducted with persons involved as either current, former, or new workers in the Industrial-Commercial-Institutional construction industry. Upon completion of the interview, interviewees were asked to complete a “Learning Channel Preference Checklist” indicating their particular learning preference. The “Learning Channel Preference Checklist” is available through the Nova Scotia Construction Sector Council.

The “Learning Channel Preference Checklist” is a “10 – 15 minute self-rating inventory that defines an individual’s best way to learn and remember new information.”⁸ The “Learning Channel Preference Checklist” assisted Future Learning in identifying the learning style of each interviewee, and in outlining the most prevalent learning style amongst the sixteen people interviewed.

The statements are self-reflective in nature, and respondents are asked to indicate how much each statement applies to them according to the following scale:

- 1 – Almost Never**
- 2 – Rarely**
- 3 – Sometimes**
- 4 – Often**
- 5 – Almost Always**

The checklist was developed by Lynn Neph, PhD, and has a high rate of reliability, “using Cronbach’s alpha (for consistency) corrected by the Spearman-Brown Prophecy Formula: .98”.⁹ Upon completion, interviewees added up their responses, indicating their preferred learning style. The “Learning Channel Preference Checklist” (LCPC) identified three prevalent learning styles: (1) **visual**, (2) **auditory** and (3) **haptic**. In addition, the “Learning Channel Preference Checklist” comes with practical suggestions for studying and interpretation guidelines. More information on the LCPC can be found by visiting <http://www.way2go.com/>.

Although respondents’ results varied, of the individuals interviewed, seven indicated that their preferred learning style was “**Visual**,” making it the most commonly noted learning style. According to the Learning Channel Preference Checklist, visual learners learn more and remember more effectively through reading and writing – or “seeing” the information. Such learners might find it easier to learn by making lists, and using “post-its,” and will benefit least from lecture-type situations. Interesting to note is the fact that more adults tend to have a visual learning preference, while a study of 6,000 students indicated that children prefer this learning channel least.¹⁰

⁸ Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC). 2006. <http://www.way2go.com/>

⁹ Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC). 2006. <http://www.way2go.com/>

¹⁰ Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC). 2006. <http://www.way2go.com/>

Other learning channels included:

- **Auditory** – Those who prefer this learning channel learn and remember best through listening and speaking. Hearing information is often more advantageous, and lecture situations will work well. Of the individuals interviewed, only three indicated this as their preferred learning style.¹¹
- **Haptic** – Those who prefer this learning channel learn and remember best when involved in “hands-on” activities. Persons with this learning channel preference often experience frustration with visual and auditory learning techniques. Additionally, this modality was the most commonly noted learning channel amongst a study of 6000 students. Of the individuals interviewed, only three indicated “Haptic” as their preferred learning style.¹²

It is important to note that, according to the “Learning Channel Preference Checklist,” relatively “flat” or similar scores across all three modalities are seen “among the gifted, learning disabled and adult populations. Among the gifted, all three channels are well-developed and the channel which best matches the task is used. For the learning disabled, a clearly-defined method of processing is not consistent; it may change day-to-day and according to the task.”¹³

The latter would indicate that, for persons aged 11-adult facing learning disabilities (whether diagnosed or not) – preferred learning styles will vary according to the nature of the task performed. This may explain in part why the preferred learning channel amongst the eleven individuals interviewed was not overwhelmingly “haptic,” as five individuals identified themselves as experiencing difficulties with basic skills such as numeracy and literacy. It is important to note that forthcoming learning and training activities and materials utilized by member organizations and other industry partners and stakeholders should incorporate all learning channels – visual in particular – to be most effective.

The following section of this report outlines the necessary and prevalent personal aptitudes for the Industrial-Commercial-Institutional construction industry as identified by interviewees.

¹¹ Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC). 2006. <http://www.way2go.com/>

¹² Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC). 2006. <http://www.way2go.com/>

¹³ Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC). 2006. <http://www.way2go.com/>

7.0 Prevalent Personal Aptitudes

During the course of research and interviews conducted, both stakeholders and workers interviewed pointed to the importance of having an appropriate personal aptitude for the trades. A direct correlation exists between persons with an appropriate trades aptitude and employment success. Historically, these aptitudes were prevalent amongst young workers who had had the opportunity to utilize such a mechanical aptitude from a young age. “Trades families” – or families with a long history of work in a particular trade – is lessening with time. However, and as one interviewee indicated, the possession of an appropriate mechanical aptitude is an asset to work in the industry.

The following section of the report outlines best and current practices currently being utilized to address several of the previously identified career hindrances and barriers as outlined by conducted research.

8.0 Best and Current Practices

(Adapted from the previously-submitted Collection of Collection of Best and Current Practices on Career Hindrances and Barriers Within the ICI Construction Sector)

To address the previously outlined career hindrances and barriers of the Industrial-Commercial-Institutional construction industry, a comprehensive list of current and best practices has been compiled from preliminary research conducted at the onset of the Career Resource Model Project and interviews conducted with stakeholders and workers involved in the industry. The following compilation of best and current practices will assist the Nova Scotia Construction Sector Council-ICI in increasing its awareness of current and best practices being utilized to address the career hindrances and barriers faced by current, former, and new workers.

Essential Skills Tools for Employers and Employees

Essential Skills tools may be used by the construction industry to assess potential employees' literacy skills at hiring phases, to better retain employees and recognize their training needs, and involve employees in their continuous learning goals. These tools are significantly important for sourcing future labour sources identified by the Construction Sector Council (i.e., Aboriginal workers and immigrant workers). Human Resources and Social Development Canada's Essential Skills Initiative was formed in 1999 to improve Essential Skills levels of Canadians entering or in the labour market in order to optimize participation, facilitate transitions and improve productivity in the workplace. The nine Essential Skills identified by HRSDC, which are required by all Canadian workers in all occupations (at varying levels), are Reading, Document Use, Writing, Numeracy, Oral Communication, Thinking Skills, Working With Others, Computer Use, and Continuous Learning. The Essential Skills Initiative recently released the Essential Skills Toolkit, which emphasizes needs assessment, curriculum and training for Canadian occupations. Tools released in early 2007 include:

The Essential Skills Hiring Checklist

- Provides information about the Essential Skills employees would bring to the workplace.
- Helps determine if the skills demonstrated by the candidate match the skills required for the position.

The Essential Skills Workplace Check-up

- Helps employers gather employee feedback on Essential Skills in the workplace.
- Results allow employers to address Essential Skills gaps and skill trends in their organizations.

Essential Skills Training Activities

- Helps employers incorporate Essential Skills into formal or informal workplace training
- Includes activities to address each of the nine Essential Skills.

Essential Skills Workplace Survey

- Helps employers conduct an organizational needs analysis to identify potential Essential Skills issues and/or areas of strength.
- Can be used as a self-assessment tool.

The Initiative is currently developing other related tools that may be adapted to meet the needs of the ICI construction sector, including:

Problem Solving Curriculum

- Facilitates the integration of Problem Solving into workplace training activities.
- Provides guidance to employees seeking to upgrade their Problem Solving skills.

Essential Skills Indicators

- Self-assessment tools to help employees recognize their Essential Skills in Reading, Document Use and Numeracy (three important Essential Skills for construction trades).

Essential Skills Tip Sheets and Learning Strategies

- Helps individuals improve their Essential Skills by providing tips and learning strategies.

Essential Skills Organizational Needs Assessment

- Helps employers gain an organizational perspective on their Essential Skills strengths and weaknesses.

Additional Essential Skills tools are currently under development. Descriptions of the Essential Skills tools can be found online at: <http://srv108.services.gc.ca/english/general/employer.shtml>.

TOWES Tests for Construction and Other Skilled Trades

TOWES (Test of Workplace Essential Skills) is an effective assessment that uses authentic workplace documents to accurately measure three essential skills that are needed for safe and productive employment: Reading Text, Document Use, and Numeracy. Administered by Bow Valley College in Alberta, TOWES is significantly different from other skills assessments. Test takers must assume the role of a worker and use information imbedded in authentic documents to solve real problems. Some of the documents used include, catalogues, order forms, labels, and schematics. TOWES also has tests that represent a full range of essential skill levels needed in the Canadian workplace. TOWES tests are often used in the following contexts:

Entry-Level Assessment of Skills

TOWES gives employers a way to set reasonable and valid job requirements. Many employers are using years-in-school or other credentials as proxies for ability. This does not account for the variability of education across the country, nor does it take into consideration foreign-born citizens, who have the skills but not the Canadian educational credentials.

Educational Assessment

Instructors, trainers, and literacy tutors can use TOWES to place workers into programs, or design programs to meet individual educational needs.

Work/Worker Adjustment

Rapid changes in technology and work processes, together with plant closures and down-sizing, have created the need for effective adjustment programs. A wide-ranging assessment, keyed to essential skills descriptions for jobs listed in the National Occupational Classification gives workers and program developers a valid way to assess present skills and compare them to the

requirements for a variety of possible jobs. Individual workers, or those seeking employment can use TOWES results to make decisions about future training.

School/Work Transition Programs

A valid and reliable test of the essential skills needed for work is useful to high-school teachers and administrators. TOWES provides a basis for certifying students' levels of competence, and a way to promote 'employability skills' to teachers and students alike.

SkillPlan Resources

Conducted research has identified a number of resources available from SkillPlan (the BC Construction Industry Skills Improvement Council). These resources are aimed at building and supporting workplace Essential Skills that could be used and adapted by the ICI construction sector. These resources are available at varying costs to employers, employees and workplace trainers, and are described on the SkillPlan Web site (www.skillplan.ca):

How do your skills Measure Up? Web site

This online resource links essential skills to real Canadian workplaces. This web-based practice and self-assessment provides more than 100 activity sets based on workplace documents. Each task has been placed on the scale used by Human Resources and Social Development Canada's Essential Skills Profiles. The activity sets on How do your skills Measure Up? are consistent with the problem sets in the Tests of Workplace Essential Skills (TOWES). Practice typical workplace tasks or assess skill levels in three essential skills: Reading, Document Use and Numeracy. <http://measureup.towes.com/>

Formulas at Work: Tradesworkers on the Job

A companion resource that can be used to practice Numeracy skills using actual construction situations. This publication takes a unique approach by using a combination of photographs and diagrams to set up and solve math problems involving area, volume and right-angle triangles. Posters, included with the resource, give steps to setting up and solving problems, and provide construction-related examples. Adults with an interest in construction will learn about trades careers and the language of Canadian construction sites in this resource.

Measurement and Calculation for the Trades

Sometimes apprentices find technical training challenging. Because trades focus on physical know-how, Essential Skills like reading and numeracy are often hidden, but in every trade, math skills like measurement and calculation are used every day and are an integral part of success both on the job and in technical training. Measurement and Calculation for the Trades enables apprentices to prepare for technical training by reviewing the required numeracy skills, so retaining new learning is easier. Review and practice basic math skills using whole numbers, decimals, fractions, ratio/proportion, percent, measurement & conversions, perimeter, area, volume, and right-angle triangles. Measurement and Calculation for the Trades can be used for both individual study and group instruction. Accompanying workbooks are also available for additional trade-specific measurement and calculation problems. Using trades applications and illustrated explanations to help apprentices learn the math foundations they need, Measurement and Calculation for the Trades contributes to success in technical training and on the job.

Science for the Trades, An Illustrated Guide to Basic Applications in the Construction Industry
This resource contains photographs and examples from industry illustrate basic principles and concepts of physics and chemistry. These relevant views of fundamental knowledge are designed to enhance learning and make it relevant to those who are drawn to the hands-on experiences of construction trades. Direct links are made between theory and practice. The process of transferring knowledge to skill is demonstrated at an elemental level, a process that is critical to the increasing demands of theoretical and practical learning in the trades.

Assessing Learning Styles

Research on the assessment of learning styles in the construction industry suggests that assessing and catering to individuals' learning styles increases the likelihood of successful employment¹⁴. Most people have a preferred learning style, one that describes the way in which he or she learns best. No one way of learning is necessarily better than another – it is simply different. Learning styles relate to how people use their senses. While most people use all of their senses as they learn, most of us seem to learn best through one particular sense. Most educators and learning theorists agree that there are three primary perceptual preferences, or learning styles, for most people:

- Auditory learners learn best by hearing or listening. They prefer talking about a situation and expressing emotions verbally.
- Visual learners learn best by seeing. They prefer watching demonstrations and they generally have intense concentration and the ability to visually imagine information.
- Tactile (or haptic) learners learn best by doing. They need direct involvement and they generally remember best what is done, not what is seen or heard.

Different situations and types of information are learned best in different ways, but it is important to be aware of preferred learning styles to make optimal use of learning time. There are many tools for determining learning style. To name a few:

- The Learning Channel Preference Checklist: a quick and reliable one that involves self-reporting on 36 items published by Specific Diagnostics in Virginia. The Learning Channel Preference Checklist is available through the Nova Scotia Construction Sector Council.
- The PETALS Learning Styles Questionnaire: based on the work of well-known learning academics Kolb, McCarthy Dewey, Jung, Lewin, and Piaget.
- Cymeon Research Learning Styles Profiler: widely used around the world to assess and develop the way people learn at work.

Assessing Personal Aptitudes

Aptitudes are natural talents, special abilities for doing, or learning to do, certain kinds of things. Manual dexterity, musical ability, spatial visualization, and memory for numbers are examples of

¹⁴ Kululanga, G. & McCaffer, R. (1999). "Learning mechanisms employed by construction contractors." *Journal of Construction Engineering & Management*; v. 125: no. 4, p. 215.

such aptitudes. Assessing personal aptitudes would offer many advantages to construction sector stakeholders for several reasons:

- For workers who face career hindrances, it would provide useful information about other areas that could be pursued – e.g., for an injured worker who could no longer engage in physical work, an aptitude assessment could provide information that supports a career track that involves being a trainer or an estimator.
- For new entrants to the sector, it would provide useful validation that their career choice aligns with their aptitude or does not. It provides potential employers with additional information about a person’s suitability for a certain position.
- It may provide indications to target groups of future labour sources who may not consider construction trades (women, immigrants, students, etc.)

There are a number of samples of aptitude tests. Two tests available that could be administered for the construction sector worker at reasonable cost include:

- **Differential Aptitude Tests (DAT) with Career Interest Inventory:** a battery of tests designed to measure ability to learn or to succeed in a number of different areas. It comprises two levels that collectively measure eight important aptitudes: verbal reasoning, numerical reasoning, abstract reasoning, perceptual speed and accuracy, mechanical reasoning, space relations, spelling, and language usage. These tools can be used alone or in conjunction with the Career Interest Inventory, which is available separately and also comprises two levels. The Career Interest Inventory is a career-guidance tool designed to provide information about students’ educational goals, interest in various subjects, and activities, as well as various fields of work.
- **General Aptitude Test Battery (GAT-B) - Canadian Edition:** A multiple aptitude test battery for use in vocational and educational counselling. The GAT-B measures nine distinct aptitudes with twelve separate tests, pencil and paper and four performance tests.

Assessing Skills and Abilities

Assessing the skills and abilities of potential and current workers in the ICI construction industry using existing tools and products may indicate a number of factors that contribute to hindrances and barriers to employment:

ONESTEP

- The Ontario Network for Employment Skills Training Projects (ONESTEP) has published an excellent report on employment indicators in that province’s community based training sector that includes a comprehensive checklist of client needs, barriers and job readiness. It is recommended that this tool be used to guide the interview with each participant (see attached checklist).

VALPAR

- VALPAR International manufactures and develops specialized test instruments and software that measure work-related skills. Their products are used worldwide in education, workforce development, allied health, and are the industry standard for work skills assessment. VALPAR’s computerized and hands-on, performance-based assessment products use the Criterion Referenced framework of the Revised Handbook

for Analyzing Jobs (RHAI) and the Dictionary of Occupational Titles (DOT), both published by the U.S. Department of Labor.

Tax Breaks and Other Incentives for Apprentices

Research has also indicated tuition rebates, tax breaks and non-repayable grants and loans to apprentices to complete their programs and to purchase learning resources and tools in some Canadian provinces¹⁵. Additionally, employers in some provinces may be able to access provincial and federal government programs to hire apprentices at reduced operational costs and more easily retain these workers after they successfully complete their apprenticeships.

Foreign Credential Recognition for Construction Workers

A well-documented source of future labour in the construction industry, foreign workers represent a great opportunity for the sector. The Construction Sector Council (2007) has identified a Foreign Credential Recognition strategy to remove disadvantages faced by foreign-trained construction workers. These disadvantages include language barriers, insufficient documentation, lack of knowledge of Canadian health and safety regulations, building codes and other workplace requirements.

Mentoring

The benefits of mentoring are well researched and described in various literature, and are especially prevalent in situations where knowledge transfer from older, skilled workers is required to help younger, less experienced workers. Because experience in construction trades is extremely important to one's successful employability, the introduction of mentoring programs could help retain skilled construction workers. The Conference Board of Canada (2002) and other professional organizations have released mentoring ideas to Canadian businesses, including tips to developing mentoring programs within an organization. Stakeholders interviewed also pointed to increased activity within the industry with regard to mentorship programs.

Testing Accommodation

Apprentices and other learners who fail to excel at written examinations could be offered other means of completing formal assessments. Studies completed in the United States college system indicate common accommodations for test takers include setting and/or administration accommodations, e.g., providing a bilingual dictionary and a separate room for testing; scheduling accommodations, e.g., allowing students to have breaks, extra time, and using multiple testing sessions for students with learning disabilities; response accommodations, e.g., allowing students to mark answers directly in the test booklets rather than on separate sheets, using scribes¹⁶. In consulting with industry stakeholders, it became clear that testing accommodation is currently being utilized across the province.

Youth and Female Engagement

Various programs exist in the province to increase youth and female interest in the trades as a viable career choice. While some programs are in their pilot phase, others are being fully implemented in schools throughout the province. Such programs include:

¹⁵ Baker, B. (2006). "Breaking barriers for apprentices." *Daily Commercial News and Construction Record*, v. 89: no. 189, p. 1 & 5.

¹⁶ Samuels, C. (2007). "California students with disabilities face exit exam." *Education Week*, v. 26: no. 38, p. 18-23

- **The Construction Association of Nova Scotia’s Co-Operative Education / Youth Apprenticeship Program**

While only in its pilot phase, this program is designed to promote career awareness and long-term attachment to the construction industry¹⁷. Working in partnership with the Nova Scotia Department of Education and the Nova Scotia Community College, the Construction Association of Nova Scotia has designed a program that will be offered to all students in high schools in the Halifax Regional Municipality who currently offer Cooperative Education programs. “The program will consist of three components: In-School Pre-Placement (25 hours), CANS Training at NSCC (100 hours) and a youth apprenticeship work placement, and provides students with many opportunities to be assisted in defining their career choices, as well as transition planning to post-secondary and/or work¹⁸”.

- **Techsploration**

The Techsploration program has been implemented to enable an early interest in the trades by female high school students, and is a joint initiative of Nova Scotia Community College, WITT (Women in Trades and Technology) Nova Scotia, and the Department of Education. Its purpose is to allow young women in grades 9 – 12 the opportunity to explore careers across many sectors and industries, including the trades. Participants meet mentors, perform career research, participate in work site tours, and are given an opportunity to attend Techsplorer's Conferences¹⁹.

Older Worker Reintegration

While no conclusive information on Nova Scotia’s reintegration practices could be uncovered, other provinces have taken proactive action on the issue of older worker reintegration, providing an example for which Nova Scotia might follow. For example, the International Brotherhood of Electrical Workers (British Columbia Locals 1574 and 258) have utilized seniority clauses in past collective agreements, allowing “part time and temporary employees to retain their seniority for twelve (12) months, for any seniority acquired in 1999 or later, if re-hired within twelve (12) months of their last date of service. If there has been any break in service that exceeds twelve (12) months then any prior seniority will not accrue.”²⁰

In addition, the International Brotherhood of Electrical Workers (British Columbia Local 258) has outlined implicit older worker reintegration practices to be modeled by counterparts across all trades in Nova Scotia. Past collective agreements have identified reintegration practices according to the following:

An older worker, as defined [an employee whose age plus service equals 65], who is not capable of adapting to new skills or who declines training shall, if the employee so chooses, utilize seniority to apply for any job vacancy to which [sic] the employee is capable. Should an employee choose this option, their rate of pay

¹⁷ Construction Trades Pre-Apprentice Program. <http://www.buildingfutures.ca/>

¹⁸ Construction Trades Pre-Apprentice Program. <http://www.buildingfutures.ca/>

¹⁹ Techsploration: <http://www.techsploration.ca/>

²⁰ Collective Agreements and Older Workers in Canada:
http://www.hrsdc.gc.ca/en/lp/spila/wlb/caowc/09chapter_4.shtml

shall be red-circled 10 if selected for a lower paid job. Should the employee decline this option, they shall receive one week's severance pay for each year of service with the Employer²¹.

Injured Worker Reintegration

In a similar vein, Workers Compensation legislation in six provinces, including Nova Scotia, provides an avenue for reinstating the worker's right to return to work upon sustaining a work-related injury. According to the legislation,

[E]mployers covered by these provisions are required to reinstate eligible workers deemed fit, by the relevant compensation board or commission, to perform the essential duties of their pre-injury employment or to perform other suitable work. Normally, a worker must be reinstated in the position held on the day of the injury or in alternative employment with comparable terms and conditions. However, where this is not possible, an employer may be permitted to instead offer the first suitable work that the worker can perform and that does not pose a health or safety hazard, subject to any seniority provisions.² Provisions in Newfoundland and Labrador, Nova Scotia and Ontario impose a duty to accommodate the work or the workplace to the needs of a worker, to the extent that such accommodation does not cause the employer undue hardship²².

The following section of the report summarizes the previously outlined recommendations for addressing the career hindrances and barriers within the Industrial-Commercial-Institutional construction industry. These recommendations will be explored in more detail in section 10 of this report: Areas Requiring Further Development.

²¹ Collective Agreements and Older Workers in Canada:
http://www.hrsdc.gc.ca/en/lp/spila/wlb/caowc/09chapter_4.shtml

²² Collective Agreements and Older Workers in Canada:
http://www.hrsdc.gc.ca/en/lp/spila/wlb/caowc/09chapter_4.shtml

9.0 Recommendations

One of the Nova Scotia Construction Sector Council's mandates is to promote and advance the construction industry in Nova Scotia by working to efficiently address labour force challenges. Based on thoroughly conducted research and preliminary interviews with stakeholders and workers, a series of recommendations for addressing the pressing labour issues within the Industrial-Commercial-Institutional construction industry has been compiled. These recommendations will enable the Nova Scotia Construction Sector Council-ICI to tailor future human resources strategies to better meet the needs of current, former and new workers. These recommendations are as follows:

- The creation of comprehensive reintegration, rehabilitation and retraining programs;
- The implementation of a four-week grace period for injured workers returning to work before closing their Worker's Compensation claims
- The research and implementation of a program to develop and advance physical fitness of workers to advance workplace safety;
- The creation of opportunities for mentorship and information-transfer amongst older and younger workers;
- A further expansion of the Techsploration program;
- The introduction and development of innovative recruitment methods and incentives to increase the percentage of females enrolled in trades courses;
- The creation of an ongoing support network for women working in the trades in Nova Scotia;
- A complete implementation of the Construction Association of Nova Scotia's (CANS) Cooperative Education/Youth Apprenticeship Program;
- The commencement of a marketing campaign in the province to refocus the industry's image;
- The development and implementation of a program designed to reimburse upgrading costs when a candidate successfully completes a ticket upgrade or apprenticeship and remains in the province for at least one year;
- The increase of after-hours and online trades courses and apprenticeship offerings across Nova Scotia;
- The initiation of research on current apprenticeship opportunities and how such opportunities might be improved upon to ensure that apprentices are exposed to the full scope of any given trade;
- The research and implementation of hands on training, testing and certification processes;
- The implementation of research to evaluate the effectiveness of current Red Seal testing to identify the underlying rationale behind decreasing pass rates;
- The pilot-testing of a trades aptitude test or tests in conjunction with the application process to trades programs across Nova Scotia;
- The initiation of a tuition reimbursement program of up to 100% offered to new trades people who work in the province for a minimum of three years upon graduating from a trades program in Nova Scotia;
- The setting of standard benchmarks for numeracy and literacy requirements for the industry;

- The undertaking of a study of current and future economic conditions and employment opportunities in the industry across the province; and
- The creation of an accessible, online job-seeking network specific to the construction industry in Nova Scotia.

The following section of the report outlines recommendations for immediate address, and those requiring additional research and development.

10.0 Areas Requiring Further Development

10.1 For Immediate Address

The following recommendations (based on areas of need) require immediate address by the Nova Scotia Construction Sector Council-ICI:

A complete implementation of the Construction Association of Nova Scotia's Cooperative Education/Youth Apprenticeship Program

The Construction Association of Nova Scotia's Cooperative Education/Youth Apprenticeship program has been extensively developed and is in its pilot phase. It is recommended that the program be implemented immediately on a larger scale in Nova Scotia high schools. Students who participate in the program are offered an opportunity to sample many trades, thus ensuring more appropriate future enrollment in trades courses offered at the Nova Scotia Community College. In conjunction with the development of aptitude testing as an entrance requirement for trades programs across Nova Scotia, a full implementation of the CANS Youth Apprenticeship program will ensure that entrants to trades programs are better suited for their chosen trade, and therefore more apt to remain working in their trade upon graduation.

The pilot testing of a trades aptitude test or tests in conjunction with the application process to trades programs across Nova Scotia

The immediate design and development of aptitude testing relative to the construction industry will assist in attracting and retaining appropriate entrants to trades courses across Nova Scotia. This will ensure that future graduates of trades programs are more apt to remain working in their trade. In conjunction with the creation of an official and accessible job-seeking network for employers and employees in the industry in Nova Scotia, new graduates will potentially be more apt to remain working in the province upon completing their programs.

The increase of after-hours and online trades courses and apprenticeship offerings across Nova Scotia

Many interviewees pointed to a lack of available trade courses either in their region or in the province, making it impossible for current workers to attain the specialization required for advancement in the industry. Still others – especially those in Cape Breton – spoke of the simple lack of variety with regard to the trade programs offered at their local Nova Scotia Community College campuses. It is recommended that immediate action be taken to address the pressing need for improved trades-program offerings in the province. This will ensure that potential interested entrants will not have to relocate – in some cases, to another province – to obtain their desired training.

The creation of an accessible, online job-seeking network specific to the construction industry in Nova Scotia

The immediate creation of an official and accessible job-seeking network for employers and employees in the industry in Nova Scotia will assist workers across the province who have a desire to work in the province of Nova Scotia. A majority of interviewees pointed to the existence of an informal “network” within the industry, with job opportunities offered to, for example, “a friend of a friend.” Many complained that they did not have access to a similar network, and, as such, were forced to seek employment out of the province. It is recommended

that immediate action be taken to break down the existing informal “network mentality” of the industry, and replace it with a structured, official and accessible job-seeking network to be utilized by both employers seeking workers and employees seeking work in the province. This will ensure that workers with a desire to work in the province will have access to a comprehensive listing of job-postings in their respective trades across Nova Scotia.

10.2 Requiring Further Research/Development

The following recommendations (based on areas of need) should be further researched and developed by the Nova Scotia Construction Sector Council-ICI:

The initiation of a tuition reimbursement program of up to 100% offered to new trades people who work in the province for a minimum of three years upon graduating from a trades program in Nova Scotia

New trades-program graduates are leaving the province in pursuit of work in other provinces such as Alberta at an alarming rate. In some cases, new workers interviewed cited the high tuition cost of their trades programs as a primary rationale for their choosing to work elsewhere – where wages are likely higher. To alleviate the debt-load of new graduates in Nova Scotia trade programs, it is recommended that further research on the potential for tuition reimbursement be conducted. Tuition reimbursement practices should only take place where a new graduate chooses to remain and work in the province of Nova Scotia upon graduation.

The development and implementation of a program designed to reimburse upgrading costs when a candidate successfully completes a ticket upgrade or apprenticeship and remains in the province for at least one year

Research also indicated that many workers were unable to complete their apprenticeships and/or upgrade their tickets. Many interviewees pointed to a lack of financial incentive on the part of their current employer, which prevented them from potential industry advancement. It is recommended that further research and development be undertaken regarding the potential reimbursement of fees for persons who upgrade tickets in the province of Nova Scotia. Such a practice will ensure that interested individuals are offered the opportunity to specialize and advance within their trade.

The creation of comprehensive reintegration, rehabilitation and retraining programs

Several interviewees indicated that they felt “cheated” by their employer and the industry in general upon sustaining work-related injuries. It is important to note that while a worker who is injured or disabled on the job may not be able to perform physically to a similar standard upon returning to work, but will have a great deal of industry knowledge and experience which can be taken with him or her regardless of physical ability. As such, injured and disabled workers should be appropriately reintegrated back into the industry if they so choose, as the industry will greatly benefit from their knowledge and expertise. Further research and development be undertaken to improve reintegration practices for disabled and injured workers in the industry.

Implementing a four-week grace period for injured workers returning to work before closing their Worker’s Compensation claims

Additional research and consultation will be necessary in implementing a four-week grace period for injured workers who wish to return to work before closing their Workers Compensation

claims. This will allow workers an opportunity to determine their ability to return to work before their claims are closed, preventing them from reopening that claim in the event they are unable to return to work at that time.

The undertaking of a study of current and future economic conditions and employment opportunities in the industry across the province

Additional research and consultation will be necessary in undertaking a comprehensive study of the province's economy to assist the NSCSC in determining a future supply of labour. Research and interviews conducted have pointed to an increasing shortage of work in rural areas of the province – Cape Breton in particular, whereas the availability of work in the greater Halifax region is steady, resulting in employment uncertainty in the province. A comprehensive economic study will assist the NSCSC in addressing future human resource issues appropriately.

The research and implementation of a program to develop and advance physical fitness of workers to advance workplace safety

Being physically fit is key to preventing workplace injury. As such, it is recommended that the NSCSC evaluate and implement a program designed to promote the physical fitness of workers. By doing so, the NSCSC will better assist employers and employees in maintaining physically fit and safe workplace environments.

Implementing a four-week grace period for injured workers returning to work before closing their Worker's Compensation claims

There is a need to allow injured workers an opportunity to “test-drive” a return to work prior to closing their Worker's Compensation claims. Allowing such workers a four-week grace period will give them an opportunity to ascertain the scope of their physical abilities before closing their Worker's Compensation claims. It is recommended, then that the NSCSC evaluate the possibility of implementing such a grace period in the workplace.

The research and implementation of hands on training, testing and certification processes

As previously indicated, academic testing and certification processes are often counterintuitive to the hands on work required of the industry. As such, it is recommended that the NSCSC research, evaluate, and implement a hands on training and certification process. Implementing hands on training and certification is essential to ensuring that employees – both current and new – are satisfied, competent, and appropriately certified.

The setting of standard benchmarks for numeracy and literacy requirements for the industry

Conducted research has indicated unparallel levels of literacy and numeracy of workers, and differing opinions as to what level of literacy and numeracy is required of workers. To best remedy this, it is recommended that the NSCSC undertake work to develop and assess the required literacy and numeracy levels and establish “benchmarks” for the industry. This process will create a standard by which future employees may be assessed to determine their level of employability.

The introduction and development of innovative recruitment methods and incentives to increase the percentage of females enrolled in trades courses

As indicated, conducted research has identified a need for specialized recruitment methods to encourage more females to enroll in the province's trade programs. These specialized recruitment methods include, but are not limited to, a public awareness campaign offered by women in the trades for benefit of high school students. Additionally, retention tools are essential to keep women in the trades. To this end, it is recommended that employer agreements and mentoring programs be offered through the Nova Scotia Community College for females placed in workplaces where the ratio of men to women is 2:1 or greater.

The creation of an ongoing support network for women working in the trades in Nova Scotia is recommended to ensure that women receive adequate supports throughout their careers. This practice will increase the retention of women working in the industry in Nova Scotia in the future. This network may be formal or informal in nature, and comprised of successful women employed in the trades across the province.

A further expansion of the Techsploration program

Initial research conducted has pointed to the success of the Techsploration program across the province. However, there is a need for the further expansion of the program to allow more young women the opportunity to be exposed to the trades. It is recommended that the program be expanded and available for the benefit of all young women across Nova Scotia.

The implementation of research to evaluate the effectiveness of current Red Seal testing to identify the underlying rationale behind decreasing pass rates

As indicated, many interviewees – both workers and stakeholders – pointed to decreased pass rates with regard to Red Seal testing in the province. In particular, one stakeholder stated that decreased pass rates are the result of an ongoing disconnect between the curriculum and the testing itself. Other interviewees also articulated similar beliefs, and some mentioned initial work that had begun to address the issue. It is therefore recommended that further research be undertaken to identify the underlying causes behind decreasing pass rates with regard to Red Seal testing. This research should be the first phase in a three-phased process that combines research, and the formation and implementation of an effective action plan to address decreasing passing rates.

The initiation of research on current apprenticeship opportunities and how such opportunities might be improved upon to ensure that apprentices are exposed to the full scope of any given trade

Additionally, several interviewees pointed to the lack of appropriate apprenticeship opportunities across the province. For many, the apprenticeship was inaccessible (with some interviewees indicating they were financially unable to relocate or complete an apprenticeship), or inadequate (with some interviewees indicating limited exposure during the apprenticeship process). It is therefore recommended that current apprenticeship opportunities be further researched to assist in making the apprenticeship experience more affordable, accessible and useful for future apprentices in the province.

The creation of opportunities for mentorship and information-transfer amongst older and younger workers

As highly knowledgeable and experienced older workers continue to leave the workforce, there is a need for the creation of a proper means for information transfer in the form of mentorship programs across the province. Many interviewees spoke of the alarming loss of skills and experience across the industry due to the lack of an appropriate information transfer system whereby older workers can utilize and share their skills, knowledge and experience. While mentorship exists to an extent in the industry, it is recommended that such opportunities be created in workplaces where they do not currently exist, and expanded upon in others.

Mentorship opportunities should exist not only to both increase the skills and knowledge of younger workers, but also to reduce the advent of older workers leaving the industry, providing them with a useful forum for sharing such skills, knowledge and experience.

11.0 Conclusion

The completion of the Career Resource Model serves to broaden the perspectives of the Nova Scotia Construction Council-ICI in addressing the pressing labour shortage across the construction industry. Research conducted has indicated a variety of rationales for the ongoing shortage of workers in the industry in Nova Scotia, and has outlined a variety of recommendations for addressing these career barriers and hindrances.

Conducted research has enabled the compilation of a comprehensive listing of best and current practices utilized to address such career barriers and hindrances. The Career Resource Model has also outlined prevalent learning styles, personal aptitudes, emerging issues, trends, skills and abilities of individuals involved as current, former, or new employees within the industry to assist the NSCSC-ICI to in ensuring that such learning styles and aptitudes are appropriately addressed in the future.

12.0

Sources Cited

Baker, B. “Breaking barriers for apprentices.” *Daily Commercial News and Construction Record*, v. 89: no. 189, p. 1 & 5, (2006).

“Chapter 4: Economic Security: Collective Agreements and Older Workers in Canada”. February 11, 2008. http://www.hrsdc.gc.ca/en/lp/spila/wlb/caowc/09chapter_4.shtml.

Construction Sector Council. “Construction Looking Forward: Labour Requirements from 2007 to 2015 for Atlantic Canada.”

Kululanga, G. & McCaffer, R. “Learning mechanisms employed by construction contractors.” *Journal of Construction Engineering & Management*; v. 125: no. 4, p. 215, (1999).

Labour Market Assessment: Industrial-Commercial-Institutional Construction Industry of Nova Scotia. February 11, 2008.
www.constructioncouncil.ns.ca/Reports/2007%20Labour%20Market%20Assessment%20Statistical%20Appendix.pdf.

Lynn Neff. “Learning Channel Preference Checklist – Revised (LCPC)”. 2006.
<http://www.way2go.com/>.

Samuels, C. “California students with disabilities face exit exam.” *Education Week*, v. 26: no. 38, p. 18-23, (2007).

Techsploration. February 11, 2008. <http://www.techsploration.ca/>.

The Construction Association of Nova Scotia. February 11, 2008.
<http://www.buildingfutures.ca/>.

The Nova Scotia Construction Sector Council. February 11, 2008.
<http://www.constructioncouncil.ns.ca/>.



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