



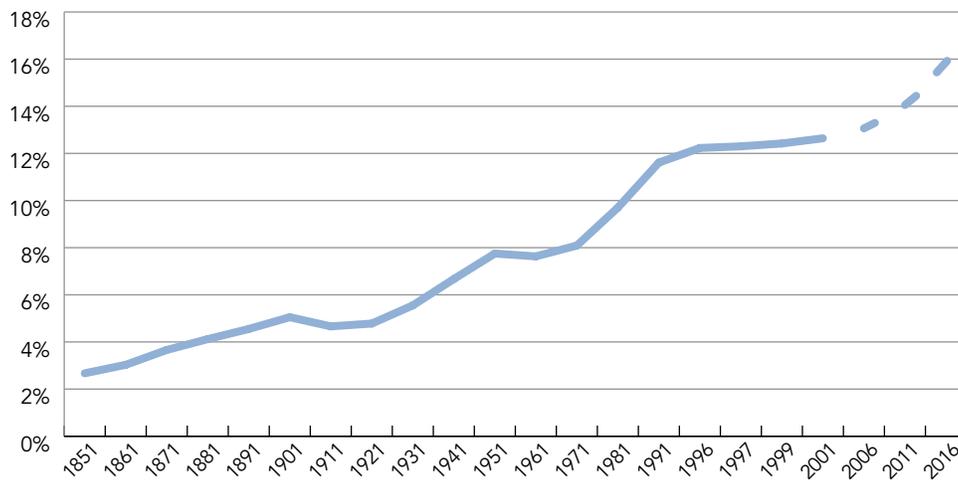
# LESSONS IN LEARNING

Apprenticeship training  
in Canada

July 25, 2006

The apprenticeship system has a long history as an effective vehicle for work-based learning. The ancient Greeks and Romans used apprenticeships as a tool for transferring knowledge and skills and the Babylonian code of Hammurabi specified that artisans were to pass the skills of their craft on to young apprentices. Modern times, however, have seen negative attitudes towards apprenticeship and a poor image of trades, as well as a lack of information and awareness of apprenticeship. This is unfortunate because in the contemporary Canadian context, apprenticeship can help to address two distinct problems: labour shortages in the skilled trades and youth unemployment.

**Figure 1:**  
% of Canadian population over 65



Source: Statistics Canada, CANSIM

### Labour shortages in the skilled trades

Canada's population is aging. As life spans increase and fertility rates decrease, the average age of the population is moving upward. Figure 1 illustrates how the proportion of the Canadian population over 65 has been steadily growing, with noticeably sharp increases in the recent past. In 2001, 12.6% of Canadians were over 65 and this number is projected to rise to 15.9% by 2016.

As the general population ages, the workforce is also growing older. In 1991, the average age of Canadian workers was 37.1; by 2001, workers were on average two years older. In 1991, 10.6% of Canadian workers were 55 years or older and for each worker aged 55 or older, there were 3.8 workers aged 20 to 34. Ten years later, older workers made up 11.8% of the workforce and there were only 2.7 young workers for every older worker.<sup>1</sup>

The growing proportion of workers approaching retirement and the shrinking pool of young workers available to replace retirees have raised concerns about looming labour shortages. It is impossible to predict with complete certainty that there will be shortages or in which sectors those shortages are likely to be most

severe. In fact, some economists disagree with predictions of skill shortages. However, many employers insist that they are already feeling the effects of a labour shortage. For example, 26% of small and medium-sized businesses responding to a 2002 Canadian Federation of Independent Business survey reported unfilled job openings amounting to approximately 265,000 vacant positions across Canada. Of these businesses, 64% indicated that they had difficulty filling positions for lack of skilled applicants.<sup>2</sup>

The disconnect between economists who dismiss concerns over labour shortages and employers who contend that shortages are very real results largely from differences in counting practices. While economists count available workers and point to unemployment figures as evidence of the availability of labour, employers count skilled job candidates and see large gaps. Though there is clearly a degree of uncertainty in labour force predictions, there are a number of reasons to believe that these gaps are real and getting worse, particularly within the skilled trades.

1. The skilled trades workforce is aging more rapidly than the overall workforce. The data in Table 1 below indicate that among many of the skilled trades (with the exception of electricians) the proportion of workers aged 55 or over is greater than in the overall workforce. The average age is also higher and the number of young workers available to replace retiring older workers is lower than in the overall workforce.
2. Young people are disinclined to enter, and often are not encouraged to enter, the skilled trades. Many people subscribe to negative perceptions and myths about occupations in the trades as dangerous, low-paying work with little potential for career advancement. Parents, teachers and guidance counsellors tend to steer young people away

### Major Trade Groups and examples:

#### Building construction trades

Bricklayer  
Carpenter  
Roofer

#### Electrical, electronics and related trades

Construction electrician  
Electrical mechanic  
Industrial electrician

#### Food and services trades

Cook  
Hairdresser  
Locksmith

#### Industrial and related mechanical trades

Millwright  
Industrial plant operator  
Refrigeration and air conditioning mechanic

#### Metal fabricating trades

Machinist  
Plumber  
Sheet metal worker

#### Motor vehicle and heavy equipment trades

Crane and hoist operator  
Heavy duty equipment technician  
Water well driller

#### Other trades\*

Bookbinder  
Draftsman  
Landscape gardener

The trade group “other” consists of miscellaneous trades and occupations not elsewhere classified and more recently created apprenticeship trades and occupations.

Source: Appendix 1 of Registered Apprentices: The Class of 1992, a Decade Later (PDF, 454 KB), Statistics Canada

from the trades in favour of university studies and white-collar occupations.<sup>3</sup> Young people themselves generally prefer to head toward desk jobs, perceiving them “to be easier, more lucrative and more consistent with their overall lifestyle choices.”<sup>4</sup>

3. Immigrants do not enter the trades in large numbers. In Canada, immigration is an important mechanism for maintaining a plentiful workforce. During the 1990s, immigrants accounted for nearly 70% of the total growth in the labour force. By 2001, they formed 20% of the total labour force. Canada’s current immigration policy favours highly educated immigrants and does not bring in large numbers of skilled tradespersons. In 2001, 43.4% of recent immigrants aged 25 to 44 in the labour force had either a university or college level education; only 5.4% had apprenticeship training.<sup>5</sup>
4. Women do not enter the trades in large numbers. Canadian women in the workforce are making an important contribution toward alleviating the pressures brought on by an aging population. Women in the workforce tend to be younger than men (38.5 vs. 39.5 years); they are less likely to be approaching retirement (10.0% of women vs. 13.3% of men in the workforce are 55 years or older); and larger numbers of young women are available to replace retiring older workers (3.2 young female workers for every 55+ female worker vs. 2.3 for men). Though women made up slightly less than half (46.7%) of the total workforce in 2001, they accounted for two-thirds of the overall labour force growth during the 1990s.<sup>6</sup> However, women are not contributing to alleviating labour pressures within the skilled trades. In 2004, only 7% of workers in transportation, trades and construction were women.<sup>7</sup> In 2003, women accounted for just 9.7% of registered apprentices and 10.6% of completed apprenticeships.<sup>8</sup>

In sum, the skilled trades may be facing critical labour shortages because the skilled trades workforce is aging more rapidly than the overall workforce and the factors that alleviate aging in the overall workforce— incoming young workers, immigration, women in the labour force—do not favour the skilled trades workforce. Since apprenticeship is the primary route into the skilled trades, strategies to prevent dire labour shortages in the skilled trades must include promoting interest in apprenticeship training among candidates for the skilled trades. The data on youth unemployment suggest that there is a pool of such candidates among young workers.

**Table 1:**  
Workforce age data in Canada from Census 2001

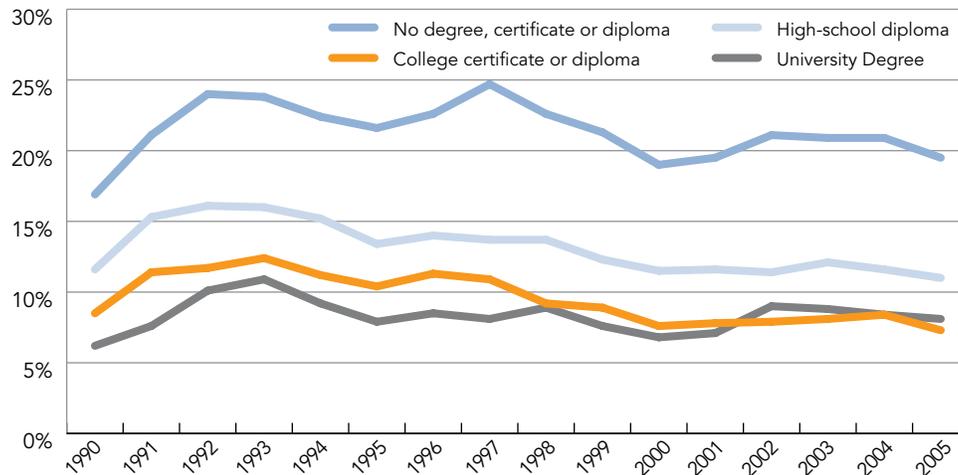
	% Aged 55 or over	Average Age	Workers aged 20 to 34 for each worker aged 55+
Overall	11.8	39.0	2.7
Contractors and supervisors in trades	15.0	43.2	1.4
Pipefitting trades	18.1	44.1	1.1
Carpentry trades	15.8	43.1	1.4
Bricklayers	17.5	41.7	1.5
Plumbers	14.3	40.5	2.3
Electricians	11.8	39.9	2.8

Source: Statistics Canada, Age Indicators by Selected Occupations

## Youth unemployment

Youth unemployment is a chronic problem in Canada. The graph below illustrates how over the last 30 years unemployment has been consistently higher among 15- to 24-year-olds than among older workers.

**Figure 2:**  
Unemployment rates for 15- to 24-year olds



Source: Statistics Canada, Labour Force Survey Historical Review

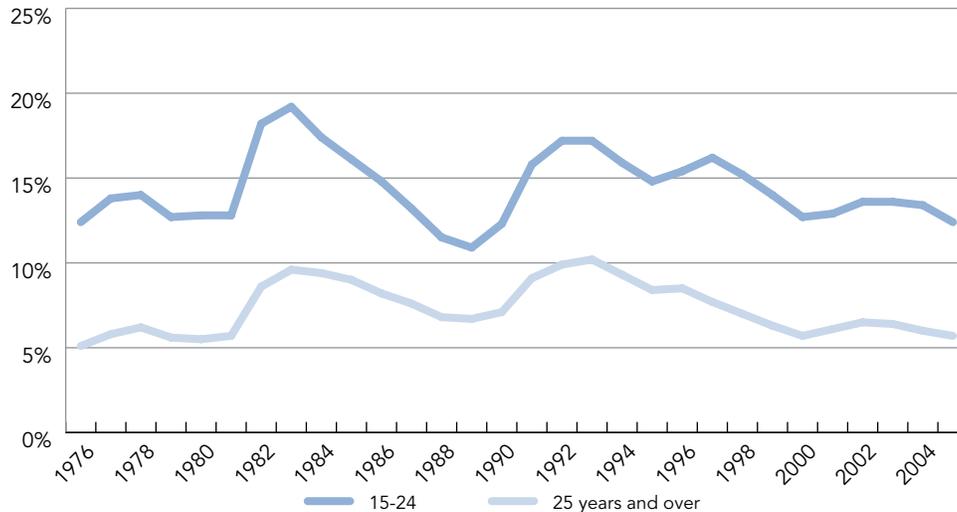
Educational attainment is strongly linked to success for youth in the labour market. A high-school diploma makes an enormous difference, but the data depicted below indicate that young Canadians still suffer from higher than average unemployment, unless they earn a post-secondary credentials.

Though post-secondary education seems to alleviate youth unemployment to a large extent and enrolment numbers indicate that young people are pursuing post-secondary education in increasing numbers, many young Canadians still do not pursue or complete post-secondary studies. According to data from the 2001 census, 29% of Canadians in their 20s have never enrolled in post-secondary education and a further 22% have never completed any post-secondary program (though a portion of those non-completers are still working toward a degree or diploma). For young people struggling in the labour force without a post-secondary credential, apprenticeship can be an effective mechanism for earning a post-secondary certificate and securing reliable employment.

## Apprenticeship in Canada

Though apprenticeship may contribute to alleviating both labour shortages in the skilled trades and high rates of unemployment among young workers, it is not currently a preferred educational pathway among young Canadians and has not seen the kind of growth that has occurred at Canadian colleges and universities in recent years. The data below reveal that college and university enrolments increased substantially during the 1990s, while registered apprenticeships stagnated.

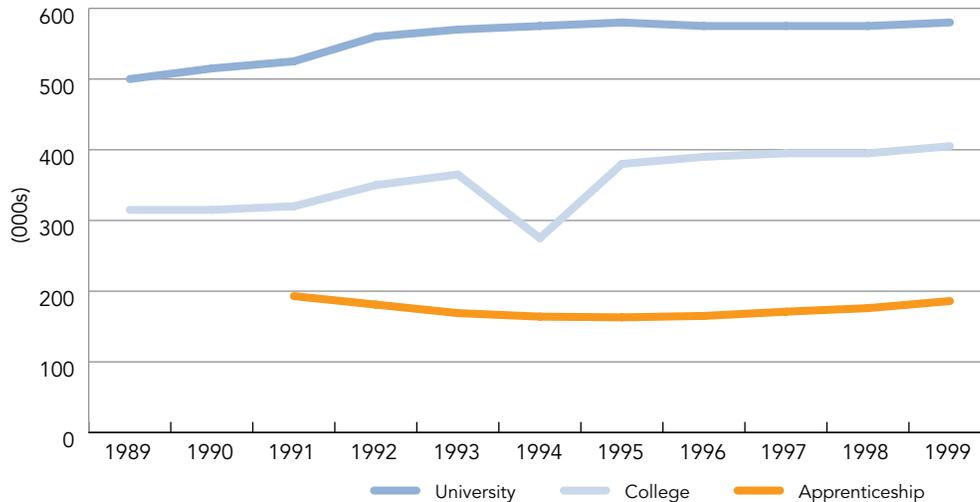
**Figure 3:**  
Unemployment Rates for Young and Older Workers



Source: Statistics Canada, Labour Force Survey Historical Review

A recent Statistics Canada analysis<sup>9</sup> of apprenticeship data from the Registered Apprenticeship Information System (RAIS) indicates that the number of apprentices fell during the recession in the early 1990s. Those numbers increased following the economic recovery and reached a record high in 2003. The number of new registrations has also increased in recent years. However, by 2003, increases in total registrations and in new registrations had not yet yielded any corresponding increases in the number of completions (see graph below). Though national data are only currently available up to 2003 and more recent trends may well include growing numbers of apprenticeship completions, recently released data from British Columbia suggest that this is not the case. According to a recent Construction Sector Council report,<sup>10</sup> the number of apprenticeship completions in 2005 was lower than the yearly average from 1996 to 2005.

**Figure 4:**  
Post-secondary Enrolment & Registered Apprenticeships



Source: 2001 Canada e-Book and RAIS.

Women have been registering for apprenticeships in increasing numbers. Their numbers increased nearly threefold between 1991 and 2003 while the total number of apprentices increased by only 29% over the same period. As a result, women made up 10% of all apprentices in 2003, up from 4% in 1991.

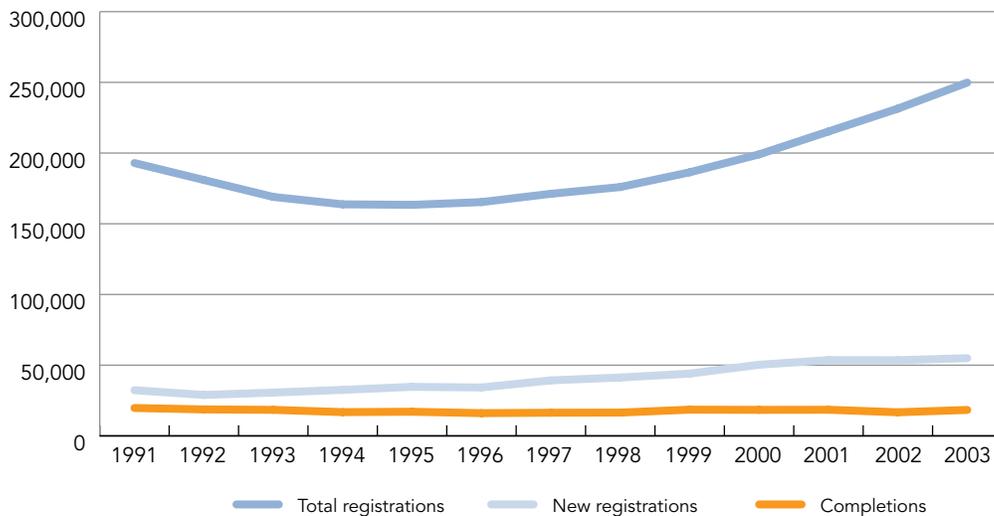
Despite these increases, women have not been flooding into the traditionally male-dominated skilled trades. In 2003, the bulk of female apprentices were concentrated in the food and service trades and in other trades (see textbox for details of the major trade groups). Women made up 63% of registered apprentices in the food and service trades and 49% in other trades, whereas they made up less than 2% of registered apprentices in the metal-fabricating trades and the industrial and related trades.

The age statistics suggest that apprenticeship in Canada is largely the domain of older workers. In 2003, the average age of newly registered apprentices was 27.6 and the average age of all apprentices was 30.1. The average age of apprentices increased by more than eight months between 1993 (when the average age was 29.4) and 2003. Over the same period, the number of apprentices aged 40 or over nearly tripled, while overall numbers increased by only about one-third. Surprisingly, there has also been a sharp jump in the number of very young (under 20) apprentices: this number rose from 3,600 in 1993 to 15,500 in 2003.

## Persuading employers to commit to apprenticeship training

While the skilled trades sector needs an influx of young workers to stave off labour shortages and many young Canadians struggle with unemployment during their early years in the labour force, few of these young people have the skills required to step into jobs in the skilled trades. But they can acquire those skills—and the skilled trades sector can acquire skilled young workers—through apprenticeship. Recent trends indicate that apprenticeship numbers remain low. How can apprenticeship numbers be boosted to benefit young workers and employers in the skilled trades?

**Figure 5:**  
Unemployment Rates for Young and Older Workers



Source: Statistics Canada, Labour Force Survey Historical Review

“The market for apprenticeships is principally constrained by employer demand rather than by the supply of potential apprentices.”<sup>11</sup> Therefore, apprenticeship growth will depend largely on the willingness of employers to register apprentices.

Employers tend to be reluctant to take on apprentices because they perceive the investment in training to be risky and slow to return a benefit. However, a study<sup>12</sup> recently released by the Canadian Apprenticeship Forum indicates that returns to investment in apprenticeship training are realized much more quickly than employers expect. The study found that most employers perceived that their apprentices’ productive value began to exceed their training costs after two years of training. In reality, apprentices in 80% of the trades included in the study were producing a net benefit by the end of their first year of training. The study also concluded that for every dollar employers invested in apprenticeship training, they realized an average benefit of \$1.38.

Providing apprenticeship training is clearly beneficial to employers, but employers are often unaware of these benefits and must be persuaded to commit to apprenticeship training. In different countries around the world, governments use financial incentives to encourage employers to take on apprentices. For example, in France, firms must either pay a training levy or spend 1.5% of the value of their payrolls on employee training (including, but not limited to, apprenticeship training). In Australia, firms are offered apprenticeship training incentives ranging from \$1,750 per year to \$7,000 over two years. In Norway, educational reforms in the 1990s included provisions to encourage employers to take on young apprentices, including cash bonuses when apprentices successfully complete their final trade examinations.

### Apprenticeship training

Apprenticeship training is a well-established approach to learning that involves alternating periods of in-class education and on-the-job training. In Canada, apprenticeships typically last between two and five years with the in-class portion lasting four to 12 weeks each year.

To become an apprentice, candidates must first find an employer willing to hire them and sponsor their apprenticeship training. Many colleges offer pre-apprenticeship training to help prospective apprentices develop some of the basic skills of their chosen trade and become more attractive as job candidates.

Canadian governments have already begun to offer apprenticeship tax credits. In Budget 2006, the federal government introduced the Apprenticeship Job Creation Tax Credit equal to 10% of the salaries and wages paid to qualifying apprentices. In 2004, Ontario introduced the Apprenticeship Training Tax Credit making employers eligible for a 25% refundable tax credit on expenses associated with training apprentices. British Columbia has begun the process of creating tax credits to promote apprenticeships and set aside \$90 million in the 2006 budget to expand training opportunities in construction trades and emerging industries. Other Canadian provinces are also considering introducing apprenticeship tax credits.

There is little empirical evidence supporting any particular approach to encouraging apprenticeship investment; however, if the goal of incentive programs is to produce fully trained journeypersons, then employers should be rewarded for bringing their apprentices all the way through to program completion. The B.C. Competition Council has argued that apprenticeship tax credits “should be outcome based and should be paid on the completion of each module of an apprenticeship.”<sup>13</sup>

## Persuading workers to become apprentices

If employers can be successfully encouraged to open up apprenticeship positions, then the available evidence suggests that these positions will be readily filled. However, further work may be necessary in order to encourage young people in general and women to venture into the skilled trades.

The Conference Board of Canada has examined the barriers to youth participation in skilled trades apprenticeships and has suggested that overcoming those barriers

will require changing attitudes (among teachers, parents and young people) toward the skilled trades and supporting career choices that involve apprenticeship training and work in the skilled trades. When young people decide to pursue college or university studies, the pathway from application to enrolment and onward to completion is well marked. However, students who wish to pursue apprenticeship training are largely on their own.

Ideally, according to the Conference Board, “youth should have access to turn-key solutions that help them put all of the pieces in place and move step by step from a decision to apply to the skilled trades, through pre-apprenticeship training and employment, to accessible classroom training leading to qualification and a sustainable future in their chosen trade.”<sup>14</sup>

A Canadian Apprenticeship Forum study conducted by the Canadian Labour and Business Centre<sup>15</sup> concluded that barriers to participation in trades apprenticeship faced by women result primarily from gendered perceptions of the trades. As a result of the perception that the skilled trades fall squarely under the category of men’s work women generally do not consider the trades as a viable career option. Family, peers, teachers and counsellors tend to steer women away from the trades, and there is resistance toward accepting female tradespersons in the workplace. Removing those barriers involves the difficult work of changing attitudes and overcoming social expectations.

One approach that has seen some success is to begin by providing women with a well-defined pathway into the trades. The British Columbia Institute of Technology has developed a program called Trades Discovery for Women. Students in the program gain hands-on experience in over a dozen different trades and also participate in a period of job shadowing. This approach allows women to see beyond their perceptions of men’s work and provides them with an accessible route into apprenticeship training. The Trades Discovery program has resulted in greater numbers of women entering trades training at BCIT: in 2004, women made up 25% of students in the plumbing class and 12% of the 2005 carpentry class. Similar programs are available to women across Canada (See sidebar).

### Introductory Trades Programs for Women:

- Orientation to Trades and Technology in Newfoundland at the College of the North Atlantic. Sponsored by Women in Resource Development Committee.
- Techsploration in Nova Scotia at the Nova Scotia Community College. Sponsored by Apprenticeship Training and Skill Development Division, Nova Scotia Department of Education, NS Women in Trades and Technology, and ExxonMobil Canada.
- Women in Skilled Trades Program at several Ontario Colleges. Led by the Ontario Women’s Directorate.
- Trade Up at Winnipeg Technical College. Sponsored by the Manitoba Women’s Directorate, the Gateway Group, and Manitoba Education and Training, Employment and Training Services Branch.
- Journeywoman Start Program in Alberta. Developed by Women Building Futures.
- Women Exploring Trades and Technology at Yukon College.

The looming possibility of a labour shortage in the skilled trades has already generated action on the apprenticeship front. The Canadian Apprenticeship Forum in partnership with Skills/Compétences Canada and Human Resources and Social Development Canada have developed a multi-year campaign designed to inform young people—and the people who influence their career decisions—of the benefits of careers in the skilled trades. Recent increases in the numbers of very young apprentices suggest that these and similar efforts may be seeing some success.

However, generating interest among potential apprentices is only useful to the extent that employers are willing to hire and sponsor apprentices. Therefore, efforts to encourage apprenticeship candidates—especially women and young people—to pursue training and careers in the trades, must also be accompanied by efforts to encourage employers to provide apprenticeship training.

## References

- <sup>1</sup> The Changing Profile of Canada's Labour Force, 2001 Census. Statistics Canada catalogue no. 96F0030XIE2001009.
- <sup>2</sup> Mallett, T. (2002). Help Wanted: Update. CFIB Research Reports.
- <sup>3</sup> Sharpe, A. & Gibson, J. (2005). The apprenticeship system in Canada: Trends and issues. Centre for the Study of Living Standards, CSLS Research Report.
- <sup>4</sup> Solving the Skilled Trades Shortage. Feasibility report submitted to HRDC by The Conference Board of Canada, 2002.
- <sup>5</sup> The Changing Profile of Canada's Labour Force, 2001 Census. Statistics Canada catalogue no. 96F0030XIE2001009.
- <sup>6</sup> The Changing Profile of Canada's Labour Force, 2001 Census. Statistics Canada catalogue no. 96F0030XIE2001009.
- <sup>7</sup> Women in Canada: A Gender-based Statistical Report, 2006. Statistics Canada catalogue no. 89-503-XPE.
- <sup>8</sup> Registered Apprenticeship Information System (RAIS).
- <sup>9</sup> Skof, K. (2006). Trends in registered apprenticeship training in Canada. Centre for Education Statistics, Statistics Canada catalogue no. 81-004-XIE.
- <sup>10</sup> Construction Looking Forward: Labour Requirements from 2006 to 2014 for British Columbia. Produced by the Construction Sector Council, 2006.
- <sup>11</sup> Sharpe, A. & Gibson, J. (2005). The apprenticeship system in Canada: Trends and issues. Centre for the Study of Living Standards, CSLS Research Report.
- <sup>12</sup> CAF (2006). Return on Apprenticeship Training Investment. Canadian Apprenticeship Forum research report.
- <sup>13</sup> B.C. Competition Council (2006). Enhancing the Competitiveness of British Columbia. BCCC Report.
- <sup>14</sup> Solving the Skilled Trades Shortage. Feasibility report submitted to HRDC by The Conference Board of Canada, 2002.
- <sup>15</sup> Accessing and Completing Apprenticeship Training in Canada: Perceptions of Barriers. Consultation Report 2004.