



Skills Shortages & Labour Market Trends in the Machining Industry:



What are the Occupations within the Machining Industry? :

The Machining industry includes occupations such as general machinists, tool and die makers, plastic injections mold makers, CNC programmers, CAD/CAM, manufacturing design technology and maintenance technicians. The machining industry is involved in all aspects of the economy and as a result, there is both a high demand and high wage for people in the industry.

Key Economic Sector:

The manufacturing sector employs a large number of individuals working in the machining industry. One simply cannot examine the labour market trends pertaining to this industry without looking at the manufacturing sector as a whole.

In 1998, manufacturing was responsible for the export of more goods than any other industrial sector in Canada. Ontario & Quebec are Canada's centre of manufacturing. These two provinces

account for more than 75% of all manufacturing output in Canada. Ontario is the national leader in terms of output in the manufacturing industry, which makes up ¼ of Ontario's total economy. The most important region is Southern Ontario.

Approximately 1/7 of all Canadian manufacturing jobs depend upon the automobile industry. The majority of all vehicle assembly in Canada takes place in the Ontario region – between Windsor and Ottawa.



Automotive parts manufacturing is one of the biggest employment

grounds for trained individuals in the machining industry. Yet there is still a prediction of huge labour shortages due to an aging workforce, a decline in the number of skilled trades people immigrating and fewer youth entering apprenticeship programs. A study by the Automotive Parts Manufacturer's Association (APMA) predicts a shortage

of 14,680 machining industry jobs over the next 10 years. This is surprising when one considers the fact that general machinists and tool and die makers tend to be well paid and have excellent working conditions.

For example, according to Statistics Canada, the average weekly earnings for all industries* in Canada for the year 2000 was \$626.45. While the average weekly earnings for individuals employed in manufacturing transportation equipment was \$929.95.

According to the APMA Fall 2000 survey of its national members, there are some significant signs of an impending skill shortage in the machining industry:

- ***The average age of the workforce has increased again from 1998.***
- ***The average number of skilled trades employees eligible for retirement between 2000 and 2002 is 8.5% up from 5.7% reported in 1999.***
- ***By location, the number of skilled trades employees eligible for retirement will be highest in Windsor and Hamilton - The very heart of the automotive manufacturing industry.***
- ***27% of the skilled workforce is between 50 & 59, and 5% is over 60 years old.***

By a conservative estimate, 14% will have retired by 2002.

In a recent statistical analysis by the APMA, they project a shortfall of 6000

* excludes agriculture, fishing, trapping, private household services, religious and military.

tradespersons into the year 2002. Tradespersons are defined as qualified general machinists, tool and die makers, mould-makers, millwrights and industrial electricians.

Examine the increase in anticipated shortages by skilled trade highlighted by responding members of the APMA. Fall 2000 survey.

<u>Skilled trade</u>	<u>in 2000</u>	<u>2002</u>
Tool & Die	12.8%	21.1%
General Machinist	4.6%	11.0%
Mould Makers	12.8%	21.1%

The Canadian Manufacturers and Exporters (CME) in the 2000/2002 management surveys have also highlighted skill shortage concerns. The survey, which reflects comments and concerns from 524 leading Canadian companies, cited labour shortages as one of the most important issues. Over 1/3 of the respondents cited the shortage of skilled labour as the key barrier to business expansion.

In a recent letter by CME President Mr. Perrin Beatty, to the Minister of Human Resources Development Canada, the Honourable Jane Stewart, Mr. Beatty indicates that his members, employing individuals in many sectors, expressed greater concern about the gaps in trades such as tool & die and machining than those in the information technology areas. One of the CME's many recommendations to address the skill shortages is to increase the outreach activities to young people. They are calling for better mechanisms to educate and inform our youth about the opportunities and changing nature of careers in the traditional trades areas of manufacturing and construction.

The CME members recommended greater emphasis on supporting and encouraging apprenticeship programs particularly in the trade professions like tool and die and general machinist.

Increasing the participation of our Youth in the Machining Industry

It is not only the CME that is highlighting the need for more young people to become involved in the traditional trades. In fact the Canadian Labour & Business Forum on Skills Shortages have found the negative image of careers in the trades is a significant barrier to increasing the participation of youth in the machining industry. This finding is also supported by a survey of secondary and senior elementary school students that was conducted by Conestoga College & HRDC in December 1999.

Skills Canada Supports youth activities in the Machining Industry:

To address industry’s concerns over the shortage of skilled workers and the need to entice more young people into the trades, Skills Canada is working very hard to meet its mandate.

“To promote Skilled trades and technology as a first choice career option for young Canadians”

Skills Competitions involve competitions in specific industry sectors for secondary and post-secondary students. The competitions not only encourage youth to participate in trades and technology, but they also work at creating a more desirable image to young people about career options in

the trades. Competitions in the machining occupations are popular in many Provincial Skills jurisdictions.

Recent Provincial Skills Competitions report the following participation in the Machining

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Related
Trades:

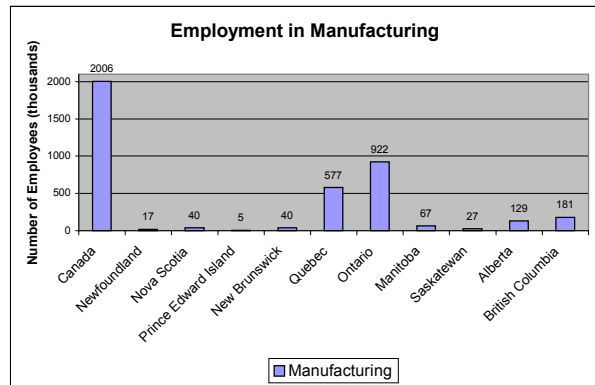


Competitor at the Canadian Skills Competition in Edmonton June 1, 2001.

The Skills Ontario office has created another

avenue of outreaching to young people by supporting the integration of Ontario Youth Apprenticeship Program (OYAP) participants in its local competitions. The OYAP program links high school students with training opportunities in the trades. The student obtains high school credits and apprenticeship credit for time spent with an industry employer. Since the revitalization of OYAP, Skills Ontario has been partnering with the Ministry of Training, Colleges and Universities to support the participation of Youth in Trades.

Demographics of Workforce:



The majority of employees in the machining industry are male and work in

full-time positions. This industry has the lowest rate of women participating than any other trade sector in Canada. The national average for this sector is 4%.

The chart below identifies a breakdown of female participation in the machining industry in various provinces:

Province	% Of Women
BC	Less than 2%
ON	6%
NS	2%
NB	Less than 3%

Of the provinces identified, one can see that Ontario has the highest percentage of women participating. In fact the percentage is higher than the national average. This is likely as a result of the huge shortage of skilled labour and large growth in Ontario.

Skills Canada outreach activities to Women:

Many of the Skills Canada jurisdictions are working to address the shortage of women entering trades by developing specific activities that promote careers in trades and technology to young women.

As a result many Provincial Skills Canada jurisdictions have developed creative and innovative activities to promote trades and technology to women. One of the most popular activities is the **Young Women’s Conference**. This is a conference that features female mentors who are working in the trades. They become a visual role model who can speak about their experiences in the trade and discuss career options with local young

women. Careers in the machining industry is often promoted at these conferences.

Some of the Provincial Skills Canada activities aimed at increasing the participation of women in trades are listed below:

- Nova Scotia:** *Techsploration Young Women’s Conf.*
- NFLD:** *“Skills work for Women”*
- NB:** *Beginning 2002*
- Manitoba:** *Young Women’s Conference*
- Ontario:** *Young women’s Conference*
- Saskatchewan:** *Mentorship Conference for Young Women*

A Success Story for Women in Manufacturing Technology:

For Ontario, encouraging women to enter the trades seemed an excellent way to address the predicted skills shortage in the machining industry and provide women with sustainable and rewarding employment.

As a result, the Centre for Skills Development & Training in Burlington, Ontario conceived a pilot program called “Manufacturing Technology for Women.” This was a partnership that included the Ministry of Training, Colleges and Universities, the Halton Industry Education Council, Women in Technology and Trades National Network, and the Automotive Parts Manufacturer’s Association.

The women enrolled in the pilot project are required to complete 30 weeks of in-

class training and a 20-week paid internship.

The program is now in its 2nd year, with it's 5th class near completion. According to Aldo Cianfrini, a board member of Skills Ontario & the CAO of the Centre for Skills Development, the program is achieving approximately a 90% placement rate. Moreover, the program has demonstrated sufficient success that it has now expanded to 5 Community Colleges across Ontario. Niagara, St Claire, Conestoga, Fanshaw and Georgian College have all begun similar programs in their colleges to increase the participation of women in the Machining Industry.

For more information on this program, you can contact Aldo Cianfrini at the Centre of Skills Development & Training at (905) 333-3499.

Provincial Perspectives:

Ontario



Studies completed by Human Resources Development Canada indicate that nationally, the machining industry will be a strong employment sector on into 2005. In fact the demand will exceed the growth opportunities and hence the shortage. When one considers the various regional labour trends, it is clear that Ontario is the primary leader of both the growth and the skills shortage in the machining industry.

In addition to a current skill shortage of 25 %, this sector will provide the 2nd highest level of job creation for Ontario between 2000-2005. This may account for the migration of skilled individuals from other provinces to Ontario.

New Brunswick



Certainly not all provinces are predicting a growth trend in the machining industry. Recently the province of New Brunswick indicated that there are an estimated 1200 skilled yet unemployed general machinists and welder/fitters in that province. While some of these skilled individuals may migrate to Ontario where the job shortage is apparent and wages are higher, New Brunswick has been attempting to support this group by actively promoting to US Maritime businesses. The NB Government is encouraging US companies to set up shop in that province. They cite lower wages and lower overhead costs as key incentives to attracting new manufacturing business to that region.

And if low wages are a draw to US business in Canada, certainly higher wages would be the calling card for many Canadian qualified machinists who are migrating to the United States.

If there are any doubts that the Brain Drain is real, just examine the statistics cited by the Conference Board of Canada. It points to the fact that the number of Canadian emigrants to the US was 98,000 in 1997, up from 17,000 in 1989.

Studies show a more favourable quality of life for machinists in the United States. Moreover, they indicate that even low paid Canadians have been highly taxed than their American counterparts.

A Brain Drain in the Machining Industry:

In January 2000, the Centre for the Study of Living Standards held a conference in Ottawa that focussed on the gaps between US and Canadian Manufacturing levels. Mr. Roger Phillips, President and CEO of IPSCO INC raised the personal income tax debate to support the Brain Drain theory in the manufacturing industry. He made a comparison of 2 of his company's employees. He indicated that a Regina employee earning \$47,000 per annum (\$31,000 US) had \$5000 less disposable income than an Iowa based employee earning exactly the same pay. Although his example was from the year 2000, there is no doubt that the competition for skilled workers is still fierce. This is especially true given that studies also show that in many cases, machinists in Canada make a lower hourly rate than their counterparts in the United States. See chart below.

	ME	MA	RI	CT	New Brunswick
Weighted average hourly Earnings in Manufacturing in US dollars	\$12.0	\$15.0	\$11.8	\$15.7	\$10.35
	1	1	0	3	

If not addressed, Canada will suffer even more from the serious skills shortages that are clearly undermining our competitiveness. However, this takes a co-coordinated effort on behalf of industry, governments, educators and communities.

Private Sector Committed to Training:

Skills Canada must continue linkages with high schools and colleges that are also committed to trades training activities.

Studies produced by the APMA, indicate that about 30% of manufacturing companies participate in high school co-operative education programs and 14% indicated a plan to increase their participation.

Moreover, the percentage of companies planning to use high school Business Education Programs has doubled from 1999 to 2000. There is a clear indication that the private sector is committed to expanding training budgets.

The climate is perfect, the demand is clear and Skills Canada will continue with its important mandate of promoting trades to young people.

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