THE KEYSTONE PROFESSIONAL

THE OFFICIAL PUBLICATION OF **ENGINEERS GEOSCIENTISTS MANITOBA**

AUTUMN 2022

Ingenium

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THIS ISSUE

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ENGINEERS GEOSCIENTISTS MANITOBA

AUTUMN 2022
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The Keystone Professional Committee would like to hear from you. Please e-mail your comments to: **Info@EngGeoMB.ca**. Practitioners are also encouraged to submit articles and photos on topics that would be of interest to the membership.

Engineers Geoscientists Manitoba recognizes that Winnipeg is on Treaty 1 territory, the territory of the Anishinaabeg, the Nehiyaw, the Oji-Cree, the Dakota, and the Dene Peoples and on the homeland of the Métis Nation.

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FEATURES

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PRESIDENT'S MESSAGE

ALLAN SILK, P.ENG., FEC

CLOSING REMARKS

I am sure that I am just one of a long list of Presidents lamenting in August that they can't believe that it has been a year since the last Annual General Meeting. This past year has been a great experience for me, and I would like to thank Council, Grant Koropatnick, and the staff at the Association. But primarily I would like to thank the membership for putting your trust in me and supporting my desire to return to Council. It has been humbling and I shall always be grateful.

I WOULD LIKE TO THANK THE MEMBERSHIP FOR PUTTING YOUR TRUST IN ME AND SUPPORTING MY DESIRE TO RETURN TO COUNCIL

Past President Jason Mann said during his Presidency that Council was strong. I believed that he was right when he said it then and I believe that, if anything, Council is stronger now. I could take credit for this, but it wouldn't be appropriate.

The people that you have chosen and elected to govern the Association have taken their job seriously right from the start and it has made it easy to be the chairperson of Council. Council has demonstrated on more than one occasion that they will converge on issues, even if it takes time and some compromises to get to the final product. We have had some notable accomplishments, but I will save those for my report at the AGM.

I knew from my time as President in 2005, that at best you get the chance of one major accomplishment. In my councillor platform in 2019, I made a reference to self regulation and governance and how each must coexist.

I promoted the concept of reviewing our governance model not necessarily making substantial changes but making sure what we were doing was a workable solution for Council. In 2021, Council passed a motion to review our governance and sent out a request for proposals. Covid slowed the process to this year, and I was happy to take this on.

The Executive Committee hired Governance Solutions who sent out surveys to Council, staff, and others and then followed up with a subset of those who completed these surveys. Governance Solutions requested a variety of documents from the staff and then set out to write their draft report.

At this time, in early August, the draft report has not been received but we are on schedule to have this completed by the AGM. There may be some low hanging fruit that gets addressed quickly, but membership should be aware that it may take up to two years to address the major findings. However, I am convinced that council is motivated to do what is necessary to implement whatever findings the consultants make.

I would like to take time to recognize Past President Jason Mann, P.Geo., FEC, Neil Klassen, CET, FEC(Hon.), Linda Murphy, P.Geo., and Michelle Wadelius, P.Eng.. for their work on Council. They will be leaving Council at the end of the AGM. It has been an honour to serve with each of them.

If you have any comments on this or any other topic, please send an e-mail to **President@EngGeoMB.ca**.

CEO'S MESSAGE

G. KOROPATNICK, P.ENG., FEC, CEO & REGISTRAR

CAN ENGINEERS HELP WITH THAT?

A recent poll[1] commissioned by Engineers Geoscientists Manitoba and conducted by Probe Research asked: "People have different values and priorities when it comes to addressing social, economic, and cultural issues. Please read the full list below and rank the top three issues that are important for you."

Respondents were asked to pick from the following randomized list of topics:

- Addressing climate change
- Improving our public healthcare system
- Regulating the activities and moderating the influence of social media companies like Facebook and Twitter
- Addressing poverty and homelessness
- Helping refugees to relocate to Canada
- Protecting the rights of LGBTQ2S+ and non-binary people
- Ensuring access to jobs for people of colour and Indigenous peoples
- Ensuring access to jobs for people with disabilities
- Reducing government debt
- Building more affordable housing
- Protecting peoples' online and personal privacy
- Building and repairing public infrastructure (such as roads, bridges, and water and waste systems)
- Dealing with the impact of opioids and other dangerous street drugs
- Implementing a national Guaranteed Annual Income system

The survey methodology included a random and representative sampling of 1,000 adults residing in Manitoba between November 23 and December 5, 2021.

With a sample of 1,000, one can say with 95 per cent certainty that the results are within ± 3.1 percentage points of what they would have been if the entire adult population of Manitoba had been surveyed.

GOOD GOVERNANCE IS ACHIEVED WHEN THE ASSOCIATION ASKS QUESTIONS.

TOP SEVEN

The top 7 out of 14 public interest topics (in ranked order) from the public of Manitoba were:

1. Improving the public health care system
2. Addressing poverty and homelessness
3. Building and repairing public infrastructure
4. Addressing climate change
5. Reducing government debt
6. Building more affordable housing
7. Dealing with the impacts of opioids and other dangerous street drugs

This ranking did not surprise me as we are grappling with a major public health crisis (pandemic), leading to huge government spending (aka debt), while we see the potholes and crumbling infrastructure after a tough winter and wet summer, and lastly the social problems of homelessness and opioids are evident on our streets. It got me thinking about potential solutions.

CAN WE HELP?

Can the professions help with any of these? Out of the seven listed above, I think engineers and geoscientists can certainly help with topics three, four, and six. The others are more difficult to assess, but I'm sure with some learning and analysis, we might be able to provide solutions to these tough social problems too.

Good governance is achieved when the Association asks the questions: Do the professions reflect society? What is important to society? What is the public interested in? Can EngGeoMB help with that? It depends. Sometimes we can, and sometimes we can't.

CAREFUL LISTENING

Probe Research has reported the top public interest issues in Manitoba. However, some might dispute this report saying, "The public doesn't know what's important – they should listen to us".

This is backwards and shows arrogant disrespect for the public.

The Association cannot tell the public how to think. Instead, careful listening with a sensitive response is more effective at winning public confidence.

At each Council meeting, time is set aside to hear from a public presenter. In the past, Council has heard from science teachers, Indigenous leaders, newcomers, the Fairness Commissioner, environmental lobbyists, students, and business leaders. The purpose is to effectively listen to public stakeholders, so the Association can stay on target with regulating in the public interest.

When thinking of a public interest topic, ask yourself: "Can an engineer or geoscientist help with that?" I hope we can.

Your feedback is invited and welcomed. If you have any thoughts on anything you read in the KP please email me at **GKoropatnick@EngGeoMB.ca**.

Have a great day!

1 Source: December 2021 Omnibus Survey conducted by Probe Research Inc. for EngGeoMB.

LEGISLATIVE UPDATES: BILL 233

THE ENGINEERING AND GEOSCIENTIFIC PROFESSIONS AMENDMENT ACT

Engineers Geoscientists Manitoba regulates and licenses engineering and geoscience professionals in Manitoba. To protect the public, the Association maintains rigorous admission requirements for the professions and comprehensive regulatory standards to assist engineers and geoscientists in satisfying their professional and ethical obligations.

In connection with these obligations, the Association introduces legislative amendments that support the regulation of its professions and the protection of the public interest.

The purpose of the proposed legislative changes is to increase administrative efficiency, lower barriers to practice for professional engineers and geoscientists, and enhance public safety.

Since December 2018, the Association has gone through multiple rounds of internal stakeholder review and consultation and has been collaborating with the Government of Manitoba to implement these changes. The Association then proposed the Act amendments to the provincial government after which they were put on hold in 2019.

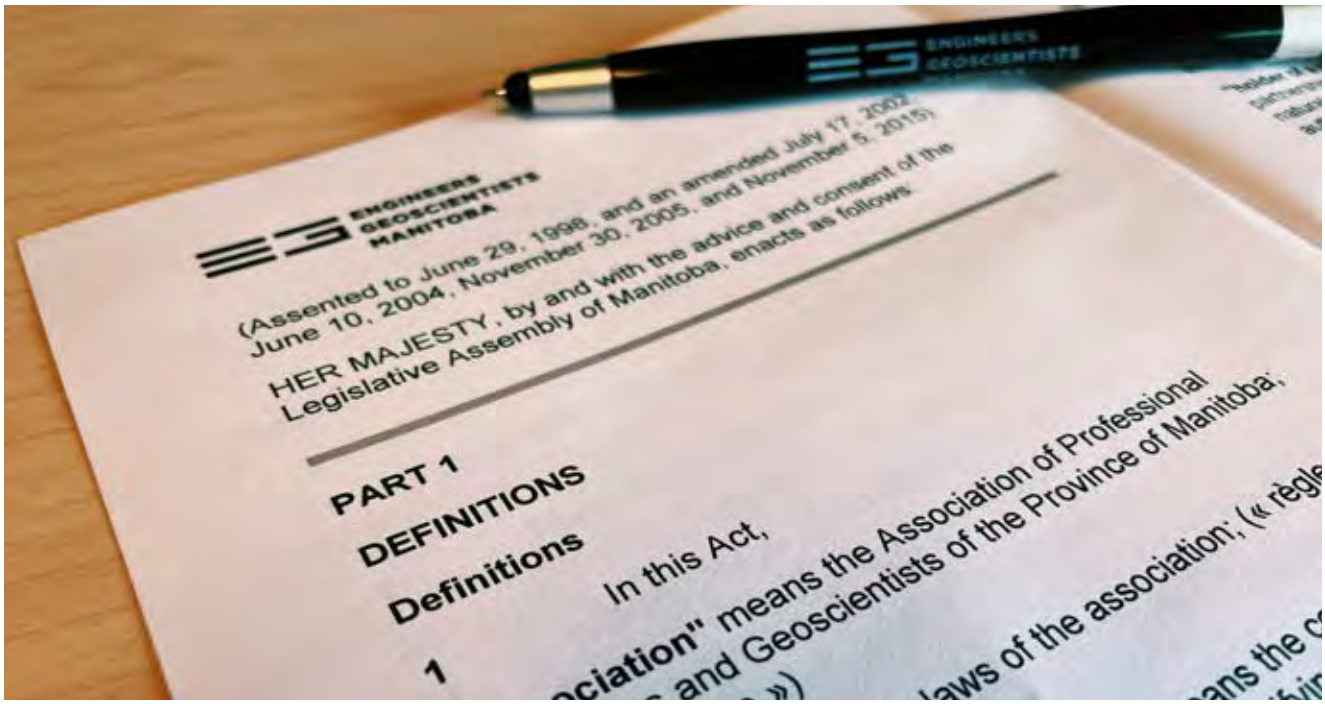
Since the Fall of 2021, the departments of Government Relations and Professional Standards have been re-evaluating and updating the work completed several years ago seeking changes to *The Engineering and Geoscientific Professions Act* through the Government of Manitoba's legislative process.

In April 2022, the Association worked with its Government Relations Advisory Committee and Professional Standards Department to develop and submit to the provincial government a briefing document on the proposed Act amendments titled, "The Brief to the Government of Manitoba – The Engineering and Geoscientific Amendment Act".

The document highlights the need to simplify administrative procedures and languages, remove barriers to practice, increase transparency, and enhance the protection of the public.

REASONS FOR AMENDMENTS SIMPLIFYING ADMINISTRATIVE PROCEDURES AND LANGUAGE

The Association is proposing amendments that simplify administrative procedures for registration of applicants, restructure the process for appeals, adjust language to simplify licensees and expand their rights, and make consequential by-law changes to ensure Council has adequate oversight.



The proposed amendments consolidate the appeals process within a new part (Part 10.1) under the Act and permit faster processing of registration for out of jurisdiction applicants.

REMOVING BARRIERS TO PRACTICE

Barriers to practice are commonly experienced by practitioners traversing provincial, continental, and international boundaries. The Association is committed to reducing these barriers by expanding the eligibility of temporary licensees and introducing a new member category for out of jurisdiction applicants.

Temporary licences may now be granted to individuals residing within Manitoba while professionally registered in another jurisdiction. The establishment of an out of jurisdiction membership adds an additional avenue for applicants outside of Manitoba to have their qualifications and competency recognized in order to begin practice in the province within a timely manner.

INCREASING TRANSPARENCY AND ENHANCING PROTECTION OF THE PUBLIC

The Association is putting forth amendments to enhance the protection of the public through an expansion of investigation rights and to increase public transparency when a professional member is formally charged or does not comply with professional development requirements.

The Association is also expanding the list of prohibited titles to include “Eng.L” and “Geo.L” members who will practise with a specified scope of practice licence.

This past Spring, *Bill 233 - The Engineering and Geoscientific Professions Amendment Act* was introduced to the House of the provincial government by Ian Wishart, MLA for Portage la Prairie, as a private member’s bill and read for the first time on April 21, followed by its second reading on April 26.

At the second reading, Jon Gerrard, MLA for River Heights, expressed support for the bill on behalf of the Manitoba Liberal Party, where such amendments will make sure the admission standards are flexible and yet accountable for engineering and geoscience professions.

Following the bill’s debate in second reading, the Government Relations Department initiated a meeting with Tom Lindsey, MLA for Flin Flon, and Jamie Moses, MLA for St. Vital, on June 30 to discuss concerns raised regarding admission standards, specified scope of practices, and ensuring adequate supervision toward specified scope of practice licence holders, all of which were further discussed and clarified.

Bill 233 is anticipated to be passed and to receive Royal Assent later this year.

THE NEW COMPETENCY-BASED ASSESSMENT PROGRAM (CBA)

Engineers Geoscientists Manitoba has transitioned to the new Competency-Based Assessment program to remove barriers, improve clarity, and foster equity and inclusion

BY C. SHYMKO

In 2003, the Internationally Educated Engineering Program (IEEQ) was accepted as a pathway to registration. The IEEQ program offered at the University of Manitoba was one of the first in Canada to offer academic requirements, practice experience, language and communication development, and culture orientation.

In 2004, the interview option was added allowing applicants to prove their credentials through an interview. The interview option allowed applicants the ability to express their knowledge orally. In 2008, the Association passed revisions to the Academic Review policy streamlining the process for engineering applicants applying with bachelor degrees from outside of Canada. This change streamlined the process and made the Association's policies more compatible with the other provincial associations.

In 2015, another pathway was added. The Association included the National Council of Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) exam. This was another significant addition because it supported initiatives of the Manitoba Fairness Commissioner. In 2017, the Association refreshed the interview process this time to incorporate academic qualification, work experience, and core competencies. The project aligned with the Fair Registration Practices Office recommendations, and it also aligned with projects effecting changes in Canada and globally. In 2019, the Association started the Competency-Based Assessment (CBA) pilot study. In 2021, the CBA program policy was implemented.

Competency-Based Assessment is not a new concept. Engineers Geoscientists British Columbia adopted the CBA format in 2015. Other provinces in Canada that have adopted a Competency-Based format are: Association of Professional Engineers & Geoscientists of Saskatchewan, Engineers Geoscientists New Brunswick, Engineers PEI, Professional Engineers & Geoscientists Newfoundland & Labrador, Association of Professional Engineers and Geoscientists of Alberta, Ordre des ingénieurs du Québec. The Engineers Canada Strategic plan outlined competency-based assessment as one of the priorities for candidates seeking licensure as engineer.

Competency-Based Assessment is the process of collecting evidence and establishing conclusions on the character and scope of the learner's progress towards professional standards. It is a method of assessing the combination of skills and experience.

The Association's new CBA program shifts the focus of the entire process for applicants meeting the requirements. The main changes the new CBA program brings to the registration process are:

- CBA allows applicants who have completed a post-secondary program (typically bachelor's degree) of at least four years in duration in engineering or geoscience to enroll and start CBA.
- CBA is not time based, which means it doesn't matter where or when competencies were gained, they are eligible for consideration.
- Validators replace the role of supervisors and references.
- The assessor makes a recommendation on the applicant's readiness for professional registration.
- The Registration Committee reviews the final CBA report and is the final approving body.

Anyone who holds the required qualifications and is living in Manitoba or whose practice takes effect in Manitoba is eligible to apply. Applicants start by gathering their documents and submitting their application.

When the Association receives a complete application package, the applicant is asked to pass the Association's Act, By-laws, and Code of Ethics (ABC) test. The Act is the legislation in Manitoba that empowers Engineers Geoscientists Manitoba to self-regulate. Engineers Geoscientists Manitoba may make, change, or revoke by-laws regarding the management of the business and affairs of the Association. The Code of Ethics outlines the spirit of Association practitioners' professionalism.

The ABC test is completed through the applicant's online profile. The test is free of charge and open book. Each test consists of 50 true or false questions. The ABC test must be passed before an applicant can pay the non-refundable ($150) application fee.

After the applicant pays the non-refundable application fee, the file is assessed. The results are normally available to the applcant within six to eight weeks - or sooner.

The assessment results could be one of the following:

- Invitation to enroll and start CBA
- Invitation to complete the Confirmatory Program
- Application denied

Applicants assigned the confirmatory program may select one of the following options to complete it:

- The Internationally Educated Engineering Qualification (IEEQ) program offered through the University of Manitoba
- The Fundamentals of Engineering, offered through National Council of Examiners for Engineering and Surveying (NCEES)
- Completion of a master's or master of science (in engineering or geoscience at the University of Manitoba)

When an applicant successfully completes the confirmatory program, they are academically qualified and invited to enroll as an intern and start CBA.

Competency-Based Assessment involves applicants completing a competency self-assessment. The applicant reflects on and reports examples in the form of "situation, action, outcome" to demonstrate competencies from their work experience. The applicant rates themselves using a rating scale, then sends the self-assessment to their validators.

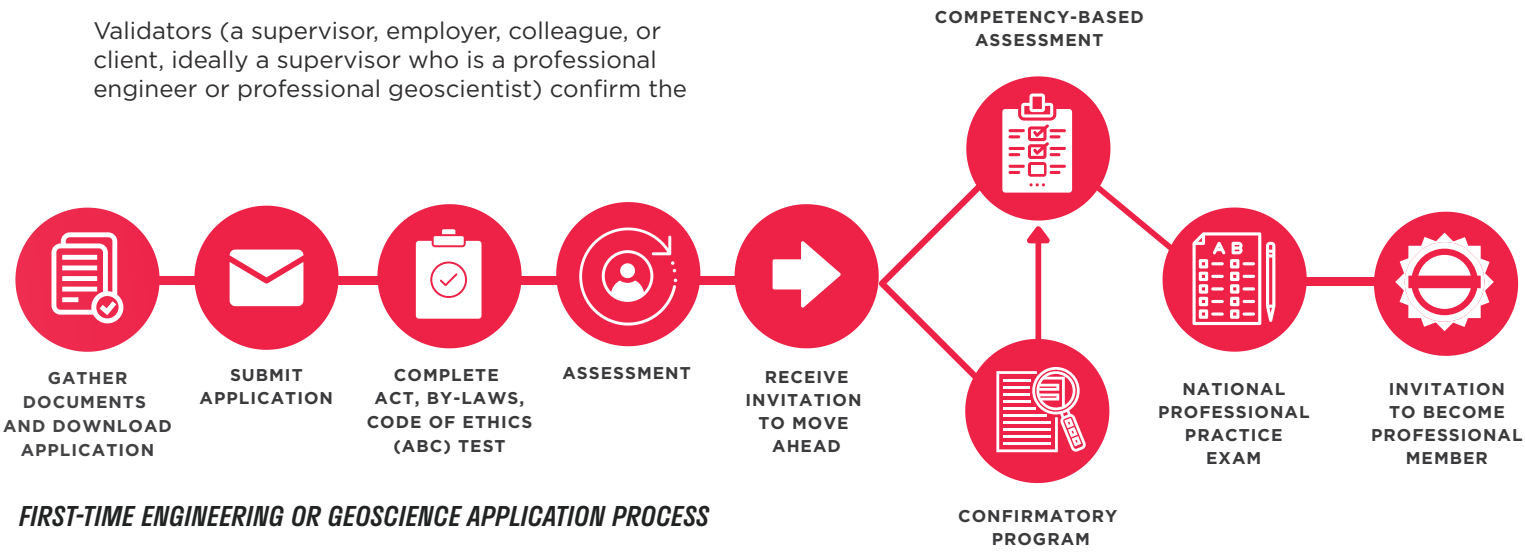
Validators (a supervisor, employer, colleague, or client, ideally a supervisor who is a professional engineer or professional geoscientist) confirm the work experience information of which they have knowledge, rate the performance, and provide feedback. The Association receives the assessment and sends it to the EngGeoMB assessor. The assessor reviews the applicant's report as well as validator feedback, provides ratings for each competency, and makes a recommendation on the applicant's readiness for professional registration.

All applicants completing the CBA program must pass the National Professional Practice Exam (NPPE). The NPPE is a closed book two-and-a-half-hour exam on professionalism, law, and ethics.

When the applicant's CBA report is ready and the NPPE is passed, the file is sent to the Registration Committee. The Registration Committee is the final approving body and will determine if registration is granted.

The Association's new program allows applicants who have completed a post-secondary program (typically a bachelor's degree) of at least four years in duration in engineering or geoscience to be eligible to enroll and start CBA. CBA is not time based. This means it doesn't matter where or when competencies were gained, they are eligible for consideration.

This new CBA process allows applicants to be assessed as a whole person. It emphasizes collaboration, empathy, compassion, integrity, respect, ethical practice, and commitment. It removes barriers, empowers self-reflection, and emphasizes the relevance and importance of ongoing learning. Further details can be found in the Association's Competency-Based Assessment guide on the Assocation's website.



FIRST-TIME ENGINEERING OR GEOSCIENCE APPLICATION PROCESS

BIG RIVER ANALYTICS' FINDINGS

BY L. KALAH

To gather data on the experiences of Indigenous engineering students and professionals in Canada, Engineers Canada and Big River Analytics have collaborated on a pilot survey that was undertaken by the members of the following provincial regulators: Engineers Geoscientists Manitoba, Engineers and Geoscientists BC, and the Association of Professional Engineers and Geoscientists of Saskatchewan.

This project is part of Engineers Canada's commitment to supporting equity, diversity, and inclusion initiatives which in turn gave rise to the organization's approval of the 2019 Operational Imperative 9 sub-strategy.

The co-created survey focused on the experiences of Indigenous engineering students and professionals versus non-Indigenous engineers and measured disparities in the three areas of professional experiences, post-secondary experiences, and formative years.

The survey was also a means of testing the possibility and requirements of primary data collection, and informed the following research objectives:

1. Explore professional outcomes of Indigenous engineers and how these compare to non-Indigenous engineers,
2. Gather data on Indigenous respondents' journeys to becoming licensed (looking specifically at the challenges and opportunities), and
3. Find ways for Engineers Canada and provincial and territorial regulators to better support Indigenous engineers through schooling, licensing practices, and in their work as engineers.

PROFESSIONAL EXPERIENCES

The key findings from this section of the report revealed that Indigenous respondents made an average of seven percent less than non-Indigenous respondents. Gender was also accounted for in the regression and showed the existence of an even bigger gap between cisgender women engineers, transmasculine engineers, Two-Spirit engineers, gender non-binary engineers, or engineers unsure of their gender identity which was shown to be 14 percent.

This section also calls for a further look into the impacts of discrimination, since respondents who reported instances of this have lower salaries as engineers. The data also indicated that there are more non-Indigenous engineers in senior or managerial roles than Indigenous engineers. It was also shown that eight percent of Indigenous respondents do not work in the engineering field, which is twice as many as the non-Indigenous respondents at four percent.

POST-SECONDARY EXPERIENCES

The data collected in this area provides insight on the experiences of Indigenous engineers through their post-secondary journeys, as well as the challenges and opportunities present in their educational pursuits. The key findings in this section point to loneliness and isolation as the most identified challenge for 70 percent of Indigenous respondents, while lack of monetary supports was anissue for 75 percent of Indigenous respondents. Other challenges included dealing with the culture shock of having arrived at unfamiliar surroundings of a bigger city or town, balancing academics and work schedule, as well as being surrounded by other students with poor ethics in an atmosphere of entitlement.

This section also offers qualitative data, with Indigenous survey respondents being asked which supports and services during their post-secondary experience would have made it more successful. The recommendations offered from respondents were to provide monetary supports (38 percent), tutoring and academic support (34 percent), social connections (26 percent), and 22 percent of respondents said courses that better reflected Indigenous worldviews would be of benefit. Other avenues of support included access to mentorship for women, more Indigenous peers, mentoring and guidance, outreach and lectures on engineering, and scholarship application assistance.

FORMATIVE YEARS

This section offers a qualitative analysis on the experiences of Indigenous engineers in the years up to and including high school. Respondents were asked questions related to their educational experiences during these years such as any barriers faced that made pursuing engineering difficult. 45 percent of respondents cited discriminatory behaviour as a significant challenge, along with 40 percent of respondents reporting a lack of awareness of engineering to be a barrier.

Additional challenges were related to finances (34 percent working outside of class), and lack of additional information on resources available and anti-Indigenous statements being made in the media. Respondents were also asked which supports and services would have eased their educational pursuits in engineering. 43 percent cited STEM outreach programs as a beneficial support for high school, with 33 percent listing help with post-secondary applications as a benefit. Access to monetary supports was also at 33 percent, while other identified supports were libraries and other information sources, Advanced Placement (AP) courses, elimination of racism, support in preparing scholarship applications, and engineering access programs.

CONSIDERATIONS

The closing section of the report offers lists of considerations on how to reduce barriers for Indigenous engineers in each of the areas of professional experiences, post-secondary experiences, and formative years based on the survey findings. These considerations are also meant to support increased Indigenous participation in the engineering field. Supplementary research on how to best implement these considerations must be conducted prior to enacting any of them, but the lists will inform Engineers Canada and the participating regulators on the next steps.

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CIRCULAR MENTORSHIP: FOR THE BENEFIT OF ALL PARTICIPANTS

BY J. FADOGBA

Has your experiences in one way or another influenced one of your coworkers, acquaintances, family members, clientele, or friends? Has your behaviour made you reflect about your thinking? Do you belong to any community or social media platform where you've shared your personal interest, information, ideas, or even mentioned or posted your lovely vacation trips on the platform that made others react? Have you learned from the comments people provided under your post(s)? If yes, you've been practising Circular Mentorship without even knowing it.

The word 'mentorship' has three syllables - men/tor/ship. Combining the first two syllables gives us 'mentor' which can be defined as the building of relationships through sharing of experience, knowledge, and skills that bring a particular change, improvement, and growth either professionally, personally, or both. Defining the third syllable – 'ship' – is a vessel that transports people or cargoes from one place to another. There are three things common to a ship or the vessel which could represent the company, organization, or community you belong to.

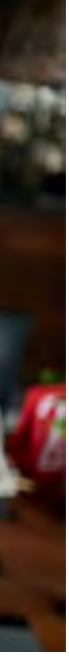
First, a ship has a crew which is a group of people who interact together during the course of travelling. It also involves movement which denotes the change you acquire while interacting and developing your interactions with the crew. Third, a ship always arrives at a different destination from its departing location. This can be interpreted as the goal achieved or the growth you experience from being part of a group within the travelled time or the period you interacted for.

So, putting the above understanding into consideration gives birth to the meaning of mentorship. This results into defining Mentorship as "the building of relationships through a vehicle that transports or moves you from where you are today to where you would like to be in the future or to a better place". It's about growing in your knowledge, experiences, and behaviour to bring a change to yourself and to other people through your interactions.

While there are different types of mentoring, they can be broadly categorized into traditional one-on-one mentoring or group mentoring.

As the name one-on-one implies, the relationship occurs between one mentor and one mentee. A mentor is usually someone with a higher level of experience, who is willing to guide and coach a mentee who is less experienced. This type of mentorship is one-way or top-down mentoring.

The idea behind group mentorship, however, is that participants are not designated as either a mentor or a mentee, and will in fact experience both roles during the mentorship journey. This circular



mentorship structure helps not just one person, but all the parties involved to get the best from building an effective and lasting relationship.

Mentorship, in this way, is more a circle, not just a straight line.

CIRCULAR MENTORSHIP MATTERS

We all have individual strengths in specialized, unique areas. Group mentorship naturally encourages more diverse mentorship opportunities, bringing together more people and their different perspectives, which can in turn increase creativity and innovation.

This may also help in better decision making and faster problem solving as diverse ideas comes together for the benefit of increased productivity and sense of belonging.

If you are entering a mentorship group as a more experienced individual in your field, there is a lot to gain apart from just the satisfaction of helping those earlier in their career. Mentorship participants report improved leadership skills, stronger communication skills, as well as increased self-confidence and growth in their personal network. Connecting with people outside of your usual circles exposes you to new perspectives, different cultures, and may help increase empathy and your own self-awareness.

When participating in circular mentorship, those who are less experienced can also benefit in the same way. All participants can give guidance and can also learn from others. Not one person has mastered all areas or has the answers to all questions.

There is tremendous growth potential within group mentoring for everyone involved, which can bring out the best in everyone for a great workplace and better community.

YOUR PARTICIPATION IN OUR MENTORSHIP PROGRAM IS PARAMOUNT

Engineers Geoscientists Manitoba launched a new mentorship program in 2022, with more than 140 participants taking part in the pilot year. Participants are matched into groups of three to four individuals, based on their answers to the mentoring application, for the duration of the 1-year program, running January to December. Participating members are eligible to claim ProDev hours under Participation.

All members and interns are encouraged and are eligible to join the program. Groups are expected to meet at least six times a year with suggested topics provided to aid discussion.

For those who are interested in joining for the 2023 year, please watch for the application window in November to December.

It is important to note that our mentorship program is a circular one: there are no assigned mentors or mentees. Every participant is expected to act as both by sharing the moderator and facilitator roles at each of their meetings and embracing the concept that we can all learn from one another, regardless of their amount of industry experience.

Also, it is important for all applicants to recognize that the program is not for the purpose of obtaining validators and is not intended as a job placement program. Any assistance provided by each individual participant is at their discretion.

After the application to participate is received, the mentorship team will try their best to match individuals with their best fit group, but groups may include those from different industries or expertise, depending on the applicants in any given year. The more participants that join the program, the better the likelihood of good representation in each area of expertise.

The mentorship program, by using the circular mentorship style, is intended to support the skill development, community growth, and professional and personal goal achievement of Engineers Geoscientists Manitoba practitioners from intern to advanced level professionals through knowledge sharing and networking.

It creates leadership opportunities for all the participants to contribute and share their knowledge, ideas, and experience that could bring about professional and personal growth, because, as Phil Collins says, “in learning you will teach, and in teaching you will learn”.

ENGINEERS GEOSCIENTISTS MANITOBA

MENTORSHIP PROGRAM

#ENGINEERINGLIFE:
ENGINEERING ETHICS AND THE FUTURE OF AI

ORIGINALLY PUBLISHED BY ENGINEERS CANADA

They may not always be visible, but artificial intelligence (AI) and machine language are a driving force in many aspects of our daily lives

"Ask Alexa, Google, or Siri something and we are using AI, and they are using machine learning algorithms," said Luigi Benedicenti, Ph.D., FEC, P.Eng., an electrical and computer engineer with research interests in software engineering, augmented reality for assistance providers, and virtual reality. "When you ask for directions, or really whenever you use your phone, it's there."

Other examples Benedicenti noted where AI machine language is evident include streaming services using machine learning to recommend your next movie based on your past viewing preferences, or AI being used by banking industry leaders to detect fraud (some advertise that this technology is used and others may not, but many are likely using it).

"It's [machine language] there, but we often don't realize it," Benedicenti said. "There is a lot that happens behind the curtains. When a photo is taken, we can search systems to find the one of who my father really is, comparing features of photos against each other. Feels almost magical to a certain extent, but we don't see all the work behind it."

The challenge in AI technology with respect to machine learning right now is not where it's working well but where it can reliably be used next. How AI and machine learning, as an industry, can grow.

"In terms of engineering ethics, from the point of view of engineers, it's similar to the oath a doctor would have taken. First do no harm, then the support and enhancement of the public safety. If an algorithm doesn't show that or I can't prove it, how can I proceed?"

AI, and machine learning specifically, have techniques that are a bit outdated. And the challenge is engineers, researchers, and people in general want to be sure they're working with the most recent versions.

"Machine algorithms work non-intuitively. There is a relative certainty that there is a percentage of incorrect answers, but it's not known how many

right answers there are. And there's no rhyme or reason to that. Often when it doesn't work we become disenchanted. It works up to a point and then it doesn't, and it lets you down. And that's the limitation of AI," Benedicenti explained.

Other observers have also pointed out that AI can often reflect and amplify biases, including gender and racial biases, which means that those building machine learning algorithms need to be thoughtful in how systems are built, and what data they use. AI also presents another challenge for engineers: engineers need to know the outcomes are certain in order to fulfill their professional obligations to uphold public safety.

"Everything works until it doesn't and we can't predict when it won't. That's why we use it until we can't, like Google, and self-driving cars. How can we use it without certainty? How can we use it when lives are at stake?" Benedicenti noted.

Doctors often know from experience with a high degree of certainty possible expected outcomes. And with viruses, they are understood up to a certain point. A greater degree of certainty may come, for example, in using CRISPR (genome editing) and mRNA and DNA. And drugs can be investigated, we may find discoveries, but we don't know unless we try, he added.

"There is a lot of usefulness, in my opinion, in AI and recently with machine learning, but its biggest problem is it is hard to quantify what that means at an individual level. We need that assurance."

As neural networks fail to capture eventualities, and the lack of certainty has left AI machine language seemingly stagnant, the next person to think outside the box and garner insight to have it progress will gain much attention.

"Neural processors are still limited and can't really summarize the factors of the brain. If someone finds the next level, they'll be getting a Nobel prize!" Benedicenti said. "[AI] can be such an active area. Some young researcher may use quantum computing to advance it, or who knows. I'm giddy just thinking about what can happen next. I'm really looking forward to it."

MANITOBA TRAILBLAZERS

ALI CAMPBELL, P.ENG.

Ali is a professional engineer specializing in transportation engineering and transportation planning. From a young age she was fascinated with the transportation network; convinced that a family outing on public transit or a walk was a special outing for her to learn and ask about the intricacies of transportation. “Why did we have to take a step down off that sidewalk, when the other we didn’t?”, she would ask her family, expecting a detailed analysis of curb ramp and accessible design at five years old.

Ali has been an Associate with Dillon Consulting Limited since completing her bachelor’s and master’s degrees at the University of Manitoba. As a proud Winnipegger, a career highlight has been working on the City of Winnipeg’s Southwest Rapid Transitway (Stage 2) and Pembina Highway Underpass project as Owners Advocate to support the future vision for the City providing long-term growth, reducing street network congestions, connecting the southwest quadrant of the City with downtown, and supporting the movement of residents from the dependence on cars to alternative transportation options. Ali currently holds the Operational Team Manager role for Transportation Engineering West and the Winnipeg Office Manager role. She is involved in women in engineering initiatives within EngGeoMB (Women In Engineering Mentorship Program Co-organizer) and within Dillon (Inclusion and Diversity Chair for Transportation and Facilities Technical Group).

TRICIA SCHMALENBERG, P.ENG.

Tricia grew up in rural and northern Manitoba, spending as much time as she could outside – hiking, swimming, cross country skiing, canoeing, and camping. Her love of the outdoors has led to a strong appreciation for the natural environment and a deep-rooted desire to protect it.

Tricia graduated from the University of Manitoba with a degree in Industrial Engineering. She began her career at Maple Leaf Foods in 2004 in the Six Sigma department, leading process improvement, Lean, and waste reduction projects. She is currently the Environment Manager for the Agri-Farms division at Maple Leaf Foods.

Tricia has combined her project management experience and dedication to environmental protection to develop environmental best practices for the farms, upgrade infrastructure for manure storage, reduce water use on-farm, reduce carbon emissions, and encourage sustainable agriculture practices. When not at work she can be found on her paddleboard or in her garden.

DR. MADHAV SINHA, P.ENG.

Madhav Sinha, P.Eng., devoted his life to the pursuit and promotion of quality in his adopted country of Canada and throughout the world. In a professional career spanning over 44 years, he shaped the landscape of quality control and total quality management globally and dedicated his life to helping others as a professional engineer.

Dr. Sinha’s leadership role led to development of theories, practices, and understanding of quality control engineering and total quality management standards development that are applicable to all sectors of the economy and directly contributed to Canada’s competitive ranking in the 21st century global marketplace. He was the author, co-author, and editor of 10 books, 11 academic journals, and over 40 research papers on innovation and quality management. Dr. Sinha helped establish the *Canadian Society for Quality* and was honoured with many awards throughout his distinguished career, including the 2002 EngGeoMB Leadership Award and the Distinguished Service Gold Medal for lifetime achievement in quality by the American Society for Quality. Dr. Sinha passed away in Vancouver in April 2022.

INGENIUM 2022

SCAN THE QR CODE TO VISIT THE INGENIUM WEBSITE

ENGGEOMB.CA/INGENIUM

JOIN US TO HIGHLIGHT THE BEST OF MANITOBA

Ingenium is a premier learning and connecting opportunity for the engineering and geoscience community in Manitoba. This year's Ingenium Professional Development Seminars will be held in a virtual environment, allowing broader participation of the Association's geographically diverse 9,000+ practitioners who work in the province's private and public sectors.

The annual Engineers Geoscientists Manitoba Awards Ceremony returns to an in-person format for 2022, honouring member achievements and corporate contributions in the fields of engineering and geoscience.

OCTOBER 25 - 28, 2022

PROFESSIONAL DEVELOPMENT SEMINARS

Live virtual keynotes and interactive breakout sessions exploring current topics combined with the convenience of on-demand options for the ultimate in value and flexibility. Visit the Ingenium website for schedule and registration information.

THURSDAY, OCTOBER 13, 2022

ANNUAL GENERAL BUSINESS MEETING

Yearly opportunity for members to become directly involved in the business of the Association, vote on current matters, acknowledge councillors completing or just beginning their terms, and the passing of the gavel to the incoming Association President. This event counts towards ProDev hours in the category of Participation. Attendance available both in-person and online.

FRIDAY, OCTOBER 14, 2022

ENGINEERS GEOSCIENTISTS MANITOBA AWARDS CEREMONY

Join fellow practitioners for our lunchtime awards ceremony celebrating the exceptional achievements of local professionals, teams, and companies. This event also offers attendees the opportunity to network with fellow practitioners.

This year, music and entertainment will be provided by Big City All Star Band.

2022 KEYNOTES

PAUL SPARKS, P.ENG.

DR. LEW BAYER

TUESDAY, OCTOBER 25
12:00 p.m. – 1:00 p.m.

CIVILITY AT WORK

Incivility costs! If you had a penny for every apology, every minute of telephone tag, every negative impression, and every unnecessary meeting, would you be rich? Join internationally acclaimed civility expert, Lew Bayer, and her colleague, Paul Sparks, for a practical and thought-provoking presentation exploring the tangible cost of rudeness to business, with a customized spin on the field of engineering and geoscience.

WEDNESDAY, OCTOBER 26
12:00 p.m. – 1:00 p.m.

REMEMBER ME: FIGHTING ALZHEIMER'S WITH AN ENGINEERING APPROACH

Diagnosis of neurodegenerative dementia subtype, in particular Alzheimer's disease, is very challenging especially at its onset. Thanks to the work of engineers such as Dr. Zahra Moussavi, biomedical engineering approaches in this field have been instrumental and technologies targeting neuroplasticity of the brain offer hope for slowing the progression, avoiding further decline, and even reversing the decline. The use of non-pharmaceutical treatments to induce brain neuroplasticity is a relatively young and very fast-growing field that is now being applied to dementia and its subtypes in a research setting.

DR. ZAHRA MOUSSAVI, P.ENG.

JANE HELBRECHT

THURSDAY, OCTOBER 27
12:00 p.m. – 1:30 p.m.

THE FUTURE OF WORK

In the wake of the pandemic and the great resignation, people and organizations are reassessing how they work, when they work, and what type of work they want to focus on. Over the coming years, organizations and leaders will be pressed to adjust how they design roles, how they craft employee experiences and work arrangements to retain top talent and meet organizational objectives.

In this interactive keynote session, attendees will have the opportunity to dive into how work and workplaces are evolving for both employees and employers. Jane Helbrecht will explore how employees can craft their own meaningful work experiences and how organizations can raise to bar to meet those needs. The world of work is changing, and people as well as organizations have an opportunity to ensure they build work experiences and environments that are engaging, energizing, and productive for everyone.

FRIDAY, OCTOBER 28
12:00 p.m. – 1:00 p.m.

STAYING AHEAD OF THE CURVE: REGULATORY REFORM IN CANADA

The pace of reform for regulators of professions in Canada is quickening. Separating regulatory functions from member services is now almost universal. Governance reform (smaller Boards, competency-based selection, separating Boards from committees) is fast becoming the new standard.

External oversight of regulators is increasing. Transparency of both regulatory functions (e.g., open meetings) and of information about individual registrants is expanding. The definition of the public interest served by regulators is being refined and expanded to include societal values such as equity, diversity and inclusion, environmental protection, and workforce planning. Coordination of regulation with other regulators and stakeholders in the field is expected. Reviews and accountability of regulatory performance is becoming multi-layered. This session will explore the trends and developments and their implications for practitioners.

RICHARD STEINECKE

LIVE AND ON-DEMAND PROFESSIONAL SEMINARS

Fostering Innovation in Any Environment with Lisa Moretto

Decommissioning and Environmental Remediation of the Whiteshell Laboratories Nuclear Research Site with Brian Wilcox, P.Eng.

Targeting through to Discovery in North Western Ontario with Liane Boyer, P.Geo.

Engineers Canada Guideline on Indigenous Consultation and Engagement with Gayle Frank, Danilo Caron, EIT, and Ryan Melsom

Making Logical Decisions: Thinking Clearly with Lori Marra

Manitoba Hydro's Modernized Inflow Forecasting System with Shane Wruth, P.Eng.

Document Reliability: A Key Enabler of Digital Transformation with Charles Tremblay

Makers Making Change: Leveraging Open Source Assistive Technology to Increase Accessibility with Suzanne Winterflood and Stephen Moyer, EIT

BC's Permit to Practice Audit Program – A Proactive Approach with Kelly Dayman, P.L.Eng.

Energy Benchmarking, Labelling, and Disclosure at the City of Winnipeg with Melanie Chatfield, P.Eng., and Janelle Harper

... AND MORE!

FOR DETAILS AND REGISTRATION:
ENGGEOMB.CA/INGENIUM

ENGINEERS GEOSCIENTISTS MANITOBA

MAKING LINKS ENGINEERING CLASSIC

JUNE 16, 2022

On June 16, the 18th annual Making Links Engineering Classic golf day was held at Quarry Oaks in Steinbach.

Over 200 golfers registered for the 2022 Making Links Engineering Classic. This annual golf tournament provides support for engineering students and this year's event raised almost **$24,000** for the Price Faculty of Engineering.

Thank you to all of our generous sponsors and everyone who came out to make this event possible!

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Sison Blackburn Consulting
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The Personal Insurance Company
Wanless Geo-Point Solutions Inc
WD Industrial Group

CONGRATULATIONS!

THE WINNING TEAM: GRAHAM
L-R: Sebastian Putzke, Kyle Heroux, P.Eng., Jaret Hiebert, Troy Hengen, P.Eng.

SAVE THE DATE FOR NEXT YEAR: **JUNE 15, 2023**

MEMBER PROFILE
RICHARD VENDRAMELLI, P.ENG.

MEET THE PEOPLE THAT MAKE LIFE WORK BETTER

Richard Vendramelli, P.Eng., completed his degree at the University of Manitoba and currently works as a Project Engineer for the City of Winnipeg. Dedicated and passionate about engineering, Richard hopes that future engineers will be able to practise and help the public without any of the barriers others have encountered in the field. When Richard isn't working diligently for the people of Winnipeg, he can be found spending time with his family and catching fish like a true professional angler.

WHAT WAS THE CATALYST FOR YOU TO ENTER THE ENGINEERING PROFESSION?

The catalyst for me to enter engineering started when I worked as a wastewater treatment operator-in-training. I became fascinated with the positive environmental impact the work in wastewater treatment provided. I had a bachelor's degree in chemistry and could see that additional schooling would be the path to making a bigger impact in this field. I was considering options for a return to university when I had a chance conversation with a U of M engineering student doing research at the sewage treatment plant.

After this conversation, I zeroed in on environmental engineering. I contacted a professor and discussed what was required for me to enter the program. In my case, the best fit meant pursuing graduate studies part time while continuing to work full time. After I finished my degree, I proceeded through the necessary steps set out by EngGeoMB to join the engineering profession.

WHAT DOES A TYPICAL WORKDAY LOOK LIKE FOR YOU?

Since I started working on projects there does not seem to be any typical workdays. There are ebbs and flows within the various projects, but there seems to be little in common from one day to the next. Whether supplying data to assist with commissioning a biological nutrient removal process, or reviewing documentation for ongoing and upcoming projects, every day has been an adventure.

MY HOPE IS THAT 20 YEARS FROM NOW, ANYONE WHO WANTS TO JOIN THE PROFESSION, AND CAN MEET OUR REQUIREMENTS, IS ABLE TO DO SO WITHOUT ANY BARRIERS THE REST OF US HAVE FACED.

WHAT ADVICE DO YOU HAVE FOR PEOPLE CONSIDERING ENTERING THE GEOSCIENCE AND ENGINEERING PROFESSIONS?

This is a great time to join the profession in any capacity, whether as a technologist, an engineer, or a geoscientist. There are more options for joining the profession than just obtaining a bachelor's degree in engineering at a Canadian Engineering Accreditation Board (CEAB) accredited university.

The academic assessment process, which I had to navigate, is an excellent option for those entering engineering from a different path. Internationally educated professionals and those willing to expend the effort for membership can be rewarded with admittance to this exclusive profession. There is a lot of gratifying work available in the geoscience and engineering professions where an individual can challenge themselves and do some good for themselves and their community.

WHAT'S THE MOST REWARDING PART OF YOUR CAREER?

Two things initially come to mind as the most rewarding part of my career. The first is a cliché but one that is invariably true: I am fortunate to work with some very dedicated and knowledgeable people both within and outside of our profession. Some individuals may not have the education or credentials many of us have, but their memory and experience in the treatment facilities and on projects is unbelievable and difficult to replace.

Second, I enjoy having a role in the improvement of Winnipeg's wastewater treatment plants and being onsite and involved with these large construction projects. This allows me to serve the residents of Winnipeg in the treatment of our wastewater and the continued upgrade and improvement of the treatment process.

WHAT ARE THE THREE MOST MEMORABLE PROJECTS YOU'VE WORKED ON?

The first most memorable project is my thesis project due to the many hours of sample collection, data analysis, and writing that went into it. I am grateful to have completed it and cannot believe how far I have come since starting on this path.

In terms of other projects, just playing my small part in the major upgrades to two of Winnipeg's sewage treatment plants is also memorable.

Within these upgrades, there are several concurrent projects underway, or in the planning stages, and I enjoy the challenge and the changing work environment. I cannot wait to see how it helps our facilities meet our treatment goals when they are completed. The days can be long, but the weeks fly by when you are engaged in your work.

DO YOU HAVE A "DREAM PROJECT?" IF SO, WHAT IS IT?

I am living my dream projects. I get to come to work everyday and work on helping with upgrades to the sewage treatment process at the treatment plants in Winnipeg. Playing a small role on the team while helping to update the wastewater treatment process to modern standards is a dream for me.

Some of the infrastructure has reached or passed its design life and it is great to see progress on these necessary improvements.

WHAT DO YOU GET OUT OF ENGINEERING THAT YOU COULDN'T GET OUT OF ANY OTHER LINE OF WORK?

One thing I get out of work in the profession is contributing to reducing the negative environmental impact of wastewater on the lakes and rivers in the watershed.

Another thing I get is the variability and challenge that comes with engineering. If we are not engaged and satisfied with what we are doing we have the ability to make changes and turn it into the career we want. Working for the City of Winnipeg, I am grateful for the numerous opportunities that have led me to where I am today.

ARE THERE ENGINEERS GEOSCIENTISTS MANITOBA INITIATIVES THAT YOU ARE INVOLVED IN OR SUPPORT?

With a school-aged child, I am supportive of the Engineer-In-Residence Program and one day I hope to carve out enough time to give back by volunteering.

WHAT DO YOU HOPE THE ENGINEERING AND GEOSCIENTIST PROFESSIONS LOOK LIKE 20 YEARS FROM NOW HERE IN MANITOBA?

My hope is that 20 years from now, anyone who wants to join the profession, and can meet our requirements, is able to do so without any barriers the rest of us have faced. I also hope to see our profession continue working towards representing the diversity of society in Manitoba.

WHEN YOU'RE NOT WORKING, YOU CAN BE FOUND...?

When not working I can be found spending time with my family and pursuing my passion for cooking and outdoor activities. I am passionate about many outdoor activities such as fishing, foraging, gardening, and hunting.

For me, these activities are best when shared with family and friends. Part of the reason I am holding a tiger musky in my LinkedIn profile photo is a tribute to this outdoor passion, partly it is an acknowledgement that I am capable of planning, preparing, and targeting the catch and release of one of these elusive fish late in fall when they are most active. They are called the fish of 10,000 casts for a reason.

COMMITEE AND CHAPTER SPOTLIGHT

REGISTRATION COMMITTEE

Whether on the path to becoming a professional engineer or on the path to becoming a professional geoscientist, one common uniting step at the end of your application journey with Engineers Geoscientists Manitoba is the Registration Committee.

"The Registration Committee is important because it's an independent (and secondary) review of an applicant's file as a whole. It ensures that the standards required to be met for registration are met, and ensures that if any information is missing, it is caught before the applicant is registered", says Paul Bernatsky, P.Eng., Chair of the Registration Committee.

A vital piece of the process when joining EngGeoMB, the committee meets once a month to review applicant files for individuals wanting to not only become registered as professional engineers and professional geoscientists, but also to obtain specified scopes of practice licences. Each file is reviewed, and the following information is assessed: education, work experience reports, references, PPE exam results, volunteer service hours, and professional development hours.

"Based on the [applicant] as a whole, the committee volunteer assigned to review that file will make a determination on whether the applicant has met the standards for registration," notes Bernatsky. "Although most applicant files at this stage are approved, the committee has, in the past, held applicant files that require further detail or clarification."

And that's where the new Competency-Based Assessment (CBA) format will help.

While the Registration Committee has existed for a while, the Competency-Based Assessment format has recently been introduced to the Association, and the Registration Committee has faced important changes to the application and review process - but so far? So good!

"The purpose of the Registration Committee does not change with the introduction of the new CBA

format," says the chair. "The committee is still responsible for reviewing the file with the same criteria for registering an applicant - what is different is that CBA now presents the information in a different layout."

With the new CBA format, the committee has seen changes and challenges that have varied from the former process. Previously, the Registration Committee would need to review multiple documents of different formats contained within an applicant's file to judge whether someone had met all the appropriate criteria.

"However, with the new CBA format, the number of different documents to be reviewed in a file is reduced, as it is all contained within one (albeit large) CBA file. So, the CBA format lends itself to a more efficient review of the applicants, motivates the applicant to provide the necessary details upfront in their reporting, and standardizes the reporting format," Bernatsky says, clarifying the change.

The new CBA program may be efficient for members of the Registration Committee, but is also vital in improving clarity and encouraging equity and inclusion in order to properly assess the combination of a person's overall life experiences and their level and grasp of their education as an applicant.

Bernatsky notes that it's important to recognize that a committee volunteer can only judge an application based on the information that's been documented within a single person's file. A volunteer will not typically have any prior knowledge of the candidate, their work, or any other information outside of the file to determine their suitability for registration with the Association.

"The CBA format standardizes what information - and how the information - is documented for review. The more complete the file, the better a volunteer can assess whether an applicant can take the next step in being registered."

"And," he adds, "that's why it's important to our committee".

ASK THE REGISTRATION COMMITTEE

Q: WHAT ADVICE WOULD YOU HAVE FOR A NEW MEMBER THAT'S APPLYING TO THE ASSOCIATION?

A: The best advice that we can give is to:

- start the reporting process as early as possible.
- provide as much detail as possible.
- continue to report on a regular basis.
- ensure that feedback given on interim experience reports are implemented.

It is rare at the Registration Committee stage for an applicant to be denied registration outright, and in most cases, when a file is held for approval, it is because of additional information or clarification required from the applicant.

If an applicant is organized and submits detailed, timely reports, then it makes the reviewer's job much easier, and it makes the process of reporting more manageable for the applicant.

Q: WHAT WOULD YOU SAY TO SOMEONE WHO'S HESITANT ABOUT VOLUNTEERING FOR THE REGISTRATION COMMITTEE?

A: Some members may shy away from volunteering due to time constraints. The time required per month to be part of the Registration Committee is very manageable, and it also allows the member to obtain required professional development credits.

Becoming a committee member is also a great way to get to know other members and build a network of connections. Being a member is also a great way to learn about the profession and some of the fascinating work being done by fellow professionals.

Q: HOW CAN I GET INVOLVED WITH THE REGISTRATION COMMITTEE?

A: The best way to get involved is to contact the Association office to let them know that you would like to volunteer.

Any potential new members to the committee are given the opportunity to attend a meeting as a guest to gain a better understanding of the functioning of the committee.

NEWS+NOTES

VOLUNTEER APPRECIATION EVENT: GOLDEYES GAME

Thank you to everyone who made it out to our 2022 Volunteer Appreciation Event at Shaw Park!

Before watching the Winnipeg Goldeyes face off against the Lincoln Saltdogs, our volunteers enjoyed a BBQ dinner and took part in some fun summer activities. Following the game, we watched as fireworks lit up the Winnipeg sky.

As always, thank you to our volunteers for all of the incredible work they do with the Association. We appreciate your time and dedication.

2022 COMMUNITY BUILDER EIR AWARD: RECOGNIZING TREVOR LYTWYN, P.ENG.

EngGeoMB member and volunteer Trevor Lytwyn, P.Eng., was recognized with the 2022 Community Builder EIR Award by Engineers of Tomorrow.

The Community Builder Award recognizes a volunteer who demonstrates outstanding skill in creating connection and embraces the program principle of 'meet them where they are'. Trevor was honoured with this award as, although this was his first year in the Engineer-in-Residence (EIR) program, he has been dedicated to bringing engineers into schools for many years with Engineers Geoscientists Manitoba and has been a key advisory figure in the Association's transition to this new program. Through his years of experience, he has created his own directory of resources to enhance his time with students, including creative and engaging activities for a variety of age groups. He adapts the content he teaches to what the students are learning, keeping up-to-date with the curriculum so that he can be the best possible resource for the teacher and ensure high quality classroom experiences.

Congratulations to Trevor and thank you for being a passionate volunteer for this Association program!

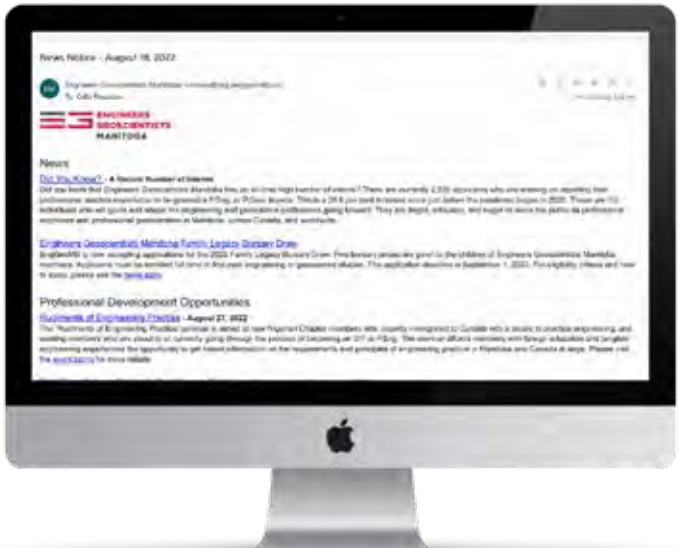
engineers of Tomorrow

E-NEWS NOTICES

Are you a current subsciber to the Association's weekly online News Notices? If not, you may be missing out on important updates, events, volunteer listings, and professional development opportunities.

To subscribe, please visit the Engineers Geoscientsits Manitoba website and login to update your subscription preference in your database profile. If you are already a subscriber to the News Notices, be sure to add the Association as a contact in your email settings in order to ensure they arrive in your inbox promptly.

Go to **EngGeoMB.ca** to login today.



BILINGUAL ENGINEERING WORK PRODUCTS FOR FEDERAL PROCUREMENT

The federal government recently released Policy Notification (PN)-48R1 to update the obligations for individuals involved in procurement with respect to the *Official Languages Act*.

Effective May 13, 2022, Public Works and Government Services Canada (PWGSC) may require submissions of engineering work products in both official languages - French and English - each being of equal quality and published at the same time.

This change to contracting professional services may place a professional engineer who knows only one of the two official languages in the position of being asked to stamp work they are unable to verify. The challenges with precise translation of technical work means the translator may need engineering competence and will need to collaborate with the responsible professional engineer.

Engineers Geoscientists Manitoba's Investigation Committee has considered this matter and determined the following with respect to translation of professional engineering or professional geoscientific documents:

- The primary design or work to be relied upon shall be identified and sealed by an engineer.
- The translation of that work shall be performed or verified by an engineer and stamped with the indication that it is sealed for the translation only.
- Documents that have been translated but not reviewed by an engineer shall:
  - not have a seal on them,
  - be clearly marked that:
    - » they have been translated from the original language and have not yet been reviewed by an engineer, and
    - » should not be relied upon

SCAN THE QR CODE TO READ THE FULL NEWS STORY

ENGINEERS CANADA GOLD MEDAL AWARD: RECOGNIZING DIGVIR S. JAYAS, P.ENG., FEC, FGC(HON.)

Each year, Engineers Canada recognizes and celebrates the achievements of engineers and engineering students who are advancing the profession and improving the lives of Canadians and others around the world.

This year, Digvir S. Jayas, P.Eng., FEC, FGC(Hon.) was awarded the Gold Medal Award at the Engineers Canada ceremony in Toronto. The Gold Medal is the highest honour given by Engineers Canada.

Digvir is recognized around the world for his contributions to science and engineering. His work to find better ways to dry and store grain has made a huge difference in the lives of countless farmers and others who rely on high quality, unspoiled grains to both earn a living and eat healthy, nutritious food.

INDIA MEMBERS CHAPTER ANNUAL PICNIC

On August 20, 2022, the India Members Chapter held an in-person summer picnic and networking event for all members and their families. There was catered food, drinks, games, and music for all to enjoy! Thanks to all who attended.

MEMBER UPDATE

MAY, JUNE, JULY

NEW MEMBERS

T.L.I. Adelakun
S. Adewole
J.B. Adolph
F. Ahmed
D.P. Ahuja
G.R. Amirault
L.T. Antle
B.M.K. Awume
K. Aziz
D.J. Bayles
C. Beck
M.A. Becket
D. Blumhagen
R. Boileau
M. Bouaziz
H.B. Boyd
O.M. Brandt
J.M. Brick
A.J.N. Brown
N.A. Butson
Y. Chen
M.P.S. Clark
B.A. Coles
A.M. Crockford
J.E. Cummings
L.H. Da Silva Fernandez
K.J. Dawson
T.R. Delorey
S.R. Desai
D.A. Desmarais
S. Dicu
M.B. Dimaano
I.N.A. Dornbush
D.A. Draward
M.M.A. ElSayed
J.G. Endrawis
M. Frappier
M.R. Furuya
T.C. Garcia
K. Ghahremani
A.S. Gill
L.M. Guillaume
X.B. Guo
C.P. Haggarty
A.M. Haluszka
V.I. Henderson
C.T.D. Heske
R.S. Hoag
N.C. Hoch
Y. Hong
L.K. Hoover
A.M. Hosier
T.N. Jaspers
D.A. Johnston
H. Kassite
T.D. Keegstra
G.R. Kenke
J.S. Kim
K.S. Koch
A.J. Koles
A.K.M. Kolur
A.I. Konara Mudiyanse-lage
R.M.R. Kostynuik
T.J. Kuelker
A.C.H. Lai
M.J. Lane
M.L. Lawson
J.E. Leahey
T.K. Lee
D.D. Leeper
R.E. Lefebvre
M.F. Leggott
S. Li
Q. Lu
C.J. Luo
M.E.B. Mahdi
R.H. Mahon
J.W. Mann
N. Markos
J.C. Massig
P.J. Mayne
A.A. Measho
J.C. Medori
A.S.L. Meek
J.G. Miller
A.T. Misgina
R.P. Mitchell
E. Mohammadi
P.E. Monnier
R.J. Murdoch
C.M. Nameth
P.T. Nanayakkara
S. Narsiah
O.J. Nnaemeka
C.C. Okocha
S.A. Oosterhof
E. Parent
J.R. Parks
A. Perounov
R.W. Phillips
W. Platek
R.D. Plett
J.R. Poleschuk
J.C. Richmond
G.M. Rus
P.W.J. Rydberg
R.B. Sallivan
W. Salman
J.L.A. Sawatzky
S.R. Seabrook
A.S. Seenauth
J. Shao
B.J. Spiller
T.M. Stainton
A.P. Sukumar
B.W.M. Timmerman
F. Timyati
D.C. Ugwu
D.J. Vadocz
M.A. Venhuis
N. Vettuthuruthel Raju
J.T. Wagner
R.J.A. Waud
B.G. Wazney
L.W.T. Weitzel
P.J.F. White
G.M. Wiatzka
F. Xie
R. Yao
B. Yeske
X. Zhai
H. Zhu
R.G. Zinselmeyer

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JSP Engineering Inc.
Krahn Engineering Ltd.
Lafarge Canada Inc.
Local Engineering Ltd.
Mesar Process & Equipment Inc.
Millennium Engineering Inc.
Nunn Warden Design Inc.
Oak Forensic Engineering Ltd.
Olsson, Inc.
Orion Engineering Inc.
Pagnotta Inc.
Planview Utility Services Limited
Platek Services Incorporated
Professional Loss Control Inc.
Prolium Industries Ltd.
PTech Engineering Solutions Inc.
Quantum Consulting Engineers, LLC
Riggs Associates Ltd.
Rimkus Consulting Group Canada Inc.
RWH Engineering Inc.
Sanexen Environmental Services Inc.
Summerhill Group Inc.
T.W. Enterprises Inc.
T.Y. Lin International Canada Inc.
The AME Consulting Group Ltd.
Thomas-Ruth Electrical Inc.
TYZ Engineering Ltd.
Wood Environment & Infrastructure Solutions Canada Limited

SPECIFIED SCOPE OF PRACTICE LICENSEES

R. Olalia
A. Sinclair

US TEMPORARY LICENSEES

S.T. Callahan
J.F. Duntemann
B.S. Epperson
A.P. Perry
J.K. Shupert

IN MEMORIAM

Kenneth Mason Jardine
Garland Everett Laliberte
John Evan Munroe
Dr. Madhav Narain Sinha

INTERNS

V.B. Adebayo
O.S. Aderinko
D.E. Algera
R.C. Aragoncillo
A.R.G. Arenas
U. Arya
A.O. Ayoola
M. Babu
B. Babus
J.F. Barber
D. Barrientos
F. Bellili
G. Biju Kumar
M.A.M. Bolina
C.B. Botacin
E.G. Braganza
H.S. Brar
L.D. Cabasug
A.C. Cano
G.P. Capar
J.R. Carver
H.A. Chalmers
V.S. Chaudhary
E. Cho
L.R. Coldwell
C.V. Concepcion
M.O.A. Dalguntas
Y.V. Dash
R.A.A.N. David
B.A. de Waal
C.K.D.C. Delos Santos
S.B. Desai
Q.N. Desrochers
A.K. Dettman
M. Dobosz
G.D.C. Domingo
T.B. Donak
P. Donyanavard
N.J. Drabchuk
J.E.M. Duay
T.D. Dyck
P.I. Eleazu
L.D.L. Esconde
J.M. Galang
E. George
J.G.O. Geronimo
T.N. Gibbes
P.S. Gill
E.J.K. Gillespie
E.M. Gislason
J.A.J. Glastetter
K.D.L. Grant
E.R. Grycko
T. Guan
D.B. Guevarra
T.G. Guillou
R.J. Guncheon
G. Guven Isin
M.S. Hajar
K.J. Haldane-Wilsone
E.G. Hambley
B.T. Harris
A. Harrison
A.T. Hutchins
K.E. Ibemgbo
O. Inetabor
S. Islam
K.D. Janzen
M. Jin
A. Johnson
M.A. Jose
R. Kalia
L.K. Karasinski-Borgstrom
H.G. Kassa
W. Kassem
B. Kaur
B. KC
A.S. Khangura
M.D. Klassen
V. Klyosov
T.N. Kroeker
K.T.B. Lagare
E.L. Lardizabal
D.R. Li
Y.T. Liang
R.E. Limpin
Z. Liu
L.S. Lombardo
I.M. Malang
E.M. Matusoc
N.D. McConnell
D.D. McMillan
A. Metrus
N.C. Mizeracki
H.F.A. Mohamed
G.K. Moll
J.K. Musyoka
J.J. Nacar
R. Nauth
M. Neufeld
N.T. Nguyen
I. Nisar
M.P. Oghogho Jr
S. Oh
D.R.M. Ondracek
N.M. Onwukeme
B.C. Oriel
P.Y. Osei
J.C.G. Osiowy
B.M. Pasco
N.J.M. Pasco
A.D. Patel
A.H. Patel
H.D. Patel
M.B. Patel
P.A. Patel
P.V. Patel
D. Paul
J. Perez
J.A. Peters
M.E.S. Pilomeno
Y.H. Poon
R. Raju
V. Rana
A.S. Randhawa
K.V. Raval
M.C. Rusit
A.K. Sabir
C.E.N. Salazar
R. Sam
N.G.G. Santiago
P.C. Sarmiento
H.K. Shah
U.R. Shah
S.S. Sharma
K.M. Shier
T.O. Shittu
F.P. Siat
B.B. Simpson
A. Singh
J. Singh
N. Singh
C.B. Smith
J.N. Steel
L. Sun
B. Tabei
N.S. Tebinka
B. Theriault
D.G.S. Thomas
E.M. Thomas
Y. Tian
K.M. Tiede
C.M. Ubaka
K.D. Vaghela
A.R. Vandendorpe
C.B. Virtudazo
V. Vogel
A.E. Wagan
O.A. Warsame
J.K. Winkler
J.Z. Winters
F. Ye
S. Zhuchenko

NOTICE Under *The Engineering and Geoscientific Professions Act* and the Association's Discipline By-law

ORDER OF THE DISCIPLINE COMMITTEE

This is notice that on April 21, 2022, Mr. John L. Rocke, P.Eng., consented to the registration of a conviction and issuance on a charge of professional misconduct or unskilled practice in accordance with section 35(1)(f) of *The Engineering and Geoscientific Professions Act*.

The conviction arises out of Mr. Rocke's involvement in providing engineering services for structural renovations for a private residence in Winnipeg, Manitoba.

Specifically, on or about September 24, October 12, and October 26, 2020, Mr. Rocke sealed drawings for structural renovations to the residence, which involved the removal of a partition wall to open the main floor of the residence. In the course of providing structural engineering services, Mr. Rocke:

1. Failed to include sufficient detail to ensure safe construction and to enable the design to be checked, and
2. Issued a design that was not in accordance with good engineering practice and the required standards or codes.

Having received Mr. Rocke's consent, Engineers Geoscientists Manitoba's Investigation Committee has registered a conviction and imposed the following penalties:

- a reprimand;
- Mr. Rocke is ordered to pay fifty (50) percent of the costs associated with the third-party review in the amount of $2636.00; and
- Mr. Rocke's name and the circumstances relevant to the finding of professional misconduct or unskilled practice of professional engineering shall be published in accordance with Engineers Geoscientists Manitoba's policy on publication.

Grant Koropatnick, P.Eng., FEC
CEO & Registrar

CLOSING NOTES

M. GREGOIRE, P.ENG., FEC

GUIDELINES & PRACTICE NOTES

For several decades, the Investigation Committee's mandate has included a duty to publish practice notes. More recently, the Investigation Committee was officially tasked with also providing final approval of guidelines. These two types of publications have overlapping characteristics, but with different scopes. The Investigation Committee continues to fulfill their role in using these tools to provide key, fundamental guidance to the membership.

Since the early 1990s, the Investigation Committee (IC) has maintained the role as a 'practice committee', in addition to its core function of investigating complaints against practitioners. This role includes answering questions from the membership about the practices of engineering and geoscience. The role also includes publishing practice notes, which usually derive from an investigation, are narrow in scope, and attempt to address troubling practices observed by the IC.

The most recent practice notes published by the IC include one related to intellectual property and another related to the privacy issues surrounding photographs taken on-site.

Recently, the IC performed a review of older practice notes. Some of the practice notes published on Engineers Geoscientists Manitoba's website dated back to 1994, so a review of any practice notes older than five years was undertaken. In some cases, no changes were required, in others, minor modifications were made to the practice note. Some practice notes were considered obsolete or unnecessary and were simply removed.

Guidelines are like practice notes, in that they set an expected standard for Engineers Geoscientists Manitoba's practitioners. They differ, however, in their scope. While practice notes may relate to a specific area of practice, and may include a technical component, guidelines tend to be broad in scope and affect the general membership. The most referenced guideline is the Authentication guideline, which provides direction on the purpose of sealing and signing documents, the types of documents that should be sealed, and the method of applying seals and signatures.

Last fall, a by-law change was made that formally identified the IC as the body ultimately responsible for approving practice guidelines. Prior to the by-law change, legal advice indicated that guidelines fell under the purview of the Registrar/CEO. The IC was always one of the stakeholders engaged in approving guidelines, but now they provide final approval.

This change made sense, as the purpose of guidelines is quite like that of the practice notes. More importantly, since the IC is ultimately

PRACTICE NOTES RECENTLY REVIEWED/ UPDATED BY THE INVESTIGATION COMMITTEE:

- The Practices of Architecture and Engineering
- Withholding Letters of Certification for the Purpose of Procuring Payment
- City of Winnipeg Occupancy Certification Requirements
- Attention to Detail
- Coordination of Engineering on Projects
- Design of Residential Buildings Using Engineered Lumber Products
- Fiduciary Responsibility - A Matter of Trust
- Flood Protection Dykes
- Is Anyone Else Using Your Seal?
- The Professional Engineer as a Contractor
- Snow Load Removal from Existing Roofs

responsible for determining whether or not a member failed to follow a guideline, they should support the principles of the guideline in the first place. Other interested groups will of course still be engaged during the development of new guidelines as necessary, though - and our policies require - that Council in particular be kept abreast of guideline changes/development.

In this new formalized role, the IC approved the Good Character guideline last fall. (See the Closing Notes of the 2021 Winter edition of *The Keystone Professional* for more details). To date this year, they also adopted the Conflict of Interest guideline and Expert Witness guideline from Engineers Canada and Professional Engineers of Ontario.

We look forward to continued adoption and development of guidelines and practice notes on a continual basis. This will include reviews of older guidelines, such as the Environment and Sustainability guideline, which was last adopted by Engineers Geoscientists Manitoba in 2006.

Are there any new guidelines or practice notes that you'd like to see Engineers Geoscientists Manitoba develop or adopt? Do you have any questions about or suggestions for change to existing guidelines? 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****.*

NOTICE Under *The Engineering and Geoscientific Professions Act* and the Association's Discipline By-law

ORDER OF THE DISCIPLINE COMMITTEE

This is notice that on June 16, 2022, Mr. Norman A. Garcia, P.Eng., consented to the registration of a conviction and issuance on a charge of professional misconduct or unskilled practice in accordance with section 35(1)(f) of *The Engineering and Geoscientific Professions Act*.

The conviction arises out of Mr. Garcia acting as the supervisor for two engineering interns' applications for full membership status to Engineers Geoscientists Manitoba.

Specifically, on or around September 19, 2018, and November 5, 2019, Mr. Garcia completed and submitted two supervisor reviews for progress reports by Engineering Intern A. The reports spanned the periods between August 1, 2015, and February 15, 2016, and from March 1, 2016, to September 30, 2019, and, on or around February 3, 2021, Mr. Garcia completed and submitted the supervisor review for a progress report for Engineering Intern B. The report spanned the period between January 5, 2012, and February 3, 2021.

Mr. Garcia undertook the role of Supervisor of these engineering interns for work that falls outside of his area(s) of professional competence, in contravention of Canon 2 of the Code of Ethics and in violation of s. 46(1)(d) of *The Engineering and Geoscientific Professions Act*.

Having received Mr. Garcia's consent, Engineers Geoscientists Manitoba's Investigation Committee has registered a conviction and imposed the following penalties:

- a reprimand;
- Mr. Garcia is restricted from acting as a mentor, supervisor, or validator of engineering interns/applicants; Should Mr. Garcia wish to request an exception to provide mentorship, supervision, or serve as validator to an engineering intern or applicant, he may be deemed eligible upon the Association's review and approval on an individual basis.
- Mr. Garcia is required to notify other jurisdictions with which he is a registered member of this disciplinary action, copying the Association, within thirty (30) days of the date the Order is signed; and
- Mr. Garcia's name and the circumstances relevant to the finding of professional misconduct or unskilled practice of professional engineering shall be published in accordance with Engineers Geoscientists Manitoba's policy on publication.

Grant Koropatnick, P.Eng., FEC
CEO & Registrar

ENGINEERS
GEOSCIENTISTS
MANITOBA

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