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RESEARCH REPORT

CASE STUDY ON THE CARMA
CENTRE FOR EXCELLENCE IN
HOME BUILDING & LAND
DEVELOPMENT:
LITERATURE REVIEW



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Literature Review

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Literature Review

This review is to provide the reader with the outline of previously published material and/or research about the topic or problem so the upcoming study of the Carma Centre For Excellence can be put into context. The intent is not for this review to be solution-oriented, but to set the background for the reason that the Carma Centre For Excellence evolved

How this Literature Review is Organized

This review has been organized into three sections. The first section will highlight some key background information, and the current situation of labour shortages and/or skills shortages in the residential housing industry. Also included, will be a review of notable initiatives that have been undertaken in Canada to secure a future workforce in residential housing. The second section will report on jurisdictions outside of Canada and the models for improvement they are using. The third section will outline initiatives underway by other industries that directly compete with construction for the same labour force.

Section I

1.0 Introduction

Construction is one of the largest and most diverse sectors of the Canadian economy, and is by any measure a powerful force in the employment of people. According to Statistics Canada, next to manufacturing, the construction industry produces the most sustainable jobs for the money invested. For every construction job, three more jobs are created in the general economy¹; this accounts for 10 to 14 percent of Canada's annual GDP (CCRB, 1997). The construction industry is comprised of three sub-sectors: residential construction, non-residential, and engineering, which together employs upwards of one million people. This employment includes occupations that range from general labourer to specialized trades.

Statistics Canada has reported that in 2000, well over 1.2 million people were employed in trades occupations; 600,000 of these workers were employed by the construction sector. As a result, the labour force could not keep pace with rising employment. While construction employment

¹ Skills/Compétences Canada, Issue 2
International Results Group

continued to grow in 2001, other industries including manufacturing and other sectors were releasing workers. Many of these workers who had originated from construction returned to the construction industry, while others entered the industry for the first time. In fact there was so much interest in the industry at that point that unemployment in construction actually rose in 2001 for a period of time.

While workforce participation in Canada may have increased over the past several years, demand has exceeded the pace of new entrants as unemployment reached its lowest levels in many years².

In 2002 the general economy once again expanded and construction employment hit a record high. At one point during the year, employment peaked at 961,000 jobs; the last such similar peak was recorded in 1990. The height of this activity was concentrated in Ontario and Alberta. Housing starts in Toronto and area have increased significantly over the past couple of years as their economy and job markets improved; this has put considerable pressure on workforce supply. The same pressure has been felt in Alberta where the economy has continued to be strong for the past number of years.

In Alberta, the ability of industry to meet deadlines became a challenge in 2001 and 2002 in, and later in other parts of the country in 2002. This was particularly related back to prolonged slumps in the economy between 1991 and 1996, which depleted the supply of tradespersons and other experienced staff. As labour shortages began to emerge, companies had no choice but to deliver their homes later than promised and customers were simply forced to wait. Regardless, it did not appear these delays impaired the economy as there was no slowdown in new home purchases. Much of this activity can be attributed to a backlog of demand left over from the earlier recession. Another major driving force in the Alberta was high energy prices and the development of other resources in Alberta. On the other hand, provinces like Quebec reported a drop in construction employment in 2002 of 30,000 fewer workers than was employed in 1988. There is however, noticeable evidence that growth is on the rebound in that province in 2003.³

In addition to the shortage in supply of current workers, and to further complicate the situation, Labour Force statistics indicate that greater numbers of young people aged 15-24 and 25-34 are entering the workforce. This means there will continue to be strong demand for rental housing,

²<http://www.rescon.ws/cgi-bin/index.pl>

³ Labour Force Survey released by Statistics Canada

and more first-time home buyers. As well, the aging baby boomer generation is expected to place greater demand on housing targeted to empty nesters and seniors. In other words, residential housing in Canada is expected to continue to be highly active over the next several years.

Labour market indicators and reports from across Canada, have suggested that skilled labour shortages are emerging, regardless that apprenticeship systems in most provinces have rapidly expanded. In some cases, the shortages are caused by a lack of new people entering the industry as the older workers leave, while the other factor is simply the outcome of an aging population. Needless to say, the aging of the baby boomers has focused attention on a looming requirement to replace these retiring workers. Even though employment demands may be lower than in the past, skilled people have left the trades; this includes bricklayers, labourers, and cement finishers, to name a few. In other trades, demand has expanded for carpenters, roofers and plumbers again creating a demand constraint. Overall, labour shortages in the trade occupations for residential housing are estimated at between 35,000 and 60,000 at current levels of demand (Building, 2001). Not unexpectedly, the lack of availability of skilled workers to fill these jobs has become a huge issue, as shortages are not only being reflected in higher costs for the homes, there is reduced growth in the industry.

Many skilled tradespeople in Canada who entered the workforce in the late 1950s. or early 1960s are reaching retirement age. This makes the looming shortage of manpower a particular concern for residential construction, as the average age for⁴ craftsmen in the industry is 47. Because of the physical demands, construction work is still thought of as a young man's job, this has meant that the older workers often move out of the industry entirely when these demands become to difficult for them, and move to jobs in manufacturing and other less physical industries. For this reason, the 'age of retirement' for this sector of construction is earlier than for other industries. Much of this retirement will begin to be noticeable between 2008 and 2010. This has put Canada on alert to begin preparing an equal amount of youth and new workers to enter the workforce as a replacement as well as manage growth. Not only is there a need to maintain a solid pool of skilled labour, it is essential to maintain global competitiveness, and to maintain Canada's quality of life.

The prediction continues to be one of a tight labour market for the trades, and expected shortages for upcoming years. Even with the slight economic dip expected for 2003, the need is still there

⁴ Statistics Canada
International Results Group

for ongoing promotion of careers in construction. The 2001 Census paints a consistent portrait of an aging population where workers age 65 and older who state an occupation, have increased by three to six percent, depending on the location. With the categories of ages 45 to 55 also showing a noticeable increase across the country, it is expected that the 2006 census will put the situation into full perspective. To add to the demographics, a low national birth rate paints an even more worrisome picture.

What The Construction Industry Can Do

The construction industry will soon have to face the issues raised by the retirement of such large numbers of skilled and experienced workers, by developing and implementing an aggressive, recruitment, training and re-branding strategy. How severe this situation will become is dependent on several factors;

- One pertinent factor will be the pace of housing activity. If growth becomes more modest, the current pool of labour may be sufficient to meet demand. On the other hand, if growth continues at today's pace, industry will be hard-pressed to find sufficient workers locally.
- When it comes to forecasting labour market conditions accurately, it will be necessary to anticipate the impact of changing technology. What needs to be considered is that Innovations may well reduce or eliminate the need for some types of labour, and increase the demand for others, or even create new occupations.

With so many unknowns, it is important for the housing industry to proceed with what is known - that a skill shortage currently exists. This report will look briefly at the characteristics inherent in the residential construction industry which has contributed to a labour shortage. Understanding these characteristics and their implications will assist in understanding the need for designing new initiatives to address shortages.

The shortage of people choosing a career in the trades is due to a variety of reasons.⁵

- There is a prevalence for reluctance on the part of young Canadians to fill jobs in the trades, as the current ideology equates white-collar work with 'status', thus creating a prejudice against blue-collar trades (The Globe and Mail, 2003). Parents who can easily influence their children's decision for choosing a career have further perpetuated this belief.

⁵ New Demands and Dimensions for Apprenticeship in the New Economy; Ross Edmunds, Ontario Ministry of Education

- Parents tend to foster the belief that a university education will automatically lead to a better job, despite the fact that carpenters and stone masons often make more money. (The Globe and Mail, 2003).
- As well, many parents believe their children are “too smart” to become a tradesperson, and dismiss the idea that mathematics, technology, and computer skills are also very much a part of working in the trades.

Some parents have the belief that it takes more dedication and ‘smarts’ to complete a degree than to take an apprenticeship. This belief is ironic, as it takes more years to complete an apprenticeship than it does to obtain an under-graduate university degree. The belief that trade apprenticeships are inferior to a college or university education is further perpetuated by the educational system, as technical schools continue to be consistently under-funded. While university programs may also be under-funded by governments, they attract higher donation dollars and equipment from business and alumni than has been possible for technical schools.

2.0 The Situation

The labour market of the 1990s was one of many upheavals, making it difficult to predict if a shortage of workers would occur in the years ahead. Nonetheless, the labour market will always be subject to cyclical fluctuations that will influence integration of youth into the workplace. The whole idea of the upcoming transition of a significant portion of the workforce (baby-boomer generation) rapidly shifting into retirement has raised a lot of questions. These questions include;

- What impact will this retirement phase have on future decades?
- Is there a risk that Canada will suffer a skilled labour shortage as a result?
- Can knowledge and experience be easily, and quickly, transmitted to the younger workers?

2.1 Is there a Labour shortage or a Skills Shortage?

A review of commentaries on the construction workforce in Canada has revealed there is confusion over the issues of skill shortages and demographic changes. It not uncommon to read one report of skill shortages and read another with the contradictory view that workers are available. Researchers at various institutions that have closely studied the labour market have reported that Canada does not currently have a labour shortage in the job market. Some agree that there are shortages of skilled labour in some sectors, but no more so than has existed in the past; however, a decrease in the labour force is expected in the future. The literature suggests that a gradual

decrease in the participation rate of young workers will likely be more noticeable by 2016, but for the near future the issue is more with a shortage of skills in specific industries.⁶

Famous demographer, author and speaker, Dr. David Foot, who has spoken endlessly to the housing industry, has also rejected the notion of a labour shortage. He too has argued that there is no labour shortage in Canada for the near future. If anything, he believes there will be a people surplus before there is a shortage. He has reported that what appears to be a labour shortage is largely due to the fact that the active work life of new workers has grown shorter; workers enter the labour market at a later age and they leave it earlier. This shorter work life is attributed to more youth choosing to go to university and college, (sometimes for several degrees until they find the right fit). Because of this they are entering the labour market at a much later age than in the past, and they are also expected to leave it earlier. As a result of this the transition between school and the labour market has become longer, and is leading to a skills gap⁷. At the other end of the scale, Canadians appear to be opting for early retirement. Any shift to even earlier retirement in the housing industry will only intensify the need to recruit new workers. (www.footwork.com)

According to Denton, Feaver and Spencer (2000)⁸ the labour force should increase over the next 15 years. Based on their projection model from the 1996 Census data, and some assumptions, they arrived at the prediction that the number of people active in the labour market will rise from 16 million in 2000 to 17.5 million by 2016, and no decline will occur until after that time. They went on to say that the premature departure of baby boomers from the labour market may cause shortages in certain sectors; in particular professions or industries that suffer from poor planning (or no planning) and in the sectors that are not esteemed by youth. Nonetheless, they believe there is a stockpile of workers with minimal formal education that could be attracted to these industries or professions. They also feel if there is any reason to be concerned, this concern should be focused on an effective transfer of knowledge and skills. Although the aging of the population cannot be avoided, mitigating the loss of experience and knowledge by finding ways to retain older workers is possible. This is even more reason for the construction industry to move forward to develop a national strategy for attracting and training new and skilled workers.

⁶ Denton, Feaver & Spencer (2000)

⁷ Boom Bust and Echo, Dr. David Foot

⁸ The Denton, Feaver and Spencer (2000) model is founded on a series of projections related to the demographic composition of the labour market and its evolution. www.socserv2.socsci.mcmaster.ca/~qsep/p/qsep347PDF

On the positive side for the construction industry is the recent flow of jobs from high-tech, manufacturing and numerous service-related industries to offshore countries. If this practice intensifies it could create new labour pools at home that the residential housing industry can draw from. This exodus of jobs, which is expected to continue, puts a number of potential construction workers back into the marketplace and makes a good case for people to consider entering the trades. The advantage of working in the local construction industry is that these jobs cannot be shipped off-shore.

3.0 The Residential Housing Situation

Construction is labeled a 'boom and bust' industry, and is especially sensitive to economic trends and government spending. These fluctuations in market demand present difficulties for both employers and employees when it comes to determining manpower needs. Although this volatility is a normal occurrence in construction it can deter new workers from deciding to enter the industry.

Despite the industry's current robust nature, there has been a steady decline in the number of new workers entering this sector. According to Statistics Canada 2001 census this decline is around 2% since the 1996 census.

While supply does not meet demand at a national level, solutions will have to be found at the local level. In searching for solutions industry has looked at some of the key causes for not choosing the trades as a career option. These include:

- A lack of interest in pursuing a career in the trades due to the prosperity of the last decade, and the glamorization of a career in the 'get wealthy over-night' high-tech industry.
- Somewhere along the way people forgot there is honour in being a skilled trade. In part, this attitude can be blamed on the trades themselves due poor workmanship and a pricing structure that encourages a 'get in and get out' attitude.
- The 'do-it-yourself' media, the Internet, and big-box building supply depots have also added to a lower regard for the importance of the skilled trade worker. They have somehow created the impression that anyone could build a home with the right tools and supplies.
- To further complicate the situation, educational institutions and governments are promoting the notion that to keep pace in the world economy there is a need to have a

university degree. Although it is true that highly educated and skilled workers are needed in a global market, it has been interpreted as a need to 'push' the white collar professions, forgetting that the skilled blue collar trades are part of the bigger picture.

Even with relatively high wages being paid, young people are still not being enticed to enter an apprenticeship or a trade-related career. While this trend can be observed across Canada, employers in Ontario and Alberta are currently the most affected, and of the five construction sectors, residential has been the hardest hit.⁹ As a result of all of the above contributing factors, the labour shortage in some of the occupations is critical, placing even more emphasis on the need to introduce new initiatives to attract young workers into the industry.

3.1 Other Challenges

3.1.1 New Immigrants

Over the years, a reliance on new immigrants has been one means of alleviating a labour shortage dilemma. Traditionally, blue collar workers from Europe eagerly 'lined up at Canada's doors', looking for work and for a fresh start in a new country. However, the ongoing expanding economies in much of Europe in recent years have meant that sufficient work is being found at home along with increased wages. This makes immigration to Canada less attractive to a potential immigrant, and more difficult for Canada to tap into the valuable European labour source. Added to this, is the notable shift by immigrants to 'return home'. This is particularly true of immigrants from Asia, with their recent emphasis on family reunification. All of these factors have exacerbated the possibility of tapping in to this labour force source as a way to mitigate Canada's skills shortage.

3.1.2 Competitor Industries

The commercial and industrial construction sectors have been identified as the main competitor for workers in residential construction, notwithstanding the competition from other industries. With a promise of continuous work on many large and ongoing projects, drywallers, plumbers, and electricians are easily being enticed to leave residential construction to join the commercial and industrial sectors for higher wages. These same workers can also be attracted to other industries for the opportunity to work in-doors year-round. Although it is a quite different environment,

⁹ HRRCI, Canadian Home Builders' Association, 2000
International Results Group

during its recruitment campaign over the past several years The Canadian Military has targeted the same worker demographics as the construction industry. The military took their campaign into high schools and successfully marketed themselves as an attractive opportunity for education, training opportunities and job security.

4.0 What The Industry Needs

As Apprenticeship certification and training in Canada are a provincial and territorial responsibility, the Canadian government does not have a federal ministry of construction to document the fragmented nature of the industry. Currently, each province dictates its own certification and safety requirements. This has resulted in wide variations across provinces as to what is required for tradespeople to obtain their journeyman's papers. Many in the industry are of the opinion that a national strategy to harmonize certification and safety standards would be greatly beneficial, not only by providing leadership, but in fostering cooperation among the provinces. (Globe and Mail, 2003)

4.1 Image Building

A top priority for the industry is to enhance the image and value of the trades. This is particularly important as high school teachers and parents tend to promote universities. It was surprising, however, to find that while studies indicated some 80% of all high school students plan to go to university, a much smaller 30% actually go. Several ways for enhancing the image as suggested by industry include:

- Implementing a plan for promoting the trades to the initial 20% who do not plan to attend university, and offering options to the 60% of students who found university was not feasible for them, is one opportunity for solving the shortage of future workers.¹⁰
- A program for educating high school teachers and guidance counsellors about the many good jobs and opportunities available in construction is required. Many teachers continue to perceive construction as a source of temporary work without any career building potential; hence, there is added reluctance to promote the trades to students. One proposed promotion was to include awareness building around the fact that other forms of construction are highly seasonal, while residential construction is not. Home building is

¹⁰ www.vtam.org/Winter2003

able to continue throughout the year with only the occasional two or three day slowdown during cold weather. This is not well known outside the industry.

- In addition, construction work is often perceived to be road and highways jobs that are difficult, generally unskilled, and dirty.

Throughout this review, the literature has suggested that enticing young people to consider residential construction can only be facilitated through a well-planned educational campaign. This conclusion was based on evidence that the importance that youth and others place on obtaining a diploma or a degree is growing, and is expected to increase throughout the development of a knowledge-based economy. More youth are expected to continue to attend educational institutions, and their future integration into the labour market will be lengthy.

A campaign with a focus on education has been described as one that that should ideally offer the following:

- Active internships
- Cooperative education programs, and
- Should report on success stories of men and women having profitable and rewarding careers in the trades.

In the past, promotional campaigns have typically involved company representatives visiting schools during career days or setting up booths at job fairs. Career days and career fairs are no longer considered the only way to promote the industry. This conclusion was drawn from reports that showed that although many companies have spent time at high school career fairs, smiling and handing out pamphlets, the process has been minimally effective. Part of the difficulty is that construction includes so many different occupations. While most young people have an idea of what a carpenter, plumber, or electrician does, many have never heard of a millwright, drywaller, concrete worker or the host of other occupations; this is also true of their parents, teachers and guidance counsellors.

The construction industry has become more aware that it can elevate its professional image by broadening certification practices. As reported earlier in this review, strong arguments have been made for offering certification to improve the image of the industry, and to subsequently serve as a mechanism to promote professional growth (ASC Conference, 2000). Alliances between industry

and education would link professional standards with academic achievement that could ultimately foster higher levels of professionalism.

4.2 Professionalism

Achieving more professionalism has become a trademark goal for the industry, and a critical employment requirement. Continually, more emphasis is being placed on the importance of personal contacts, good people skills and good interpersonal skills as key job requirements; this applies to on-site and off-site workers. Gone are the days of tolerance for 'yelling on the job sites', and showing disrespect for fellow sub-trades. Because of this drive for more professionalism, many employers in the industry (builders and sub-trades) are of the belief that more professionalism in the industry would more easily attract highly-motivated and academically-oriented students who would otherwise pursue other post-secondary education. The contention is that professionalism would be easier to achieve and maintain if the hiring process was more stringent.

Industry also recognizes that construction is becoming more of a 'people business' with an increased need for emphasis on "soft skills." Customer demands are becoming more complex, and tradespeople are expected to have the ability to communicate with customers. Good communication and management skills are also being sought. Workers report that the number one reason for leaving their job is not because they were lured away by another company, but because of their inability to get along with a boss who lacked management skills (ENR, 2002). This lack of skills is generally due to a lack of formal management training. While formal management training could go a long way towards attracting and retaining good workers, due to the fragmented nature of the industry special management skills are required. These include:

- The ability to work with a wide variety of workers, and with diversity.
- The ability to communicate with self-employed and sub-trades in addition to direct employees in a manner that can be easily understood and followed.
- Leadership skills that extend beyond those required by employer to include all of the trades and suppliers completing the work.

4.3 Training

Challenges

The Canadian residential construction industry is highly fragmented; most companies are small, independent regional and local companies. Some 80% have revenues of less than \$250,000, and 90% have fewer than 20 employees (CCRB, 1999). Smaller employers are less likely to have a corporate training strategy. It was not a surprise to find that every study that was researched during this review has reached the same conclusion that if employers invested more into training it would alleviate some of the effects of skilled labour shortages. However, the incentive to do so is marginalized by the fact employers are worried that the employee will not stay around long enough to recoup their investment. Only in the instance when training is company-specific do they believe they can achieve payback. As well, the fear of employee 'poaching' by fellow builders impedes employer interest in creating a company training culture. This, in turn, inhibits industry from replenishing itself with skilled workers.

Solutions Tried

Business owners are continually challenged to upgrade the skills of their employees to match advances in technology, and the continuously more rigorous building standards. Companies in the residential housing sector believe that because of the specialized nature of the industry the content and methods of training outside of apprenticeship programs also need to be upgraded to match evolving workplace practices and any programs which are specific to industry. Because of this, there is a growing interest in the home building industry for adopting the status of a self-regulated profession in which certification and licensing processes would be standardized and could accommodate mobility between provinces.¹¹

The notion of a competency-based model for training holds strong appeal and has been endorsed and practiced by a number of provinces. It is seen as being more tuned to 'on-the-job learning' and has the greatest potential to offer motivation for working adults to pursue training opportunities. A competency-based system essentially facilitates both upward and horizontal mobility within their occupation for individuals with clearly defined career ladders. It offers incentives for more progress, and identifies competencies that may apply to other occupations and industries.¹²

¹¹ Workopolis.com, 2003 Canadian Employment Outlook: Shortage in Skilled Trades to Intensify

¹² AHB&RSC: Occupational Analysis

4.4 Attracting New Recruits

Attracting new workers to the residential housing industry has become a priority with a sense of urgency for finding effective ways to accomplish the task. Of particular interest is to recruit younger people, and the non-traditional employee such as women and Aboriginals. Even before the boom in construction heightened, a skilled workforce shortage was evident, and most companies had become aware of the need to start re-building to meet current and future demands. The question was, how?

4.4.1 Challenges for Recruitment

Challenges

- The cyclical economic nature of the residential construction industry and shifts in demand can make forecasting demand for workers difficult.
- The aging of the workforce.
- The greatest challenge is the outflow of skilled workers to jobs in manufacturing, oil and gas and other industries. While earlier in this review mention was made of the potential for many manufacturing jobs to flow to offshore locations over time. This does not mean that every manufacturing job will disappear and that there will be no future 'worker drain' from construction to manufacturing. The outflow typically occurs when that industry is experiencing a shortage of labour and demand for their product increases. They are able to easily attract workers from construction with increased wages and the opportunity to work inside. The outflow of labour to oil and gas and other industries that cannot be shipped offshore remain a threat to the construction industry.
- Another factor working against the construction industry is their inability to rely on immigration as a source of skilled labour. For some time, Immigration Canada has focused on attracting highly educated new immigrants not typically trained in the trades.

These somewhat complicated factors suggest that industry faces a complex challenge in recruiting and retaining a new generation of workers. This confirms a need for developing a co-operative plan for industry locally and between provinces.

Previous literature stressed that it is critical to communicate to the general public, and to young people considering a career in construction that certain criteria and characteristics are important to know; This includes:

- Certain skills are necessary to be hired, and not just anyone can qualify
- It is important to have an aptitude for the work
- They need the ability to develop the personal discipline to work in a sometimes difficult environment
- They need to be aware of the many career options available in the trades

It is not as easy as simply recommending a career in the skilled trades to young people who are not interested in pursuing an academic path. To facilitate better hiring decisions, some regions are developing a measurement process for assessing the likelihood of a young person to be successful in a trade occupation.¹³ With provincial jurisdictions committed to assisting industry in recruiting young workers, it seems likely these challenges can be easily solved. However, the greatest challenge remains convincing young people with the requisite skills, and their families, that construction offers the opportunity to build a rewarding career.

4.5 Retention

Challenges

Attracting new workers to the industry may well be a challenge but so is the retention of existing workers. Keeping their skills up-graded to today's standards is the next challenge. Research shows that there are large numbers of people working in the industry who have never participated in new training of any kind, much less taken an apprenticeship program. While this group of workers have the skills and commitment to remain in the industry they are unlikely to take training in the future. These workers could also benefit from training and certification if such options were made available to them. Because they have the commitment to remain in the industry, if the employer offers the opportunity for training they are more likely to attend, and stay with the job.

Not only are workers hard to find, companies are faced with fellow builders "poaching" their existing staff. It should also be considered that "traditional" work cultures may no longer be suitable in light of the modern-day lifestyle of more leisure time, more time with family, and more demands from aging parents. As the labour shortage grows more acute, employers have been forced to examine new incentives that go beyond a reliance on high wages. For instance the following examples of solutions and new incentives that are becoming the norm in other industries and ones which it suggested may need to be mirrored in the residential construction industry.

¹³ Workopolis.com, 2003 Canadian Employment Outlook: Shortage in Skilled Trades to Intensify
International Results Group

- Knowledge and awareness of trades career options and career paths
- The need for continuous learning and upgrading to keep pace with technology
- Elevate the status of trades
- The need for female role models
- Child-care facilities
- “fringe” benefits such as training and educational assistance
- parental leave, and
- career breaks

5.0 The Significance of the Labour Shortages

As discussed in the previous sections, as the demand for labour and skills exceeds supply, employers are finding it more difficult to recruit and retain workers.

The preponderance of the two-income family has also created shortages in the workplace, as workers are faced with greater family commitments and cannot work longer hours. Other industries with fewer safety issues than construction, and more regularity to their jobs, have been able to plan for greater participation from females, youth, and disabled persons. The residential construction industry has the following characteristics:

- It is less accessible to female workers as a place to work, particularly if they have a young family. The unusual hours make it difficult to find corresponding daycare services, along with challenges for finding transportation to the remote sites which are un-serviced by public transit systems.
- It is predominantly known as a ‘male industry’, making it an unwelcome environment for female workers due to job site attitude and a lack of adequate amenities such as port-a - potties etc.
- Tapping into the youth market is difficult because youths can primarily only work on weekends and after school, which is not compatible to this sector. Youth are also faced with transportation challenges and a lack of public transportation to remote sites.
- Traditional mechanisms that can relieve shortages such as: stock-options, job sharing, fitness programs, and increased use of disabled persons are readily available, but are not always workable within the parameters of this industry.

5.1 Women in the Construction Trades

Challenges

There are still few women employed in the construction industry in Canada. This is a source of concern to the industry and to the educational system, as it is one of the untapped labour markets with the most potential. According to the 1996 Census, 93% of individuals working in the construction trades were male; this number had not changed some five years later in the 2001 Census. Statistics Canada reported in 1997 that women only account for 1.6% of participants in apprenticeship programs. While most companies are willing to hire women, and some trades even prefer women, those numbers have not changed substantially.

- Unfortunately, the job site atmosphere which can be uncomfortable for women is a key deterrent.

If this particular sector of the labour force is ever to be attracted to residential construction in countable numbers, emphasis will need to be placed on setting standards for more professionalism, and on the inclusiveness of women in this workforce.

- Educators have reported reluctance on the part of female students in general to pursue a technical education, regardless of the industry.

While a social work program can have 800 applicants for 35 seats (eighty percent of whom are women), predominantly male-populated classrooms of construction trades often act as another deterrent, due to some level of intimidation felt by the female student. Nevertheless, there is an increased openness in the school system to encourage young women to pursue more of the technical courses.

- This review found that the most advanced programs for attracting women to the trades are located in the UK, such as the 'Women Building London' campaign.

This campaign which was designed with the intention of attracting 1400 new recruits a year, provides advice on the industry and choosing a trade, and offers information on training and guidance for finding work placements and jobs. The campaign is an ongoing effort and too new to know its successes.

- Also in the UK, 'Building Work for Women' is another program that was started as a partnership in 1999 to pilot practical solutions to address the significant barriers faced by women to entering the construction industry.

This program was developed to reach a wider and more diverse pool of people. By applying practical solutions and support, the success of the program has been huge, and has now reached its 5th round of placements. Creative incentives that have been offered to attract women to the industry include; Childcare facilities or subsidies, transportation to hard-to-reach sites, flexible working hours, a training allowance or wage; toolkits and protective clothing, and career development. (The breadth of the trades offered in this program includes plastering, carpentry and joinery, painting and decorating, electrical installation, plumbing, floor and wall tiling and bricklaying).

Information on initiatives and incentives being offered by jurisdictions outside of Canada to attract female workers into the construction industry, and the possibility to adopt some of these measures in Canada is covered later in this report.

6.0 What is Being Done?

6.1 Canada's part in Solving the problem

The total value of investment in residential housing reached a new high of \$52.7 billion in Canada during 2002; a 21% increase over the previous year. Statistics Canada reports that residential building exceeded 200,000 units for the first time in 13 years, and that one-third of Canada's recent GDP growth has been attributed to residential construction alone.¹⁴

To be proactive, the provincial and federal governments have implemented, or funded, initiatives to promote the trades and other occupations. Although these initiatives are solving some problems in terms of raising awareness of the different career options, they cannot solve the low national birth rate, or an aging population. It will be up to industry to be creative and strategic in their planning. What these initiatives immediately accomplish is competition between provinces and regions to be the most creative and innovative. These initiatives are many and varied and generally most relevant to the region or province in which they are implemented. (Some of the initiatives in provinces being reviewed under the Carma Centre For Excellence case study are discussed in subsequent sections)

¹⁴ Statistics Canada
International Results Group

The shortage of tradespeople in Canada is expected to continue to accelerate for the next few years and the need for a “home-made” solution is being sought.

- The Government of Canada has committed to working with partnerships within the apprenticeship community. Their goal is to advance the number of Canadians completing apprenticeship programs within a 10-year period,¹⁵ as earlier training means earlier entry into the workforce.

They have allocated \$12 million to the “Promoting Skilled Careers and Apprenticeship Trades” initiative. This is a national campaign that promotes skilled trades as a career choice for young Canadians. Partners in the project are the Canadian Apprenticeship Forum-Forum Canadien sur l’Apprentissage and Skills/Compétences Canada. Involvement by key stakeholders are intended to include national businesses, associations and labour groups, educators, the Canadian Council of Directors of Apprenticeships, and HRDC. As this campaign was new in 2003 it is too early to report on performance or successes. Also, as Apprenticeship programs fall under provincial jurisdictions, each will be responsible for conducting their own performance measurements over time. Regardless that skills gaps and labour shortages will remain a priority for industry across the nation, a national structured and cohesive strategy is not yet underway in Canada.

6.2 What are the Provinces Doing?

The province’s role is clearer than the national role as they are in closer contact with industry and understand the issues within their own regions. While details on funding through the provinces are not easily found in the literature, the provinces can and will assist industry by matching funding dollars if a case for support meets their criteria. The regions investigated for this review have collaborated with their working Associations, and with their respective provinces on ways to promote the residential housing industry. They have also collaborated on recruitment and retention strategies. (See individual provinces reported on later in this report).

It is not clear from the literature, however, if the target markets have actually been asked what it would take to get them to choose a trade occupation, or even to consider the construction industry as a place to work. Nor has it been documented what the underlying barriers are for not choosing construction as a career, outside of it not being “a cool place to work”, or because the industry is cyclical in nature. More importantly, there are no clear statements on what it would take to

¹⁵ HRDC, 2003
International Results Group

overcome these barriers, or to keep workers in the industry. All of the contractors involved in these initiatives at some stage have held focus groups and/or discussion groups around the country, as well as conducted surveys with various sectors of citizens at different times. However, according to the literature most of the ideas for new initiatives and retention plans have come from industry leaders. There is no indication if performance measurement criteria have been established for the many initiatives underway, as measurement is still too premature. The literature and direct discussions with industry suggest that some of these initiatives have been successful, or at least marginally successful in the short-term.

The provinces and locations that are to be included in the 2003-2004 case study on The Carma Centre For Excellence were explored, and where unique or aggressive initiatives are underway or are being developed they have been reported in the following sections of this review.

6.2.1 Alberta

Alberta has the most apprentices per capita and one of the highest numbers of co-ops for high school and post-secondary students. About 20 percent of the country's 178,000 trainees live in Alberta. A number of initiatives are currently underway that are directly funded by the province.

Provincial Programs & Initiatives

- A number of Construction Associations are part of a provincial program called 'New CAREERS: The Next Generation', which is a year-long multi-media promotion campaign for the trades. This campaign features an innovative combination of newspaper, television, web features and advertising, and is intended to reach young people, teachers, and career counsellors.
- Another project produced a CD-Rom entitled 'Trade Up! Careers in Construction'. This CD Rom, which has high distribution through schools, employment centres and other facilities, includes video footage on a 'day-in-the-life-of' specific trades, and a virtual building project. While, the impact of the CD-Rom is difficult to measure, it is considered a strong promotional tool for industry.
- In 2000, Alberta Learning joined forces with industry to address the mounting skilled labour shortage and introduced the Registered Apprenticeship Program (RAP).

This program allows full-time high school students to begin an apprenticeship training program as early as Grade 10. Students can earn credits towards a high school diploma and an apprenticeship program at the same time. The apprenticeship system is seen as the most effective method for obtaining job skills through a combination of on-the-job experience and classroom instruction (HRDC, 2003). Since 2001 fifty \$1000 scholarships are granted each year to students who take part in the Program. The stakeholders believe this has sent a message that tradespeople are important in Alberta and ensures that employers have access to highly skilled tradespeople.¹⁶ Another benefit of the RAP program is it can reach youth at an early age. This program has dropped the average apprentice age down to the late teens from its previous level of upper twenties.

There are currently more than 40,000 registered apprentices in Alberta, an increase of 50% in the past six years. This increase has partially been attributed to the RAP program. The success of RAP itself can be attributed to:

- the establishment of stakeholder steering committees
- the development of creative messages for target audiences (youth, parents, business),
- customization of communication tools for regional considerations and specific demographic segments, and
- the dissemination of information through mass advertising, media relation, and grass roots activities.

Increased awareness and implementation of RAP has brought renewed visibility and appreciation to the trades in their respective industries. While this is a good first step, there is still more to be done. Previous research has made a strong association between certification in a trade and increased interest in participation in that occupation. Occupations with high turnover and low retention rates typically have no occupational certification. (such as: cement pourers, plasterers, tile setter, and insulators). In order to reverse this effect, program advisors believe that an industry initiative which clearly defines competencies and training standards must be established for occupations without certification.¹⁷

¹⁶ ITAC, 2002 Apprenticeship and Occupational Trends

¹⁷ www.learning.gov.ab.ca/news/2000/may and (www.learning.gov.ab.ca/news/2003/February)

Where producing workers with particular skill-sets that do not require an apprentice are needed, programs that last several weeks are being reviewed. Industry tradesmen pointed out that running wire through a house does not require a four-year apprentice. In this case, someone with specific certified skills could pull the wire through the building, while the electrician can make the connections. Industry believes that if other specific skill-sets are identified, developed and certified, this would reduce some of the skill shortages currently found at work sites.¹⁸

Industry Planned Initiatives

New and creative ways are being examined to reduce the skilled workforce shortage experienced in the province over the last several years. While many are still in various stages of planning, two of the ideas that can be reported on and are supported by literature include:

- The exploration of implementing certification programs for job categories that are particularly vulnerable. This is being done on the premise that certification legitimizes the occupation, and will provide the credibility needed to curb any negative attitudes young people might have about a career in construction. Certification will demonstrate that a certain learning and 'know-how' has been achieved. From what has been reported, it is apparent that increasing the certification of various occupations could be an important step towards generating more workers.
- Another initiative, which is partly funded by the province, but primarily funded by industry is The Carma Centre For Excellence which will be the focus of the case study.

A. Women in the Trades in Alberta

During this review, very few initiatives directed towards recruiting women into the trades were found. Alberta is one of the few provinces to have introduced a program specific to women.

- The program 'Women Building Futures' (WBF) is an Alberta-based non-profit organization that prepares women to work in the trades.

Specific programs for women include a three-week Journeywoman Start Program. This program teaches basic construction skills, safety procedures, and problem-solving skills. In addition, WBF provides women with access to jobs through a Job Board and job retention support through a mentorship program. The program matches graduates with seasoned tradeswomen who share their experiences, and prepare them for work on the jobsite. From there these women can move

¹⁸ CRHBA, Calgary
International Results Group

on to take specific courses such as framing and carpentry. Over a 14-month period 90 graduates completed the program.

Presently, women represent only 3% of the apprentices in non-traditional trades in Alberta, and there is nothing in the literature to suggest that growth in the industry will increase .

B. Aboriginal Initiatives

A major concern is that over the next two decades a significant number of experienced workers will exit from the trades. With few entering the trades there is a growing labour market deficiency. It is suggested by the Aboriginal Human Resources Council that Aboriginal people may just be able to provide a labour force solution to the trades.

Alberta has taken the lead in addressing the introduction of trade occupations to Aboriginals.

- The Alberta Aboriginal Apprenticeship Project (AARP) that was established in 2001 is intended to assist Aboriginals to enter and complete apprenticeship programs.

This project is a sponsorship by Aboriginal groups, industry, educational jurisdictions and both the federal and provincial governments. The promotional banner for the ThinkTrades program, which was described earlier, is targeted to First Nations, Métis and Inuit communities. The program has a goal to register a minimum of 180 Aboriginal apprentices by 2006. Another program that has been introduced for Aboriginal is 'Step Into the Trades' profiled on the www.tradesecrets.org website.

A highly strategized joint initiative between Government and industry to attract these workers to the trades includes a communications initiative 'Enhancing Aboriginal Participation in The Trades'.

Under this initiative:

- there are joint meetings with educators, counselors and leaders;
- guides to the trades for students, career counsellors and parents have been produced;
- Aboriginal apprentices are featured on the training website and successful Aboriginal trades workers are promoted in the media and through a speakers bureau of Aboriginal role models.

Future plans to expand this program include introducing the trades to Aboriginal children as early as elementary school and providing assistance to employers for enhancing Aboriginal participation

and retention in the business. Companies that employ Aboriginal workers are receiving guidance on promoting a culture-sensitive work environment.

Research work carried out in Alberta uncovered some inherent barriers with the apprenticeship system that tends to discourage Aboriginal youth from participating. These include:

- the examinations are culturally biased;
- there may not be a provision for Aboriginal youth to obtain stable full-time employment opportunities once they finish the program - they may have to work as sub-contractors;
- there may be a reluctance on the part of Aboriginals to enter into indentured contracts, and
- the cost of training is higher in remote locations like the far North where many Aboriginal people live.

With fewer workers entering the trades and a growing labour market deficiency, Aboriginals could provide a solution. The demographics of this group are such that greater proportions of their numbers are youth about to enter the workforce. The National Standing Committee's for Aboriginal Trades has an initiative currently in operation that is designed to encourage Aboriginal youth to become more aware of the trades and to consider the construction sector as a viable opportunity for employment.¹⁹

Some solutions and alternative approaches in apprenticeship delivery to aboriginals have been discussed among different groups including HRDC and Aboriginal Human Resources Council of Canada. None of these ²⁰ideas have been tried yet so the success or potential success is unknown. These include:

- Providing Aboriginal secondary school students with the option of undertaking work experiences that are credited towards apprenticeship and secondary school completion.
- Expanding distance learning programs aimed at upgrading Aboriginal people in mathematics, sciences and languages.

¹⁹ AHR&E/HRDC Library

²⁰ Aboriginal Human Resource Development Council of Canada
International Results Group

6.2.2 British Columbia

Challenges

Immigration has historically been a major source of population and labour force growth in B.C. HRDC estimates that immigration already accounts for 70% of net labour force growth, and by 2011 all net labour force growth will come from that source; B.C.'s current situation mirrors that outcome. The province of B.C. has around 869,000 people in the workforce between the ages of 45 and 59, and only 811,000 between the ages of 15 and 24. It is evident that without immigration there will be too few people to meet future labour requirements.²¹ B.C. is working closely with the federal government and other provinces to ensure that Canada attracts skilled workers.

British Columbia residential construction companies have experienced strong competition for their skilled workers over the past five years and have seen many of their workers leave the province for Alberta or Ontario. Like other provinces, they expect the migration or the shortage to worsen over the next seven years, leaving them wondering where more workers will come from should their province experience another construction boom. At the time of this review building activity had increased in the Province, but was not considered 'boom' status. After the fire in the Okanagan Valley over the summer, when several hundred homes were burnt, there was an immediate need for additional skilled trades.

Initiatives

Prior to the fires, there was already a concern over a looming skills shortage, and planning for initiatives to deal with the shortages had already begun.

- The CHBA-BC undertook a process to build a new strategic skills plan for the residential construction sector.

Out of this plan they created a Career and Training Framework for building career pathways in the industry. This framework promotes bridging and laddering between various home building career paths, with formal recognition and credentials offered for all skill development programs. The training model is to be based on skills and credentials and for movement into new jobs and careers within the industry. Part of this plan is to establish partnerships which will employ women, Aboriginals, immigrants and unemployed youth. The process for implementing this plan is currently being developed.

²¹ Business Council of British Columbia, Industrial Relations Bulletin, Vol. 34, No. 09, September 20, 2002.
International Results Group

- In September, 2003 the B.C. Government approved \$1.94 million to fund 25 pilot projects to explore innovative ways to assist more high school students move into trade and technical careers, and to develop assessment and training methods.

Industry and post-secondary institutions have doubled that contribution to the projects. (Residential housing trades such as carpentry are included in these projects). These pilot projects are targeted towards creating better links between high schools and the trades, and conducting skills assessments based on competency.²² Most of the projects will get underway in the fall of 2003 and will be in full swing by spring 2004. Ten (10) of the projects will focus on developing new training modules and skills assessment criteria.

These projects are intended to make the system more flexible and efficient, by allowing specific competencies to be recognized without the need to complete a full training program. For example, a person will no longer have to complete a lengthy carpentry apprenticeship to work as a framer.

- The new competency-based system is intended to address the high dropout rates among apprentices, which in B.C. stands at 50%.

As a goal for this program, the government has set a target to increase the number of trainees by 30% over three years.²³ It is important to note that this project has not been without controversy from unions and trade groups that have voiced concerns that the new plan will 'de-skill' the workforce.

6.2.3 Saskatchewan

Challenges

Like other provinces, Saskatchewan is facing a challenge in terms of current and future capacity. Of all the provinces, they have experienced the greatest loss per capita of skilled workers; primarily to Alberta. The average age of their remaining skilled workers are close to retirement age, and industry has been unable to replace the aging skilled workers with younger workers. They point out that the existing residential construction workforce has developed into highly specialized trades and supply sectors. Job descriptions are often relatively narrow with no recognition for on-the-job training.

²² (Shirley Bond, Minister of Advanced Education)

²³ Ministry of Advanced Education, B.C.

Initiatives

Key industry players have agreed that it is important for them to develop training programs specifically aimed at residential construction. It is their intention that this training will lead to certification within the provincial apprenticeship system. Recruitment efforts for youth have evolved into projects such as:

- The Student Career Portfolio
- Take Our Kids to Work
- Spotlight on Careers, and
- Business talks to Students, Counsellors and Teachers

This series of programs includes facilitated tours of residential construction companies and job sites. Future plans include developing partnerships with Aboriginal training institutions, and establishing new Apprenticeship designations.

6.2.4 Ontario

Challenges

Ontario requires 8,000 to 10,000 workers to replace losses from the workforce during the 1990's. The province is currently rebuilding their apprenticeship programs as many of them experienced a fallout of workers during that same time period. Training has become an urgent priority as the sector typically draws on young and inexperienced workers as potential sources of labour.

Initiatives

Several entry-level pathways from high school into the skilled construction trades have been developed.

- One such program is the two-year Construction Craft Worker Apprenticeship that is offered at the Life Long Learning Centre.²⁴

This program is geared towards providing skills required by new entrants to the industry, and for general construction workers. The program includes training in everything aspect from blueprint reading to operating the hand tools. Workers receive training on such tasks as form setting and placing concrete, selecting and installing scaffolding and fencing, and health and safety requirements.

- Another program was developed for youth enrolled in secondary schools and was designed to encourage participation in school-to-career²⁵ transition programs.

²⁴ www.183training.com

This one semester four-credit program is offered by Mattamy Homes, Ontario's second largest homebuilder. It provides students with 'hands-on' opportunity to experience the many skills and trades in the home building industry by building a house from the ground up. Youth 16 years and older enrolled in secondary school, are also able to participate in the Ontario Youth Apprenticeship Program (OYAP) for any of the skilled trades. This program provides students with the opportunity to start a career in a registered apprenticeship training program while still completing an Ontario Secondary School Diploma.

Skills Canada-Ontario, which is a multitude of partnerships, is dedicated to promoting careers in the skilled trades to young people.

- One of their endeavours is a "Skills Work For Youth" employability skills summer camp targeted towards Grades 7 and 8 students.

Not only are they given the opportunity to develop good communication and teamwork skills, they can become involved in hands-on projects related to careers in construction. This initiative also hosts:

- career showcases
- skills competitions
- youth exploring days
- parent-council presentations, and
- industry awareness days.

Skills Canada-Ontario has developed a website to promote the trades, which is directed towards both youth and parents. The website highlights myths and realities about the industry.²⁶

Ontario has recently announced they are getting ready to invest a significant amount of money to attract and keep new apprentices. Some of these initiatives include:

- Pouring millions of dollars into programs such as high school technological classes and pre-apprenticeship courses to boost up their skill base.
- A proposal to consider rewarding companies that take on apprentices with a 10 percent tax credit at the end of the year.
- An expenditure of \$116 million to refurbish the apprenticeship program.

²⁵ www.schooltocareer.ca

²⁶ www.skillswork.com

- To make the apprenticeship program more attractive by issuing high school students diplomas when they complete their training program.

The Ontario government and industry are also collaborating to promote on-the-job training. Almost all of the school boards have signed up for the provincial apprenticeship program, where students can train in some 50 different trades.

A. Greater Toronto Area

Challenges

There were 3,206 homes sold during the month of August 2003 alone in the Greater Toronto area; this followed record setting months of June and July 2003. Needless to say, the industry in Ontario is experiencing a skills shortage regardless of programs such as CREWS which was piloted in 2002 specifically in Ontario by the Federal Government.

Initiatives

- CREWS (Construction Recruitment External Workers Services) is a special federal program drawn up for the Greater Toronto builders to assist with the large labour shortages.

This pilot project recognized that domestic recruitment efforts had failed to meet industry demand and allowed for temporary entry of qualified foreign construction workers into Canada. These workers were required to have experience as bricklayers, framers, form workers, cement finishers and labourers. The program approved up to 500 workers from countries such as South America, Eastern Europe and China. These workers were imported and granted temporary work visas for a two-year time period.

- To encourage youth to consider a career in construction, the Greater Toronto Home Builders Association (GTHBA), along with the Ontario Ministry of Training Colleges and Universities, has produced a 12-minute video for distribution to the both public and catholic schools boards, which is entitled 'Build Your Future'.

Along with this video, a Speakers Bureau has been set up where members of the GTHBA are available to present the video and a short dissertation on the benefits of choosing a career in residential housing.

- In addition to promoting the trades the video also promotes initial skills training under highly-skilled craftsmen using the latest of technology.

This training is available through the highly sophisticated Local 183 Training Centre. Once students are ready to move to a construction site they can earn money while they complete the 'on-the-job' training portion of the program. The opportunity to work with modern tools and advanced large-scale machinery is promoted to those interested in handling machinery, while occupations that would appeal to computer 'buffs' such as estimating, design and sales are promoted to that group of students. The benefits of working outdoors, and the sense of pride that comes from building something real are all part of the promotional testimonials from young and older workers that can be seen on the video.

Section II

7.0 Jurisdictions Outside Canada

During this review, countries facing the same workforce shortages/skill shortages in trades were researched. Most appear to be dealing with the situation by paying more attention to training and industry promotion. A number of others have seized the opportunity to develop and offer services to employers aimed at improving the way business is done in the construction industry in general. Only countries that have demonstrated highly innovative solutions for managing their workforce, skill shortages or skill gaps, have been reported in this review. Although the U.S.A. does not have the most unique or creative programs underway, they are highly likely to recruit workers from Canada should their need for this type of skilled labour becomes great enough. Therefore, their initiatives warrant watching. Overall, the most creative programs were found in the UK. One particularly innovative and comprehensive program is detailed in this section.

7.1 United States

Federal Government

In 1990, a Federal Commission on the skills of the American Workforce, "American's Choice: High Skills or Low Wages" concluded that the USA may have the worst school-to-work transition system in any advanced industrial country.

The curriculum at a typical American high school is geared toward preparing students for four-year college and university programs, yet only 50% of their graduates pursue a post-secondary education, and only half complete that level. (These statistics are still higher than in Canada). Students who did not plan to pursue a 4-year degree were placed in a general track with lower expectations. One of the results of this was a decline in enrollment in vocational programs and serious challenges in terms of unemployment of individuals without any work skills, as well as shortages of labour in industries such as construction that rely on skilled workers from apprenticeships and other programs. Housing organizations and all regions of the USA are introducing new initiatives on a regular basis for attracting new workers to the construction trades. Most States appear to have gone their own way with little sharing of programs between the States. There does not appear to be a structured National project under way at this time.²⁷

A national survey that was conducted with high school students regarding the most desirable careers, rated construction work next to last on the list - just above 'cowboy' status. As in other parts of the world, the construction industry has an 'image problem' that discourages youth from considering construction as a career. While young people on their own may have an inaccurate image of the industry, they are further discouraged by teachers, guidance counsellors and parents who stress college and university education as the key to success.

Federal Programs

In 1994, the US Congress passed the 'School to Work Opportunities Act' to fund local partnerships to develop school-to-work systems. They encouraged industry to develop models that would work the best for their unique situation, and for their location. As a result, these models vary from sector to sector, however, they all incorporate three elements:

1. School-based learning
2. Work-based learning, and
3. Connecting activities.

The connecting activities are efforts to help employers and schools develop and maintain links between the school-based and work-based components of school-to-work programs.²⁸

²⁷ Centre on Education and Work, University of Wisconsin (www.cew.wisc.edu) Dr. A. Phelps
Jobs for the Future, Mary Bavaro Director of Communications

²⁸ National Centre for research in Vocational Education (www.wiu.edu/users)

Industry Initiatives

Challenges

The National Association of Home Builders (NAHB) has reported that the construction industry in the USA will have to recruit 200,000 to 250,000 new craft workers each year to address attrition and meet future demands. Attrition is one of industry's greatest challenges with 65,000 to 85,000 skilled workers leaving the trades annually, due to retirement and inadequate training programs. To add to this, the number of construction training programs offered by high schools, vocational schools and community colleges have declined dramatically over the past 20 years.

Other Initiatives

The Home Builders Institute (HBI), which is a division of NAHB, has a program that trains more than 7,000 individuals annually as skilled workers in the residential housing occupations. Programs include training in:

- construction crafts
- apprenticeship
- instructional design, and
- job placement programs.

In these programs, students receive first-hand exposure to the 'real world' of commerce.

- Training programs are introduced across the country into high schools, vocational schools and technical schools, community colleges (two-year programs) and universities (four-year programs).

They offer training through the Crafts skills and Job Corps programs, which trains nearly 4,000 workers a year. Job Corps is the only national residential job-training and education program for at-risk youth ages 16 to 24. This is the top source for entry-level workers in the home building industry. The program offers:

- industry-validated up-to-date skills training
- social skills tips,
- and job site behaviour.

They pre-screen and place young people in jobs at no cost to the employer. As a promotional tool, A career brochure and new video "Real Jobs, Great Trades" was developed which describes the benefits of a career in the home building industry.

The HBI is also involved in a number of other interesting initiatives:

- Nationally, they implemented a new initiative "Building a House to Build Careers".

This is a partnership between the local home building associations and high schools to engage students in a school-to work-program. It differs slightly from programs in Canada in that during the regular school curriculum students and builders join forces and build an entire single-family home over the school term. In Canada, various regions have developed programs where there is some involvement in building a home throughout the year, more often during the summer months, but to this point rarely is the student involved from start to finish throughout the school term.

- HBI helps industry recruit workers from non-traditional labour pools including the homeless and the disabled through their HEART-Homeless Employment and Related Training pre-Apprentice program.

Homeless people can become self-sufficient through vocational training and life-skills counselling. Trainees are taught basic skills in carpentry, electrical work, plumbing and painting through traditional classroom instruction and then receive supervised hands-on training in the field.

State Programs

Florida Initiatives

In the State of Florida, industry has introduced new training programs and training incentives.

- They have approached recruitment for the trades through the public relations effort "Nail Down Your Future".

Although there were a number of successful training programs available in the state, they lacked a coordinated curriculum with industry-approved competencies.

- Jointly, with the Department of Education: they reviewed and revised curriculums for all of the certified trade programs, and established incentive programs for builders to hire certified construction workers.
- Incentives were delivered through discount programs on Workmen's Compensation Insurance.
- The final component of this initiative implemented a partnership with a community college to develop a model training program that would be transportable throughout the State.²⁹

²⁹ Paul Thompson, Executive Vice-President Florida Home Builders Association
International Results Group

Ohio Initiatives

In 2001 in the State of Ohio an Integrated Technical Academic Competencies group was formed. The role of the Competencies group was to look at various sector standards and develop fully integrated training based on career clusters.

- The goal of this program was to define multi-levels of training programs from basic (core) skills to intermediate (career cluster) and advanced (specialization) skill level training for each industry. The intention of the program was to provide industry with a 'head-start' for moving forward with workers who have become certified through the new career academy concept.

It was intended that level one would serve 9th and 10th grade students; levels two and three would build on the core skills in the 11th and 12th grades. Career specialization would come into play and be included in the 12th and post-graduate years.

- The State is currently striving to work on establishing a national certification program that will provide participants with portable credentials regardless of where they live.

For the construction industry, they have developed cluster that include:

- Skilled Trades
- Technical
- Managerial and Executive Careers

To become certified, students are required to work with tools, and to manage the process and the people on a jobsite. Categories within this cluster include specific levels of expertise: apprenticed, journeyman and foreman. Leaders from the construction industry are involved in curriculum development from start to finish. As this is a relatively new program that will have long term outcomes the success of the programs are unknown.

7.2 Ireland

Challenges

Ireland also faced labour shortage problems despite large numbers of young people joining the labour market. In the 1990's government spending and taxes were slashed, transforming it into a low-cost place to do business. Since the mid-1990's, the country has experienced an economic boom.³⁰

³⁰ www.euro.eurofound.ie/2000

Initiatives

Ireland has addressed their skills shortages by making notable reforms to the apprenticeship program. The traditional system which was based on 'time-served' has been remodeled to a standards-based model that values competence (Journal of European Industrial Training, 2001).

- Also new is the Modern Apprenticeship program, which was first introduced in 1991 to address old and new markets and technological developments.
- The new workplace in Ireland indicates that a competence-based apprenticeship system was needed to better gauge the worker's ability.

This standards-based model was designed by a team of experts from each trade (referred to as *subject matter experts*), and by representatives of employers, trade unions, and the Department of Education. The standards-based apprenticeship program is divided into seven phases where Phases 1, 3, 5, and 7 are completed on-the-job, Phase 2 in a training centre, and Phases 4 and 6 in an Institute of Technology. Candidates must receive a passing grade in all Phases to receive the National Craft Certificate. This is partially accomplished through on-the-job assessments.

Process Evaluation

One problem that was noted with this new system during a process evaluation is that employers were not carrying out 'on-the-job assessments, particularly if they were not directly involved in the type of work being assessed.³¹ This caused delays in the progress of the apprentice. This obstacle was overcome by a government body that was formed to assist with assessments. A designated officer visits the site, or makes an arrangement with another employer who is directly involved in this type of work to oversee the apprentice's assessment.

Outcomes

Overall, employers are satisfied with the quality of craft workers coming out of this program, and feel that it meets the needs of the Construction industry better than a previous time-served model that was explored. (Journal of European Industrial Training, 2001).

- Ireland has implemented the Construction Skills Sector Council (SSC) to manage the Construction Skills program.

³¹ Dr. Walsh, President University of Limerick
International Results Group

This program is responsible for representing employer skill needs, and for tracking the skills and productivity issues. It was focused on four key areas:

- Reducing skill gaps and shortages
- increasing the opportunity to boost the skills

Ireland has recently joined with other countries to become part of Britain's innovative 'Rethinking Construction' program which is discussed in section 7.5.

7.3 Australia

Initiatives

Australia has done an excellent job of transforming their apprenticeship and traineeship programs after a long period of minimal growth. Since 1995 the system has more than doubled in size from 136,000 trainees to 295,000 at the end of 2000. Women now comprise more than 30% of these programs, compared to only 5% in 1995. Although this number sounds high, only 14% of the women are in 'non-traditional' trades programs, which is still a respectable improvement.

Regardless, of these new programs, the workforce is still being replenished by a low 2% a year. In an attempt to find a solution, the focus was moved away from recruiting youth into the trades, and concentrated on recruiting adults. Adults entering these programs receive a credit for previous work experience, and have the opportunity to study for post-trade management and professional jobs. Adult apprentices are particularly valued for their;

- maturity
- Their capability to mentor younger colleagues
- dependability, and
- safety-consciousness

Outcomes

Most companies have reported high training completion rates among the adult apprentices compared to younger apprentices. These adult apprentices came from diverse work and cultural backgrounds. Some are classic 'second chance' apprentices or 'adult improvers' who's newly acquired skills helped to raise product quality and productivity. Others are 'achievers' with career management aspirations.

- The main challenge for this program was objections to lower wages and the lengthy qualification period.

Companies are looking at ways to circumvent these issues by:

- Encouraging hiring at equivalent company wages after taking into consideration past experience
- Compensating workers for their enhanced skills, and
- implementing shorter training periods.

To attract more adults into the 'traditional' trades, employers and trainers are considering a pathways for adults model, and more adult benefits for the post-trades areas. To encourage companies to accept adult apprentices as a way of dealing with skills gaps issues, and the challenge of trades shortages some actions steps have been recommended.

- They are currently promoting adults to industry such as candidates for niche trades and post-trade jobs, and for their beneficial work as classroom influences.³²

7.4 Germany

Federal Initiatives

Some eighty-four percent of youth in Germany pursue a post-secondary vocational or education certificate. Currently, two-thirds of all youth have passed through an apprenticeship program. For each of the more than 300 occupations that have apprenticeship status there is a national standardized curriculum. Students are required to pass examinations in order to be awarded a certificate. Depending on the program, the employment portion of an apprenticeship typically lasts 2.5 to 3.5 years. Classroom training involves working on actual machines and equipment that will be used on the job. In addition to technical skills, they receive broader work skills training. The aim of vocational training in Germany is two-fold;

1. To enable the individual to acquire the skills and knowledge necessary for employment, and
2. To ease the person's entry into the labour market.

Outcomes

The success of this system is responsible for a more successful school-to-work transition in Germany than exists in other countries. It also explains the low level of youth unemployment.

³² RCVET (The Research Centre for Vocational Education and Training Research Centre of the University of Technology Sydney and the Australian National training Authority
International Results Group

³³Although unemployment is higher for youth with lower levels of education and training, there are relatively few of these people in the population. Typically, eighty percent of graduates complete their vocational or college pursuits.

Other Initiatives

Germany is one of the most innovative countries in terms of addressing their skill shortages. The vast majority of construction workers in Germany have some formal qualifications.

- Companies readily offer initial training, but have difficulty finding apprentices, or attracting candidates of suitable quality.

German construction training is a two or three year apprenticeship, which includes training on-the-job in vocational schools and in inter-company training centres. The first year of training includes an introduction to all of the construction trades, and training becomes progressively more specialized in the following two years.

Outcomes

There is an overall consensus among industry that this training strategy is working well.

- The Inter-company training centres are considered particularly important as they offer more uniform standards of training.

The role of the vocational school is however viewed with considerable skepticism, both in terms of the curriculum they offer and the implementation.

The construction sector in Germany is currently undergoing considerable change. Notwithstanding the demand reunification of East Germany has put on skilled labour, the post-reunification recession has hit this sector hard. They are consistently faced with foreign firms hiring cheaper workers. Increasingly, building firms only employ a small number of skilled workers and sub-contract out the less skilled routine work.

There are two major trends facing the industry;

³³ Helmut Rudolph, European Association of Labour Economics
International Results Group

1. A demand for greater flexibility and full service by customers, and
2. An increased demand for highly specialized services.

Companies are faced with the difficulty of recruiting skilled and quality workers. Similar to other countries, construction work has become a second choice career for many youth.

- Half of the construction companies in Germany participate in the Modern Apprenticeship (MA) program.

On balance, the evaluation of the MA scheme was positive once they got past a lack of motivation and a high drop-out rate. If there is any criticism of this program it is that it compared unfavourably with the traditional apprenticeship most of them had undergone. A number of employers are still unconvinced the new system can produce comparable capabilities. This lack of confidence is due to the practical difficulties associated with workplace-based assessment on construction sites.³⁴

7.5 Britain

Challenges

An aging workforce and a shortage of skilled trades people is a pressing issue for residential construction in Britain. There is a strong belief that the industry must move towards greater professionalism if they are to be successful in marketing the industry at the high school level. Related to this, is an increased emphasis by employers on "soft skills". Employers are demanding that prospective employees demonstrate multiple skills and embrace lifelong learning. The entire trades sector is characterized by a decreasing number of trainees and a pronounced lack of certification and qualifications.

Of the countries reviewed, it appears that Britain has made the most progress, or at least have the most advanced and comprehensive program for dealing with their labour shortages, skills shortages and with enhancing the appeal of the construction in terms of the number of programs in place. They were motivated by the realization that:

- Youth were getting harder to attract to the construction industry regardless of the pay;
- Customers were demanding better quality, which had 'slipped' over the years partially because of a lack of skilled workers; and

³⁴ Clarke, L. and Wall, C (1996 Skills and the construction Process

- Large portions of the population were not being attracted to the industry due to a general lack of professionalism in the industry.

Britain currently has a requirement to attract 380,000 people over the next number of years into the construction industry. Of that number, some 65,000 will be required each year to replace the retiring workers. To deal with the situation, regions in Britain have introduced some highly innovative program

7.5.1 What They Did

7.5.1.1 Recruitment and Training

For ongoing recruitment purposes, they established JobCentre Plus along with a toll-free number.

- Employers are able to post their job vacancies through JobCentrePlus.

To promote this centre they have:

- a 'recruitment bus'
- a dedicated website, and
- a newsletter that is distributed locally at cultural centres, places of worship and in ethnic residential areas.

For ongoing training:

- The government has promoted a vocational education with new courses to bridge the skills gaps identified by employers.
- Many of the schools have sought specialist status in return for funding by industry.
- Industry offers work placement opportunities to universities in residential construction, both on-site and in the office.
- Each year 10 Modern Apprenticeship schemes are being conducted on-site.
- Curriculums are placing greater emphasis on vocational education by creating better career paths in the construction industry.
- People are becoming more aware of the number of progression possibilities through the industry.
- Training is targeted to women, ethnic minorities and young people at greatest risk of being excluded from the labour market.

7.5.1.1 Rethinking Construction Initiative

In recognition that there was a serious labour force and image problem to deal with, a highly innovative initiative referred to as 'Rethinking Construction' was implemented in 1998. This organization acts as a main point of coordination and liaison between various action streams within the Construction Industry. The main goal of 'Rethinking Construction' is to achieve radical improvements in the design, quality, customer satisfaction and sustainability of the UK construction industry. Its' other aim is to be able to recruit and retain a skilled workforce at all levels by improving employment practices and health and safety performance.

This organization is in partnership with government and industry.

- At the heart of this initiative is what they refer to as the *Demonstration Projects Program*.

This is a series of projects that will allow leading edge organizations in the construction industry the opportunity to demonstrate innovation and change, which can be measured and evaluated.

- These projects could not proceed until performance indicators for measuring outcomes were developed.
- These projects can either be worksite-based or organizational-change based.

Over a 5-year time period, more than 400 projects were undertaken and tested against key performance indicators. As the projects were completed and evaluations conducted, gaps that are identified are reviewed and methods for improvement implemented.

- This Rethinking Construction initiative has now been networked across the UK and includes Northern Ireland, Scotland and Wales, with Centres recently established in Northern Ireland and Wales.

This initiative initially included both commercial and housing construction. To provide for a more concentrated focus, in 2001 two breakaway groups were formed; The Strategic Forum for commercial construction and The Housing Forum for residential housing.

A. The Housing Forum Initiative

The Housing Forum was another initiative that was set up to bring everyone in the home building chain together in a movement for change and innovation.³⁵

³⁵ Rethinking Construction Ltd.
International Results Group

- A goal of the Housing Forum is to embrace leading edge suppliers, home builders, designers, contractors, consultants, housing trade bodies, and professional institutions that support continuous improvement in quality, efficiency, industry sustainability and value for money.
- Another goal is to promote learning throughout the industry by encouraging leaders to demonstrate change within their organizations in specific areas.

This is done by embedding the principles of a sub-initiative referred to as 'Respect for People' throughout the whole organization.³⁶

- The Housing Forum established a Benchmarking Club for its members that monitors key performance indicators for each of the demonstration projects.

This is in keeping with the requirements set out by the parent company Rethinking Construction. Although the Housing Forum is able to develop their own Key Performance Indicators for the Housing sector they must meet the standards of Rethinking Construction.³⁷

Outcomes

This Forum has been in practice for two years and performance evaluations that have been conducted when key milestones are reached have reported that:

- customers are happier;
- quality has increased;
- work sites are safer;
- projects are finished ahead of time;
- productivity of employees is up, and
- building projects are being completed 10% quicker.

This particular group undertook four (4) key demonstration programs, which were coordinated by a central team in London, but were administered on a day-to-day basis by regional team members. These four programs include:

1. A National Customer Satisfaction Survey: - A National Customer Satisfaction Survey is to be used to establish the performance indicators for industry. This survey is being run for the first time over the fall of 2003 with 10, 000 new home buyers.

³⁶ Rethinking Construction operates as an governing body for a variety of break-away initiatives: These include; The Strategic Forum, The Housing Forum, Respect for People, The Positive Action Training in Housing,

³⁷ www.thehousingforum.org.uk

2. A Labour and Skills Review: - A review of the current employment situation in terms of numbers employed and skills available. Workshops were conducted to look at future skill sets that will be required.

3. Regeneration and Sustainability Reviews: – This project reviewed the experience of partnering and the issues to be overcome to achieve greater supply chain integration.

4. Offsite Manufacturing Review: - This project looked at the barriers that deter industry growth of onsite building such as skilled labour shortages, and researched the likelihood of using pre-fabricated methods. They are currently producing a video to raise the profile of 'modern methods' for construction, and they plan to hold a series of seminars for promoting the idea to industry.

B. Respect for People Initiative

In 2000 the 'Respect for People' initiative was launched also under the Rethinking Construction banner. The philosophy of this initiative is that, equally fundamental to the future success of the construction industry, is its' ability to recruit and to retain a skilled and committed workforce.

- The theory is that to be able to recruit and retain skilled workers can only be achieved by demonstrating respect for the current workforce. This must include good working conditions and improvements in performance and health and safety.

It was felt that if the overall image of the industry was going to improve, it had to start with how people in the industry are treated, and how they treat each other.

Outcomes

The demonstration trials for this initiative have shown conclusively that respecting people delivers real business benefits. Performance indicators were developed that can be used on a list of seven headline categories:

- employee satisfaction
- staff turnover
- absence from work
- working hours
- training and development
- diversity, and
- pay

The purpose of this initiative is that respect for people is fundamental to achieving world class performance in construction. The initiative consisted of conducting demonstration pilot-testing and to develop a series of tool kits and Key Performance Indicators that can be adapted throughout the construction industry, and throughout the UK partner locations. The work conducted under this initiative covered seven themes:

1. Diversity in the work place
2. On-site working environment
3. Health
4. Safety
5. Working conditions off-site
6. Career development & lifelong learning
7. Behavior

C. The Positive Action Training Initiative

Under the management of the Rethinking Construction umbrella was a fourth initiative 'The Positive Action Training in Housing' (PATH) scheme which operates in ten areas across the country.

- This group deals with offering training to under-represented groups of people, through short training courses, and job placements.

Of 1,000 trainees, over 80% obtained jobs upon graduation. PATH offers a tried and tested model that can be adapted for other industry occupations.

D. Other Initiatives

In 2002, the CITB (Construction Industry Training Board) undertook the development of 'The People Skills Scoreboard'.

- Companies provided details of their workforce, training expenditures and staff turnover for analysis.

Like Canada, Britain's housing industry is largely made up of small companies that are the least likely to offer training to their employees. Therefore, results were based on large and medium sized companies, which means that the outcome of this analysis was not entirely representative of the industry.

From their findings they moved ahead with:

- nationally-funded programs for people who have fallen out of the system and need to upgrade their skills
- providing simpler and more direct access to training

- improved quality and relevance of the training
- improved the quality of teaching, and
- encourage career and guidance services to be offered within companies to keep workers on a formal career path

Customer pressure for competent and qualified workers on their jobsites, along with new legislation, supported the idea that achieving and documenting learned skills should be mandatory.

- The Government set Five National Learning Levels as targets to measure competence and issues skills cards.

All builder members are required to hold a hallmark status. By the end of 2003 only workers holding these skill cards will be employed on hallmark job sites.

E. Industry Solutions for Attracting and Retention of Workers

The problems being experienced for attracting and retaining high quality labour was highlighted earlier.

- One solution that was introduced was to substitute various practices on the jobsite with the use of prefabricated components.

The momentum for this approach is building and could have a significant impact on training for new occupations, especially since carpenter and framing skills are easily transferable to the role of Specialist/Factory/Site Technician.

This training would also include manufacturer training. Although industry expects that in the future the traditional craft skills will remain in demand 50% of the time, a move towards more pre-fabricated components is threatening the future of wet trades. It is expected, that fewer homes will be built on-site with less demand for carpenters and other craftspersons, as the use of machine generated components increases. This approach is expected to increase specialization, and the demand for multi-skilled workers.

Outcomes

Industry is currently developing performance indicators for measuring and monitoring the delivery of key skills and best practices.

F. Positive Image Program for 2003

As part of the larger Rethinking Construction initiative, a public relations campaign is underway to promote construction as an exciting and challenging career option. It is intended to communicate

the positives of a career in construction to all 13 to 19 years olds, including women and ethnic minorities. The purpose of the campaign is:

- to increase awareness amongst employers and stakeholders about the work CITB is doing to meet skills shortages;
- to encourage employers to play educational roles
- to recruit quality young people into the industry – particularly into graduate career routes.

During this campaign, they intend to direct various forms of media messages to the primary audience of young people ages 13 to 19, and to secondary audiences of employers, influencers and stakeholders. Targeting influencers acknowledges that parents and teachers can have a strong impact on the choices made by young people. The campaign promotes to the primary audience that being in construction is a career to be proud of and a place where lifelong learning is possible. The campaign is being conducted in magazines, press advertising, radio, postcards, on drink coaster in pubs, and as online advertisements on career information sites.

- In addition, the public relations arm of the Rethinking Construction launched a construction website intended to appeal to young people.

It offers:

- comprehensive career information;
- up-to-date news;
- visitor polls;
- games and construction career quizzes;
- diaries of young people in the industry, and
- a Construction Gallery with information on recent cutting edge construction projects

The decision was made by industry to deal with 'skills shortages', 'recruitment difficulties' and 'skill gap' as separate issues. Two regions in Britain, the East and West Midlands were pilot tested, and in particular have dealt with these issues in highly unique ways. (These regions are highlighted in Section 7.5.1.2 of this review.

G. Recruiting Women

'Women Building London'

This program is relatively new and hopes to attract 1400 new female recruits a year.

- The scheme gives advice to women on the industry and on choosing a trade, as well as offers information about training and guidance or finding work placements and jobs.

From within this program, mini-programs or groups that are focused on specific areas are expected to form. The first group to be formed was the Building Work for Women group which is intended to reach a wider and diverse pool of people.

'Building Work for Women'

This organization is a partnership that was formed in 1999 to pilot practical solutions to the skill needs of construction employers and to address significant barriers faced by women from all backgrounds when trying to enter the construction industry. This group works with organizations

- They have implemented job-sharing programs for women with children still at home, who needed work hour flexibility.

This group is focused on:

- increasing opportunities for on-site employment for newly trained tradeswomen
- lowering barriers faced by female entrants to construction
- responding to the qualifications for doing more on-site work.

For women who want to develop a career in the construction trades they provide them with;

- a training allowance,
- childcare and travel costs,
- toolkits and protective clothing,
- career development and supervisory support.

Outcomes

This is a relatively new program with no performance indicators yet available.

7.5.1.2 Skill Shortages and Recruitment difficulties

A. East and West Midlands

These two regions had a number of concerns, which include:

- the image of the industry,
- the type of worker who was choosing construction as a career;
- the type of workforce the industry wants to attract in the future;

- the issues that prevent quality entrants from pursuing the industry, and
- the best way to promote careers within the construction industry

Efforts to explore these key areas of concern facing the construction industry eventually led to the launch of a '**Bridging the Gap**' initiative.

- This initiative was primarily concerned with recruitment and retention; training and delivery and strategic planning.

After doing some research it was concluded that the construction industry was seen as '*easy to enter*' and had become a "*last resort*" employer for some. This type of thinking was resulting in a large portion of the workforce being unqualified. Nevertheless, retaining their existing skilled employees and ensuring skills succession through training and apprenticeship schemes is crucial to most construction firms. To accomplish they addressed these issues separately. (See discussion below).

Recruitment and Retention

A body of initiative stakeholders addressed the role that parents, teachers and career advisors play in promoting, or not promoting, the construction industry as a viable career. To deal with the issues they looked at ways to work through schools in an effort to attract level A students.

- This was an attempt to fill the need for higher quality people by promoting construction as a 'first choice' career.
- In addition, the role of this body was to attempt to attract a diverse workforce in terms of age, race and gender.

But, first they determined there was a need to get employers to 'buy in' and to drive an image campaign that would also promote the need for soft skills and the value of acquiring transferable skills. They found that self-confidence in the industry is low, and that the builder's attitude needed an 'overhaul' in terms of championing and rewarding training.

Training

The same body of stakeholders also determined there was a need to keep the 55+ workers within the industry to act as mentors. When they found there was a higher level of willingness among large companies to invest in learning, and a shortage of qualified trainers, they determined the alternative was to rely on the experience of older workers to communicate their knowledge.

- The supporters found that Apprenticeship programs are seen as a hassle to smaller companies, to the point they are willing to turn down work to avoid having to manage an apprentice.
- In general, industry found that training was too classroom-based while they felt it should be more site-based.

Regardless, they were faced with a lack of industry understanding of education and training and an attitude that placed low value on training.

- After a number of trials, the delivery mode that was chosen was a 'buddy' scheme referred to as '*Building the Workforce*'.

Through this scheme;

- the quality of education and training was upgraded
- Training was made more accessible to include on-site and in-college training
- Each student was assigned to an outside mentor, as the trainer's capacity to mentor was restricted primarily because of the geographic spread between the various sites.
- Skills training was outsourced to external programs

A program for 'up-skilling' was introduced for the existing workforce.

Recruitment

A key question was how to attract young people to an industry that is inundated with safety issues. The program stakeholders also saw a need to overcome barriers that would allow them to recruit more women and more ethnic minorities. Like other countries, they are faced with a lack of awareness in the schools, and a lack of industry knowledge among career counselors/advisors. Their solution to a lack of awareness about the industry was to:

- Create stronger school links
- Evaluate the type of person who was interested in entering the industry, and
- Look at ways for recruiting and training mature trainees.

When it came to effective recruitment, the initiative focused first on raising the status and profile of the industry.

- This was structured through a marketing campaign linking national, regional and local initiatives.

It targeted actions to engage high school students with the industry to learn about the career opportunities that are available, in particular in the trades that had the lowest pool of potential entrants.

- As part of this campaign a National Construction Week was introduced that targeted shopping centres, job centres, schools, college, and places where the general public were the most likely to see the advertising.

It was noted that industry is generally portrayed in a negative way by the mass media, especially in terms of considering construction as a career option. In response to this a whole new approach for communicating about the industry evolved.

- The character "Bob the Builder" was originated and used as a mascot for the campaign.

The intent of this character was to reach children at a young age when an impression could be made that being a builder is worthwhile and even fun.

- This campaign evolved into an entire line of promotional products, a line of toys and eventually a traveling kids show.

Outcomes

The Bob the Builder initiative is viewed as one of the most successful campaigns to reach this specific market. Although no formal success indicators appear to have been implemented, it is measured by the growth across Europe and into North America. One only has to look at the shelves in a toy department and watch TV to realize its' success. While this campaign has gone a long way towards generating positive images amongst smaller children, the organizers of this campaign realize there is still a need to challenge the perceptions of people of all ages. This is particularly important considering the influence that parents have over their children's career choices.

Recruiting Women & Ethnic Minorities

It was also noted that while women make up over half of the working population, this sector was being ignored as a potential workforce, as were other special interest groups. A popular perception of the construction industry was that construction is an unprofessional sector with an unattractive workplace culture. Industry felt this notion was acting as a barrier to a wide range of potential entrants, but especially women and ethnic minorities.

- To overcome some of the barriers to reaching these markets, efforts were made to improve the job site environment given the visible impact of the industry.

The public face of the industry is the building site, which can appear chaotic, dangerous, male dominated, involving hard physical work and requiring long working hours. These attributes do not truly reflect the reality of a modern construction worksite as Health and Safety legislation and the increasing use of power tools and computers have created a much less male-oriented industry. Research showed that the images of a diverse workforce in job advertisements are crucial to changing existing perceptions and for broadening the appeal of the industry. Male only advertising that followed examples of other careers such as the police force, is an outdated approach.

- The campaign added women to the advertising, and advertised in magazines such as 'Just 17' and 'Cosmopolitan'. In these ads models of successful female builders and other industry workers were promoted by using positive visual images and testimonials.
- Playing off the success of the character 'Bob the Builder', an initiative is currently underway to create a "Babs the Builder" character.

Targeting Students

As new technology has led to greater use of off-site production and pre-assembly methods, it opened up opportunities for a more stable working environment closer to those found in factories.

- There are now more opportunities for career progression as many craft-based careers progress to supervisory or management positions in a relatively short time period.
- Promotions were conducted on the basis that entrepreneurial opportunities that exist in construction are far greater than other industries, and that workers have a good chance to build a team and form new companies, or be self-employed.

To convince youth of this, it was necessary to find a way to define a variety of career paths and progression opportunities within specific construction careers.

- These pathways were modeled after the 'route-ways' program, which were developed by sectors such as the legal profession.

This model defines a clear explanation of the interrelationship between different vocational paths, the progression routes and the opportunities to switch between the different job roles. The ads that supported this part of the campaign portrayed the variety of careers, and the various workplace environments and organizations which make up the industry.

The importance of promoting the industry in schools emerged as being key for long-term sustainability of the industry.

- Raising the profile of the industry depended on the strategies for introducing construction courses within the school curriculum, as well as targeting pupils to advise them on career choices.

The instigators working on this component of the campaign found there was little relevance to the industry in the existing curriculum, regardless that there is direct relevance to the arts and to design.

- This meant curriculum had to be re-worked and made more relevant to modern day construction.

Targeting Parents, Teachers and Career Counsellors

Parents, teachers and career advisors were seen as having a principle influence on career choices made by students. In order for teachers to recommend construction as a career, these groups first needed to be made more aware of the industry and the many careers opportunities. As few teachers had direct experience with the construction industry they had no direct knowledge of the range of activities involved in a given job. To overcome some of these barriers:

- Industry leaders built personal contacts with principals and individual teachers in appreciation for raising industry profiles.

In one location, **The Construction Action Group** was formed.

- This group hired firms to work collaboratively in developing partnerships with schools to promote careers to students, and to raise the profile of the industry amongst the teachers.
- They organized teachers to visit job sites to gain first-hand knowledge of the many career options and to become familiar with the training available within the industry.
- A teachers' PR package was developed that explained the relevance of the industry in terms of many mainstream subjects, and included information on careers and opportunities in the region.

This PR pack highlighted examples of successful companies across craft trades, technical, and professional occupations.

- Career liaison groups with schools were arranged to co-ordinate promotional events, and to act as a single point of contact for information.

Recruitment of Students

Industry determined it was important to engage students at an early age to broaden its' appeal, and that one initiative should focus solely on building careers for girls.

- They developed a CD so students could learn about the environment and identify with the environment. This initiative was modeled after the Engineering Ambassador Scheme, and involved setting up a 'stand-alone' training center in which students could gain insight into the industry and the career options.
- High quality career events were organized, which provided clear career maps linking jobs, pay and qualifications.

Recruitment of Non-Traditional Workers

In the past, employers had typically relied on 'school-leavers' as a source of new entrants to the industry; the vast majority of which were white males. However, the demographic trough, high levels of employment and new standards, rendered this traditional source insufficient for the future needs of the industry. It was also clear that existing recruitment mechanisms and processes were ineffective in making the industry more attractive to under-represented groups such as women, ethnic minorities, certain disabled people, the long-term unemployed, ex-offenders and mature new entrants.

A number of non-traditional groups were identified as potential sources;

- Unemployed Workers
- Mature New Entrants
- Women and ethnic minorities
- University dropouts
- Skilled workers from other regions
- Skilled workers from other industries
- Ex-Offenders
- Immigrant labour
- Lower Achievers

To attract women and ethnic minorities the Construction Action Group targeted;

- women's centers/groups
- community libraries, and
- JobCenter Plus offices in career centres.

Through job centers at the community centers they worked with a variety of agencies and initiatives including schools. This raised representation by 10%.

- Sexism, racism, and bigotry within the industry were addressed.
- It was discovered that using traditional site-based male roles to promote the under-represented sectors did not work. Although it attracted white males to be joiners and bricklayers, women and ethnic minorities were more attracted to other white-collar occupations within the industry.
- The Action Group worked with employers to encourage a wide range of hiring. They conducted advertising in communities that had a high rate of under-represented groups, and in locations where it was the most likely to be read.

They found that a lack of flexible work practices to accommodate child-care responsibilities and flexibility with site hours interfered with women entering the industry. To accommodate this:

- They implemented flexible working hours to ensure that women were able to combine their work and family responsibilities, and to make the industry more attractive to potential entrants.

Retention

Most construction companies were suffering retention difficulties, including losing staff to local competitors outside of the region and to other industries. To circumvent this a full range of benefits were established. These benefits included:

- encouraging staff retention through incremental pay scales for apprentice trainees
- They took into account work/life balances, and improved working conditions from information gathered while canvassing employee opinions in surveys.

Under yet another program:

- companies found it easier to work collaboratively with competitors rather than 'poaching' each other's staff. They entered into informal sharing agreements where surplus labour is borrowed back and forth to cope with demand.

Section III

8.0 Other Industries

McClenahen (2003) asserts that the government and trade organizations have, and will, play a vital role in aligning the education and training institutions to the needs of industry. This is especially the case when small and medium sized companies dominate an industry. Creative programs that are being developed across North America outside of the construction industry were investigated for this review, and where they appear to be a "first", leaders in innovation or direct competitors for the same workforce they are included in this review.

It was found that other industries facing skill gaps and worker shortages that directly compete for the same labour pool as the construction industry are also turning to certification and training programs to attract new workers. These industries are profiled in this section.

8.1 Oil and Gas

One of the key competing industries for similar workers is the oil and gas exploration sector. Their hiring and labour shortage challenges are similar to residential construction, along with similar public image challenges. However, the requirement for much of their work to be conducted in the field 'away from home' makes their challenges even greater.

- As they are unable to change this 'away from home' factor, they have focused on offering training incentives and a strong PR promotion of the industry.
- Partnerships have been created with technical and vocational institutions, government and industry Associations.
- One partnership which is made up of the Canadian Association of Oil well Drilling Contractors (CAODC) and Alberta Learning has launched an Oil & Gas Well Driller apprenticeship program.

With new technology, drillers now work in a more sophisticated environment than in the past. This requires the skills of a scientist, mechanic, and manager making certification critical.³⁸

The greatest disadvantage they had has turned into an advantage for residential construction is the need for Oil & Gas workers to be away from home. For them, solving their labour shortage is critical as fewer wells were drilled in 2002 and 2003 due to a shortage of workers.³⁹

³⁸ www.learning.gov.ab.ca/news/2003/March

The Petroleum Services Association of Canada is the national trade association representing the service, supply and manufacturing sectors within the upstream petroleum industry. They employ 463,000 workers across Canada. Through joint funding with HRDC;

- Industry created a website to promote careers to high school and post-secondary students across Canada.

This website demonstrates attributes of working in the service, supply and manufacturing sectors of oil and gas.

- The main goal of this "Virtual Career Fair" website is to demonstrate the range of career opportunities that exist. (www.careersinoilandgas.com), the many career paths available and the high income opportunities in this line of work.

The website was developed in response to the labour market shortage being experienced by the oil and gas service industry, and the lack of young people showing an interest in choosing the trades as a career. It was also important for industry to communicate that oil and gas does not only hire university graduates, but draws from the same labour market pool as residential construction, manufacturing and warehousing. The website:

- Demonstrates various 'day-in-the-life-of' storyboards for specific occupations,
- highlights scholarship opportunities,
- Does mentorship matching, industry videos and photos of company profiles.
- It occasionally is interactive with live mentors on Industry Day.

This particular sector of the oil and gas industry is limited when it comes to showcasing their industry, as they are unable to offer job shadowing or summer placement jobs due to highly restrictive safety regulations.

Outcomes

When looking at the success of the website the following observations have been made:

- They receive over 15,000 hits monthly on their website
- They field several hundreds of e-mail inquiries, and
- They receive more resumes than they can handle monthly.

³⁹ PSAC, Roger Soucy

8.2 Manufacturing and Warehousing

The manufacturing and warehousing industries also compete with the construction industry for the same workforce pool. These industries face labour shortages and the challenge of attracting new workers. These sectors are both heavily burdened with negative factors, and are tied to old stereotypes and a lack of youth awareness about manufacturing and warehousing as potential career paths. Both industries have observed that it is not so much a lack of workers, as a shortfall of skilled workers with specific educational backgrounds.

- They believe opening up their facilities to young people, parents, and educators will help to instill images of clean, modern plants and computer-controlled equipment which now dominates these industries.

Like other industries manufacturing and warehousing is working hard at trying to find ways to retain their current workers and see retention as one way to meet their labour shortages.

- They have found that by showing employees that the company culture is unique is an important factor for retaining workers (Industry Week, 2003).

People like to work for an organization that:

- is an industry leader
- one that offers guidance and support, and
- one that works hard to develop its employees.

Outcomes

No performance measurements are yet available to determine the success of these initiatives.

Innovative Programs

- One of the more innovative programs discovered during this review in the industries of manufacturing and warehousing is in the state of Georgia where they have created a post-high school certificate program that tailors manufacturing and other kinds of skills training to the needs of specific communities around the state.
- In New Jersey, the Workforce Development Partnership Program provides existing workers an opportunity to upgrade their skills. If a factory wants to bring in computerized production equipment, the State-sponsored program will pay the cost of providing workers with computer-assisted machining skills (Industry Week, 2003).

NOTE TO THE READER:

The reader should note that the purpose of a literature review is to research and summarize previous information about a topic or issue that will be explored in an upcoming detailed study. The literature review is not intended to be a solution-oriented document. This summary will provide the reader with an outline of previously published material and/or research about the topic or problem so that upcoming research can be put into context. In this case it provides the background for the reason that the Carma Centre For Excellence evolved.

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