ACEC WOMEN IN ENGINEERING LITERATURE REVIEW

DECEMBER 2021

ASSOCIATION OF CONSULTING ENGINEERING COMPANIES | CANADA

ASSOCIATION DES FIRMES DE GÉNIE-CONSEIL | CANADA

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Executive Summary

ACEC-Canada has identified diversity and inclusion as a strategic priority for the ongoing growth and competitiveness of consulting engineering. The near-term focus is on supporting members to promote and advance gender diversity in their workplaces. Many member organizations are challenged with recruitment and retention of women engineers, and recently national studies have indicated that the pandemic has made the situation worse with women leaving the workforce prematurely.

In the fall of 2021 ACEC-Canada engaged in a literature review to inform their course of action with the goals of better understanding:

- current research on women's experiences in the field
- effective practices and initiatives that exist across Canada
- ways to support membership to advance their diversity and inclusion strategies
- concrete actions on topics like flexibility, mentorship, career advancement, and more to leverage human capital for long-term competitiveness and growth

While women make up over half of Canada's population, they are still largely underrepresented in many fields, including engineering which remains male-dominated. This literature review confirms that industry associations, regulatory bodies, government, and companies across the country have been taking positive steps to change this.

One of the most significant efforts is Engineering Canada's 30 by 30 project. This national effort seeks to increase the percentage of newly licensed engineers who are women to 30% by 2030 by raising awareness amongst girls and women about careers in engineering, removing barriers to entry, and working with several stakeholders including K-12 educators, universities and colleges, and engineering companies.

In addition to work being done at Engineers Canada, this literature review has found that significant work has been completed or is underway in some provinces and territories by local associations to understand barriers and identify actions that employers should be taking to support greater diversity and inclusion in the engineering sector and broader STEM fields. While not all of it is specific to consulting engineering, it contains important and relevant insights to ACEC-Canada's goals, and is geared to helping employers in the fields of engineering and STEM meet labour market needs, improve performance, and ensure companies increasingly reflect the diversity of Canada's population.

SCOPE OF LITERATURE REVIEW

Research Papers and Ongoing Projects

Scope of Review

This review includes research papers and ongoing projects that have been completed in the last five years in provinces and territories across Canada that are relevant to, and which could inform, the future work of ACEC-Canada. It also includes relevant papers of national scope that examine girls and women in engineering and STEM. Eight primary papers were examined as part of this review, including a study that was specific to consulting engineering. Most were broader in scope about the engineering profession in Canada and STEM in general. In addition, three ongoing engineering diversity projects were reviewed.

Additional Findings

In pursuit of the above studies and publications within the specified project scope, additional literature was discovered that could be helpful in ACEC-Canada's future research. This additional literature is summarized in the resource section at the back of this report and includes important works from engineering in the United States, the United Kingdom, short articles on the topic, as well as guidebooks, fact sheets and resource material which have been created to support employers in advancing their diversity and inclusion goals. Furthermore, industry association web sites were scanned for insights and opportunities.

While not exhaustive, this review is representative of the body of knowledge that exists on the topic and provides ACEC-Canada with insights on methodologies, common themes around barriers and support, and gaps in the existing research.

8 *Industry Publications and Studies from provinces and territories over the* ***past 5 years***

3 *Ongoing Projects: 30 by 30, WCE Member Survey, WAGE project*

5 *Papers on women in engineering, including US and UK*

3 *Academic papers*

11 *Short articles*

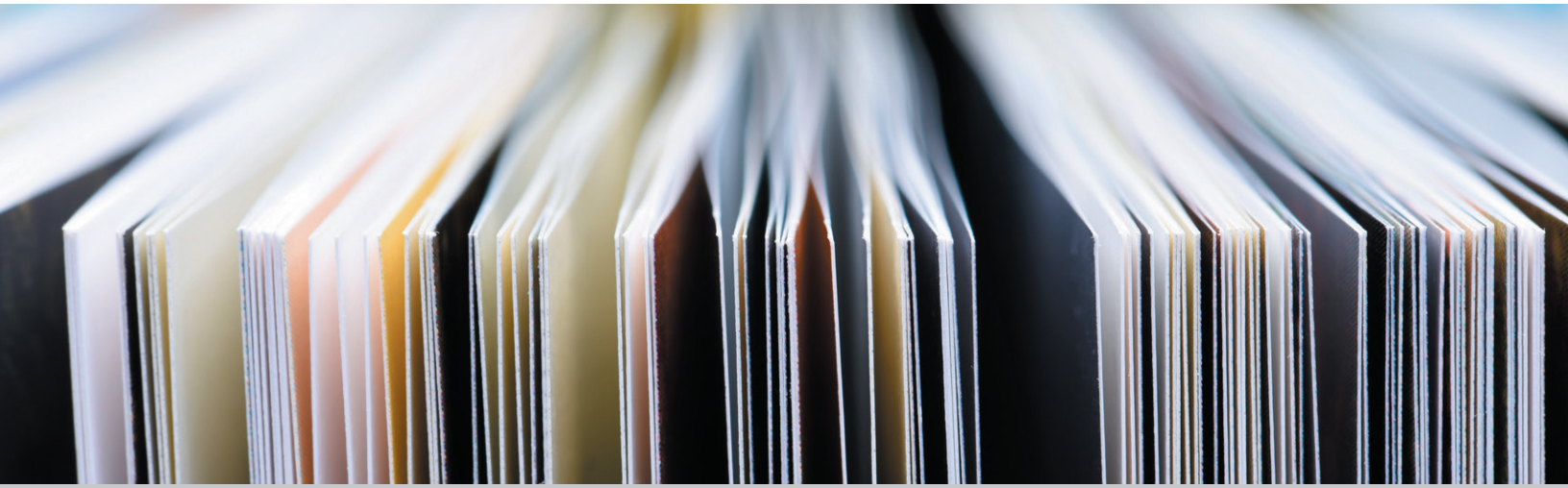
19 *Web sites - ACEC Chapters, Industry Associations and Regulatory Bodies*

Research Papers and Ongoing Projects

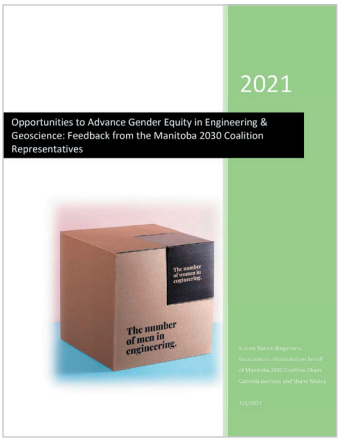
The following table provides a snapshot of the methodologies used by the publications and studies reviewed for this report. Of note, only two of the publications used one-on-one interviews as a method of gathering information. While group discussions and surveys are effective methods of gathering information, individuals often divulge more nuanced information in a one-on-one setting.

	Research Methodology Used					
	Survey	Research or Program Review	Interviews	Stakeholder Collaboration	Group Discussion	Year of Publication
Recent Publications						
Manitoba 2030 Coalition		●			●	2021
ACEC NB Workplace Experience	●	●	●		●	2020
EGM 30 by 30 Environmental Scan		●		●		2019
OSPE Calling All STEM Employers	●		●		●	2018
WWEST Current State Report		●				2018
Engineers Canada 30 by 30 and Beyond	●	●		●		2018
OSPE Opening Doors and Breaking Down Barriers	●	●				2017
NSERC Gender Summit				●	●	2017
Ongoing Projects						
Engineers Canada 30 x 30	●	●		●	●	
WCE Member Survey	●					
WAGE Grant Project	●	●		●		

ACEC - Association of Consulting Engineering Companies
OSPE - Ontario Society of Professional Engineers
NSERC - Natural Sciences and Engineering Research Council
WAGE - Women and Gender Equality Canada
EGM - Engineers Geoscientists Manitoba
WWEST - West Coast Women in Engineering, Science, and Technology
WCE - Women in Consulting Engineering



RECENT PUBLICATIONS: OVERVIEW



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Opportunities to Advance Gender Equity in Engineering & Geoscience: Feedback from the Manitoba 2030 Coalition Representatives

Justine Narine (Engineers Geoscientists Manitoba) on behalf of Manitoba 2030 Coalition Chairs Gabriela Bokhaut and Shane Mailey, February 2, 2021

Background

In October 2020, the Chair, Co-chair and support staff from Engineers Geoscientists Manitoba invited the representatives from the Manitoba 2030 Coalition to a discussion on advancing gender equity. The Manitoba 2030 Coalition includes representatives from PCL Construction, Manitoba Hydro, Standard Aero, Boeing, Hatch, AECOM, Dillon Consulting, KGS Group, Stantec, Crosier Kilgour, MCI, the Province of Manitoba, the University of Manitoba, Red River College, Charleson Engineering, the Association of Canadian Engineering Companies, and Engineers Geoscientists Manitoba.

Methodology

Group discussion, research review

Outcome

The following feedback themes from the discussions were compiled and enriched with related research materials.

- Flexible work arrangements, including flexible onsite working hours and support for radical acceptance of alternate working arrangements that give professionals more control over their schedules and to balance work and homelife responsibilities.
- Maternity/paternity/parental leave develops skills, including emotional intelligence, time management, communication and adaptation that are highly beneficial in the workplace
- Mentorship and culture shift in definition of professionalism to include gendered, racial and cultural differences that help to positively shape and develop the fields of engineering and geoscience.
- Equitable training opportunities and visibility of junior employees which, in order to achieve, requires a shift in typical informal workplace networking activities like a hockey pool (which some may neither have time or interest in) to more inclusive activities.
- COVID-19 and power dynamic impacts on individuals and team communications.

2 of 8 PUBLICATIONS

Women in Consulting Engineering in New Brunswick: Career Satisfaction & Workplace Experiences

Association of Consulting Engineering Companies
New Brunswick, March 2020

Background

In 2018 the Association of Consulting Engineering Companies of New Brunswick (ACEC-NB) created a diversity and inclusion committee. This group, with representation from several member firms, decided to tackle gender diversity and inclusion as its first priority. Research was conducted over the course of 2019 and this report contains the insights gained from that process. They assessed what types of benefits are most meaningful to women in consulting engineering, drivers of career satisfaction, perception of career advancement opportunities, and work culture.

Methodology

Research review, survey, interviews, focus groups.

Recommendations

There are a number of ways that employers and the industry association can support greater diversity and retention in the field of engineering consulting.

Diversity and Inclusion Strategies

- Education
- Audit the hiring process
- Create inclusive social activities
- Create visibility for role models
- Support women through mentorship
- Track metrics

Flexibility

- Flex time
- Reduced hours/part time
- Compressed work week
- Telework/ telecommuting
- Banking of hours/ annualized hours

Transparent Career Tracks

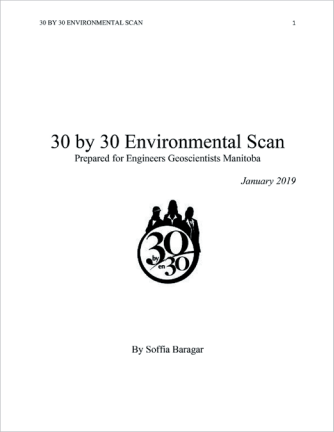
- Prioritize career discussions
- Training opportunities
- Celebrating female role models and prioritizing networking

Parental Onboarding Strategy

- Policies
- Check your assumptions
- Create a transition timeline
- Child care costs

Industry Association

- Best practice sharing
- Visibility
- Seal of diversity and inclusion
- Financial wellness support



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30 by 30 Environmental Scan

Prepared for Engineers Geoscientists Manitoba, January 2019
Soffia Baragar

Background

In December 2017, the governing Council of Engineers Geoscientists Manitoba approved $795,000 of funding to be put toward measures to increase the percentage of newly licensed engineers who are women to 30% by the year 2030. The initiative was introduced to engineering associations across Canada by Engineers Canada and is commonly referred to as '30 by 30'. Organized into three phases, Engineers Geoscientists Manitoba's plan for the 30 by 30 initiative involved first the development of a marketing plan and hiring of staff for the initiative. As part of Phase One, a marketing firm was hired and the Association's 30 by 30 marketing campaign was launched in April 2018. As part of Phase Two, staff was hired to drive the initiative forward, a committee was appointed to oversee progress, and this environmental scan was produced to aid in the development of a strategic plan.

Methodology

Published literature and information was examined to identify social, economic, technological, political and legal context and trends which may offer evidence for short- and long-term decision making for reaching 30 by 30.

Outcome

As part of the environmental scan, this paper captured various initiatives underway across Canada in each province and territory in support of 30 by 30, and it also highlighted comparisons across professions as well as various case studies from the United States, Germany, Australia, and across Canada offering insight to actions that are across different sectors.

Recommendations

The report contained a series of recommendations for the following stakeholders:

- Family and friends
- Indigenous peoples and minority groups
- K-12 Education
- University and college
- Employment
- Professional licensure

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Calling All STEM Employers: Why Workplace Cultures Must Shift to Change the Gender Landscape

Ontario Society of Professional Engineers, May 2018

Background

In 2017, Status of Women Canada awarded the Ontario Society of Professional Engineers with a grant for a 36-month project that addresses barriers that contribute to the under representation in STEM. This report summarizes findings based on interviews, focus groups, and a survey of men and women in STEM professions.

Methodology

Interviews, focus groups, surveys

Outcome

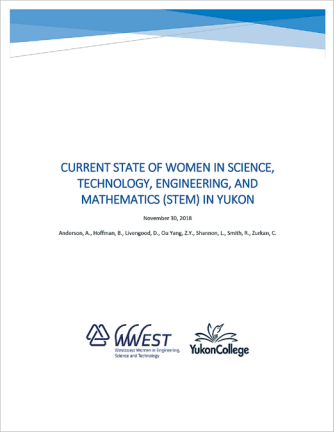
Women in all STEM disciplines and roles face similar challenges in the workplace.
The top challenges they face are:

- Feeling disrespected and undervalued by managers, co-workers, contractors and/or clients
- Lacking mentors and/or role models
- Being paid less than colleagues of the opposite gender doing the same or lower level work
- Work culture and job demands that compete with family and/or community responsibilities
- Having weak professional networks

The data also shows that as the representation of women in STEM workplaces increases there is a decrease of women reporting these top challenges.

Recommendations

The barriers women in STEM face is a workplace issue. To break these barriers, employers need to assess their corporate culture and adjust policies and practices accordingly.



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Current State of Women in Science, Technology, Engineering, and Mathematics in Yukon

Prepared by West Coast Women in Engineering, Science, and Technology and Yukon College, November 30, 2018

Background

This report examines the participation of women and girls in STEM through educational endeavours and professional employment. The purpose of this report is to provide a current snapshot of the state of women and girls in STEM in Yukon with the aim of analyzing gaps and noting key indicators for success in STEM.

As the title suggests, this report seeks to present a statement of the position of Yukon women in STEM at a point in time. As such, the time period of interest included all data from years 2013 – 2017.

Methodology

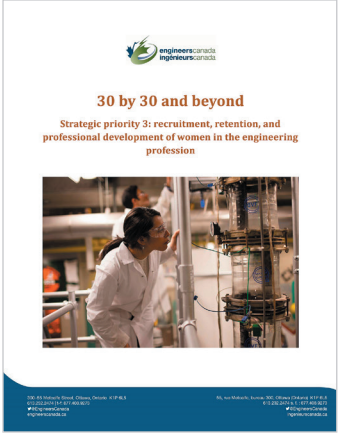
Analysis of records, including standardized test scores and program enrollment

Outcome

Overall, women and girls show high interest in STEM fields at all levels, but this interest was not always reflected in successful post-secondary program acceptance or scholarships. Levels of research funding were also usually lower for women than men. There was a high level of employment for women in STEM fields in Yukon after post-secondary graduation, but this was not reflected in higher numbers of management positions for women in STEM.

Recommendations

1. It is recommended that the Yukon Government Department of Education encourage secondary schools to track enrollment and success rates of their students' elective course selections
2. NSERC to publicly report the total funding distributed to projects divided in terms of how much funding went to women project leads and how much funding went to male project leads, this would allow for more accurate analysis of trends over time regarding funding and would remove the margin of error that can result by inferring gender.
3. Tracking underlying reasons for post-secondary students' program choices would offer insight into whether fields of study are primarily chosen based on interest, opportunity, or for other reasons. It is recommended that these data be included in Yukon College's annual student survey. WWEST could be utilized to serve as a partner implementing these survey additions.



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30 by 30 and Beyond:
Strategic Priority 3: Recruitment, retention and professional development of women in the engineering profession

Produced by Engineers Canada, 2018

Background
In May 2018, Engineers Canada's Board of Directors approved a new strategic plan, which highlighted, in strategic priority 3 (SP3), the need to drive cultural change in the engineering profession in order to attain 30 by 30. Engineers Canada's Strategic priority 3: Recruitment, retention, and professional development of women in the engineering profession expanded the 30 by 30 initiative to include the retention and professional development of women. SP3 is aimed at ensuring that, in partnership with the regulators, action plans are developed and implemented to achieve an expanded scope.

Methodology
This environmental scan assesses the internal and external environments that impact Engineers Canada's SP3. The report draws on survey data provided by the 30 by 30 Champions to present a history of women in engineering work that has been supported at Engineers Canada, a snapshot of the current state of the 30 by 30 initiative, statistics and research on the barriers to women's participation in engineering, as well as an analysis of the role of Engineers Canada.

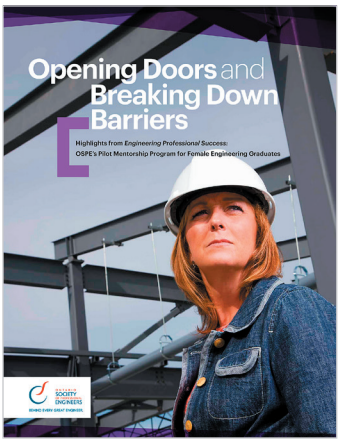
Information was also drawn from Engineers Canada's archives, Engineers Canada's National Membership reports, Engineers Canada's Enrolment and Degrees Awarded reports, external reports, academic literature, and the SP3 survey of 30 by 30 Champions.

Outcome
The scan finds that Engineers Canada must continue to act as a backbone organization, fostering collaboration with engineering regulators, and other engineering stakeholders, to work collectively and share authority, decision-making, and accountability to influence the achievement of 30 by 30.

The work of the 30 by 30 network shows that a great deal is being done by regulators, higher education institutions, and some companies to reach out to young women and also to retain women once they are in the profession.

However, more measures need to be taken to address the conversion between graduation and licensure, and to better address the retention and professional development situation in engineering workplaces. A greater emphasis on collaboration between stakeholders (ie. higher education institutions and regulators, regulators and employers), as well as evaluation frameworks for programs could help improve existing programs. The scan also highlights the need for men to play a significant part in changing the engineering culture. Engineers Canada must work with the 30 by 30 Champions to ensure male allyship is developed and encouraged throughout the SP3 action plans, as well as to foster collaboration and partnerships, particularly with employers, to facilitate the culture shift in the workplace that is needed to make engineering a more welcoming place for women.*

** Excerpt from report*



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Opening Doors and Breaking Down Barriers

Highlights from Engineering Professional Success: OSPE's Pilot Mentorship Program for Female Engineering Graduates

Ontario Society of Professional Engineers, Project completed between November 2015 and January 2017

Background

In February 2015, OSPE conducted a needs assessment survey, which was completed by 1566 students who were about to graduate, EITs and professional engineers from across the province. A vast majority (97%) of female respondents thought mentorship was important when "starting an engineering career after graduation."

OSPE designed a pilot mentorship program that reflects the needs of both IEGs and Canadian Engineering Graduates (CEGs) and is flexible enough to accommodate varying schedules and preferences. The project directly supports the 30 by 30 goal set by Engineers Canada to increase the number of newly licensed female engineers to 30% by 2030.

Methodology

Program review

Outcome

Participating in this program was a transformational experience for many participants. Not only did it reaffirm their commitment to engineering, it also had a profound impact on their confidence, resilience, and success.

When asked how this program changed them, protégées' top responses were:

- I am more confident
- I have become more professional in my attitude and behaviour
- I made concrete progress towards engineering licensure
- I enhanced my engineering networks
- I have a much clearer career plan

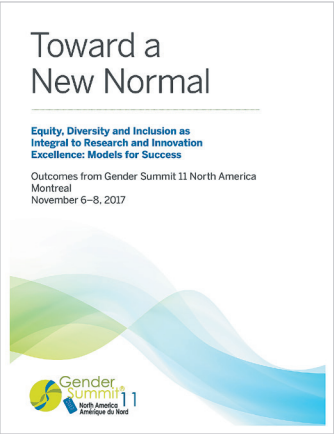
Mentors' top responses were:

- Greater commitment to promoting women's advancement in engineering
- Enhanced engineering network
- Improved mentoring skills

Recommendations

The results of this pilot demonstrate that a formal mentorship program is essential to achieving a more diverse engineering profession.

- Demonstrate your organization's commitment to building a diverse engineering profession. Research shows that employers who are champions of diversity benefit in terms of recruitment and retention of engineering talent.
- Help individuals with academic training in Canada and elsewhere to become successful engineers.
- Support Engineers Canada's 30 by 30 goal in Ontario.



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Toward a New Normal:
Equity, Diversity and inclusion as Integral to Research and Innovation Excellence: Models for Success

Outcomes from Gender Summit 11 North America
Montreal, November 6-8 2017

Prepared in collaboration with the Natural Sciences and Engineering Research Council (NSERC)

Background
GS11NA was the 11th Summit of its kind, and the first to be held in Canada. The event was co-hosted by the Natural Sciences and Engineering Research Council (NSERC), the Fonds de recherche du Québec and Portia Ltd. UK in Montreal and attracted over 675 participants.

All participants in GS11NA contributed to the development of concepts, strategies and actions that are key to moving EDI forward as essential components of what constitutes excellence in research and innovation.

Methodology
Conference, working group

Outcome
Gender Summit 11 Declaration list of actions (expanded list available in report)

- Promote institutional systemic change: adopt evidence-based standards, develop EDI plan, allocate resources, increase diversity in leadership, monitor and report
- Strengthen research and innovation communities by implementing concrete steps: train on best practices, remove barriers, ensure top researchers reflect diversity, collect, analyze and publish data on under-represented groups, clarity and convey the value of interdisciplinary approaches
- Increase the social relevance and impact of research and innovation: require research to integrate diversity considerations at all stages, recognize research and innovation is different for different populations, apply broader understandings of research excellence

Recommendations

1. Make the Gender Summit 11 Declaration list of actions your own and prominently publish your commitment to these actions, including timelines for their adoption.
2. Integrate the actions into your vision, mission, objectives, strategies, communications, leadership, training and mentoring activities.
3. Publish on a regular basis an update or an assessment of progress achieved.

Ongoing Projects

engineerscanada
ingénieurscanada

30 by 30

Background
Engineers Canada is working to increase the representation of women within engineering through its 30 by 30 initiative. This initiative, first conceived by the Association of Professional Engineers and Geoscientists of Alberta (APEGA) in 2010, was adopted by Engineers Canada as the national goal of raising the percentage of newly licensed engineers who are women to 30 per cent by the year 2030. Thirty per cent is universally held as the tipping point for sustainable change—reaching 30 by 30 will help drive the shift in the overall membership of the engineering profession as more and more women continue to enter the profession.

30 by 30 has received national support across all provinces and territories. Engineers Canada collaborates with engineering regulators and other stakeholders to facilitate a national vision on this issue.

Methodology Stakeholder collaboration, research review Project

Project Conclusion 2030

WCE

Member Survey

Background
Women in Consulting Engineering (WCE) is a community devoted to supporting and empowering women in engineering and increasing gender diversity and inclusion in the industry. WCE put together a short survey is centered on providing WCE feedback and experience in the consulting engineering industry.

Methodology Survey

Project Conclusion 2021, outcomes not yet available

APEGA

WAGE Grant Project

Background
In 2018, APEGA was awarded a three-year, $350,000 grant from the Federal department of Women and Gender Equality Canada (WAGE) to investigate the barriers that women face in the engineering and geoscience workplace.

The project focuses on identifying elements of work culture and policy that can be improved to increase the retention and advancement of women in the industry. After consulting with APEGA members across Alberta and the nation, a concrete, evidence-based guideline will be created to support Alberta companies in implementing policies to address barriers by fostering a culture of diversity, equity, and inclusion.

Methodology Stakeholder meetings, survey, research review

Project Conclusion 2021, with anticipated delays due to COVID-19

CURRENT LANDSCAPE IN CANADA

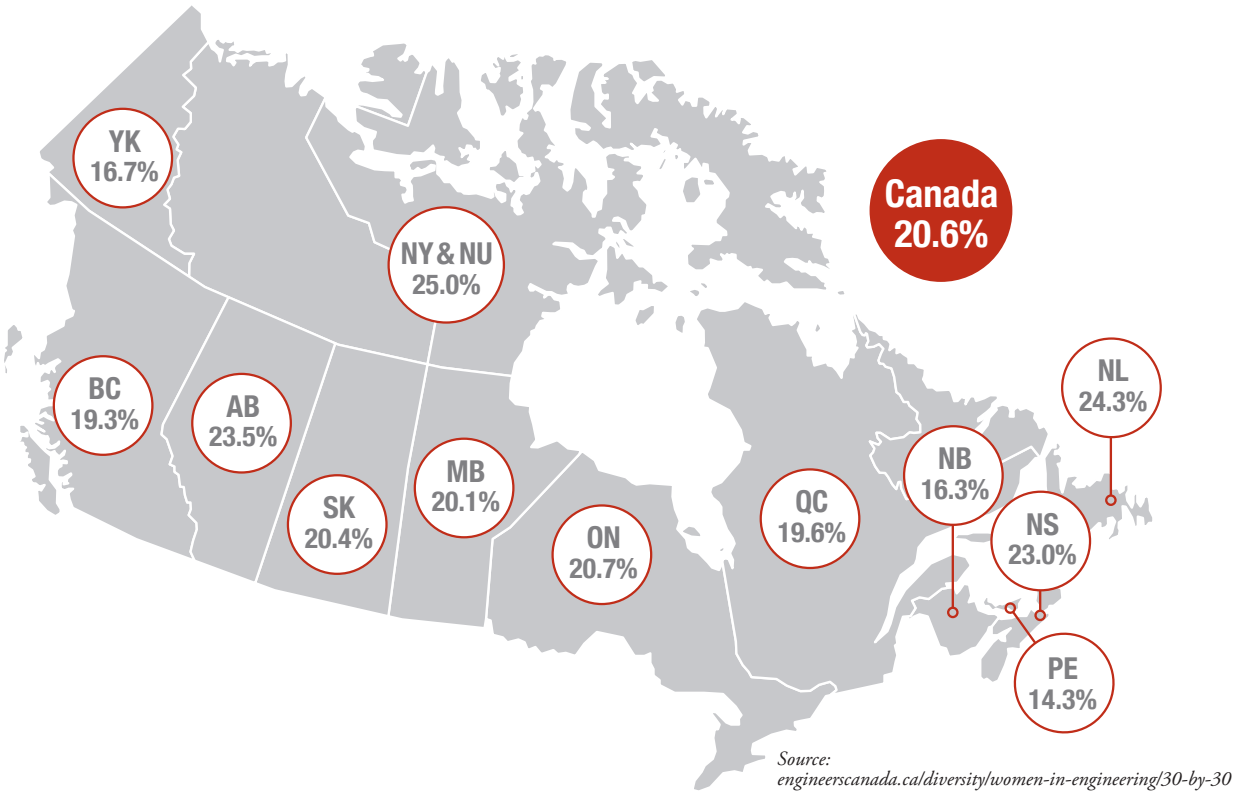
Women in Engineering in Canada

Engineers Canada reported that in 2020 there were 42,565 female-identifying engineering members, which represents 14.2% of total national membership. This is an increase from 2019, up from 13.9% or by 260 members. The largest gains year-over-year were made in British Columbia and Yukon.

A key indicator monitored by Engineers Canada is newly licensed engineers. The following provides a snapshot of the current and past percentages of newly licensed women engineers across Canada. In 2020, the largest number obtained their license through Quebec.

Newly Licensed Women in Engineering

Between Jan 1, 2020 - Dec 31, 2020



Source: engineerscanada.ca/diversity/women-in-engineering/30-by-30

Of note, between 2014 and 2019, the number of newly licensed women engineers rose by **only 0.9%**.

Source: engineerscanada.ca/2020-national-membership-information

From 2019 to 2020, the number jumped by almost 3% and it's not clear what led to the increase. Many of the efforts regulators and employers have taken to date have lacked strong evaluation systems and formal tracking mechanisms. *(Source: https://engineerscanada.ca/2020-national-membership-information)*

30 by 30: A National Initiative

The 30 by 30 project is a national initiative that will conclude in 2030. The project has received support from engineering associations across all provinces and territories. The project brings regulators, educators, and companies together to help raise awareness amongst girls and women about careers in engineering, remove barriers to entry, and ultimately increase the number of women working as engineers in Canada. Thirty per cent is a widely held as the threshold for sustainable change – reaching 30 by 30 will help attract more women to the engineering profession.

The following examples offer a sample of the actions that associations are taking across Canada to support the 30 by 30 initiative.

Yukon

- Youth events aimed at expanding understanding of what it means to be an engineer.
- Community and networking events for female members.

Northwest Territories and Nunavut

- Appointment of a dedicated 30 by 30 champion to oversee and instigate progress toward reaching 30 by 30 and to act as NAPEG's liaison to Engineers Canada's 30 by 30 Champion group.

British Columbia

- Recommending that the Canadian Engineering Accreditation Board adopt a competency-based approach for undergraduate engineering programs.
- Supporting employers in creating a gender diverse workplace and workforce by providing access to existing guidelines and workshops.

Alberta

- Creation and publication of a formal APEGA statement on diversity.
- Development of a document for employees and employers in an engineering and/or geoscience workplace to provide support for and insight into best practices for taking a leave of absence.

Saskatchewan

- Sponsorship of "Full STEAM Ahead!", a two-day professional development opportunity focusing on increasing diversity in the workplace.
- Title sponsorship of the screening of "Dream Big: Engineering Our World" showing at the Saskatchewan Science Centre Kramer IMAX.

Manitoba

- Development of "Engineering Changes Lives" initiative with campaign designed to raise awareness amongst middle school students about women in engineering.
- Partnerships with governments, leaders, organizations, and operating bodies that share a focus on increasing girls and women's participation and retention in STEM, such as Engineers Canada's 30 by 30 Champions group, WISE Kid-Netic Energy, and Technical Women in Consulting Engineering (TWICE).

Ontario

- Development of the "Let's Break Barriers in STEM" initiative.
- Partnership with the University of Western Ontario and the University of Toronto to conduct an online survey of Ontario engineers in 2016-2017 to better understand the gendered engineering workplace environment and workplace discrimination.

Québec

- Providing support to "Les filles et les sciences", a program which focuses on inspiring interest in science among young girls.
- Mentoring for Women Engineering Students, ongoing program launched in 2020.

New Brunswick

- Partnerships with the University of New Brunswick (UNB) and the Université de Moncton (U de M) on 30 by 30 related outreach and events such as UNB Women in Engineering Society events.
- Tracking of APEGNB members by member category (EITs, newly registered members, etc.) and further by gender, and tracking of the number of entry and graduating engineering university students from UNB and U de M.

Nova Scotia

- Partnering Engineers Nova Scotia Council meetings with university student held meetings and sessions, and holding Council meetings at universities.
- Hosting an annual dinner ceremony "Spotlight on Innovation" event which features the work of a number of female members.

Prince Edward Island

- Providing support to Girls Get WISE Science Summer Camp.
- Sponsoring a university open house for high school girls to attend university engineering classes and to attend a networking lunch with female engineering students and professionals.

Newfoundland & Labrador

- Creation of the WISE NL Mentorship Program in 2015 for women in post-secondary education and professional women in their career.
- Hosting a regular speaker series for the public aimed at highlighting women's achievements and work in science and engineering.

Source: www.apegm.mb.ca/pdf/30by30/30By30EnvironmentalScan2019.pdf

While these efforts have been helping raise awareness, progress is slow – in the last 6 years the percentage of newly licensed women engineers has increased by only 3%

MACRO THEMES: FINDINGS OF THE LITERATURE REVIEW

1 Barriers are Real and Well Documented

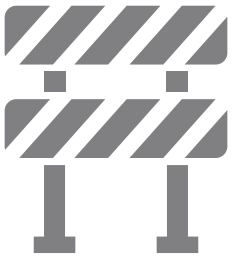
The literature review clearly established there are several existing barriers that negatively impact women's experience in the workplace when compared to men. The engineering sector across Canada is indeed male-dominated, and women's needs are not well supported by employers.

One of the more comprehensive works was from the Ontario Society of Professional Engineers, entitled *Calling All STEM Employers: Why workplace cultures must shift to change the gender landscape*. The report summarized findings based on interviews, focus groups and a survey of men and women in STEM professions, as well as female students in STEM. 81 individuals in Ontario were consulted, and 2,956 surveys were completed by 1,172 men and 1,727 women STEM professionals from across Canada.

The report concluded that women in all STEM disciplines, including engineering, face a number of challenges and similar challenges in the workplace. The report identifies the top 5 and further expands on the various micro-challenges women experience from high school through to senior roles in their chosen profession.

Similar barriers were identified in reports from surveys in New Brunswick, Manitoba, the Gender Summit in Montreal, and reports from Engineers Canada. Major papers from the US and the UK offer more evidence that the barriers are well understood and they are similar across geographies. However, the review also indicated that as the representation of women in STEM workplaces increases, there is a decrease in the number of women reporting these top challenges, except for work/life balance.

Common Barriers Faced by Women in Engineering



- Feeling disrespected and undervalued by managers, co-workers, contractors and/or clients
- Lacking mentors and/or role models
- Being paid less than colleagues of the opposite gender doing the same or lower level work
- Work culture and job demands that compete with family and/or community responsibilities
- Having weak professional networks

Source: see Calling All Stem Employers, page 7, Fig 2 for the full list of challenges to advancement that women face in the STEM workplace.

> *"Women face direct and indirect barriers in both technical and business-oriented roles. They are more likely than men to start lower on the corporate ladder, often lack female role models, and, indeed, may be the only female among their everyday work colleagues."*
>
> Breaking Barriers

> *"There is no disputing the fact that challenges exist for female professionals in the STEM workplace. The critical question is how do women overcome these barriers? And more importantly, how can employers alleviate these challenges to create equity between women and men in the workplace."*
>
> Breaking Barriers

2 Early Intervention is Critical to Avoid Premature Exits

Participation by women in the engineering workforce is directly related to the number of women and girls who study STEM subjects as children and young women. The literature review revealed that increasingly, regulatory bodies and industry associations are focusing on understanding pipelines and points of vulnerability in order to target specific interventions and improve retention.

Bias Starts Early

The literature review confirmed that stereotypes persist and bias remains prevalent. It begins in early years with gendered norms in K-8, and continues among high school guidance counsellors and teachers. The Yukon, OSPE reports and Engineers Canada work highlight the importance of industry in helping to expose young women to careers in STEM.

High Interest Does Not Guarantee Progress

The Yukon research revealed that while overall women and girls show high interest in STEM at all levels, this interest is not reflected in acceptance levels for post-secondary education or scholarships. Levels of research funding are also lower for women than men, and while there are higher levels of employment of women after post secondary, these levels are not reflected in management positions.

The Pipeline is Leaky

In the 30 by 30 and Beyond report, the engineering continuum indicates that the pipeline is 'leaky' with the largest leaks occurring during the high school years and after post-secondary education. Commitment to the profession was explored in the New Brunswick research project which found that while 93% working in consulting engineering were committed to remain in the profession, 80% of EIT/GIT respondents don't yet consider engineering a core part of their identity.

Mentorship Can Be a Powerful Early Intervention

OSPE's Pilot Mentorship Program for Female Engineering Graduates shows promising results from a two-year pilot program aimed at increasing the retention and advancement of female engineering professionals. 59 mentors and 76 protégées participated, and more than 95% said the program met or exceeded their expectations. Protégées reported having greater confidence, becoming more professional in their attitude and behavior, making concrete progress towards engineering licensure, enhancing engineering networks, and having a much clearer career plan. Similar positive results were observed through a new mentoring pilot project in Quebec that was conducted for 12 months over 2020-21 with 200 students and mentors.

> *"Having an engineering mentor has made a concrete difference in my life"*
>
> Breaking Barriers

3 Culture Change Starts at the Top

> *"If we want diversity and inclusion to happen, we need leadership. You need to set goals and show leadership. You have to have an objective, state it clearly, and enforce it. They key is enforcement. It is a struggle every day, but it's important to stay the course on that objective. Otherwise, the old habits creep in and the system wins and then we are back to square one."*
>
> Yes Desjardin-Siciliano, President and CEO, Via Rail Canada. – Toward a New Normal

The literature review enforced the need for leaders to set the tone. In particular, the Montreal Gender Summit report, *Toward a New Normal*, emphasized the case for leadership, explaining that progressive leaders know they need to prepare their organizations to include and benefit from diverse talent.

Similarly, the New Brunswick report on women in consulting engineering emphasized the need for leadership both within member companies as well as at the association level. Concrete actions are presented through much of the literature, and in most cases, it requires a deliberate effort at the senior-most levels to ensure change takes hold. Diversity committees and women in leadership groups can only be so effective, if they are not fully supported at the top with meaningful words and actions.

Common steps for leaders to take include the following:

- Public declarations of support for Engineering Canada's 30 by 30 initiative, and for EDI
- Providing Education on bias for employees
- Ensuring policies are evolving with a specific focus on enablers like flexibility, onboarding plans after parental leave, mentorship and pay equity
- Establishing EDI champions to celebrate role models, create discussion groups, and foster a sense of belonging
- Setting targets and publishing results

Metrics Matter

Of note, the New Brunswick report found that of their consulting engineering member companies, just **35%** reported that they track statistics related to diversity. **41%** tracked reasons for leaving the company, while just **17%** track the number of women promoted, and **none** track the number of women interviewed as part of the hiring process.

4 It's Time to Move From Pilots to Scale

The literature review has demonstrated that while there appears to be a shift from studying the problem to acting to solve the problem, initiatives are still small-scale. Pilots, while successful, are isolated to a few provinces and are in early stages. Funding for studies and projects comes from the Federal Government, academia, associations or ACEC member companies. This signals a clear desire to support the movement.

Nonetheless, best practices have yet to take hold widely – whether it be munchkins coding programs, mentorship for newly licensed engineers, or the implementation of flex policies.

There is an opportunity for more frequent best-practice sharing to ensure employers understand the resources and support available to them to accelerate the implementation of positive changes.

The COVID-19 pandemic, as referenced in the Manitoba 2030 Coalition paper, has created an even greater sense of urgency given the gendered impacts of the pandemic, the decline in on-site training opportunities, and the lack of informal interactions and mentorship.

The literature review showed that in absence of proper programs and support to include women and help them reach their full potential, women develop coping strategies to navigate the workplace,

Women have adopted coping strategies that limit their potential and contribution

ACCEPTING	DEFYING	NEGOTIATING
Not having children to protect their careers	Mass exodus of women from workplace 10-15 years after career begins	Foregoing high level management positions
Working longer hours	Not pursuing a traditional career path	Framing work/life balance as having to overcompensate at work, to justify time with family
Not taking advantage of work/life balance programs for fear it will have a negative impact on their careers	Having a partner who stayed home to raise children, allowing her to focus on career	Having fewer children on purpose because of career impact

Source: Khilji, Shaista E; Pumroy, Kelly Harper – Gender, Work, and Organization, 2019-07

> *"For too long, women have either developed strategies for managing these challenges or they have left to pursue opportunities outside of STEM. It is time to recognize that these are system barriers that need to be addressed in order to create more equitable workplaces and to prevent the loss of talented professionals"*
>
> Breaking Barriers

DEEPER INSIGHTS TO LEVERAGE: PILOTS, RESOURCES AND GUIDEBOOKS

Deeper Insights to Leverage: Pilots, Resources and Guidebooks

Some publications identified unique and effective initiatives that can be leveraged. This section highlights specific examples that exist throughout Canada, be they pilots, existing resources and guidebooks, or data sets.

Flexibility

Providing a variety of options for work location, work hours, vacation, and personal time. For example, giving employees the option to start later in the day so they can manage family responsibilities like taking children to day care. Flexible working policies are becoming more prevalent throughout North America and COVID-19 has increased their popularity.

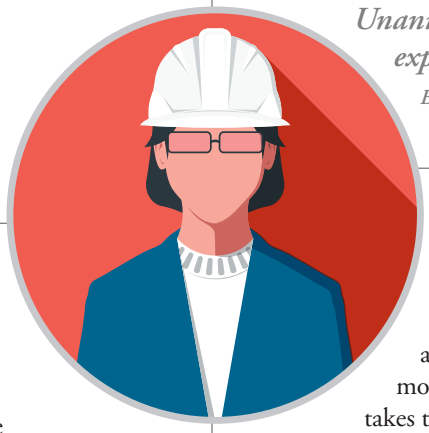
***96%** said flexible on-site working hours was important to them, however only **10%** felt comfortable using them.*

— Manitoba 2030 Coalition / Twice Survey

Mentorship & Networking

Creating intentional opportunities for young engineers to form connections & receive support from established engineers to navigate the field and succeed. There are a number of mentorship programs that have been launched by provincial associations, including by the Ontario Society of Professional Engineers (OPSE) and the Ordre des ingénieurs du Québec.

*Over **95%** of participants in the mentoring program said it met or exceeded their expectations. — OSPE's Mentoring Pilot Program*



Educational Pathways

Introducing the next generation to science, math, technology and mathematics is critical to ensuring a full and diverse pipeline for the engineering sector in the coming years. Deliberate focus should be given to creating educational pathways for under-represented youth so they can learn about the work engineers do and what career opportunities await.

Unanimous agreement that high school experiences are disappointing. — Breaking Barriers

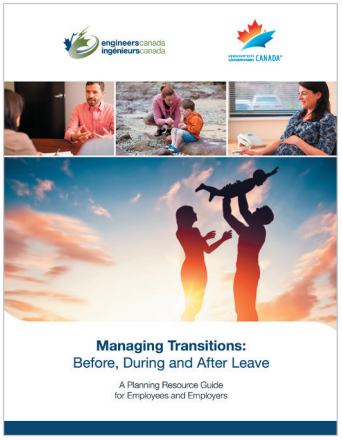
Pay Equity

Leveling the playing field so that female engineers are paid the same as their male counterparts is gaining momentum in Canada. This typically takes the form of a competency-based pay model. Many studies have shown that equitable compensation contributes to career satisfaction, and a lack of equity can lead to attrition.

*The average female base salary was **88.4%** of the male base salary. — APEGA Salary Survey Report*

Flexibility

In early 2016, Engineers Canada and Geoscientists Canada jointly published a planning resources guide, *Managing Transitions: Before, During and After Leave*, for employers and employees, to help better plan for and manage maternity and parental leaves in the engineering and geoscience professions



The guide provides checklists for employees, managers, and designated leave liaisons to help plan for successful maternity or paternity leaves that will help drive greater retention. The checklists cover several considerations that employers should address before, during and after parental leaves. Some of the key items for managers and human resources professionals include:

Prior to Leave

- Ensure maternity/parental leave policies are in place, and are proactively communicated to employees.
- Ensure employees have developed a career plan and discuss available training and education opportunities at all stages of leave (e.g., before, during, after).
- Discuss transition plans for all current work, including deciding on a transitional replacement.

During Leave

- Communicate with the employee in accordance with the employee's preference.
- Consider the employee's career plans when business planning for future.

Planning for On-ramp & During First 6 Months After On-ramping

- Understand your legislative obligations.
- Explore employee preferences for ramp-up of work hours over initial months.
- Ensure employee has tools and support they need to resume work (e.g., devices, supplies, admin support).
- Regular check-ins with employee to ensure transition is going smoothly.
- Have the employee mentor others who plan to take similar leave.

The guide also provides insight on best practices for implementing and managing transitional programs. Some common components of promising leave programs include:

- Performance management process that captures employee career plans and is tied to succession/business planning.
- A leave liaison and planned communications to help keep employers and employees in touch over the course of the leave.
- Designated period of flexible hours for an employee's return and flexible work policies that help employees meet ongoing childcare commitments and help ensure a successful re-entry.

The guide provides a matrix that outlines several maternity and parental leave practices and rates them according to their impact on retention. For example, employers who want to drive better retention would offer flexible arrangements on a case-by-case basis with no dedicated resources provided. To achieve enhanced retention, flexible working arrangements would be included in the leave policy, and resources (e.g., admin/tech support, laptops, remote access software) would be dedicated to support the flex work policy.

Managing Transitions is a "living" document and the authors encourage users to provide feedback so they can update and adjust as necessary.

Mentorship and Networking

OSPE conducted a needs assessment survey in 2015 for students who were about to graduate, engineers in training, and professional engineers that revealed 97% of female respondents believed mentorship was important to their career development. OSPE then launched a pilot mentorship program, which ran between 2015 and 2017 which was very successful. They then released a report *Opening Doors and Breaking Down Barriers: Highlights from Engineering Professional Success: OSPE's Pilot Mentorship Program for Female Engineering Graduates* that showed more than 95% of those enrolled in the mentorship pilot said it met or exceeded their expectations. The pilot program supported the 30 by 30 goal established by Engineers Canada. Given the success of the pilot, OPSE now has a permanent mentorship program in place.

The initiative included a post-pilot survey which helped confirm the pilot was transformational for many participants – it had a profound impact on their confidence, resilience, and success. This pilot is a great example of a proactive, evidence-based approach that worked well because it was designed with the feedback from engineering students and professionals.

Key Program Features

- OSPE Summit for Female Engineering Graduates and Mentors, focused on leadership, communication, gender issues and negotiation.
- Webinars on pre-graduate licensure and leveraging LinkedIn to improve professional marketability.
- Mentorship models suited to each individual, based on work schedules, preference of online or in-person meetings, gender preferences for mentors, area of expertise and engineering discipline.

Top Survey Responses for Protégées

- I am more confident.
- I have become more professional in my attitude and behaviour.
- I made concrete progress towards engineering licensure.
- I enhanced my engineering networks.
- I have a much clearer career plan.

Top Mentors' Responses

- Greater commitment to promoting women's advancement in engineering.
- Enhanced engineering network.
- Improved mentoring skills.

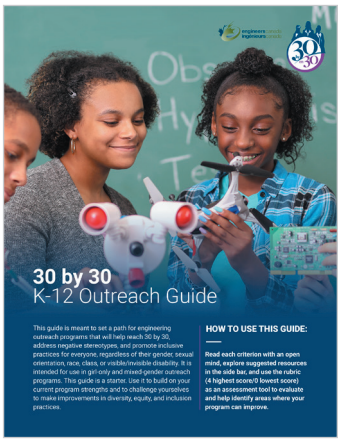
Several participants were also inspired to create an Ottawa Women in Engineering group, which was established to help female engineering graduates navigate the job market.

"The results of this pilot demonstrate that a formal mentorship program is essential to achieving a more diverse engineering profession."

"My mentor showed me how important and helpful your professional network would be throughout your career, so I pay attention to this aspect every day. This greatly helped me overcome some inhibitions I had about networking before."

"The mentoring process has allowed me to not only guide an upcoming female engineer, but to evaluate my own professional journey and to understand the next steps for my own career path."

Educational Pathways



Engineering Canada developed a *30 by 30 K-12 Outreach Guide* to help ensure female and mixed gender outreach programs are diverse, inclusive, and effective in inspiring more young people to explore engineering careers.

The guide outlines several criteria that inclusive and diverse outreach programs should meet. It encourages users to assess their programs against these key criteria to ensure they are in fact promoting the engineering profession to everyone, regardless of their gender, race, or class.

Key Criteria Include:

Breaking Societal Stereotypes

- Challenge the stereotype that women are not engineers or that women are not technically savvy.
- Create an environment where participants feel safe to be themselves.
- Affirm participant strengths, and explore how failure is part of the process to help alleviate performance anxiety.

Influencing the Influencers

- Include messaging and materials for parents, teachers, and counsellors to help them talk about STEM with girls.
- Participants should interact with diverse mentors and role models so participants can see themselves reflected.

Perception of Engineering

- Challenge stereotype that engineering is just about building bridges (provide examples of engineering disciplines).
- Provide examples of ways engineering is a "helping profession" through designing solutions to tackle local and global problems.

Interactivity of the Program

- Use surveys to monitor and measure participant's experience and satisfaction and incorporate feedback into program improvements.
- Incorporate active learning that connects to the local community and nurtures relationship building amongst instructors, engineers, and participants.

Participant Equity

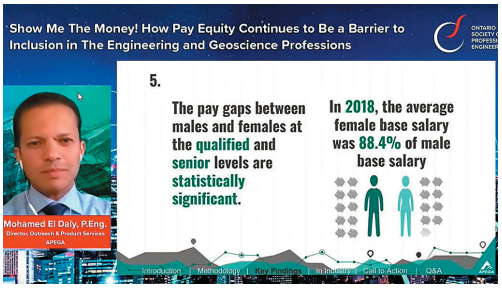
- Consider how programs might be creating barriers for girls/women from underrepresented backgrounds.
- Design programs to help increase accessibility of your program to those underrepresented groups.

Pathway to Licensure

- Connect program with local post-secondary engineering programs and engineering regulators.
- Ensure when participants leave the program, they understand the steps they need to take to become an engineer.

Pay Equity

While there are currently no formal programs or guides that provide Canadian engineering employers with direction on ensuring pay equity between sexes, the Association of Professional Engineers and Geoscientists of Alberta (APEGA) recently shared some data from a five-year engineering salary survey re-examination, and strategies that companies can use to help level the playing field.



The following insights were delivered during an October 2021 presentation titled *"Show Me The Money! How Pay Equity Continues to Be a Barrier to Inclusion in The Engineering and Geoscience Professions"* for the Ontario Society of Professional Engineers' annual conference.

Presentation Insights

- Entry level pay is not significantly differentiated by gender, but is evident at more senior levels – in 2018 the average female base salary was 88.4% of the male base salary.
- The gap begins to widen at the 5-to-10-year mark and grows from there. One of the assumptions is that as women take parental leave and come back, the years are not counted towards their total experience – while male counterparts continue to gain experience.

Presentation Recommendations

The presentation also recommended the following actions for employers:

- Adopt a competency-based pay structure, instead of experience-based pay structure
- Conduct regular salary surveys to ensure pay inequities don't exist.
- Examine who holds certain senior roles and provide women access to those roles.
- Leaders should take unconscious bias training and encourage staff to the same.
- Support a transition or returnship program like the *Managing Transitions* guide offered by Engineers Canada & Geoscientists Canada.
- Review job postings and remove overtly masculine language and structure.

Source: canada.constructconnect.com/dcn/news/labour/2021/10/pay-equity-issues-still-prevalent-in-engineering-geoscience-professions

Research Gaps

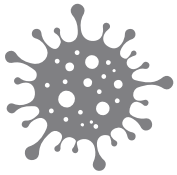
The literature and surveys reviewed were very helpful in gaining a better understanding of the barriers women face and what key stakeholders have been doing to help remove them. There are, however, some gaps in the existing research. These include:

METHODOLOGY

Only two of the publications used one-on-one interviews as a method of gathering information. Also, interviews with women who have exited the profession are very limited.

OUTCOMES

All literature reviewed only highlighted positive outcomes. There is no research that focuses on what isn't working and why.



COVID-19

Only one publication reviewed addresses the impact of COVID-19 on women in engineering.

Considerations for ACEC Canada

The literature review has demonstrated clearly that challenges facing women in engineering not only exist, but are well understood. Studies and projects have been carried out in all regions of the country and reinforce the need for workplace cultures to shift to be more inclusive of women. Specific challenges are understood and a variety of recommendations have been made by credible organizations.

As ACEC-Canada considers how best to apply its efforts to support members with goals of diversity and inclusion, below are several considerations intended to facilitate discussion. ACEC-Canada could implement one or a variety of these efforts to drive meaningful progress and advance its goals of gender diversity and inclusion:

Add to the Body of Knowledge

While several studies and projects exist, they are mostly about the engineering sector or the more broad field of STEM. Just one paper from the last five years was specific to the field of consulting engineering – ACEC-NB's 2019-20 study on the career experiences of women in consulting engineering. It should be noted that in 2015, Manitoba produced the *Technical Women in Consulting Engineering* study (TWICE). ACEC-Canada may choose to contribute to the existing body of knowledge by:

- Engaging in a national survey of women in consulting engineering specifically to better understand if there are meaningful differences and solutions that surface, or any new insights as a result of the pandemic. This would require understanding how many women work in member companies, their specific roles, and how to effectively reach them with a survey. It would likely require a 'pre survey' to the survey to ensure the audience is appropriate.
- Or, instead of a survey, engaging in focus groups to validate the findings of the literature review and assess relevance with the consulting engineering community with a view to prioritizing which actions would be most meaningful and worthy of further attention. For example, while educational pathways are important for future talent pipelines, how important are they for member firms? Does mentorship deserve more attention than flexibility policies? How do women in member organizations view EDI declarations vs pay equity or clear career paths?

Leverage Existing Networks and Resources

Several tools and practices exist already in various provinces and through Engineers Canada, be they guidelines on how to engage with K-12 for educational pathways, best practices on managing transitions such as parental leaves, or even pay equity. ACEC-Canada may want to further understand these resources and their applicability to consulting engineering. It could be that members are unaware of their existence, and ACEC-Canada could play an important connector role in amplifying best practices and encouraging adoption within their membership to accelerate change and progress.

Design and Launch a National Signature ACEC Program

To contribute to the specific field of consulting engineering, ACEC could work with members across the country to understand what a custom program should look like for a specific area – like flexibility or mentorship, or even educational pathways for K-12. Focus groups could be conducted to obtain inputs on what is most needed by way of programming to recruit and retain women in consulting engineering, and these inputs would help build a national program for ACEC-Canada to launch to its member companies.

Conclusion

While efforts taken over the past several years by regulators and educators have helped raise awareness and increase the percentage of female engineers, more work needs to be done to affect significant change. Employers are a key stakeholder who have a significant opportunity to modernize workplace cultures and policies to welcome more women into the engineering profession, and in doing so, attract and retain top talent, and drive greater competitiveness and growth.

Resources & Additional Reading

Industry Publications & Studies

- Stemming the Tide: Why Women Leave Engineering – 2011
- Technical Women in Consulting Engineering study (TWICE) – 2015
- Toward a New Normal: Equity, Diversity, and inclusion as Integral to Research and Innovation Excellence: Models for Success – 2017
- Open Doors and Breaking Down Barriers: Highlights from Engineering Professional Success: OSPE's Pilot Mentorship Program for Female Engineering Graduates – 2017
- Calling All STEM Employers: Why Workplace Cultures Must Shift to Change the Gender Landscape – 2018
- Current State of Women in Science, Technology, Engineering, and Mathematics in Yukon – 2018
- Environmental scan report 30 by 30 and beyond Strategic priority 3: recruitment, retention, and professional development of women in the engineering profession – 2018
- 30 by 30 Environmental Scan - Engineers & Geoscientists Manitoba – 2019
- Women in Consulting Engineering in New Brunswick: Career Satisfaction & Workplace Experiences – 2020
- APEGA Salary Survey Member Report – 2020
- Closing the Engineering Pay Gap – 2020
- Engineers Canada National Membership Information Report – 2020
- Opportunities to Advance Gender Equity in Engineering & Geoscience: Feedback from the Manitoba 2030 Coalition – March 2021

ACEC Chapters, Industry Associations and Regulatory Bodies

- Engineers Canada
- Engineers of Tomorrow
- Association of Consulting Engineering Companies - Canada
- Canadian Academy of Engineers
- Canadian Federation of Engineering Students
- Engineers Yukon
- Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG)
- Engineers and Geoscientists British Columbia
- Association of Professional Engineers and Geoscientists of Alberta (APEGA)
- Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS)
- Engineers Geoscientists Manitoba
- Professional Engineers Ontario
- Ontario Society of Professional Engineers
- Ontario Network of Women in Engineering
- Ordre des ingénieurs du Québec (OIQ)
- Engineers and Geoscientists New Brunswick
- Engineers Nova Scotia
- Engineers PEI
- Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL)

Ongoing Initiatives & Surveys

engineerscanada
ingénieurscanada

30 by 30

Engineers Canada is working to increase the representation of women within engineering through its 30 by 30 initiative. This initiative, first conceived by the Association of Professional Engineers and Geoscientists of Alberta (APEGA) in 2010, was adopted by Engineers Canada as the national goal of raising the percentage of newly licensed engineers who are women to 30 per cent by the year 2030. Thirty per cent is universally held as the tipping point for sustainable change—reaching 30 by 30 will help drive the shift in the overall membership of the engineering profession as more and more women continue to enter the profession.

30 by 30 has received national support across all provinces and territories. Engineers Canada collaborates with engineering regulators and other stakeholders to facilitate a national vision on this issue.

WCE

Member Survey

Women in Consulting Engineering (WCE) is a community devoted to supporting and empowering women in engineering and increasing gender diversity and inclusion in the industry. WCE put together a short survey is centered on providing WCE feedback and experience in the consulting engineering industry.

APEGA

WAGE Grant Project

In 2018, APEGA was awarded a three-year, $350,000 grant from the Federal department of Women and Gender Equality Canada (WAGE) to investigate the barriers that women face in the engineering and geoscience workplace.

The project focuses on identifying elements of work culture and policy that can be improved to increase the retention and advancement of women in the industry. After consulting with APEGA members across Alberta and the nation, a concrete, evidence-based guideline will be created to support Alberta companies in implementing policies to address barriers by fostering a culture of diversity, equity, and inclusion.

Academic Research

Engineering Identity: Gender and Professional Identity Negotiation among Women Engineers
Gender, Work & Organization Volume 20, Issue 4, 2013-07

Background: This article considers how women in a gendered profession, engineering, construct their professional identity in response to workplace interpersonal interactions that marginalize it. Using data from interviews with women engineers, it also explores how these interactions influence the engineers' sense of self and belonging in engineering.

Engineering Exchanges: Daily Social Identity Threat Predicts Burnout Among Female Engineers
Hall, William M; Schmader, Toni; Croft, Elizabeth
Social Psychological & Personality Science, 2015-07

Background: Results of multilevel modeling revealed that women (but not men) reported greater daily experiences of social identity threat on days when their conversations with male (but not female) colleagues cued feelings of incompetence and a lack of acceptance, and these daily fluctuations of social identity threat predicted daily levels of mental exhaustion and psychological burnout. The implications for social identity threat in working professionals are discussed.

We Are Strong and We Are Resilient: Career Experiences of Women Engineers
Khilji, Shaista E; Pumroy, Kelly Harper
Gender, Work, and Organization, 2019-07

Background: With the purpose of breaking down socially derived, implicit assumptions regarding women and highlighting their resilience and strength within organizations, this study focused upon career experiences of women engineers. This study aims to illuminate persistence of male perspective in the literature and promote a perspective of women as strong and resilient professionals.

Short Articles

Why Do So Many Women Who Study Engineering Leave the Field?
By Susan S. Silbey | August 23, 2016

Why are Women Leaving Engineering?
By Olivia Gillis | June 28, 2018

Pay Gap Between Women, Men in Canadian Tech Jobs is Nearly $20K Per Year: Study
By Tara Deschamps | January 23, 2019

The Engineering Gender Gap: It's More Than A Numbers Game
By Diane Peters | January 9, 2020

Study Suggests Substantial, Stubborn Gender Pay Gap Persists Across Canada
By Canadian Consulting Engineer | March 6, 2020

Pay Gap Widens Between Female and Male Scientists in North America
By Chris Woolston | February 17, 2021

Positive reviews for the Ordre des ingénieurs de Québec's pilot project "Mentoring Women Engineering Students"
By Engineers Canada, February 25, 2021

Lighting The Way Forward
By Miranda Mewhort | March 31, 2021

Don't Just Mentor Women and People of Color. Sponsor Them.
By Rosalind Chow | June 30, 2021

Pay Equity Issues Still Prevalent in Engineering, Geoscience Professions
By Angela Gismondi | October 21, 2021

Show Me The Money! How Pay Equity Continues to Be a Barrier to Inclusion in The Engineering and Geoscience Professions
by Angela Gismondi, October 21, 2021

Facts & Statistics

United States Consulting Engineer Demographics

Atlantic Canada Engineering Salary Survey 2018 Report

Gender differences in science, technology, engineering, mathematics and computer science (STEM) programs at university

Women in Science and Engineering in Canada: Student Discipline Selection and Performance, Career Outcomes, NSERC Statistics

Diversity and Inclusion in the Engineering Profession: Fact Sheet