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Geoscientists
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THE KEYSTONE PROFESSIONAL

WINTER 2018



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PM#40065075

TOUGH QUESTIONS. AN AFFORDABLE ANSWER.

What if you became disabled due to a serious illness or injury and were unable to work? Treatment and recovery should be your number one focus. But treatment and recovery can have a significant price tag, which could be especially difficult to manage when you're not working.



BUT WHAT ARE THE ODDS?

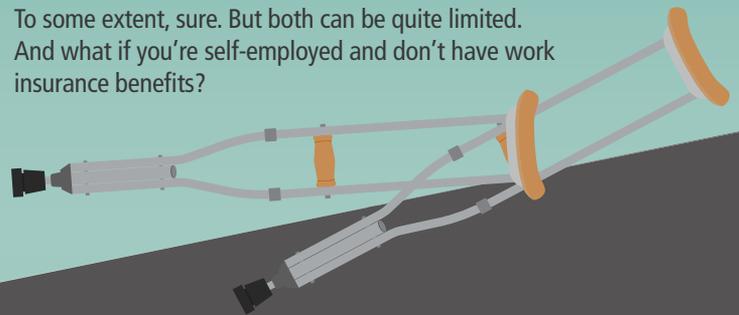
The odds of suffering from a disability before age 65 are higher than you might think: **1 in 3.**¹

OKAY, BUT WHAT ARE THE FINANCIAL IMPLICATIONS?

Sadly, nearly 50% of mortgage foreclosures are due to disability.² And if you're self-employed, imagine the implications for your business if you're unable to work.

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¹ Canada Life and Health Insurance Association, A guide to disability insurance, January 2016.

² www.disabled-world.com, "Disability Insurance: Benefits, News and claims," 2017.

³ Based on a percentage of your monthly earnings, while you are disabled and unable to perform your occupation.

* The elimination period is the number of days following your injury, after which your benefit payments will begin (7 to 365 days). The longer the elimination period, the lower your premiums.

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The Keystone Professional Committee would like to hear from you. Please email your comments to: GKeatch@EngGeoMB.ca. Members are also encouraged to submit articles and photos on topics that would be of interest to the membership.

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THE KEYSTONE PROFESSIONAL

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The Next 100

I am truly honoured and privileged to be the 99th President of Engineers Geoscientists Manitoba. The upcoming year is a special one for our Association – we're transitioning from our past 100 years towards our next 100. We need to ensure that the lessons learned from our past are not forgotten as we begin the thoughtful process of shaping our future. Over the past month, I've thought a lot about the true value of our profession to society and reflected on the legacy that our profession has left over the past 98 years. I've also been thinking about what we need to do as a profession to ensure that we have a sound and strategic vision to begin the next 100 years.

As I reflected on the many highlights of this year's Ingenium week, I couldn't help but feel reassured that we already have key pieces in place for a successful transition. I know that our newly registered members will look towards the future with energy and enthusiasm, while our more senior members will wisely impart the wisdom of lessons learned and share the reasons behind our successes. There were three moments that especially stood out for me.

First, at the New Members Luncheon, I was reminded of the incredible pride

“ I look forward to working with all of you in the upcoming year to make our Association the best that it can be, as we begin to transition towards the next 100 years! ”

and enthusiasm that comes with being a newly registered professional engineer or professional geoscientist. You start each day thinking of the possibilities and opportunities for the future while, at the same time, understanding that you still have a lot to learn. It was obvious to me, as I watched each and every one of the new members receive their certificates, that they are feeling the same way that we all did as we walked across the floor to receive our certificates.

Second, at the Friends of Engineering Networking Reception following the Annual General Meeting, I was particularly blown away by the engineering students presenting their design competition projects. Wow! The technical complexity of the projects that they are undertaking in their volunteer time is amazing. Not to mention the awards that they are

winning at national and international competitions. I was also impressed with their interpersonal skills, as shown through their interaction with me – I strongly believe that this is an extremely important skill in today's society and they all had it. However, what resonated with me the most was that their projects all focused on improving the quality of life for society. I left the reception knowing that our future is bright and we will all be in good hands!

Lastly, during the Recognition Wine and Cheese Reception, Catherine Stewart, P.Eng., FEC, received an Honorary Life Membership. As all of Cathy's accomplishments were read out (I can't possibly repeat them all here), I could only think of how very fortunate we are to have a senior leader and professional engineer of that calibre in Manitoba. And the best part – Cathy is not alone! We are in the very enviable position in our province of having a number of highly respected and truly inspiring senior professional engineers and professional geoscientists who can share their wisdom, insight, and experiences with us.

I look forward to working with all of you in the upcoming year to make our Association the best that it can be, as we begin to transition towards the next 100 years! If you have any questions or would like to discuss ideas or concerns with me, I can be contacted at President@EngGeoMB.ca. ☎

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Mental Health

The Canadian Mental Health Association reports that one in five Canadians will encounter a mental health problem in their life. Wow – that's 20 percent of us. The Engineers Geoscientists Manitoba membership is 8,445. If one-fifth encounter a mental health problem, that's 1,689 members!

I personally know a few people who have successfully managed their mental health through medical help and careful living. I think of one person who dropped out of daily life because of incapacitation. Five years later, after

much specialized help, they have regained normalcy in their daily work, family relations, and community engagement.

Mysterious Symptoms

I'm thankful that my mental health has been good so far. I don't take it for granted. I've learned to be sensitive and compassionate toward anyone with poor mental health. When you have chronic back pain or some other physical condition, you can treat it with known remedies. But when your brain doesn't function properly, it can be a mystery of symptoms, clues, trial-and-error testing, and complex remedies. Recovery often involves hours of doctor appointments, multiple medications, cognitive therapy, and lots of support from health care professionals, family, friends, and various agencies. Furthermore, when your brain doesn't function correctly, it can also manifest physical symptoms that negatively impact basic mobility and haptic functions.

Engineers and geoscientists use their brains a lot. More than the average worker? I don't know. However, complex variables, analysis, design concepts, and decision-making require sharp mental acuity. When you don't have this basic function, you don't have competency. I am aware of two practitioners who have lost their licences because their competency was questioned. It was found that their cognition had become erratic and unreliable. In each case, the member's mental health was shown to be so bad that the likelihood of returning to competent practice was remote. This is not common, but I mention it so that readers are aware; situations like this are handled by the Engineers Geoscientists Manitoba Professional Standards Department.

Competency

The Continuing Competency Committee is a group of professional members whose primary duty is to administer and guide the ProDev program with the help of the Professional Standards Department. Part of their responsibility is the checking of member competency. They also review applications for abatement and resumption of practice. Sometimes they undertake the delicate task of assessing an application after a period of medical leave. In some cases, the assessment of mental health and competent practice is made. Fortunately, such files are rare, but the Committee is respectful, sensitive, and confidential at all times.

Holiday Season

This issue of the magazine gets published at the start of the busy holiday season. Christmas, Hanukkah, and other festivals at this time of year can place a lot of stress on individuals, families, and significant relationships. Don't let the burden of expectations and a hectic schedule impact your mental health. Take a moment before the demands and stresses build up and assess if you need some help. Talk to a friend, a counsellor, or your doctor before any negative symptoms take over.

The season of celebration is upon us. The tradition my family follows is Christmas. Engineers and geoscientists are a diverse group from all over the world, celebrating different festivals and traditions. Whatever your tradition is, enjoy the food, fun, and fellowship of co-workers, colleagues, and friends during this holiday season.

Your feedback is important. If you have any thoughts on anything you read in *The Keystone Professional* magazine, please email me at GKoropatnick@EngGeoMB.ca. ☎



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Environmental Geology – Cleaning Up After Ourselves

By R. Reichelt, P. Geo., FGC

Introduction

Some of you are parents who know the importance of admonishing your children to “clean up after yourselves”. We see it as a fundamental responsibility and seek to inculcate our children with a commitment to doing the right thing with regards to taking of care of their own messes. As with individuals, so with society. Industrial society, and its activities, creates many situations that are potentially hazardous in either the immediate or long term. It is the role of the science of environmental geology to characterize and, eventually, help to remediate the contamination in soil and groundwater that results from industrial activities.

Some people dismiss environmental concerns as mere economic externalities. While there is some truth to that observation, it is also true that everything has a cost. To put it simply, while you should have the right to derive a profit from your productive activities, you also have a responsibility for addressing the costs of those activities. Those costs may not be merely monetary; they could be reflected in the lives and health of people: your neighbours, your children, and yourself.

Assessment

A big part of the work of environmental geoscientists is the characterization of sites that may be contaminated. Like all good geoscience, it begins with field work. The field work gathers the basic data. The next step is to make sense of the available data and eventually come up with a means of addressing the contamination. It is important to note that geoscientists do not typically work alone, but rather usually work with engineers and environmental scientists to understand a site and come up with a means of addressing its issues.

Field investigations for potentially contaminated sites involve the collection of soil and groundwater samples. An impressive array of tools are available for drilling boreholes, collecting soil samples, installing monitoring wells, and collecting groundwater samples. The goal of this

technological prowess is to understand the site we are studying.

The United States Environmental Protection Agency (US EPA) has the credit for developing the mental tool that geoscientists most commonly use to understand a contaminated site: the Conceptual Site Model¹ (CSM). This tool has become so common that it now rates an ASTM standard.² The goal of a CSM is to answer the following questions:

- Origin and fate: where did the contamination come from and where is it going?
- Delineation: what is the extent of the contamination in all three dimensions?
- Receptors: who or what is at risk from the contamination?
- Pathways: what are the ways that the receptors can be affected?
- Exposure: which receptors are actually affected?

Once you have begun to develop a CSM, you can evaluate the significance of what you've found in light of another conceptual tool: the chain of exposure. There are three elements to the chain of exposure: source, pathway, and receptors.

Source

Pathway

Receptor

The location and extent of the contamination is the source. Pathways include ingestion, inhalation, and contact. The receptors are humans and other living things (the environment). An important part of this analysis is to determine which pathways are actually operative at the site. The analysis should list the pathways and how they affect or do not affect the receptors.

Remediation

As with investigation, there are many impressive technologies available for remediation of the contamination. However, they fall into a few broad categories:

- Removal of the contaminant for treatment
- *In situ* treatment of the contaminant
- Isolation of the contaminant or barriers to its migration
- Management of the contaminant

Sometimes the physical removal of contamination is necessary to expediently address the contaminants at a site. Removal of contaminated soil for treatment is sometimes called ‘dig and dump’ and, while it can be expensive, it can lead to an effective solution. With contaminated groundwater, removal can involve pumping and treating

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the groundwater for later disposal. Treatment can be by any of a number of means but usually involves either chemical or biological destruction of the contaminant.

Treating the contamination in place also involves either chemical or biological destruction of the contaminant. Typical *in situ* treatments include biological agents, which digest the contaminant, or chemicals, which oxidize and therefore neutralize the agents that cause impacts. Another *in situ* treatment involves the use of plants, known as 'phytoremediation'. Some phytoremediation plants sequester the contaminant and it can be removed by harvesting the plant for disposal elsewhere. Other phytoremediation methods involve encouraging the biological digestion of the contaminant. Another form of *in situ* treatment is to make contaminated groundwater flow through a reactive material that neutralizes the contaminant, so-called 'permeable reactive barriers'.

Barriers can be used to isolate a contaminant, thus breaking the chain of exposure. Compacted clay and polymer membranes are common barriers used for isolating contaminants.

There are also situations where it is possible and even desirable to essentially leave the contaminant undisturbed and simply monitor it. If the contaminant plume is stable and there are limited receptors, then monitored natural attenuation (MNA) is often used. Many contaminants will naturally degrade and this degradation can be observed. If the contamination does not become reduced over time, then more active measures will be called for.

Wrapping it up

This is a fairly simplified discussion and I invite the reader to continue your own inquiries into this subject if it interests you.

References

1. US EPA, 2011, *Guidance for the Development of Conceptual Models for a Problem Formulation Developed for Registration Review*, <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/guidance-development-conceptual-models-problem>
2. ASTM International, 2014, *Standard Guide for Developing Conceptual Site Models for Contaminated Sites*, ASTM E1689 - 95(2014), <https://www.astm.org/Standards/E1689.htm>

Because it's 2018 ♀

By M.R. Friesen, P.Eng., FEC

When Justin Trudeau was elected Prime Minister of Canada in 2015 and introduced his Cabinet, a reporter asked him why it was important to him to have a Cabinet that was gender-balanced. He replied, "Because it's 2015". That sound bite got a lot of press in the subsequent days and weeks, as news outlets and columnists dissected Trudeau's Cabinet choices to arrive at 50% female appointees. The issue grabbed so much attention that the phrase "Because it's 2015" has been co-opted into a number of other contexts and has become a small part of Canadian pop culture.

The weeks of follow-up analysis essentially probed why Trudeau appointed women to half of Cabinet positions, who these appointees were, and what they brought to their roles.

Imagine if the underlying inference had been reversed: "Prime Minister Trudeau, we recognize that you could easily fill your Cabinet with highly qualified women, so what made you decide to give 50% of the positions to men?"

I did not find any analyses that probed or asked why Trudeau gave 50% of Cabinet positions – rather than less – to men.

Imagine if the underlying inference had been reversed: "Prime Minister Trudeau, we recognize that you could easily fill your Cabinet with highly qualified women, so what made you decide to give 50% of the positions to men?"

This question would likely have struck us as odd or even laughable. The reason

that the opposite question did not strike us as inappropriate is an indication of how we – women and men alike – are steeped in an environment of patriarchy. I say this as a statement of present reality and not as a pejorative judgement. It is a descriptor Canadian society and most of the world, where in part, society assigns a position of power and privilege to men as an entitlement, where men's opinions are assumed to be credible and valid,



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and where men are often meritorious by virtue of being a man. The flip side of this is that Others – women, gay men, and in predominantly Caucasian contexts this includes people of colour – are neither *inherently* entitled to power and privilege nor *inherently* entitled to be considered credible; rather, Others have to earn or prove it by some assigned metric.

The reporter’s exchange with Trudeau and the subsequent analysis rode on the

assumption that, apart from satisfying our general curiosity or party loyalties, Trudeau did not need to justify the merit of the men appointed to Cabinet. We could assume that proper vetting had taken place. However, as a society, we were intensely interested to hear how he had confirmed the merit and eligibility of the women he had appointed and why he had chosen them from among qualified candidates who included men.

When I hear presentations, read articles, and have conversations about female underrepresentation in engineering, it is often about the importance of supporting women’s success via mentorship, networking opportunities, work-life balance, and other undeniably positive things. Yet, we miss an important part of the conversation when we do not acknowledge the soup in which we are swimming or the glasses through which we are conditioned to see the world. These implicit rules of merit and credibility in our larger society manifest themselves in our professions and in our workplace cultures as well.

Several years ago, I attended a meeting of members of a provincial engineering association, in which the leadership of the association was providing an update of its activities and initiatives. One of these initiatives was to provide significant support and visibility to Engineers Canada’s 30 By 30 campaign, which has a goal of raising the percentage of newly licensed engineers who are women to 30% by the year 2030. One member stated that he was all for supporting women who wanted to come into engineering “as long as it doesn’t lower the standard”. He spoke at length, taking multiple passes at his point to ensure we understood his concern that apparently women might break engineering.

I was not actually upset at the individual asking the question. What upset me was that, in the numerous responses from the floor, other members took pains to reassure the individual that protecting the public interest was the primary role of the association and of each individual practitioner. Calm assurances were given that female applicants would be duly vetted. No one challenged the premise of the comment itself. Rather, the responses served to legitimize the comment in the first place.

I know that when reading articles or being in conversations about this issue, our tendency is to put ourselves on the right side of history and think about *other* people who should change their behaviour. I have had many conversations with colleagues in the profession whom I deeply value and respect – well-intentioned, thoughtful, equity-minded men who assure me that they “don’t see



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gender". This is typically in the context of trying to indicate that their organizations are progressive and that they are one of the 'good guys'.

The statement is often followed by "I hire for fit". However, we know from an abundance of research on all scales from national to organizational that we naturally gravitate to, and support, people who are just like us. The statement "I hire for fit" often manifests itself as "I can't help it if I just happen to fit best with people who look like me, act like me, talk like me, think like me, and most flattering of all, aspire to be just like me."

When I hear someone say "I don't see gender", I want to respond with "Actually, we *really need* you to see gender". In saying "I don't see gender", one absolves oneself of the responsibility to act within a system in which one disproportionately benefits. As a white, middle-class woman, if I say "I don't see race", I am implicitly absolving myself of responsibility to act within a system that is designed in my favour when compared to people of colour and Indigenous Canadians.

So, we *need* to see gender. We *need* to take note of all its subtle and insidious manifestations of unconscious bias. In my mind, this applies *especially* to men who are senior leaders in the profession who have the social capital and the structural capacity in their organizations to make changes with minimal risk to career or reputation.

Supporting women in the engineering profession is often framed as a women's issue, as women helping women, or as women solving the problem. It is *everyone's* issue. Women can certainly speak to their experiences and bring concrete ideas forward that would lend themselves to more equitable workplace cultures. And yes, there is an impact from women simply being present and visible in the profession. Yet, the ability to enact change, to call bad behaviour to true account, and to change culture lies with everyone and in particular, with the leadership in the profession.

For more conversation, I welcome you to reach me at marcia.friesen@umanitoba.ca. ☎

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One member stated that he was all for supporting women who wanted to come into engineering "as long as it doesn't lower the standard." He spoke at length, taking multiple passes at his point to ensure we understood his concern that apparently women might break engineering.

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The Association's annual Ingenium Conference took place from October 16-19, 2018. Thank you to all the staff, volunteers, and sponsors who made the 2018 Ingenium Conference such a huge success!

TUESDAY, OCTOBER 16

New Member Luncheon and Certificate Presentation

This luncheon, held three times a year to recognize new members and formally present them with their official license certificate, was held at the Norwood Hotel.



New members in attendance pose for their group photo.

WEDNESDAY, OCTOBER 17

Recognition Wine and Cheese Reception

Held in the stunning Carlton Concourse of the RBC Convention Centre, this reception honoured Association Past Presidents, Life Members, Honorary Life Members, and those receiving their Fellowships of Engineers Canada (FEC).

Congratulations to those who received their FEC and FEC (Hon.) designation in 2018: Kathryn Atamanchuk, P.Eng., FEC, Christopher Clary-Lemon, P.Eng., FEC, Keith Derksen, P.Eng., FEC, Dr. Jeannette Montufar, P.Eng., FEC, Trevor Ouellette, P.Eng., FEC, and Philip Reynold, M.A.A., FEC (Hon.)

One Honorary Life Membership was also bestowed during the reception, to Past President Catherine Stewart, P.Eng., FEC. The granting of Honorary Life Membership (By-law Clause 7.1.4) recognizes many years of meritorious service rendered to the Association or the profession; a citation of Cathy's many accomplishments can be found on page 26.



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THURSDAY, OCTOBER 18

Professional Development Seminars

Forgoing an overall theme in favour of five themed tracks, this year's Professional Development Seminars welcomed a record number of attendees. The day-long event offered attendees the choice of 20 breakout sessions and two keynote speakers – the largest variety ever offered within the program.

BELOW:

MC Jessica Dumas presents Association CEO & Registrar, Grant Koropatnick, P.Eng., FEC, with a star blanket.

Annual General Business Meeting

The Annual General Business Meeting is an opportunity for members to become directly involved in the business of the Association, vote on current matters, and acknowledge councillors completing or just beginning their terms. President Jonathan Epp, P.Eng., FEC, ended his term and passed the gavel to incoming President Ruth Eden, P.Eng. Congratulations to the councillors elected for the 2018-2020 term: Vaibhav Banthia, P.Eng., Doug Bell, P.Geo., FGC, Carolyn Geddert, P.Eng., Ian Smallwood, P.Eng., and Efrem Teklemariam, P.Eng.

FRIDAY, OCTOBER 19

Awards Gala Dinner

The refined setting of the Grand Ballroom at the Fort Garry Hotel played host to this first-class evening honouring member achievements and corporate contributions to the profession. The 270 guests were greeted by salsa band Trio Bembe as they arrived for an evening of great entertainment by local Folklorama groups. Fubuki Daiko kicked off the formal portion of the event with an impressive display of Japanese drumming before the 2018 Engineers Geoscientists Manitoba awards were presented. Congratulations to all 2018 nominees and award winners! Following a four-course dinner, guests were wowed by high-energy performances by La Troupe Jeunesse de l'Ensemble Folklorique de la Rivière-Rouge, Viva Brasil, and the ever-captivating Rusalka.



2018 AGM MEMBER PROFILE

The Annual General Meeting of Engineers Geoscientists Manitoba took place at the RBC Convention Centre in Winnipeg on Thursday, October 18, 2018. Here is a profile of those in attendance.

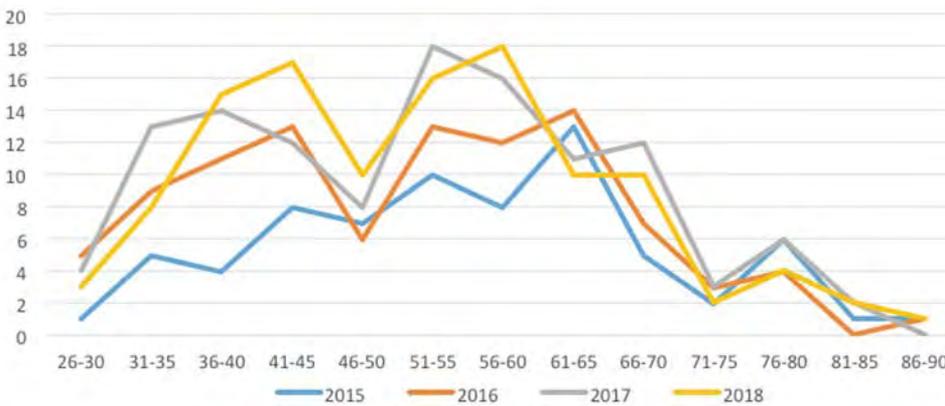
116 professional members attended (compared to 119 in 2017 and 98 in 2016)

Average age:	52	Geoscientists:	8	7%
Youngest:	29	Practicing members:	107	92%
Oldest:	85	Retired members:	9	8%
Men:	93	Past Presidents:	9	8%
Women:	23	Councillors:	10	9%
Engineers:	108	Staff:	3	3%

2018 Distribution by Age Bracket:

3	8	15	17	10	16	18	10	10	2	4	2	1
26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85	86-90

AGM Attendance by Age Bracket:



Some questions asked following the AGM each year are: Is this representative of the overall membership? Does the AGM format serve the needs of the membership? How can participation be increased? Is there a format which will increase the attendance across all age brackets? Send your comments and suggestions to President@EngGeoMB.ca.

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Meet Your New President RUTH EDEN, P.Eng.

By C. Campbell

Ruth Eden, P.Eng., is the Acting Assistant Deputy Minister of Water Management and Structures Division for Manitoba Infrastructure.

She oversees a staff of 110 responsible for design, construction, inspection, maintenance, and programming for provincial structures on the highway and water control networks.

Ruth has been involved in the design and construction of bridges and structures throughout the Province of Manitoba for almost 30 years. Besides previously serving as a councillor for the Association, she is on three separate committees of Canadian Highway Bridge Design Code, as well as the executive for the Structures Standing Committee for the Transportation Association of Canada.

Ruth as President

To her new role as President of Engineers Geoscientists Manitoba, Ruth brings a breadth of knowledge and a passion for the professions. For Ruth, taking on the role of President was a “natural progression, to move through council and then to take on the leadership role”. She is very excited about the position the Association is currently in, now in its 99th year and going into the centennial. Her thoughts are on what needs to be done as a profession, to ensure that there is a sound and strategic vision in place to begin the next 100 years of Engineers Geoscientists Manitoba.

To this end, Ruth has a plethora of skills and experience from her current role

with government, and her exposure at that level has reinforced the importance of strategic planning and initiatives and given her the capacity to develop a vision for the future. Most importantly, her whole career has been in the public sector and she sees, on a daily basis, the benefits that the professions provide to the quality of life of society as a whole. This is, in fact, her favourite part: “I love working with the people side, seeing what we do both internally and externally and how it benefits society, I love that part”.

Her Vision

Looking back on her two years on Council, Ruth has seen several Ends progress tremendously, and she plans to keep the momentum going and continue to advance these initiatives throughout her presidency: “I feel very strongly about the 30 by 30 initiative as well as increasing diversity, which includes Indigenous members”.

More specifically, she plans to further improve these areas by focusing on the practice of *ownership linkage* where “Council and the Executive with the Association actually link with our stakeholders and make a concerted effort to do that”, to which she adds that, “newly formed chapters and committees have already been created towards this End by Council”. Furthermore, she will continue to strengthen and help implement government relations and advertising campaigns for both initiatives, and lastly, will focus on improving communication between the Association and its members.



Going Forward

Perhaps the loftiest goal that she will take on in her role as President will be creating a vision document, along with the help of the Association and Council. “A visionary document such as this takes time to prepare and ensure that it embodies the wisdom of lessons learned, highlights the reasons behind our successes while also providing insight into the needs of the future.” She describes those needs as resulting from changes to things such as technology and climate and says, “There are going to be a number of things coming at the profession”. But as she looks forward, she is confident that engineers and geoscientists here in Manitoba can and will continue to be both innovators and leaders in the professions.

Ruth is confident that engineers and geoscientists here in Manitoba can and will continue to be both innovators and leaders in the professions.

2018 DIVERSITY EMPLOYER AWARD



StandardAero

StandardAero

The Diversity Employer Award recognizes engineering and geoscience employers that have demonstrated, in action and spirit, support for recruiting, training, retaining, fostering respect for, and/or advancement of career opportunities for people from diverse backgrounds. In celebrating these accomplishments, the award has the intended purpose of encouraging involvement of organizations in diversity-related activities, regardless of company size.

StandardAero's Employment Equity Program is not about meeting quotas or lowering standards for recruitment, promotion, or training and development opportunities. The company goal is to have a workforce that is representative of our community by promoting an inclusive environment.

StandardAero's Employment Equity Committee meets on a regular basis to ensure the company is active in the identification and completion of initiatives that promote diversity throughout their Canadian operations. The varied initiatives include promoting their internal Toastmasters program to improve communication skills within their visible minority designate groups as well as internationally educated professionals.

They enhanced their Reasonable Accommodation program by releasing a modified policy, process flow, and request form. The program is intended to balance the needs of the company with the needs of individuals that fall within a protected characteristic. They



have implemented a barrier-free review on all building modifications and designs to ensure the best decisions are made to meet the needs of their current and future workforce.

As a long-standing member of the Manitoba Employment Equity Practitioners Association, StandardAero promotes opportunities for employees to attend workshops and seminars on diversity best practices and they promote a respectful workplace by educating both their managers and employees on concepts associated with harassment and professional ethics. To support women in the field, a Women in Engineering subcommittee was formed, which has since expanded to Women in Aerospace in order to promote all careers in aerospace as well to foster mentorship.

StandardAero hires internationally educated professionals through the Internationally Educated Engineers Qualifications (IEEQ) Program at the University of Manitoba and also partners with Manitoba Start. They provide opportunities to current employees who studied outside of Canada by supporting educational upgrading to meet Canadian and professional educational requirements through the company's education assistance program. They partner with management teams to foster opportunities for internationally educated professionals through

succession planning and cross-training initiatives. In the past year alone, two internationally educated professionals were promoted to engineering roles.

StandardAero attends job fairs for community outreach primarily for new Canadians and most attendees are from visible minority groups and women. They continue to facilitate a bridging program for graduates of the Aboriginal Aerospace Initiative, a partnership between the Centre for Aboriginal Human Resource Development and the Manitoba Aerospace Human Resource Council, which is provided through Neeginan College of Applied Technology. The program helps students prepare for future employment by providing training on company culture and related systems. StandardAero partnered with Workplace Education Manitoba and provides upgrading opportunities for applicants who do not qualify for the essential skills requirement for technical positions. They also work in partnership with SCE Lifeworks to increase recruitment efforts for persons with disabilities.

StandardAero is an organization that is constantly raising standards in making current and prospective employees from diverse communities feel welcome and valued. In recognition of their commitment to advancing diversity within their organization, Engineers Geoscientists Manitoba is pleased to present the 2018 Diversity Employer Award to StandardAero.

2018 TEAM ACHIEVEMENT AWARD

MacDon

MacDon Windrower Design Team

The Team Achievement Award recognizes engineering or geoscience excellence in, and major contributions to, the concept, design and implementation of an engineering or geoscience project in Manitoba.

MacDon Industries Ltd. and its predecessor Killbery Industries Ltd. have been world leaders in the technology, innovation, and manufacturing of high quality harvesting equipment for over 65 years. Every MacDon machine is designed and manufactured at their headquarters in Winnipeg, Manitoba, using the latest advanced manufacturing technologies including computer numerical control (CNC) laser cutters, CNC lathes, robotics, and automated calibration and measuring tools for quality control. The Winnipeg operation includes facilities for research and development, engineering, quality control, parts, manufacturing, marketing,

and supporting departments. From this location they supply equipment to dealers and distributors around the world.

The M1 Self Propelled Windrower which was, from the ground up, conceptualized, designed, and ultimately manufactured here in Winnipeg. The purchased Cummins engines are used to power hydraulic pumps which in turn power the traction drive and header drive units of the windrower. The unique hydraulic system had to be very flexible in order to interface with several different types of harvesting attachments that are also manufactured by MacDon at their Winnipeg facility. The interface required mechanical, hydraulic, as well as electronic engineering considerations.

MacDon uses Lean Manufacturing management to make their products. The custom frame for the harvester was designed to not only be as strong and as lightweight as possible, but also to be easily moved down the production line as components were added to it during manufacture of the windrower.

Several patents were issued as part of the development of the M1 Windrower. The frame is developed for off road applications and a patented suspension system dubbed CrossFlex gives the operator a smooth and comfortable ride with in-field speeds of up to 29 km/

hr. Electrical-mechanical interfacing has also created automated functions which offer simple setup and operation of the machine and helps reduce operator fatigue. The hydraulically driven cooling system is also unique and is able to handle cooling loads in even the most extreme ambient temperatures under full load.

The cab includes a number of creature comfort systems which were also designed by MacDon, including the electrical/operator interface. The cab can be rotated using patented Dual Direction technology in order to switch from in-field operation to road operation in seconds. Road operation allows travel speeds of up to 45 km/hr. In most cases there is no need to detach the header attachment when moving between fields.

The harvesting technology engineered into the M1 Windrower provides the highest productivity in the market, which is critical in a world with a growing population. The large cab and easy to use interface make the machine enjoyable to the point where operators can treat it more like a workstation in an office.

In recognition of the engineering excellence demonstrated in their M1 Windrower project, Engineers Geoscientists Manitoba is pleased to present the 2018 Team Achievement Award to MacDon Industries Ltd.



2018 INTERN AWARD Alexandra Campbell, EIT

The Intern Award bestows distinction on those training to be engineers or geoscientists, specifically those demonstrating exceptional work achievement in their early EIT/ GIT years who enhance society's knowledge of our professions.

Alexandra (Ali) Campbell, EIT, completed her B.Sc. in Civil Engineering at the University of Manitoba in 2013 and her M.Sc. in Transportation Engineering in 2015. The research that Ali conducted during her thesis was used in the City of Winnipeg's assessment of their pedestrian signal system. Her work was instrumental in the adoption of the new pedestrian signal system now used throughout the city. After graduation, Ali joined the transportation engineering team at Dillon Consulting. At Dillon, she has had the opportunity to be involved in numerous transportation projects. Some highlights include the Southwest



Rapid Transitway Stage 2 project and the Pembina Highway underpass project.

During her time at university, she was actively involved in the Institute of Transportation Engineers (ITE) Student Chapter, holding roles such as Secretary and President. Ali also participated in the University of Manitoba Transport Information Group (UMTIG), where she had the opportunity to present, author, and co-author numerous papers on pedestrian networks and signal systems.

In addition to her transportation related activities, Ali also volunteered for the University of Manitoba Engineering Society (UMES), where she hosted events for high school students to promote engineering as a career and acted as a mentor for younger university students.

Outside of the university, Ali has become an active member in the engineering community. Ali is a program co-leader for Engineers Geoscientists Manitoba's Committee for Increasing the Participation of Women in Engineering (CIPWIE) Mentorship Program. The CIPWIE Mentorship Program was put in place to help meet Engineers Canada's goal of 30 by 30, where 30% of newly licensed engineers in the year 2030 will be female. The program was developed to meet the need to support women who have already selected engineering as their career path. Ali and her co-leads' hard work in the program has been a resounding success. Ali is also a key member of the planning committee for the Manitoba Community for Women in Engineering, Science, Trades, and Technology (MCWESTT) biennial conference, in the role of coordinating sponsorship and promotions.

In recognition of her exceptional achievements as a trainee, Engineers Geoscientists Manitoba is pleased to present the 2018 Intern Award to Ali Campbell.



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2018 EARLY ACHIEVEMENT AWARD

Dario Schor, P.Eng.

The Early Achievement Award bestows distinction on outstanding engineers and geoscientists and recognizes exceptional achievements in the early years of their careers.

Dario Schor, P.Eng., received his B.Sc. and M.Sc. in Computer Engineering from the University of Manitoba in 2008 and 2013 respectively. He continued on to complete the Space Studies Program at the International Space University in France during the summer of 2013 and is currently pursuing his Ph.D. in Aerospace Sciences from the University of North Dakota as a distance student.

While studying overseas, Dario served as the Software and Electrical Lead on research performed to study the effects of inverted vision in a parabolic flight, funded by the European Space Agency. He is currently researching methodologies for 'trust-calibration' when dealing with autonomous life support systems in space missions beyond low-Earth-orbit. These accomplishments, along with previous projects, have resulted in two journal papers, more than five magazine articles and over 45 conference papers.

Dario has been working as a Software Engineer for Magellan Aerospace since 2013 and has recently been promoted to be the Software Lead for the Radarsat Constellation Mission. He is responsible for overseeing the design, implementation, testing, documentation, and scheduling of the bus flight software and the ground tools. The satellites, which are due to be launched in November of 2018, will continue to provide synthetic aperture radar images to support maritime surveillance, disaster management, and ecosystem monitoring for Canada.



Dario is an active promoter of careers in engineering, and he frequently shares his research, work experience, knowledge, and enthusiasm through engaging presentations at the Verna Kirkness Program, Rotary Career Symposium, the University of Manitoba Space Camp, and various high schools across the city. He has served as a judge for various local and international high school and post-secondary competitions. He has also given many student tours of Magellan's Advanced Satellite Integration Facility and enjoys mentoring co-op students within the department. Since 2011, Dario, along with other Institute of Electrical and Electronics Engineers (IEEE) volunteers, has developed and delivered over 60 workshops in embedded systems, space systems, and amateur radio at various high schools, the University of Manitoba, Red River College, and the Winnipeg Public Library.

Dario is also a regular volunteer in the community with the Amateur Radio

Community, serving as a radio operator for marathons and other events. He has also been a lead organizer for the NASA Space Apps Challenge events and has served as a Technical Director for the KlezFest Music Festival, as well as many high school and elementary theatre productions.

In the future, Dario looks forward to engaging in academic-industry collaborations that support the development of Canada's role in space exploration. He thanks his parents, Ana and Carlos, and sister Maia for being an integral part of his life, and his wife Eryn for all her support through his many endeavours. He is also grateful to his mentor, Professor Witold Kinsner, from University of Manitoba, for encouraging him to take on new challenges.

In recognition of exceptional achievement at the start of his career, Engineers Geoscientists Manitoba is pleased to present the 2018 Early Achievement Award to Dario Schor.

2018 CHAMPION OF ENGINEERING EDUCATION AWARD Donald Hatch

The Champion of Engineering Education Awards recognizes an outstanding supporter and champion of the Faculty of Engineering at the University of Manitoba.

Since 1994, Don Hatch has been volunteering his time to help the University of Manitoba Society of Automotive Engineers (UMSAE) Aero Design student engineering teams. Don is not only an expert radio controlled (RC) pilot, but is also a source of invaluable technical design and manufacturing expertise.

While Don's formal background is as a Medical Technologist, that did not stop him from developing an interest and (informal) engineering skills in RC aircraft. Don has built more of his own RC aircrafts than he can remember. His vast experience from design, construction, and piloting his own RC planes is what he freely shares with engineering students.

A large part of the UMSAE team's overall victory in the 2018 SAE Aero Design East Competition is directly due to Don's continued support, mentoring, overview of students' technical activities, assistance with testing, and last but certainly not least, his expert RC piloting skills at the SAE competitions. His suggestions and detailed technical advice has enabled the UMSAE team members to develop a legacy of successful, high performing aircrafts that have showed the world what engineering students from the University of Manitoba can do and, this year especially, showed the world that our aero engineering students are the best internationally.

It is not only UMSAE engineering students that Don supports. At the SAE



His vast experience from design, construction, and piloting his own RC planes is what he freely shares with engineering students.

Aero Design Competitions, Don routinely volunteers to fly aircraft for the smaller (and less experienced) teams (many from overseas) that aren't able to attend competitions with their own dedicated pilots. Many of these aircraft are flown for the first time ever with Don at the controls, and his expert piloting skills are routinely tested by some of those unpredictable, student-built flying machines. As a result, Don also offers his valuable feedback and technical advice to those teams, empowering them to come back stronger in future competitions.

Don's help in building relationships between our UMSAE Aero Design teams and local RC flying clubs have also made possible the critical UMSAE prototype aircraft testing at the local RC club flight fields, in addition to having club members

also provide technical advice to students.

Over the last 24 years, Don and his wife Louise, who also travels to SAE Aero Design competitions with Don, have volunteered countless hours to support and enrich the education of engineering students. Even with many of those hours in less than ideal conditions, such as the local test flights held in January, Don never complains and is always full of enthusiasm.

In recognition of Don's continued support, mentoring, and commitment to engineering students, Engineers Geoscientists Manitoba, together with the Faculty of Engineering at the University of Manitoba, are pleased to present the 2018 Champion of Engineering Education Award to Mr. Donald Hatch.

2018 JUDITH WEISZMANN WOMEN IN ENGINEERING CHAMPION AWARD Alana Gauthier, P.Eng.

The Judith Weiszmann Women in Engineering Champion Award recognizes a woman who through engineering and career achievements has demonstrated the qualities that enabled Judith Weiszmann to be an outstanding engineer, role model, and influencer of the profession for the advancement and support of women in engineering.

Alana Gauthier, P.Eng., is a Senior Project Manager with WSP Canada (WSP) at their Winnipeg office. She graduated from Queen's University in Chemical Engineering in 1989. She worked as a Process Engineer at Inco (now Vale) in Thompson, Manitoba, for over a decade.

Alana was instrumental in the formation of the Thompson Chapter of Engineers Geoscientists Manitoba in 1993. She served as Chair in 1995 and was an active member of the chapter until 2002, while in Thompson. She actively promoted engineering as a career for youth by giving presentations in middle schools.

In 2007, Alana joined WSP and had the amazing opportunity to create her own position. She developed an industrial client base and became Project Manager for the \$460 million Lalor Mine Project near Snow Lake, Manitoba. Alana was identified by the Hudbay Project Manager at a Women in Mining presentation as being a key person to the success of the project.

Alana has worked as a multi-disciplinary project manager and project engineer on numerous industrial sites. Alana has mentored female engineering colleagues at WSP and feels that mentoring unleashes the full potential



of individuals in an organization. She recently moved to the First Nations/Northern Infrastructure Group and is thriving with the new challenge of senior reviewing design, tendering, and contract administration.

Alana was a board member of the Canadian Engineering Memorial Foundation (CEMF) from 2008 to 2010. She served on several bilingual judging committees to determine the award of engineering scholarships to young female engineering students. The chosen candidate gave presentations in high schools showing how to become an engineer.

In 2012, Alana was chosen by the Provincial Minister to speak at the Manitoba Legislative Building on 'Women's Role as Mentors'. In 2014, the Association of Consulting Engineering Companies Manitoba (ACEC-MB), presented Alana with the Engineering Action Award, which recognizes outstanding service and dedication to

the Association, engineering profession, and the community. Alana served on the ACEC-MB board from 2012 to 2018 and became the first female president of ACEC-MB in May 2015.

Alana recognized that women often leave engineering due to a lack of mentorship, support, and networking opportunities and so she promoted and convinced the ACEC-MB Board to support the establishment of the Technical Women in Consulting Engineering (TWICE) Committee and its programs in 2013. TWICE is the first organization of its kind in Canada looking at the retention of women in consulting engineering. Its mission is to provide strategic advice on matters related to increasing diversity in the consulting engineering industry, specifically increasing the retention of women in member organizations. In 2015, ACEC-MB's TWICE Committee won the ACEC National Engineering Award for their initiatives to support women in consulting engineering.

2018 OUTSTANDING SERVICE AWARD

Dawn Nedohin-Macek,
P.Eng., FEC

The Outstanding Service Award recognizes outstanding service rendered to, or on behalf of, Engineers Geoscientists Manitoba, by a member of the Association.

Dawn Nedohin-Macek, P.Eng., FEC, graduated in 2002 from the University of Manitoba with a bachelor's degree in Computer Engineering. Dawn has been an employee of Manitoba Hydro since graduation, taking on ever increasing corporate responsibilities and balancing her career with leadership roles, her technical and professional associations, as well as promoting women in engineering within the community.

Dawn is currently a Project Portfolio Engineer in Manitoba Hydro's Telecommunications Department, managing projects and programs involving all aspects of the telecommunications network, using technology such as fibre optics, microwave, and WiMAX. Throughout her career she has been involved in internal leadership and performance programs. Dawn has been a Performance Monitoring Specialist, has implemented corporate-wide SharePoint communication systems, and has consulted with Manitoba Hydro International for the Transmission Company of Nigeria.

Dawn's volunteer commitment to Engineers Geoscientists Manitoba, the University of Manitoba, the Institute of Electrical and Electronics Engineers (IEEE), and her community is exceptional in every way. She is a true ambassador for our profession and has contributed an outstanding amount of service as a professional



engineer. Dawn currently sits on the Board of Directors for Engineers Canada, is a Past President of Engineers Geoscientists Manitoba and served as a councillor from 2010 to 2013. Dawn was the first Chair of the Public Interest Review Committee, from 2014 to 2018, was a member of the Women's Action Committee in 2003, an Awards Committee member in 2008, and served as Chair of the Nominating Committee in 2014. In addition to her committee work, she has been involved in initiatives including the Committee for Increasing the Participation of Women in Engineering (CIPWIE) mentorship program, has participated as a panelist and speaker for the Manitoba Community for Women in Engineering, Science, Trades, and Technology (MCWESTT), and represented the Association at the Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWESTT) Conference as a panelist in 2016. Since university, Dawn has been actively involved in the IEEE technical society and is currently a senior member of IEEE.

Since 2013, Dawn has played an

active role in the University of Manitoba Alumni Association and is currently serving as President. Her volunteer roles in the organization include serving as Chair in 2013, Deputy Chair from 2014 to 2017, Distinguished Alumni Awards Selection Committee in 2013, Alumni Representative on the University of Manitoba Senate since 2017, and Honorary Degree Recipient Committee since 2017.

Dawn's commitment to volunteerism extends to her workplace where she is involved in the Manitoba Hydro Professional Engineers Association (MHPEA), serving as a councillor from 2009 to 2010, Nominating Committee Chair in 2017, and many years as a Nominating Committee member. In addition, Dawn has volunteered as the Commuter Challenge coordinator, been a presenter for Take Your Kid to Work Day, as well as fundraising for Heart & Stroke and Canadian Cancer Society.

Dawn is currently working on her Private Pilot License. She is married to an electrical engineer and has two daughters, aged 10 and 12, who love to do science experiments in the kitchen.

2018 TECHNICAL EXCELLENCE AWARD

Dr. Zahra Kazem-Moussavi, P.Eng.

The Technical Excellence Award recognizes outstanding achievement, including the direct advancement of the engineering or geoscience professions, by an individual member during his or her career.

Dr. Zahra Moussavi, P.Eng., graduated with a bachelor's degree in Electronic Engineering from Iran in 1987 and arrived in Canada in 1989. She obtained her M.Sc. in 1993 from the University of Calgary and her Ph.D. in 1997 from the University of Manitoba, both in Biomedical Engineering. She subsequently worked as a post-doctoral research fellow for one year at Johns Hopkins University in Baltimore, Maryland before joining the Department of Electrical and Computer Engineering at the University of Manitoba, where she is now a full professor. She joined the Telecommunication Research Lab (TRTech) in Winnipeg as Adjunct Scientist in 2003.

Dr. Moussavi was appointed Canada Research Chair (Tier II) in Biomedical Engineering at the University of Manitoba in 2009. Subsequently, she was promoted to the position of Director, Biomedical Engineering Program at the university in 2012. She has also enjoyed cross-appointment as Professor in the Department of Psychiatry since 2011.

Dr. Moussavi is keenly interested in biomedical research. She applies her electronic engineering expertise for detection of Obstructive Sleep Apnea (OSA), by recording a few minutes of breathing sounds during wakefulness and analysing the data with respiratory acoustics signal processing. Prior to this, she developed the first Acoustic



Detection System of OSA during sleep with the support of TRTech, which led to the design of portable sleep apnea home-monitoring prototype systems capable of recording breathing and snoring sounds as well as pulse oximeters readings, transmitting this data to smart expert software which detects apnea/hypopnea events and presents the apnea/hypopnea index along with other clinical information to a treating physician. Her OSA research has been recognized internationally and has yielded seminars and workshop invites from around the world. Zahra holds four approved patents in this area of her work. Two of these patents have been licensed to Bresotec Inc. for commercialization.

One of Zahra's current major research passions is in the area of early detection and treatment of Alzheimer's disease. Her studies on spatiotemporal processing of human brain data shows deterioration with age for all healthy participants but much more significantly in individuals at the onset of Alzheimer's. Since 2014, Zahra has offered an eight-week Memory Program Series for the public and has recently designed a computer application

with five to eight games for testing and continuing brain exercises for seniors and individuals with dementia.

Dr. Moussavi undertook the very first pilot study in North America of applying repetitive Transcranial Stimulation (rTMS) for Alzheimer's treatment and maintenance up to 1.5 years. The results presented in three conference papers and published in one journal paved the way to receive \$1.8 million funding for a large, multi-centre international clinical trial, with McGill and Monash (Australia) Universities. She has an active research program in three laboratories at Riverview Health Centre in Winnipeg. Zahra currently leads a team of 13 graduate students, three research associates, one post doctoral fellow, and between five and eight undergraduate students. She has authored and co-authored more than 242 peer reviewed publications.

In recognition of her technical contributions, outstanding leadership, mentorship, and service to the engineering profession, Engineers Geoscientists Manitoba is pleased to present the 2018 Technical Excellence Award to Dr. Zahra Kazem-Moussavi.

2018 HONORARY LIFE MEMBERSHIP

Catherine Stewart,
P.Eng., FEC

The granting of Honorary Life Membership (By-law Clause 7.1.4) recognizes many years of meritorious service rendered to the Association or the profession.

Catherine (Cathy) Stewart, P.Eng., FEC, was the first female Association President in 1996. She has served on numerous committees for the Association over the years, including 12 years on the Experience Review Committee, and was honoured with the Outstanding Service Award in 1999.

Cathy started work with Inco Ltd., Thompson Operations, as a technologist after graduating with her diploma in Chemical Technology in 1974. In 1982, Cathy returned to school at the University of Ottawa and graduated with a degree in Chemical

Engineering in 1985. Cathy received the Distinguished Alumni award from Red River Community College in 1996.

Cathy was a leader of a team that improved the operating processes of the Thompson Refinery in the areas of production capacity, working conditions, reduced waste, more efficient and safer processes, and reduced impact of the operation on the surrounding community resulting in improved air and water quality. Cathy was on the INCO committee that established and awarded scholarships to women studying engineering and was recognized by Engineers Canada in 2008 for her work.

In 2000, Cathy was appointed to the Advisory Council for Workplace Safety & Health, reporting to the Minister of Labour. Her work with this committee involved working to improve and develop safer workplaces that contribute to a healthy Manitoba.

From 1989 to 1997, she volunteered with the Thompson Chapter (now the Northern Manitoba Chapter). In 2006, Cathy supported the hosting of the Association's Annual General meeting



in Thompson, the only time it has been held outside of Winnipeg. In 2012, Cathy was awarded the Queen Elizabeth II Diamond Jubilee Medal recognizing her contributions to her community, her profession, and the province.

In recognition of her meritorious service to the profession and the Association, Engineers Geoscientists Manitoba is pleased to present the 2018 Honorary Life Membership to Cathy Stewart.



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CCWESTT Conferences From 2008 to 2018 and Beyond

By E. Nadeau, P.Eng., and L. Melvin, P.Eng., FEC

The 2018 conference for the Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWESTT) was held in Edmonton this year. Over three days, subject matter experts, CEOs/presidents, government, private sector employers, and over 500 women and men shared their passion, knowledge and experience surrounding their work in the fields of science, engineering, trades and technology (SETT). The conference had an emphasis on inclusivity and diversity, incorporating this theme throughout the sessions and other activities. This focus encouraged attendees to share initiatives and ideas that are currently working within our professions.

Between pre-conference activities, policy forums, education sessions, and social networking activities there were opportunities to learn new ideas, share personal thoughts, and meet new and wonderful people. Almost all provinces

were represented as organizers, conference presenters or general conference participants. Youth were actively involved with the conference this year, through a dedicated youth program that was well attended. As well, it was fantastic to see Indigenous Peoples highlighted throughout the conference with elders well represented and actively engaged in the proceedings.

First Time Attendee Perspective

By E. Nadeau, P.Eng.

As an engineer with over 20 years in the industry, I have attended my fair share of conferences; however, I had NEVER attended a CCWESTT conference. In fact, before I started serving on CIPWIE (Committee for Increasing the Participation of Women in Engineering), I had never even heard of the CCWESTT conference! Working on the construction side of the engineering industry, learning that there was a conference dedicated

to supporting women in engineering, science, trades, and technology was very encouraging. As I have also been working on the Manitoba Women in Construction Board since its inception in 2014, attending CCWESTT 2018 was meaningful on several levels for me.

Attending the conference with several women who were repeat attendees made my experience that much easier and more enjoyable! Being introduced into their networks and making new connections was easy and being new to CCWESTT was a great conversation starter.

With conferences that have multiple branches of one focus, like SETT, it can be difficult to ensure each is well represented and fits into the overall theme of the conference. CCWESTT 2018 was able to accomplish this. The program had solid representation from all areas, including the technology and trades sides of SETT, which held my interest the most. The program had a considerable focus on the different initiatives that are currently running in different provinces. It made clear that the momentum that has been building here in Winnipeg, to be more inclusive in both the engineering and construction industries, is in fact, building across Canada. Knowing that we are not alone in our approach, hopes, and actions was motivating and rejuvenating.

I was very pleased to see that the sessions also included numerous men who were working closely with different initiatives, both internal to their companies and external. Hearing their perspectives and seeing their awareness of the issues faced by women was a very positive aspect of the conference. Probably the biggest highlight of the conference for me was just being in the same room with 500+ people focused on achieving the same goal. Fantastic... and, well, meeting Kim Campbell was pretty darn cool, too!



Conference attendees networking (L-R) Lindsay Melvin, P.Eng., FEC, Kristine Vacola, Kathryn Atamanchuk, P.Eng., FEC, Neemee Batstone, P.Eng., FEC, Ellowyn Nadeau, P.Eng., Christine Plourde, P.Eng., FEC, Andrea Watts, P.Eng., and Irene Wasilewski, P.Eng.

Repeat Attendee Perspective

By L. Melvin, P.Eng., FEC

I have attended six consecutive CCWESTT conferences since 2008. When I first attended CCWESTT, I found it a great source of inspiration and encouragement to meet others who are working to increase the participation of women in SETT. Immediate benefits of participating in and attending CCWESTT included establishing a network of colleagues from across Canada and seeing the mostly non-profit organizations and their affiliated individuals affiliated dedicated to this much-needed transformation.

Fortunately, things have evolved over the last 10 years. As mentioned, we now understand the need for all diversity and inclusion in SETT, in addition to women. The business case for increasing diverse teams is essentially accepted, and now we are pursuing in-depth examinations of the deep-rooted challenges that have led us to this situation and the potential solutions.

At CCWESTT 2018, it was exciting to see many SETT employers present and participating by sharing their lessons learned, successful initiatives, and acknowledgement that there is further work to be done. This encourages me to bring more of what I have been working on and learning in my volunteer life – that is, efforts to increase the participation of women in engineering – into my organization and working life.

The other excellent observation from CCWESTT 2018, which demonstrates progress, was the presence of all genders. We need everyone at the table in order to evoke the necessary understanding and change. Everyone plays a role – leaders, those in power, supervisors, managers, policy makers, and influencers.

Looking Forward

CCWESTT provides an opportunity to learn and to meet new and old friends; however, in order to see this evolution over time, much is done between the biennial conferences. The model of CCWESTT is excellent, in that all of SETT needs to work together. We are very excited that CCWESTT 2020 will be held in Winnipeg, Manitoba!

But you don't have to wait two years to get involved and learn about diversity and inclusion in SETT. Stay tuned for events from CIPWIE and other groups in Manitoba throughout 2019 and in future years. The Manitoba Community for Women in Engineering, Science, Trades, and Technology (MCWESTT) is planning a speaker series for 2019 and Engineers Geoscientists Manitoba is continuing

the Engineering Changes Lives initiative intended to achieve 30 by 30 (i.e. 30% percent of newly licensed engineers being women by 2030).

If you see a talk, workshop, or event that piques your interest, go! You never know what you'll learn or who you'll meet. Regardless of our position in an organization, it is up to all of us to make SETT accessible and to create and maintain welcoming workplaces. ☺

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Practice Notes and Guidelines

Over the past two years, Engineers Geoscientists Manitoba has been endeavouring to perform a comprehensive review of all the by-laws. Phase 1, which was completed over the year ending October 19, 2017, looked at a complete re-write of By-law 17, the by-law for re-writing by-laws. Over the subsequent year, By-law 13 (Code of Ethics) and By-law 15 (Discipline Procedures) were re-written. These changes were approved by the membership in October.

As part of the efforts to continually improve the process for by-law reviews, Council endeavoured to gather information and feedback from a variety of sources and using a variety of techniques. In 2018, these efforts included:

- Open engagement sessions at the Engineers Geoscientists Manitoba office,

- Focus groups conducted by a third party
- Direct engagements sessions with the Investigation Committee
- Posting of draft principles and final wording on the public website, and
- Open forum discussions through the member web portal

As mentioned above, the Code of Ethics was under review as a part of this process. These changes included an attempt to transition prescriptive elements of the old code into Practice Notes and Guidelines. During the engagement sessions and focus groups, this transition concept was discussed with members. Unfortunately, the near-unanimous feedback from the two focus groups was that they did not know about Practice Notes and Guidelines.

This feedback was unfortunate

because it demonstrated to Engineers Geoscientists Manitoba that more effort is required to ensure that practitioners are aware of the resources available to them. To that end, one of the sessions at this year's Ingenium sought to expand the awareness of Practice Notes and Guidelines, including their enforceability.

As discussed at that session, our Act empowers Council to enact by-laws, a Code of Ethics, and the policies of the Association. The by-laws, in turn, empower the Investigation Committee to develop and publish Practice Notes. Similarly, the by-laws and policies of Engineers Geoscientists Manitoba empower the Registrar to develop Practice Guidelines. It's worth noting that the development of Practice Guidelines by the Registrar includes engagement by the general membership, input from

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committees directly involved, as well as final approval by Council. Examples of each of these can be found at:

- www.EngGeoMB.ca/PracticeNotes.html and
- www.EngGeoMB.ca/PracticeGuidelines.html.

According to the Investigation Committee's legal counsel, the enforceability of both kinds of documents is similar. Both of these documents establish a recommended standard that practitioners should use to determine a course of action in different scenarios. Practice Notes are usually shorter documents that pertain to a specific industry, while Practice Guidelines are generally broad and apply across multiple engineering and geoscience disciplines.

Since these documents represent a *recommended* best practice, failure to strictly adhere to these documents, in and of itself, would not automatically constitute professional misconduct or unskilled practice. By contrast, failure to strictly abide by the Code of Ethics, creates a clear case leading to discipline. For Practice Notes and Guidelines, failure to adhere could result in disciplinary action if it can be shown that this failure "displayed a lack of knowledge of or lack of skill or judgment" on the part of the practitioner, as per section 46(1) of the Act.

This allows for a small amount of discretion from the practitioner. As professionals, this discretion must be exercised carefully, though. Where a practitioner chooses to take action in contradiction to an established best practice, they must be able to demonstrate that they did so while "safeguarding life, health, property, economic interests, the public interest and the environment", as per section 66(1) of the Act.

Engineers Geoscientists Manitoba is currently working on reviewing old notes and guidelines as well as developing new ones. For example, the Authentication Guideline, which is one of the most

referenced guidelines of the Association, will soon be re-issued with updates. As for new documents, the following have been drafted and are under review:

- Good Character,
- Expert Witness, and
- Conflict of Interest.

As always, I appreciate comments and discussion about standards issues. If you'd like to talk about the above topic or any other area of concern, please do not hesitate to contact me at: MGregoire@EngGeoMB.ca. ☎



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MERRY CHRISTMAS TO YOU TOO, WHOEVER YOU ARE

On Wednesday, January 3, 1968, the three Als (Buchanan, Burstein and West) assembled at the Association office to count the ballots on the by-law amendments. What might have been a dull routine job was brightened by the method of balloting of some of the voters.

There are those who suspect everyone and to ensure privacy they sealed the ballot envelope with glue, plastic cement and scotch tape. This made it almost impossible for the scrutineers to find an opening for the point of a letter opener. Care must be taken not to get frustrated and jab at the envelope for fear of damaging the ballot so the scrutineers laboured tediously on, trying to open these envelopes without tearing the ballot.

Six of our members are obviously opposed to everything, as they voted Nay right down the line. Then there were those members who felt they ought to explain or qualify their votes so they wrote little essays, or even made further amendments to the by-laws.

The most welcome comment of all came from one anonymous voter who wrote Merry Christmas at the bottom of his ballot and brightened up the task of the scrutineers considerably. Suspicion was that he was a former scrutineer who knew how monotonous the job was.

Most of the comments submitted dealt with the size of the ballot and the size of the envelope. Perhaps it was due to too much Christmas spirit, but several members seemed to have trouble getting the ballot into the envelope. If the ballot was folded in half, then folded in half again, it fitted neatly into the envelope with an inch to spare on one side and half an inch on the other. However, some members tried to fold it in three and get it in (it would go but admittedly it was a tight fit). One voter got so frustrated he cut off the edge of the ballot and in so doing cut off his votes. Another member subjected his ballot to a paper cutter and submitted the ballot and the cuttings.

It would have been possible to send out an envelope that would hold the ballot no matter how it was folded, or even if it was not folded at all. Economics dictates both the size of the envelope and the size of the ballot. The printed type for the ballot is also used for both the bulletin (in announcing the proposed by-law changes) and for the by-law books if the by-laws are approved, so all these sizes have to be accommodated. The envelope is an air mail envelope which doesn't come in too many

sizes. We used to use plain white envelopes which come in more sizes but some members complained that if the envelope was held up to the light the scrutineers could see how the voter marked his ballot even before they opened it. The fact that they didn't know whose ballot envelope it was didn't seem to matter. Or perhaps they were worried about the possibility that one of the secretaries might have nothing more to do with her time than hold envelopes up to the light as they came in and were removed from the identifying envelopes. In order to allay the fears of these worriers, air mail envelopes have been used for the past two years and the little aeroplanes that are faintly visible on them prevent any snooping (which never went on anyway.)

Sixty-four percent of our members may still be trying to figure out how to get the ballot into the envelope as their ballots did not arrive at all.

Regardless of plastic cemented envelopes, Christmas greetings (thank you, sir), commentaries on the issues at stake, etc., the by-laws say that two-thirds of those voting must approve a by-law in order to ratify it and well over two-thirds approved all proposed changes.

It is gratifying to know that we have so many members willing (albeit anonymously) to offer commentaries and advice and we hope that they will all be volunteering to serve on committees for 1968. —S.J.A.



PHILOSOPHICALLY YOURS

Those who bring sunshine to the lives of others cannot keep it from themselves.

— J. M. Barrie.

Every man who is high up loves to think that he has done it all himself; and the wife smiles and lets it go at that. — J. M. Barrie.

The man who attracts luck carries with him the magnet of preparation. — Clifton Fadiman.

There is no exercise better for the heart than reaching down and lifting people up. — John Andrew Holmer.

The partisan, when he is engaged in a dispute, cares nothing about the rights of the question, but is anxious only to convince his hearers of his own assertions. — Socrates.

Muddied water let stand will become clear. — Lao-tse.

Truth is as impossible to be soiled by any outward touch as the sunbeam. — Milton.



Indigenous Members Chapter

Engineers Geoscientists Manitoba is proud to announce the creation of a new Indigenous Members Chapter, an exciting development in not only the fields of engineering and geoscience but for the Indigenous community as a whole. The new Chapter will focus on supporting and encouraging the fields of engineering and geoscience by Engineers Geoscientists Manitoba members who identify as Indigenous Canadians.

While the Chapter currently consists of the Chapter Executive, it became active at a council meeting on June 14 and there has been a lot of interest. The Chapter goal for the upcoming year is to have representatives from each of the membership areas, including geoscientists, engineers, interns, and students, join the group.

The Chapter itself will be taking an active role to assist where it can in the recruitment of new Indigenous engineers and geoscientists. With an Indigenous Professionals Initiative Committee already in place for that purpose, the Chapter will be a valuable resource for that committee. Another key purpose of the Chapter will be to support the calls to action that affect the Association and membership, in the spirit of reconciliation.

The Chapter Executive hopes to have the Chapter fully initiated by the end of May 2019, to begin delivering on the founding members' initial goals:

- To provide an Indigenous voice within Engineers Geoscientists Manitoba that promotes reconciliation.
- To break down barriers that can impact the opportunities for Indigenous people to become engineers and geoscientists.
- To create a network of Indigenous engineers and geoscientists with an expertise of working successfully with Indigenous peoples and their respective communities.
- To improve and strengthen the relationship between Engineers Geoscientists Manitoba and Indigenous Peoples.
- To provide awareness of Indigenous cultural practices and the observance of appropriate Indigenous protocol.

To show your support and learn more about the Indigenous Members Chapter, please join the Chapter for a wine and cheese networking event on April 15, 2019, at the Association office at 870 Pembina Highway, Winnipeg, from 5:30 p.m. - 8:00 p.m. Professional engineers and geoscientists of all backgrounds have a role to play in making this chapter a success. For questions on how you can participate, please contact EngGeoMB.Indigenous.Chapter@gmail.com. ☺



(L-R) Treasurer - Randy Herrmann, P.Eng., FEC, Vice-Chair - Trevor Ouellette, P.Eng., FEC, Secretary - Linda Murphy, P.Geo., Chair - Gregory Page, P.Eng., FEC.

“Making our Association more inclusive to Indigenous Canadians drove our initial decision to pursue this initiative however, as our efforts took hold, we quickly realized that our new chapter will help drive the overall mission to serve and protect the public interest ...”

Gregory Page, P.Eng., FEC – Chapter Chair and Co-founder



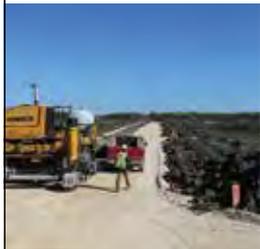
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In Memoriam – Clayton Riddell



Entrepreneur geologist Clayton H. Riddell passed away on September 17, 2018, at the age of 81. Born near Treherne, Manitoba, Riddell attended the University of Manitoba and graduated with honours in 1959 with a Bachelor of Science degree. He then moved to Alberta and began an accomplished petroleum resources career working

at Chevron, before striking out on his own by founding Paramount Resources in 1976. As a successful businessman, he was the creator of ten energy companies and became part-owner of the NHL's Calgary Flames.

Riddell was a generous philanthropist to his home province through championing the construction of the Ed Leith Cretaceous Menagerie; establishing an endowment fund with

a \$10 million gift for the University of Manitoba's Faculty of Earth, Environment, and Resources; and making a further \$2.5 million donation in support of the Nellie Cournoyea Arctic Research Facility. He also contributed to his profession through volunteering time to the Canadian Society of Petroleum Geologists (CSPG), the Canadian Association of Petroleum Producers (CAPP), the Geological Association of Canada (GAC), as well as numerous national scientific meetings. His philanthropy and leadership qualities were rewarded with multiple accolades, including being named Officer of the Order of Canada, an honorary Doctor of Science degree from the University of Manitoba, and an honorary Doctor of Laws degree from Carleton University. ☯



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2019 Curling Funspiel



Registration for the Association's 2019 Curling Funspiel is now open! Join Association staff, members, and corporate partners, for an afternoon of fun on the ice at the St. Vital Curling Club on Wednesday, January 23, 2019.

All teams must be registered by Wednesday, January 9, 2019. For further information about the event and how to register, see the Events Calendar at www.EngGeoMB.ca.

Student Writers Scholarship

Calling all engineering and geoscience students – write an article for *The Keystone Professional* for your chance to win \$500 towards your studies! Submissions for the 2019 Student Writers Scholarship, sponsored by Craig Kelman & Associates, are now being accepted. For more information, visit www.EngGeoMB.ca/Scholarships.html.

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