CWB GROUP WELDING INDUSTRY REPORT 2022







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cwbcertification



cwbregistration



cwbassociation



cwbeducation



cwbconsulting



cwbwelding **foundation**



THE CWB GROUP: SERVING THE WELDING INDUSTRY FOR 75 YEARS

OVERVIEW

The CWB Group is an industry-supported privatesector organization providing welding certification, management systems registration and training services to over 10,000 companies in 59 countries. Our company delivers multi-faceted services through its various divisions: CWB Certification, CWB Education, CWB Registration, CWB Consulting, CWB Association and the CWB Welding Foundation. Having seen substantial growth over the past 15 years, the CWB Group boasts a wide variety of products and services that provide unparalleled support to the welding and joining industries in Canada and internationally. Being one of the largest and most respected players in the industry, the CWB Group offers high standards in welding certification, education, safety, and membership.

The CWB Group prides itself on being innovative in its services and highly responsive to our clients' needs. The organization has made notable contributions to the high level of competence enjoyed by industries employing welding and joining tradespeople. Plus, the consistent progress in welding technology, as well as the reliability of welded products, is unparalleled.



A SIMPLE MISSION AND VISION

From humble Canadian administrative beginnings, the CWB Group has grown to become an internationally recognized brand. Offering services across a range of industries spread worldwide, increasing quality and productivity, improving education and training, and securing public safety.

Our journey started in 1947 with a mission to serve the Canadian public and the welding sector through our vast knowledge and technical expertise. 75 years later, we are a trusted global leader in welding education with a strong focus on public safety and creating a strong and diverse sector in Canada. We believe we can achieve this vision by continuing to focus on enhancing public safety and by renewing our commitment to understanding the true needs of the welding sector. By fostering a strong and diverse sector, we know that CWB Group will evolve naturally and will remain integral to the welding industry in Canada in the future.

Celebrating 75 years has been a significant milestone for our organization and is one that we are so proud to have achieved. Cheers to 75 years, and we look forward to 75 more!



IMPACT ON THE INDUSTRY

The Canadian welding industry is experiencing a shortage of welding professionals in several provinces and sectors due in significant part to an aging Canadian population, a lack of young people being attracted to the skilled trades and the reduced focus on skilled trades training in secondary and post-secondary institutions. If this shortage is not quickly addressed, it may inevitably lead to a crisis in the industry and its ability to be globally competitive in the future. Over 100,000 Canadians hold welding certifications across more than 7,000 certified organizations. Recent labour market surveys indicate strong growth for the welding and joining industry over the next decade and beyond. Shipbuilding, oil and gas, manufacturing and many other sectors are facing recruitment challenges-skills gaps and skills shortages—including a need to replace 20-30 percent of their workforce through retirement over the next 10 years.

CWB GROUP CONTRIBUTIONS

The CWB Group is committed to protecting the safety of Canadians by ensuring that the welding work done on critical building and infrastructure projects conforms to Canadian codes and standards. Enforcing safety in the welding industry means certified companies must continually demonstrate compliance with the requirements of the certification standard. This includes testing of new welders, retesting of existing welders, qualification of new welding procedures and ongoing verification of visual weld quality. Public safety is our number one priority and we remain continually committed to upholding the highest standards in the industry.



Our for-profit businesses contribute a significant portion of their revenue to the CWB Welding Foundation. The CWB Welding Foundation, in turn, supports welding programs in secondary schools across Canada with capital equipment, supplies and personal protective gear and much more. The CWB Welding Foundation is committed to forging partnerships between industry, education and government that enable Canadians to build great careers in the welding industry. With over \$16 million invested to date, the Foundation encourages all those interested in exploring future opportunities in the skilled trades and welding-related careers.

Through the hard work done by our Education, Registration and Consulting divisions, we are able to support our Foundation and continue doing good in the Canadian welding industry.



We continue to strengthen the industry through our education products. At the start of the COVID-19 pandemic, the CWB Group offered free online courses to individuals and introduced a CWBi Acorn course curriculum to colleges and high schools across Canada. Recently, we partnered with Redshelf, which provides users with access to a wide variety of digital textbooks, allowing them to enjoy features such as sort by topic, highlight, make notes, and use flash-cards, amongst other things. The voice-over and simulation features allow for a more engaging experience for the student, which is one of the most attractive features of the program.



We aim to provide our customers with superior knowledge through industry events across Canada. The CWB Group hosts annual CanWeld and Educators Conferences to discuss issues around current trends, industry advancements, welding and joining, health and safety, and so much more. We also give back to the industry by hosting local Welding Industry Days in cities across Canada and online to discuss matters specific to our clients in the regions they live in. Our events bring the best in the industry together to network and learn from each other.

CWB GROUP - BOARD OF DIRECTORS



TREVOR GRAMS
Chairman
Director, Innovation, Research &
Development
Enbridge Inc., Edmonton, AB



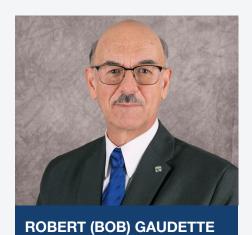
BONNIE ROSEVice-Chair of the Board/ Chair- Finance
& Audit Committee
President & Chief Executive Officer
TSSA, Toronto, ON



MIKE MACSWEEN
Past Chairman/ Chair of the Human
Resources & Compensation Committee
Retired - Executive Vice President - Upstream
Suncor Energy, Calgary, AB



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Company of Canada and past President,
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CAROLYN CARBONNEAU Vice-Chair- Risk Committee Project Director Structure AECOM-Tishman, New York, NY





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Walters Group Inc., Hamilton, ON



DAVID COLLIE Member of the HRCC & F&A CommitteeElectrical Safety Authority
Mississauga, ON



Message from the Chairman

As I reflect upon the performance of the company, the challenges of our industry, and the world events around us, I am truly impressed by the resilience, dedication and ingenuity I have witnessed from the company leadership and all of its employees. Throughout the pandemic and now in the post-pandemic state, the company continues to deliver on its strategic objectives, to find new ways to deliver value to current and future customers and to generate value back to the business. The CWB Group continues to deliver on its mandate with passion and excellence, to modernize the business and to look for opportunities to grow the suite of services and products they provide to the industry under the leadership of our CEO, Doug Luciani and his senior leadership team, which continues to position the organization for success for the future. The welding industry continues to advance and modernize, to serve this evolving need, so must the services and market offerings of the CWB Group; finding our pace despite influences of the market, the Canadian economy and beyond continues to shape our plans and fuel our strategic view of the future.

We have continued to see measured progress on several key strategic activities in 2020-21, which will serve us well; however, we must ready ourselves for the future by renewing our strategic plan and establishing the next series of goals as the current plan draws to a close. During the coming months, there will be opportunities to engage with management to contribute to the next strategic plan, which will lay the path forward for the next chapter of the company. It is important to note that 2022 marks the 75th anniversary of the CWB Group, and as we create the next strategic plan that it will be built upon the strong foundation of our company history.

CWB Group has maintained a strong focus on its customers and enhancing the customer experience throughout the challenges imposed by the pandemic and now in what some are calling the post-pandemic phase. Through a continued focus on providing employees with a flexible work environment, the appropriate tools and training as well as an engaged leadership team, the company continues to deliver successful results. One example of that success is the welder training program offered to secondary schools across Canada and the continued increase adoption of the CWB online educational programs.

In addition to enhancing the effectiveness of the CWB Group service experience, there are also advancements being implemented to improve the efficiency of the organization. The most significant investment in that effort is with the continued investment in the development and implementation of a new ERP system. Delivery of

standardized processes will enable greatly improved efficiencies as well as improvements and consistency in decision making. Upon completion, this platform will unlock further efficiency improvement opportunities associated with automation and other digital advancements, as well as improved access to information for CWB clients.

CWB Welding Foundation also continues to advance on its mandate and has developed strong relationships with many stakeholders across the country, and continues to grow its ability to partner with these stakeholders to enable new opportunities. The Board and Management are very proud of the positive impacts the Foundation has been able to achieve; the Canadian welding industry has been greatly enhanced through many important initiatives supported by the CWB Welding Foundation.

As I look to the coming year, there continues to be great opportunities arising to grow the business, to increase the benefits of our services and products, to help our valued customers realize new value and to embrace change and strive for increased diversity and inclusion in all aspects of our business.

As this brings to close my third year as Chair, I would like to sincerely thank all Board members, our CEO, the Company's Senior Leadership team and all the CWB Group employees for their continued tireless support and contributions to the CWB Group.

Sincerely,

Trevor J. Grams Chairman



STATE OF THE INDUSTRY

As the welding industry evolves, what we know today is that good welders are in demand. Globally,the welding industry has grown to make up approximately 2% of the world's GDP and it employs around 3 million people around the world. Despite the pandemic, this sector exhibited a modest growth and is projected to globally grow from \$20.99 billion in 2021 to \$28.66 billion in 2028.

In Canada, we have seen a relative and steady growth in various aspects of the welding industry. For welders and related machine operators over the period of 2019- 2028, new job openings are expected to total 23,200 arising from expansion demand and replacement demand. Also 25,100 new job seekers arising from graduates, immigration and mobility are expected to be available to fill them.

By analyzing the most current demographical and industry related trends, it will help us better understand the direction, growth and opportunities the welding industry has to offer.

This report will assess important facets of the industry which are critical indicators of its growths and weaknesses.

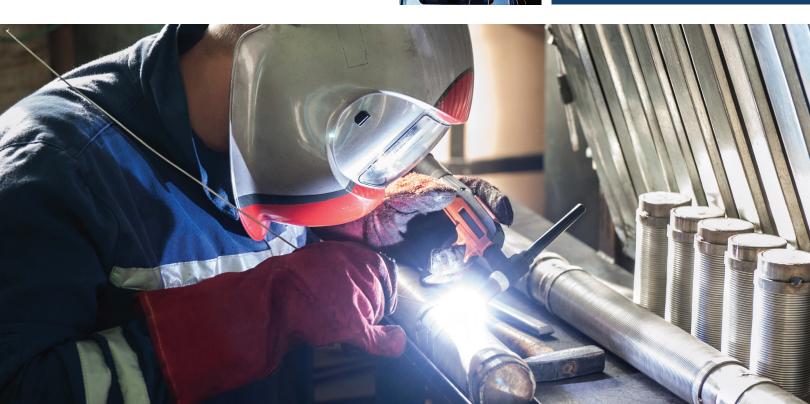






Key statistical takeaways in this report:

- There are approximately 80,900 welders currently employed in Canada
- The employment rate for welders was 95.6% in 2021
- Majority of welders in 2021 were located in Ontario (22,700) and the Prairies (22,300)
- The average age of an employed welder is 39
- Welder's average hourly wage in 2021 was \$29.01
- Alberta is the highest paying province, while PEI is the lowest
- Continuous ongoing labour shortage
- Strong emergence of Augmented Reality in the welding scope
- Emphasis on automation and robotics







Current Welding Force Characteristics:

The average age of a male welder is 39 and the average age of the female welder is 35. Over the past decade, this number has generally remained consistent in this range.

Males continue to dominate the industry, representing 96% of welders. However, the number of female welders has increased at an annual growth of 9.9% between 2011-2020.

% Welders by gender → 4% ↑ (2012-2021 average) 96% ↑



Welder Median and Average Age

2011			20	12		201	13		2014			
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	Average age Median age	40 42		Average age Median age	38 34		Average age Median age	35 30		Average age Median age	37 34	

Welders by Province (average 2020-2021)

In 2021, Stats Canada reported the average number of welders in Canada was 80,900. Ontario leads the nation with the largest number of welders with 22,700 closely followed by the Prairies with 22,300 welders in 2021.







Number of Welders by Gender and Percentage of Growth (2012-2021)

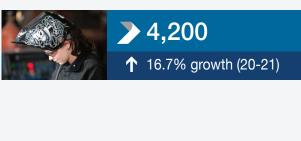


▶ 80,900

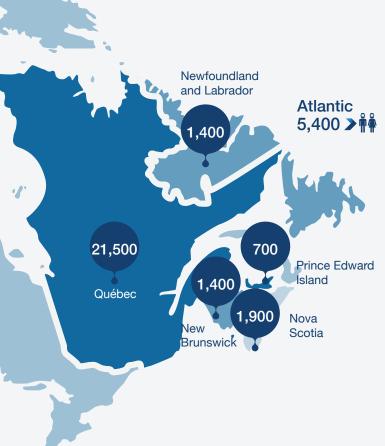
of welders in Canada as of 2021 🛉 🛊



↓ -8.3% growth (20-21)







^{*} See page 24 of the report for a detailed chart displaying the # of welders by province and gender from 2011-2021.

Wage Distribution

There has a been a respectable wage increase for welders over the last few years. In 2021, the average hourly wage was \$29.01 and average weekly wage was \$1,196.16.

\$29.01

average hourly wage in 2021

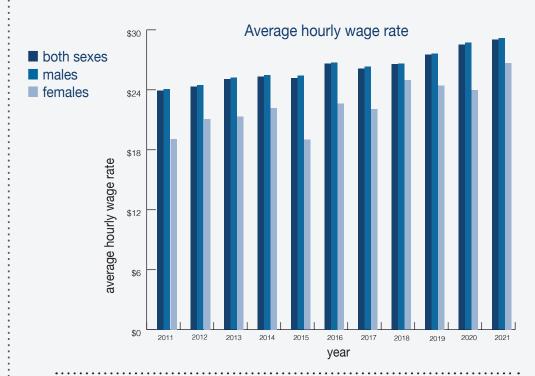
\$1,196.16

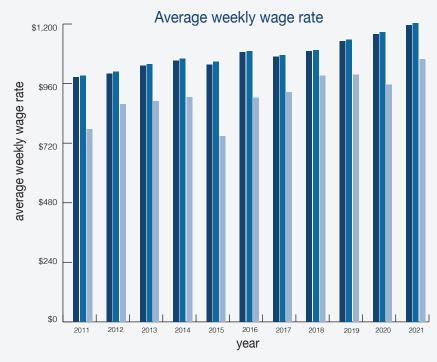
average weekly wage in 2021

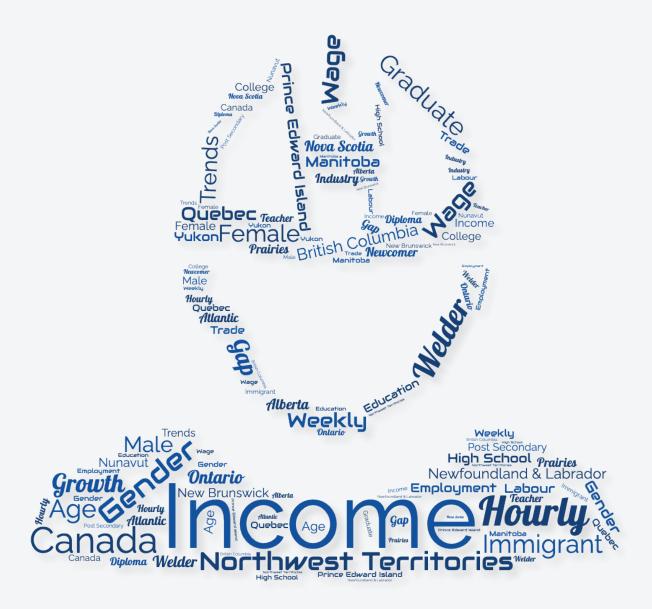




Wages by Gender - Canada (2011-2021)







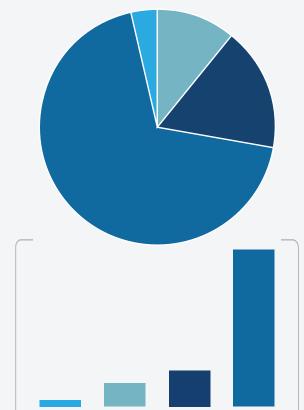
Education Level

On par with previous trends, 68% of welders complete some Post-Secondary Trade Certification or College Diploma, while 15,100 are high school graduates and 10,020 have less than some high school education. The proportion of people with a university degree has risen over time from 1.9% in 2011, to 3.7% in 2021.



Proportion of welders by level of education (%)

(2012-2021 average)



Some high school

High school graduate Post-secondary trade certificate or college diploma

University degree and above

▶68% of welders completed some form of a Post-Secondary program



3.4%

11.0%

Both Sexes (2021)

16.9%

68.6%

Total, all education levels Some high school High school graduate Some post-secondary trade certificate or college diploma University degree and above



80,900

9,300 13,800

54,800 3,000



Immigration

On average, 80% of welders are born in Canada, and 18% of all welders in Canada are immigrants. Newcomers (those who landed in Canada 5 years ago or less) peaked at 29% in 2014 but have declined to 15% in 2021.

18%

Immigrants

Immigration status average (%) (2012-2021)



2%

Others born outside of Canada

▶15% decline in newcomers in 2021





Future Emerging Welding Trends:

The welding sector has always been faced with many challenges in various aspects of the industry. however this sector's role in the global economy is very substantial. Hence, why in more recent years there has been an emphasis on improving the industry's standing so that it is a more appealing occupation. There is a stress on ways to improve and increase productivity, proficiency, lower costs, improve workplace quality, investing in technology and overall attention to drive the future of the welding industry.



The current industry focus is on improving the following four components of the industry:



Automation Technology Growth

- The welding industry will continue to embrace collaborative systems that are designed to share workspace with humans creating a safe and seamless automation environment.
- This is one of the biggest trends in automated welding as it can be deployed easily, and used for a variety of welding applications and are more affordable than large robotic systems.
- New technology will continue to emerge as we move into the future. New tools and technologies that will see growth include: power sources, digital control systems, welding management software, seam tracking systems and gas control devices.



Welding health and safety enhancements

Investing in welding safety is more important than ever. Eliminating, or limiting the exposure to harmful fumes, with long term goals to prevent occupational diseases and injuries and provide the best possible ergonomics without sacrificing efficiency.

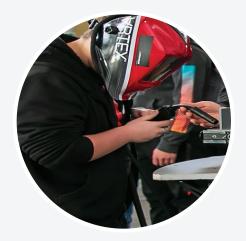




Augmented Reality

(A simulation tool offering a hands-on augmented reality experience)

- AR training in welding has proved particularly effective in recent times, leading to various improvements in the efficiency, efficacy and safety in training settings.
- AR programs are thought to deliver a 34% increase in the number of certified welders, when compared with traditional methodology, which struggles to impart practical skills to the younger generation or apprentices.
- AR training has been deployed within a wide range of practical industries, while enabling teachers to impart critical skills in a real-world, in a safe, learning environment.





Labour Shortage Issues

- Welders are an asset to the economy. There is a greater emphasis on promoting the industry and education for the younger generation to fulfill future occupational needs.
- Promote proper education, training and workplace safety practices.





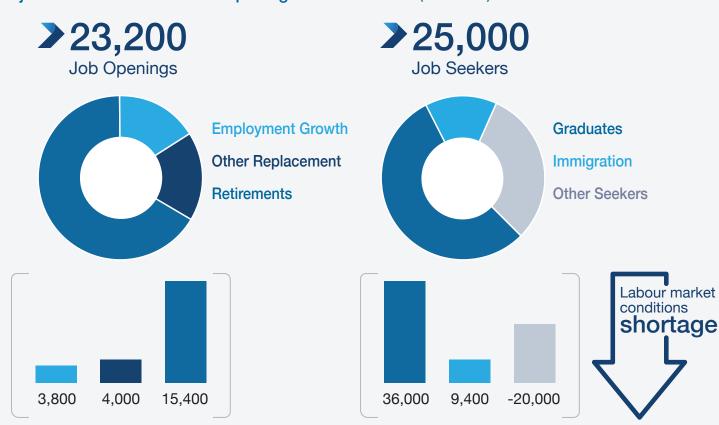
Future Welding Projections:

The welding sector's role in the global economy is very significant. It is among the highest-paying skilled trades in the country and one of the most in demand occupations as well. Therefore, challenges surrounding this occupation need to be tackled to keep up with the future demand for welders.

The industry will continue to encounter a shortage of welders as baby boomers head towards retirement.

It is anticipated that over the period of 2019-2028, the number of job openings is expected to reach approximately 23,200 while the number of job seekers (school leavers, immigration) is expected to total 25,000. As job openings and job seekers are projected to be relatively similar over the 2019-2028 period, the labour shortage conditions seen in recent years are expected to continue over the projection period.

Projection of Cumulative Job Openings & Job Seekers (2019-2028)



- Most job seekers are expected to come from the school system over the projection period, mostly from apprenticeship programs.
- Employment growth and retirements are projected to account for most job openings.

Workers in this occupational group are still generally younger than the average and typically still retire at a later age than those in other occupations, which results in a substantially lower retirement rate compared to the average rate for all occupations.

Note: Projections were completed in 2019

Job opportunities over the next 3 years:



Future job prospects by province and territory







Number of Welders by Province and Gender

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg. (2012-2021)
Canada	Both sexes	91,700	107,900	100,300	101,700	96,900	91,800	91,300	88,200	93,400	88,200	80,900	94,060
	Males	89,100	103,300	96,200	96,800	93,500	89,300	87,200	85,300	89,600	84,600	76,800	90,260
	Females	2,600	4,600	4,100	4,900	3,400	2,500	4,100	2,900	3,800	3,600	4,200	3,810
Atlantic	Both sexes	5,300	6,500	5,500	5,800	5,400	5,900	4,900	5,800	6,000	4,400	5,400	5,560
	Males	5,100	6,400	5,300	5,600	5,100	5,700	4,700	5,600	5,900	4,300	5,300	5,390
	Females	200	100	200	200	300	200	200	200	100	100	100	170
Newfoundland & Labrador	Both sexes	1,800	1,400	1,200	2,400	1,500	1,300	1,100	1,300	900	700	1,400	1,320
	Males	1,700	1,300	1,100	2,400	1,300	1,300	1,000	1,200	900	700	1,400	1,260
	Females	100	100	100	0	200	0	100	100	0	0	0	60
Prince Edward Island	Both sexes	300	300	500	400	400	500	500	500	500	700	700	500
	Males	300	300	500	400	300	500	500	500	500	700	700	490
	Females					100							100
Nova Scotia	Both sexes	1,400	1,800	1,600	1,500	1,600	1,900	1,400	2,200	2,000	1,600	1,900	1,750
	Males	1,300	1,800	1,500	1,500	1,600	1,800	1,400	2,200	1,900	1,500	1,800	1,700
	Females	100		100			100			100	100	100	100
New Brunswick	Both sexes	1,800	3,000	2,200	1,400	2,000	2,100	1,900	1,800	2,600	1,500	1,400	1,990
	Males	1,800	3,000	2,200	1,400	1,900	2,100	1,900	1,700	2,600	1,500	1,400	1,970
	Females					100			100				100
Quebec	Both sexes	19,700	23,800	24,800	22,700	21,700	18,200	19,400	20,000	21,700	22,500	21,500	21,630
	Males	19,100	23,500	23,600	21,600	21,400	17,900	18,800	19,900	20,800	21,300	21,200	21,000
	Females	600	300	1,200	1,100	300	300	600	100	900	1,200	300	630
Ontario	Both sexes	28,100	25,800	23,700	28,300	30,600	25,900	30,900	25,700	26,000	25,400	22,700	26,500
	Males	26,900	23,900	22,800	26,500	29,400	24,800	29,300	24,900	25,400	24,400	21,400	25,280
	Females	1,200	1,900	900	1,800	1,200	1,100	1,600	800	600	1,000	1,300	1,220
Prairies	Both sexes	28,800	36,900	34,700	36,000	29,000	29,900	24,900	26,700	29,100	24,200	22,300	29,370
	Males	28,100	35,100	33,200	34,600	28,200	29,300	23,400	25,400	27,500	23,400	20,500	28,060
	Females	700	1,800	1,500	1,400	800	600	1,500	1,300	1,700	800	1,900	1,330
Manitoba	Both sexes	4,400	4,900	4,200	4,800	4,200	3,800	2,500	3,800	4,600	4,000	2,800	3,960
	Males	4,400	4,700	4,100	4,700	4,100	3,700	2,400	3,700	4,500	3,900	2,600	3,840
	Females		200	100	100	100	100	100	100	100	100	200	120
Saskatchewan	Both sexes	5,600	5,700	5,000	4,500	5,300	4,300	4,300	4,600	4,300	3,900	4,200	4,610
	Males	5,600	5,500	4,900	4,400	5,100	4,300	4,200	4,400	4,200	3,900	4,200	4,510
	Females		200	100	100	200		100	200	100			143
Alberta	Both sexes	18,800	26,400	25,500	26,800	19,500	21,700	18,100	18,400	20,300	16,300	15,400	20,840
	Males	18,100	25,000	24,200	25,500	18,900	21,200	16,800	17,300	18,800	15,600	13,700	19,700
-	Females	700	1,400	1,300	1,300	600	500	1,300	1,100	1,500	700	1,700	1,140
British Columbia	Both sexes	9,900	14,800	11,600	8,900	10,200	11,900	11,200	10,000	10,400	11,700	8,900	10,960
	Males	9,900	14,400	11,300	8,500	9,300	11,700	10,900	9,500	10,100	11,300	8,400	10,540
	Females		400	300	400	900	200	300	500	300	400	500	420

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