



Skilled Calgary:

Preparing to meet our talent needs



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From baker to bricklayer to cabinetmaker, occupations in the trades and technical fields are as varied as Alberta's population.”



WorldSkills in Calgary

In Alberta, there are 50 provincially designated trades and 9 designated occupations, running from baker to bricklayer to cabinetmaker. While this may sound like something of a nursery rhyme, the truth is that occupations in the trades and technical fields are as varied as Alberta's population. The careers offered in these fields touch almost every sector of the economy and play a role in the everyday life of all Calgarians – the houses we live in, the cars we drive, the buses we ride, the buildings where we work, the technology we use to communicate, and the food that we eat are just a few of the things that are made possible by skilled tradespeople. These workers build the foundations of our prosperity, and keep the machinery of our economy running.

Between 2005 and 2008, Calgary experienced a skills and labour shortage indicative of an approaching structural and demographic shift in employment in Calgary and around the globe. And while current economic conditions have impacted the day-to-day demand for talent, the workforce challenges still to come are expected to eclipse past labour shortages. Canada's population is increasingly older and the number of people approaching the age of retirement has hit a record high. Statistics Canada forecasts that it may take only 10 years before Canada has more people at the age where they can leave the labour force than people at the age where they can begin working.

There is no hiding from the forecasted shortage of labour – the retirement of baby boomers as well as the creation of new jobs will mean strong demand across a variety of industries and occupational categories. Skilled trades will be in particularly high demand. In fact, according to the *“Calgary Employment Demand Forecast”*

released by Calgary Economic Development in 2007, jobs requiring college or apprenticeship training represent the largest segment of jobs to be created in the next decade in Calgary.



The skills required for many conventional occupations are changing rapidly, and many skills are quickly becoming dated as new jobs, new technologies and new industries emerge. ”

Calgary is hosting the 2009 WorldSkills Competition this coming September. Calgary Economic Development is of the belief that this international competition provides us with a unique opportunity to highlight the contribution that skills occupations make to our economy. This report will cover not only the number of people employed in these occupations in Calgary, it will also show the career and lifestyle benefits to choosing an occupation in the skilled trades or technologies and will demonstrate how these occupations play a part in increasing Alberta's productivity and competitiveness.

The purpose of this report is to provoke discussion among students, parents, career counselors, human resources professionals, and the general public about the true value of these vocations to the continued prosperity of Calgary and Alberta. It also addresses some of the stigmas associated with working in the trades and technical careers, in an attempt to shift perceptions that these occupations are somehow less valuable than professional roles within our society.

Trades and Technical Careers in Calgary:

The results of the work done by skilled tradespeople are visible across every sector of the economy and touch every aspect of our daily lives. Skilled tradespeople also account for a significant part of Calgary’s workforce. In 2008, workers in the skilled trades and technical occupations represented approximately 30 per cent of those employed in Calgary; over 226,000 Calgarians are currently working at a job that requires a skilled trade or technical expertise. In the past decade, over 70,000 jobs were created in these categories, a trend that is expected to continue into the next decade. This represents a growth of 45.5 per cent in these occupations, which outpaced growth in non-trades and technical occupations – these grew 34.3 per cent over the last 10 years.

All skilled occupations saw an increase from 1999, with occupations in trades, transportation and equipment operators growing the most, at 47.5 per cent – this group also represents the largest segment of the skilled trades and technical occupations.

Generally, trades and technical occupations fall into the following five main categories:

1. **CONSTRUCTION:** electricians, bricklayers, carpenters, plumbers, pipefitters, elevator constructors, welders, heavy equipment operators, painters, etc.
2. **TRANSPORTATION:** auto body technicians, electric motor systems technicians, heavy equipment technicians, auto body repairers, parts technicians, etc.
3. **MANUFACTURING:** tool & dye makers, industrial mechanics, metal fabricators, machinists, millwrights, etc.
4. **INFORMATION AND COMMUNICATION TECHNOLOGY:** web designers, computer and network operators, telecommunications technologists, instrument technicians, etc.
5. **SERVICE:** cooks, florists, hairstylists, etc.

Table 1 – Calgary Employment by Occupation, 1999-2008

OCCUPATIONS	1999	2008	TOTAL GROWTH
Skilled Trades and Technical Occupations	155,300	226,000	45.5%
All Other Occupations	395,400	531,900	34.3%
Total Employed	555,700	757,900	36.4%

Source: Statistics Canada

Table 2 – Calgary Skilled Trades and Technical Occupations, 1999-2008

OCCUPATIONS	1999	2008	TOTAL GROWTH
Technical Occupations Related to Natural & Applied Sciences	22,200	31,400	41.4%
Technical and Assisting Occupations in Support of Health Services	13,000	17,300	33.1%
Photography, Creative Designers, Graphic Artists, Craftspeople, Technical Occupations in Motion Pictures	5,100	5,900	15.7%
Chefs, Cooks and Other Occupations in Food & Beverage Service	28,400	36,300	27.8%
Technical Occupations in Personal Care*	1,900	8,300	n/a
Trades, Transportation and Equipment Operators	71,200	105,000	47.5%
Technical Occupations in Primary Industry**	n/a	6,800	n/a
Occupations Unique to Processing, Manufacturing and Utilities	13,500	15,000	11.1%
Total Employed	155,300	226,000	45.5%

* the large jump in workers might be due to a re-classification of the occupational definitions

** data for these occupations was suppressed in 1999, therefore growth is not measurable

Source: Statistics Canada

Although Alberta has only 10 per cent of Canada's labour force, it trains more than 20 per cent of the country's apprentices. In fact, during the 2001-2006 period, Alberta apprenticeship registrations rose by 71 per cent. As of December 2008, there were 70,415 registered apprentices working in Alberta. The growth in apprenticeship registration is reflective of a trend in Calgary, Alberta and Canada, whereby employment in the skilled trades and technical occupations is increasing.

Employment growth in skilled trades and technical occupations in Calgary was particularly strong

when compared to Alberta and Canada. Calgary showed 45 per cent growth, almost tripling that of Canada's growth of just over 16 per cent, as well as being significantly higher than Alberta's growth of 37 per cent. This is reflective of the growth of Calgary's economy during the last few years, which required an increased number of tradespeople to support not only construction activity in the city, but the development of Calgary as a western hub for transportation and logistics, along with increased growth in trades specific to the oil and gas industry.

Table 3 – Calgary, Alberta and Canada, Skilled Trades and Technical Occupations Comparison, 1999-2008

NUMBER OF PERSONS EMPLOYED IN SKILLED TRADES AND TECHNICAL OCCUPATIONS	1999	2008	TOTAL GROWTH
Calgary	155,300	226,000	45.5%
Alberta	502,800	688,600	37.0%
Canada	4,766,900	5,550,600	16.4%

Source: Statistics Canada



“ In the past, the WorldSkills Competition has improved the image of skills, trades, and technologies, bringing the best young professionals from around the world to showcase their talents and ability. WorldSkills Calgary 2009 will be no exception. The WorldSkills Calgary 2009 Ltd. mission is to engage the passion of young people to pursue viable and rewarding career options within the skills, trades and technologies sectors. The Competition will contribute to vital economic and social success by perpetuating a global movement that is committed to developing and promoting high performance standards. With an estimated 150,000 total attendance to the Competition, the event is predicted to bring in \$82 million in economic benefits to the city of Calgary.”

– Richard Walker,
WorldSkills Calgary 2009 President and CEO



WorldSkills 2009

In addition to demonstrating their talent in the everyday tasks required of their job, skilled tradespeople have the opportunity to showcase the skill, craftsmanship and ingenuity that they bring to the economy at the WorldSkills Competition.

WorldSkills started in Spain in 1947, in an effort to increase the pool of skilled workers in that country. The thought was that holding a competition would arouse interest and discussion, motivating young people to be more enthusiastic about vocational training and comparing their skills and abilities with people from different countries. By 1970, the competition included member-countries from all continents and was held in different locations every two years.

Beyond just awarding individual and team medals, the WorldSkills Competition has played a significant role in increasing each country's knowledge of skilled trades training. WorldSkills provides a unique means of exchange and comparison of world-class competency standards in the industrial trades and service sectors of the global economy. The continued growth of WorldSkills attests to the fact that traditional trade and craft skills along with the newer technological-based vocations make an essential contribution to the economic and social well-being of people across the globe.

In the 2009 WorldSkills Competition, individuals will be competing in six different categories:

1. **TRANSPORTATION & LOGISTICS:** includes the creating, repairing and maintaining of transportation vehicles.
2. **CONSTRUCTION & BUILDING TECHNOLOGY:** covers all the skilled areas that are related to the construction world.
3. **MANUFACTURING & ENGINEERING TECHNOLOGY:** includes everything from the design, creation, making and maintaining of anything involving electronics and machines.
4. **INFORMATION & COMMUNICATION TECHNOLOGY:** encompasses everything from network creation and maintenance to development and finishing information technologies.
5. **CREATIVE ARTS & FASHION:** covers all the skilled areas that are related to fine arts and fashionable design and creation.
6. **SOCIAL & PERSONAL SCIENCES:** encompasses services related to the food and beverage industry as well as hospitality and personal care.

The number of people employed in the skills that are in competition at the 2009 event represent 40 per cent of trades and skills employment and 12 per cent of Calgary's workforce overall.

Table 4 – Calgary Employment in WorldSkills 2009 Categories

WORLDSKILLS CATEGORY	CALGARY EMPLOYMENT (2008)
Transportation & Logistics	5,900
Construction & Building Technology	21,100
Manufacturing & Engineering Technology	9,100
Information & Communication Technology	5,700
Creative Arts & Fashion	1,800
Social & Personal Sciences	45,600
Total Employed	89,200

Source: Statistics Canada

The shortage of people with vocational training that spurred WorldSkills into existence in 1947 is not so different 60 years later – Canada, along with other WorldSkills member nations, is still experiencing a shortage of skilled workers. Employers around the globe report significant difficulties finding skilled trades.

According to Manpower’s annual talent shortage survey, in both 2008 and 2009, skilled trades were the top positions going unfilled.



It is estimated that over the next two decades, 40 per cent of new jobs will be in skilled trades and technologies, and considering that in 1998, this number was less than 20 per cent, Canada will have a serious challenge in meeting these skills needs. ”

Our local workforce is anticipated to grow at a much slower rate than in the past, and our future labour supply is widely expected to be inadequate to meet the demands of the economy. Already, shortages are occurring in many skilled trades, including the plumbing and construction trades, and the Conference Board of Canada forecasts a shortfall of nearly one million workers for Canada overall within 20 years. A worldwide underinvestment and devaluation of the development of trades and technical talent in recent decades further emphasizes the need to invest now if we are to be ahead of the looming baby boomer retirement bubble.

Lifestyle Facts and Fiction

There are a variety of lifestyle benefits to choosing a career in skilled trades and technical vocations. Generally speaking, workers in these occupations are well-educated and well-paid; the work they do requires expertise and creativity; there is opportunity for advancement and specialization, as well as the chance to own their own business and be their own boss; and workers express a high degree of satisfaction with their career choice. These benefits are often overlooked as there are also a variety of misconceptions that prevent young people from entering into this type of career. Trades and technical careers are often seen as a “last resort” career by students, parents and teachers, when in fact they are demanding, satisfying, well paying occupations that are in high demand.

FICTION: Skilled trades and technical careers are options for students who do not do well academically or aren't cut out for university.

Fact: In order to become a skilled tradesperson, a strong academic foundation is required. Apprenticeship programs in most of the designated trades are 3 to 4 years in length and across Canada almost 7 in 10 workers in the trades in 2007 had at least some post-secondary education.

While training, approximately 80 per cent of an apprentice's time is spent on the job under the guidance of a certified journeyman or qualified tradesperson, who are experts within their fields.

The remaining 20 per cent involves technical training provided at, or through, a post-secondary establishment, be it a college or technical institute.



The journeymen I apprenticed with are the reason I'm here.”

– Craig Spady,

Team Canada member and SAIT student, competing at WorldSkills Calgary 2009 in Electrical Installations

While training, students learn the most recent techniques and use the newest technological equipment required to succeed in all aspects of their trade. Additionally, apprentices have to sit through rigorous tests and meet high standards of quality in order to be certified. In addition, graduates from these programs are very satisfied with the quality of training they receive.

In the 2007-2008 academic year, over 57,000 full-time and part-time students were enrolled at Alberta's two major institutes of technology (SAIT Polytechnic in Calgary and NAIT in Edmonton). And, once they graduate from their training, apprentices and skilled tradespeople have a good chance of finding employment – at SAIT Polytechnic, the graduate employment rate is 99 per cent and NAIT graduates have a placement rate of 95 per cent. Much of this is due to the fact that the training that these graduates receive, along with those who attend the other eight degree-granting colleges and institutes across Alberta, is heavily linked with industry advisory groups. For the most part, curriculum development at these institutions is supported by partnerships with local businesses and industry in an effort to ensure that



programs are relevant to today's economy and that graduates learn the skills that are applicable in the workplace.

FICTION: Skilled tradespeople don't earn as much as those working in other occupations.

Fact: A recent report by Statistics Canada looking at selected trades showed that, in 2007, employees in the skilled trades averaged \$22.36 in hourly earnings, which was six per cent higher than the \$21.01 an hour earned for other non-trades occupations.

Apprentices also have the opportunity to "learn while you earn". This is especially useful for those individuals who want to improve their earning capacity, but still need to support themselves while studying. This also decreases the amount of debt incurred while studying at a post-secondary institution.



I knew I would be doing something with my hands, and nothing else ever caught my attention like the trades did. I started working right out of high school but I looked at the apprenticeship [programs] because it was a way to get more experience, learn more. And there's a pay raise. ”

– Brad Chyz,

Team Canada member and SAIT student, competing at WorldSkills Calgary 2009 in Sheet Metal Technology

FICTION: Skills are non-transferable and dead-end jobs.

Fact: While skills are often quite specialized, they are not necessarily restricted to just one sector of the economy. The technology and processes used by these workers can often be transferred from one industry to another and the opportunity exists for tradespeople to apply their expertise in a variety of industrial environments.

In fact, flexibility is a cornerstone of the Alberta Apprenticeship and Industry Training Board. Alberta's training body has been set up by both industry and government to first teach a wide foundation of general skills – that way, once they specialize in a narrower skill area, Alberta-certified journeymen have both flexibility and mobility in their career.

Those working in the trades also express a high degree of satisfaction with their career choice. In a recent survey by the Alberta Apprenticeship and Industry Training Board, 96 per cent of graduates were satisfied with the overall experience of the apprenticeship program, and if they had to choose again, the same number would still have chosen to become an apprentice.

Working in the skilled trades and technical occupations also allows workers to run their own business and work independently. Starting out by training as an apprentice under a journeyman to owning a business is not an uncommon career path. Self-employment in the trades has increased at a higher rate than in other occupations over the

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past 20 years, from 9 per cent in 1987 to 15 per cent in 2007, an increase of nearly 60 per cent. This brings self-employment in the trades to a similar rate of self-employment for those working in other occupations, which was 16 per cent in 2007. Additionally, the vast majority of workers in the trades worked full time – 97 per cent of skilled tradespeople had full time employment in 2007.

FICTION: Skilled trades and technical occupations are physical tasks.

Fact: While for the most part, the nature of these careers is that they are “hands-on”, it does not mean that they require any more physical strength than the average professional job.

In fact, many of the workers who have chosen to enter these fields have done so for the very reason that the tasks involved are more concrete and tangible than those required in an office environment.

There is also a diversity to the tasks found in skilled trades and many of them require highly technical math and science abilities, as well as design expertise and project management capabilities. Oftentimes the work of skilled technicians and tradespeople results in a tangible product, and as such, there is a lot of pride and workmanship that goes into each task. In the end, the work done by skilled tradespeople is much more than manual labour – it is about craftsmanship.

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To me it's not a job; I go to work to have fun. Each trade is really a craft and some of the work is a work of art.”

– Devon DeBoer,

*Team Canada member and SAIT student,
competing at WorldSkills Calgary 2009 in
Autobody Repair*

Innovation, Prosperity and Productivity

The work done by skilled technicians and tradespeople is essential to the social and economic makeup of Calgary. The work they do necessitates critical thinking to solve many of the challenges our society faces today – be it through improving our transportation and communication systems, implementing new technologies to address climate change, or taking care of an ageing population – all of these tasks require innovative ways of thinking.

When a chef introduces a new menu, a dressmaker creates a new pattern, or a cabinetmaker builds a custom piece of furniture – they are all providing something new, whether it be for purely aesthetic purposes or to meet the changing needs of their customers. All of the specific skills that fit within the broader group of diverse occupations have a critical application without which our society could not function.



Talented Calgarians working within the skilled trades and technical occupations have been responsible for nearly 3,000 innovations, designs and gadgets including the Caesar cocktail, the Java programming language, a three-dimensional sound effect called Q-Sound and the ubiquitous Chinese food dish ginger beef.”

In addition to being both innovative and creative, those industries that employ the majority of skilled tradespeople are also key drivers of our economy. Combined, these key sectors produce goods and services that contribute 50 per cent of Canada’s GDP – in 2008 this represented over \$650 billion against Canada’s annual GDP of approximately \$1.3 trillion.

It is essential that these industries – manufacturing, construction, automotive, mining and petroleum, and food service, just to name a few – continue to have a steady supply of workers in order for Canada to compete in the global economy. Beyond just the contribution to GDP, the facilities at which most of these workers train also have a large role to play in Alberta’s economic make-up. Combined, the activities undertaken by SAIT Polytechnic and NAIT generate over \$2 billion of economic activity in Alberta.

The recent downturn in the global economy, along with the impending retirement of a core group of workers, will place greater demands on the existing workforce and on the economy as a whole. This means that our current and future group of workers will have to be even more skilled. According to the recently released “*State of the Nation report*” released by Canada’s Science, Technology and Innovation Council, colleges produce workers that have the skills and knowledge to flexibly adapt to today’s fast-paced economic climate, implement the latest technologies in their workplace, and develop the kind of bottom-up innovation in their daily routines that drives productivity growth. Skilled tradespeople and technical workers are vital to improving our competitiveness and supporting the continued growth our economy.



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CALGARY
ECONOMIC

DEVELOPMENT

731 – 1st Street S.E.

Calgary, Alberta

Canada

T2G 2G9

Phone: 403-221-7831

or toll-free: 1-888-222-5855

Fax: 403-221-7828

Email: info@calgaryeconomicdevelopment.com

www.calgaryeconomicdevelopment.com